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Case Study Compendium

The Compendium of Case Studies is about understanding the way of transmitting knowledge through involvement of participants and by generating a high level of interest among them. It samples a real-life situation in the field and allows the participants to learn on the basis of a summary of a well-documented series of events, incidents and circumstances, centering round an organization, an individual or an issue. A carefully selected and well-written case can induce reality into the training setting and bring discussion down to a reasonable level of concreteness and reality. It helps the participants to familiarize themselves with facts, situations and dilemmas that they might face in real life. A discussion on a case study can bring out their assumptions, experiences, attitudes, preferences and ways of functioning, giving them an opportunity to correlate these with those of the others in the group. The case study method thus provides a fame of reference for the participants.

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1. Introduction

1.1 Case Study Method

The case study method has increasingly become a popular method for participant centered learning during trainings. It has become an accepted way of transmitting knowledge through involvement of the participants and by generating a high level of interest among them. It samples a real-life situation in the field and allows the participants to learn on the basis of a summary of a well-documented series of events, incidents and circumstances, centering round an organization, an individual or an issue. A carefully selected and well-written case can induce reality into the training setting and bring discussion down to a reasonable level of concreteness and reality. It helps the participants to familiarize themselves with facts, situations and dilemmas that they might face in real life. A discussion on a case study can bring out their assumptions, experiences, attitudes, preferences and ways of functioning, giving them an opportunity to correlate these with those of the others in the group. The case study method thus provides a fame of reference for the participants.

It demonstrates in a 'live' and realistic way, the complex or multi-dimensional nature of a situation or a problem in which a number of individuals, factors or circumstances are at play. It helps a participant to understand the situation from the perspective of the wider organizational interests and not merely from his/her own.

Objectives of the Method

The objectives for using case study as a method of training vary in accordance with the learning objectives for the session or the topic.

It can be used to stimulate analytical, in-depth discussion with a view to presenting a multifaceted or an integrated perspective of the situation for better understanding, guidance and action of the participants. This will also help the participants develop a wider outlook of the situation and issues that they are likely to face in their job situation. They have an opportunity to view the situation or the problem not only from their limited perspective related to their own job responsibilities but also from the point of view of others who might be involved in the situation.

The case study method can help in deriving useful generalizations or principles regarding working in the field. These can be related to a relevant theory, model or a body of knowledge.

In many cases, the method is used as an exercise in decision-making or problem solving. It helps to develop the participant's ability to think, decide and choose appropriate course/s of action. She learns to respond to a situation or problem in the most appropriate way, taking into consideration all the incriminating circumstances, rather than going by a particular style of functioning or response.

The case study method can help develop a knowledge of skills in the participants that will help them to deal with a multitude of situations in their job that require regular action or intervention.

As a case study is a written/multi media description of people/ particular empirical situation, taken from real life situations with which the participants may be able to identify with and are able to analyse the information, make strategic decisions or draw conclusions about a particular action and whether it was optimal. This method also promotes exploration and awareness of one's attitudes, values and patterns of job or personal behaviour.

This method can be effective in enhancing the involvement of the participants in the process of learning. They can learn in a relatively non-threatening and risk-free environment, promoting collaborative learning and interaction and also helps develop analytical, decision-making, public speaking and negotiation skills.

Guidelines for using the method

Case study method is "Faculty-led but student discussion driven." In order to make effective use of the method, it is important for the trainer/faculty to first identify the objectives of the session, assess the level of skill and comprehension among the participants, and appraise the expertise and experience they have in handling this method with the given group. The trainer should possess a thorough knowledge of the topic or the issues to be discussed in the case. The method should not be used simply to introduce variety in the methodology of the training programme, or to create an impact.

It is desirable that a case study should be based on genuine data and situations. However, in the absence of good case studies for a wide range of purposes and groups, sometimes, the information is fictitious, although it might be presented as fact in a fairly convincing way.

If the case deals with a real situation, the trainer should usually know the actual outcome in order to comparison and contrasting of the participants' findings and conclusions. Since the true outcome may not be the most expedient or desirable, participants should be encouraged to explore various options that might be available rather than directing their efforts towards searching for the right answer. Remember, that when dealing with certain problems or situations in the field, it is quite unrealistic to assume that there is only one answer to a situation.

Before the case study method is introduced, it may be useful to prepare the participants by exposing them to basic concepts likely to be emphasized in the case study and providing appropriate theoretical input. Ideally this method should be preceded by a theoretical discussion.

Presentation and Discussion of the Case Study

The trainer /faculty is a key player in this exercise and, therefore, it is imperative that they possess the necessary skills for conducting the session/s in which the case study is presented and discussed. The extent to which the group is able to achieve the learning objectives depends largely on how well the discussion is conducted.

The role of the trainer/faculty is to help the participants, individually and collectively, in clarifying their understanding of the people and the situations mentioned in the case. They should be able to analyze the decisions and actions indicated in the case and draw inferences from them. The participants' contributions have to subsequently built upon. By helping generalizations to emerge from the study of a particular situation, the trainer enriches the conceptual schemes with which the participants can approach their work in future. The presentation, analysis, or discussion needs to be conducted within the framework of the learning objectives.

It is important to adequately prepare the group for the exercise. In the traditional way of using the method, the participants receive a printed copy of the case, well in advance of the discussion. This gives them enough time to read the case before the exercise begins. Participants should be encouraged to familiarize themselves with the facts and other details of the case, explore ways of relating to them usefully, and grasp important points for discussion. However, the participants should be restrained from discussing the case amongst them before the session. The group may be restricted to the ma-

terials contained in the case study or permitted to seek further information, either directly from the trainer during the session or through research. By way of guidelines for the presentation of the case and discussion, the participants should be told to concentrate on consideration of data provided in the case; avoid abstract or generic arguments; explore relevant facts and issues; and examine the situations and issues in the light of their own experiences and those of others in the group.

Briefing by the trainer/faculty for the exercise should reflect the reality of the situation and its importance to their respective organizations. They should refrain from introducing hypothetical factors or arbitrary viewpoints into the discussion and only cite facts pertaining to what actually happened in the case.

While planning the teaching of the case, following points need to be ensured in the class discussion: seeking clarifications; raising queries; analyzing situations and issues; providing insights into certain aspects of the case; providing impetus to the discussion when the group appears to be slackening; and bringing the group back on course if it seems to be moving out of the parameters set for the discussion. This will greatly facilitate the task, and allow the group to generate its own momentum and become self-regulating.

Classroom environment should allow free and informal discussion, stimulate discussion and proceed in an uninterrupted and uninhibited way. Trainer/Faculty comment should be brief and specific focused to clarify the issues or details of the case; to respond to the participants' queries; or to keep the discussion focused on the issues and problems that are consistent with the learning outcomes for the exercise; bringing key points in discussion of missed by participants. Refrain from expressing opinions and personal viewpoints on the issues under discussion, while maintaining control of the session yet allowing for maximum participation of the members.

To increase the total participation, the groups may be divided into smaller subgroups. This facilitates more in-depth consideration of the issues. The subgroups may be given different sets of tasks and their conclusions and decisions may be further discussed in the plenary session for wider consensus and integration.

Checklist for Case Study as a Method of Training

Training Specifications	***Requirements***
Trainer/Faculty role	• Prepare the case study keeping in view the expected learning outcomes. Initiate and guide discussion. • Clarifie issues and supply additional information if and when required. • Highlights the learning points and sum up the discussion.
Climate-building; preparing the group	• Familiarize the participants with the method, procedures and norms of discussion, etc. • Give ample time to participants to go through the case and to prepare for the discussion.
Participant's role, their level of comprehension and understanding.	• Participants need to be actively involved in analyzing the case in accordance with the guidelines suggested by the trainer. • Some participants may require the assistance of the trainer to understand some of the situations and issues indicated in the case.

Facilities, resources and equipment, including space requirement.	• Case sheets for distribution to the participants. • A room large enough to seat the group comfortably. • Black board, White boards arranged as per teaching plan; flip charts and markers for highlighting some points during discussion.
Time allocation	• Depends on the length of the case, the learning outcomes and the extent of discussion expected. • A minimum of 1/1/2 to hours.

Excerpted from "Every Trainer's - Handbook" by Dr. Devendra Agochiya

1.2 Teaching of case studies – A Trainer's Perspective

Case studies help readers understand the salient aspects of any project, scheme or study. In this compendium, we are presenting case studies pertaining to different areas wherein significant contribution has been made for the betterment of various sections of our society.

The case studies given here represent different areas, administrative measures like e-Governance, institutional management, institutional performance, rural development methodologies, etc.

Each case study has its own specialty and mode of action. The trainee should study and understand the intricacies of the cases and how they come in handy to improve the standard of living of people belong to disadvantaged sections.

As an example, the five case studies presented by the Centre for Innovations in Public Systems (CIPS), Hyderabad, represent five different areas and situations. The five case studies are: 1. Health Care Management – Aravind Eye Care system, Madurai, Tamil Nadu 2. Improved Healthcare Through Access to Generic Medicines- Chittorgarh, Rajasthan. 3. Improved Rural Healthcare through Rural Medical Practitioners in Assam 4. Empowering Kids with Natural Knowledge/Teaching– Balabadi (Kids School), Vijayanagaram District, Andhra Pradesh. 5. From Disaster to Development – Regullanka village, Krishna district, Andhra Pradesh.

The first case study is an innovative initiative launched by a non-government institute with an aim to improve its management for the benefit of a large number of people. Identification of bottlenecks in the management, issues in work flow and most importantly collection of patients' feedback to further strengthen the system are discussed in detail. The salient features of this case study are worth teaching to the young officers, who are going to shoulder key responsibilities.

The second case study, an initiative taken by a district administration to improve healthcare in rural areas of Chittorgarh, Rajasthan, ensures supply of generic medicines to patients to reduce their financial burden. It also explains the ways adopted by the district administration to overcome a number of challenges faced in the process. The administration had to convince doctors, patients, suppliers and medical shop owners to achieve the goal. This case study gives a fair idea as to how to bring down the medical cost of people with determined efforts.

The third case study is about a bold step taken by a State government to improve the healthcare of rural population, which is deprived of medical facilities in villages. This is about Assam government's decision to launch a 3-year diploma course for Rural Medical Practitioners with an aim to solve the problem of scarcity of doctors.

These Rural Medical Practitioners are given the responsibility of taking care of the village population health needs after obtaining the Diploma. The planning of the course, training, and employment generation are the different steps taken by the government for the success of the initiative.

The fourth case study is about a private organization, which came up with an idea of pre- school education (Balabadi in Telugu) for rural kids. The children are imparted knowledge in the most natural ways and techniques, such as dance, song and play in their mother tongue. The methodology, curriculum, and success stories mentioned in this case study help us understand the intricacies involved in such motivated initiatives.

The fifth one, also an initiative by a non–governmental organisation, highlights the metamorphic transformation of a village from disaster-ridden to a developed-oriented one. This clearly proves that we can transform a highly sensitive village, which is the epicenter of disasters and picture of poverty, with proper planning, coordination and execution of the plan. This village with eco- sanitary systems is an excellent example for rural development. Different steps involved in the implementation of the plan provide us good lessons for teaching on rural development. They indeed are guiding principles for the administration at grass root level.

1.3 Learning Case studies – A Trainee's Perspective

Case studies act as the guiding principles for a trainee during training period. A trainee has to follow the following steps in studying the case studies:

1. Read case studies thoroughly at least three to four times.
2. Understand the implications, challenges and execution carefully.
3. Think of alternate pathways to solve the same problems.
4. Analyse the outcome from your perspective.
5. Make note of the best methodology to adopt so that it is beneficial to a large section of the society.

As mentioned earlier, the case studies documented by CIPS are the innovative methods adopted by private organisations, a village, a district administration and a State government for the benefit of rural population.

The trainees are requested to keep in their mind the five principles mentioned earlier, analyze each case to draw conclusions individually and then evaluate their analysis results collectively. They are expected to draw certain general conclusions on the methodologies, alternate ways, achieved results, etc.

I hope these case studies become guiding stars in their voyage of future assignments.

2. Matrix on Case Studies

2. Matrix on Case Studies

Sl. No.	CASE STUDY	APPLICABILITY		PAGE NO.
1	The Village Health and Nutrition Programme in Tripura	DOMAIN AREAS	Healthcare management	21
		GENERIC AREAS	Crisis management, public management leadership service integration	
2	Encroachment of Religious Structures in Madhya Pradesh	DOMAIN AREAS	Public facility management, Legal policy and policy implementation Getting cooperation from front-line workers	43
		GENERIC AREAS	Media management, multi-agency coordination, conflict resolution and negotiation	
3	The Education and Training Center, Navi Mumbai	DOMAIN AREAS	Education/Disabilities and special needs building political support for policy change	61
		GENERIC AREAS	Negotiating among multiple stakeholders, motivation (esp area of special needs, Fund mobilization	
4	Sustainable Plastic Waste Management in Himachal Pradesh	DOMAIN AREAS	Political Support, Supply Chain Management policy formulation and implementation challenges Role of courts in policy setting	75
		GENERIC AREAS	building cooperation and stakeholder engagement behaviour and change management	
5	Procurement of Paddy and Streamlining of PDS in Chhattisgarh	DOMAIN AREAS	PDS (Food Supply Management) logistics and supply chain management, management of information technology	103
		GENERIC AREAS	Corruption Management	
6	Electronic Payment and Application System of Scholarships (ePASS)	DOMAIN AREAS	e-Governance: Government Process Reengineering	135
		GENERIC AREAS	Process changes - a commentary on quality, Fish bone analysis and plugging the gaps identified, Value add and Non-Value add analysis, GPR and risk management	

Sl. No.	CASE STUDY	APPLICABILITY		PAGE NO.
7	eKrishi Project of Kerala: An Ex – Post Evaluation	**DOMAIN AREAS**	e-Governance: Business Models & Change Management	161
		GENERIC AREAS	• Right steps taken for Ideation? • Low utilisation due to poor processes? • What Business Model is suitable? • Were the training programs sufficient to bring about change? • Reasons for inability to scale up and sustain	
8	Project Kaveri, Karnataka Vendor Transit Ioning: An Outsourcing Setback	**DOMAIN AREAS**	e-Governance : e-Procurement Strategy Formulation	183
		GENERIC AREAS	• Vendor Transitioning • Transitioning and risks • Separating transitioning issues from others • Management of knowledge transfer • Timing of transition planning	
9	ICT for Women – Creating Gender Sensitive Espaces for MGNREGA	**DOMAIN AREAS**	e-Governance: Sustainability (Change Management)	203
		GENERIC AREAS	• What is sustainability? Why is it important? • Role of design and planning in ensuring sustainability • Sustainability under tight budgetary conditions • Institutionalisation of projects Strengthening socio-economic context of projects	
10	Prisoner Management System (PRISMS), Goa	**DOMAIN AREAS**	e-Governance: Government Process Reengineering	219
		GENERIC AREAS	• Quality of reengineering. • What is a process? • Is technology necessary for GPR? • Understanding application architecture, benefits to stakeholders, Sustainability	

Sl. No.	CASE STUDY	APPLICABILITY		PAGE NO.
11	A Case Study of 'KheTi' - Knowledge Help Extension Technology Initiative	**DOMAIN AREAS**	e-Governance: Risk Management	237
		GENERIC AREAS	• Conflict of interest among partnering organisations • Tragedy of the Commons • Impact on Risks from involving additional partnering organisations	
12	Health Care Management – Aravind Eye Care System	**DOMAIN AREAS**	Health Care Management	251
		GENERIC AREAS	Eye care, Management of Eye care Hospitals	
13	Improved Health Care Through Access to Generic Medicines Chittorgarh, Rajasthan	**DOMAIN AREAS**	Rural Health care facility	271
		GENERIC AREAS	Access to generic drugs- Poor and marginalized sections	
14	Improved Rural Health Care through Rural Medical Practitioners in Assam	**DOMAIN AREAS**	Rural Health care - Access	285
		GENERIC AREAS	Improvement of rural health care through training of registered medical practitioners, 3 – year Diploma in rural medical practice	
15	Balabadi – Empowering Kids with Natural Knowledge/ Teaching	**DOMAIN AREAS**	Rural development – pre-schooling for kids	301
		GENERIC AREAS	Pre-Schooling for rural kids through natural knowledge / methodology/ Traditional methods/ Play and learn techniques	
16	From Disaster to Development – Regullanka	**DOMAIN AREAS**	Rural development – village sanitation – eco-sanitation toilets	317
		GENERIC AREAS	Eco – sanitation, Natural fertilizers from human waste. Generation of income for villagers and financial sustainability, improvement of soil conditions.	

Sl. No.	CASE STUDY	APPLICABILITY		PAGE NO.
17	Importance of Design Issues in Rural Water Supply Schemes	**DOMAIN AREAS**	Designing Rural water supply schemes	329
		GENERIC AREAS	Details of designing a scheme which can sustain itself in the long term. With higher capital costs and better equipment used, the operative costs of the scheme came down; Would this be the case in other analogous schemes? Would addressing this lacuna ensure that these schemes become viable in the long term? How one can economize on cost and maximise on returns on investment?	
18	Tamed Bombs	**DOMAIN AREAS**	Industrial safety; Disaster Management; Rule of Law	343
		GENERIC AREAS	Monitoring of Hazardous Equipment in Industry. Strict adherence of safety norms; regularity of inspections; Who shall be responsible for Safe & Efficient operation of Equipment; Involvement and responsibilities of various stake Holders- Government Agencies, The Private Agencies, Safety Consultants, Insurance Companies or the Owner himself? Fallout of Disaster- • Damage to Life • Damage to the Economy • Loss of Employment • Damage to morale • Costs Involved • Business Values & Ethics	
19	Whither Leadership: Overcoming Mayhem and Restoring Normalcy	**DOMAIN AREAS**	Public management	379
		GENERIC AREAS	• Leadership • Communication skill • Stakeholder management • Crisis management	
20	Annexures			391

3. The Village Health and Nutrition Programme in Tripura

3.1 The Village Health and Nutrition Programme in Tripura - Teaching Notes

Case Synopsis

This case describes the response of the District Magistrate of North Tripura to a large number of deaths from fever, especially among children, in a remote sub-district of her district. After investigating underlying causes of the tragedy, the District Administration decided to try to make major improvements in delivery of health care services at the village level through improvements in an existing vehicle, Village Health and Nutrition Days. Analysis showed that VHNDs were poorly publicized, implemented and attended. Integration of services across government agencies was weak. Moreover, efforts to have VHNDs monthly at every Anganwadi Centre was stretching administrative resources too thinly. The revamped VHNDs "clubbed" multiple Anganwadi communities together for delivery of a monthly VHND, improved collaboration across community institutions, and combined funding streams from several government programs to fund services.

Focal Point

The case is divided into two parts. Its focal point in time is the aftermath of 24 deaths in June 2010 in a remote community of North Tripura and the District Administration's response. Part A gives background on the District, and the reaction of the District Magistrate to the deaths. It also gives a brief description of Village Health and Nutrition Days as a vehicle for improving health policy outcomes. It concludes with a set of eight problems that were identified with existing implementation of the public health system in the District and suggests that improvements in VHNDs was one strategy likely to be undertaken by the District Magistrate. Part B serves as an extended epilogue, describing the actions actually undertaken and their impacts.

Learning Objectives and Case Usage

The overall learning objectives of the case center on how to improve the integration and improvement of health care services, preparation for and management of crises, and organizational convergence and collaboration. The case can be used for a variety of courses and executive education sessions, including public management and leadership, service integration, and health care management.

Discussion Options, Board Plans and Time Management Plans

The organization of discussions will vary greatly depending on which learning objective the instructor chooses to emphasize. The following will focus on a teaching plan that emphasizes service improvement and integration.

With a service integration and improvement focus, the case can be taught over either one or two sessions. If taught in two sessions, the first session can focus on Part A of the case, addressing the barriers to effective service delivery identified at the end of the case, and exploring alternative mechanisms to address those barriers. A board plan could list the heading row shown below as well as some or all of the barriers identified in the first column (alternatively, the students could be asked what barriers they think are most important to effective delivery of services, and these could be listed on the board as students develop them)

Board Plan for Discussion of Part A

Barriers to Effective Health Care Delivery	Underlying Causes of Barriers	Options to Address Barriers	Advantages and Disadvantages of Options
1. Lack of Basic Health and Nutrition Knowledge			
2. Lack of demand for services and areness of rights			
3. Absence of accountability and monitoring mechanisms			
4. Mack of initiative by governing bodies			
5. Limited resources			
6. Poor coordination of services across agencies; silos			
7. Funding siloes			
8. Barriers to implementing information provided			

A time management plan using these topics is shown below.

Time Management Plan for Part A of the case (75 minutes)

Topic	Time (Minutes)
Review of background information on the situation in North Tripura District and operation of VHNDs	10
Discussion of underlying causes of barriers	20
Discussion of options to address two or three barriers and their advantages and disadvantages	25
Discussion of potential service integration approaches, including VHND	15
Wrap-up & Key take-aways	5
Total	**75**

Opportunities for Group work and role-playing

In discussing part A of the case, the instructor may assign groups of students to spend 10 to 15 minutes meeting in small groups to discussing one or two of the barriers identified in the case, identifying underlying causes for their assigned barriers as well as options and advantages and disadvantages for their proposed option. Each group can then report back to the group on their conclusions (this assignment can also be made before the class to save discussion time).

The second session of the class can begin by reviewing the decisions actually made as described in Part B, with comparisons made in the recommendations made by participants in the class in the previous session (of course, sometimes the class will be very divided in its recommendations). The list of reforms adopted can be generated by the students or by the instructor and listed on the board.

Discussion can then turn to a second topic - participants can be asked to analyze what allowed those changes to be implemented successfully, and what barriers were likely to continue to exist.

A third potential topic for discussion, in a second session is the sustainability of the reforms—that is, are there threats to the long-term continuation of the successful reform of VHND? To keep the discussion focused, the list of specific reforms generated at the beginning of class can serve as the basis for discussion. Some of the issues that the instructor may wish to inject into the discussion as potential sources of weakened implementation over time include fatigue of program implementers and participants (especially if the content of the program remains unchanged over time), declining attention from top decision makers, and reassertion of siloes from agencies with their own priorities.

Finally, the discussion in the second session can focus on whether the lessons about "what works" are generalizable—that is, whether they could be transferred successfully to other districts and to other policy sectors. This last topic is especially likely to stimulate effective discussions among senior executives who have experience in a broad range of policy sectors. The discussion can be wrapped up by focusing on a variety of points drawn from the four general discussion topics.

All of these topics can be combined in a single four column board plan, as shown below.

VHND Innovations in North Tripura District	Facilitating and Inhibiting Factors for Effective Implementation	Sustainable? Why or Why Not?	Generalizable? Why or Why Not?
[List factors generated by students or instructor from Part B]			

3.2 The Village Health and Nutrition Programme in Tripura - Part A

The District Magistrate of North Tripura was planning on settling in for the night when she heard her cell phone ring. Due to poor network connectivity in the district, she was surprised to get a call late in the evening. Realizing the emergency she grabbed the instrument and found the voice at the other end exasperated.

"Madam the death toll has reached 24 today".
District Magistrate: "What? Where? When? Is it a strike by the insurgents again?"

The voice at the other end relaxed a little and said "No Madam! A mysterious fever has taken the lives of 20 children in the past 10 days in Kanchanpur." After the delivery of this terrible news, the network conked off.

The District Magistrate immediately took action and started enquiring. A meeting of Medical Officers, Sabhadipati, Assistant District Magistrate (A.D.M) Panchayat Raj. Adhikaris was ordered at 10 o'clock in the night. They were all asked to come with information about the health services in the Kanchanpur sub-Division.

The only person who had some information about the event was the Block Development officer (BDO). The Block Development Officer is the Secretary, ex-officio, of the Panchayat Samiti. The BDO informed the others that he received this information just a few hours back through one of the ASHA (Accredited Social Health Actitivist, NHRM) workers who had come to the Block to get some dues cleared. According to the BDO, in June 2010, 24 deaths took place in Kangrai, a remote tribal village in the Kanchanpur sub - division of North Tripura after being affected by a fever. Approximately 18 of the 24 deceased were children below the age of five years. The deaths had happened over a period of one month without the awareness of the Social Welfare Department or the Health Department. Most of the deaths seem to have taken place at home and only some were admitted to the sub-division hospital. After deliberating the situation in the meeting, it was decided that the District Magistrate would station herself at Kanchanpur along with her team in order to analyze the problem and come up with remedial action.

The North Tripura District

The North Tripura District borders Bangladesh in the Northwest, and the states of Assam and Mizoram on the East. It is the most remote district of the state of Tripura which is a Special Category State (receiving more central assistance) as recognized by the Indian government. The total populatio n in the district is 4.23 lakhs out of which 1.03 lakhs are Scheduled Tribes, and another 78,956 are Scheduled Castes; more than 90 percent of the population is classified as rural.[1] In the Kanchanpur sub-district where the 24 deaths occurred, 65 percent of the population is classified as Scheduled Tribes and another 11 percent as Scheduled Castes (Exhibit 2). The entire population is categorized as rural. Literacy rates in the sub-district are nevertheless fairly high: 90 percent for men and 87.5 percent for women (Exhibit 2). There is no industry in the district except a few tea plantations. The tribal population practices traditional shifting cultivation in the hills (jhum).

1 *See Exhibit 1 and http://northtripura.nic.in/glance.htm#POPULATION. Data are given for the new state districts in effect since the reorganization of the state into 8 districts on January 12, 2012. Before that date, the district was significantly larger in both area and in population (7 lakhs).*

There is an acute shortage of doctors and other health infrastructure in the North Tripura district. A typical primary health care center (PHC) in India covers a population of 20,000 people in hilly tribal areas. It acts as a referral unit for 6 sub-division hospitals or sub-centers and refers out cases to the Community Health Center (CHC) and higher public hospitals located at the sub-district level. There are 13 PHCs in North Tripura with only 2 sub-division hospitals (Exhibit 3). Not only is the number of sub-division hospitals abysmally low, most PHCs are run by a single Medical Officer, thereby making it difficult for him/her to visit each and every one of the remotely located villages. Shortage of health infrastructure is made even more acute by the near absence of any private health facilities in the region. Many of the tribal hamlets are still not connected with usable roads, and remain inaccessible during the long monsoon (four to five) months. After the deaths, officials had to trek more than 20kms of hilly terrain to reach the remote village. The area's remoteness has also contributed to problems in health care delivery, such as ensuring that vaccines remained chilled until they were administered.

Almost all villages have an Anganwadi center which remains the first point of contact for health care issues for most villagers. An Anganwadi center provides basic health care to the villages which is focused on children's health issues like malnutrition, vaccination and providing care to new born babies. Along with that, they also provide pre and postal natal checkups and care. However, even though these centers existed in the village at the time of these deaths, most of the workers were semi-literate and did not receive adequate training to deal with such healthcare problems.

Village Health and Nutrition Days and the National Rural Health Mission

Creating awareness among the community on various health related issues is a part of the National Rural Health Mission (NRHM) initiated by the Central Government. Under the NHRM initiative, there was a provision for holding a Village Health and Nutrition Day (VHND) in every Anganwadi Centre (AWC), by the Anganwadi worker (AWW) once every month. The AWC is identified as the hub for service provision in the NHM, and also as a platform for inter-sectoral convergence. On the appointed day, ASHAs, AWWs, and others will mobilize the villagers, especially women and children,to assemble at the nearest AWC. On the VHND, the villagers can interact freely with the health personnel and obtain basic services and information. They can also learn about the preventive and promotive aspects of health care, which will encourage them to seek health care at proper facilities. Since the VHND will be held at a site very close to their habitation, the villagers will not have to spend money or time on travel. The design of the community mobilisation through VHND programme aims at two things. First, to standardise and provide a high quality awareness generation exercise on simple health issues like drinking water, sanitation, diarrhoea, etc. Secondly, to provide a gamut of health services on one fixed day in the village, thus ensuring public awareness as well as accountability of government functionaries.

In practice, however, the result was that the semi-literate and ill-trained Anganwadi worker, armed with 125 Rupees per month, was given the onerous responsibility of generating awareness on vital health issues, changing cultural stereotypes, as well as coordinating with the health worker or ASHA for providing basic services like ante-natal check-up of pregnant mothers and vaccination of children. Also, holding the VHND in each Anganwadi Centre requires nearly 7-8 VHNDs being observed in each Gram Panchayat (GP), as the 182 GPs of the North Tripura district have about 1915 functional AWCs. Moreover, there was no accountability or system of checks and balances to make sure that the schedule was actually being met. As a result of poor publicity and quality of service delivery, VHND attendance in the district was usually very sparse: 10-20 women at the most.

Analysing the Problems and Devising a Response

Steps were taken up on a war footing to analyse the situation and to prevent further loss of life. The entire district machinery led by the then District Magistrate and Collector (DM) was stationed in Kanchanpur for a week for this purpose. Health and Social Welfare Ministers visited the affected areas to deliberate on this. There were seven Anganwadi Centres each manned by one Anganwadi worker and one Anganwadi helper in the village. There was one Primary School and one Upper Primary School, with a total of 7-8 teachers. An elected body of the Panchayati Raj Institution (PRI) known as the Village Committee and a Health Sub-Centre and a multi-purpose health worker existed in the village. Despite all of this, the information regarding such a large number of deaths did not reach the sub-divisional level.

The District Magistrate-led district team walked through all the habitations of the village, talking to people in similar villages in the locality. The administration of North Tripura District drew several conclusions from their investigation of the tragic incident in Kangrai regarding the barriers to effective delivery in the area:

1. Lack of Basic Health and Nutrition Knowledge:

Most of the deaths that occurred could have been prevented with simple awareness on issues such as use of safe drinking water sources, nutrition, vaccination, and diarrhea. Superstitions like local witch doctors as well as the social setup (the woman being in a subservient position in the family) prevents people from accessing available resources.

2. Lack of demand for services and awareness of rights:

Lack of awareness in the general public and PRI members of their rights under various government schemes led to a lack of demand and public pressure for these services. Village Health and Nutrition Days were often poorly publicized and poorly attended when they were held. After the incident, there was no complaint against the Health Department or Social Welfare Department and the deaths were accepted as a way of life by the families.

3. Absence of accountability and monitoring mechanisms:

At the village level, the physical infrastructure for social sector services i.e. buildings and deployment of staff, Anganwadi centers were already present. However, due to the lack of accountability and monitoring mechanisms, the actual service delivery was dependent on the personal integrity and motivation of the ground level staff like the Anganwadi workers or the ASHAs. Many people would not show up for the VHND unless they were contacted by one of these ground level staffs personally.

4. Lack of initiative by the immediate governing bodies:

Health is often seen as a ‘female’ issue which the male dominated immediate governing bodies like The Panchayat Raj Institution (PRI) do not see as an important issue and instead direct their attention to schemes like MGNREGA and IAY which undermines the importance of the efforts being carried out by the AWCs and the PHCs. Since the Gram Panchayats cover a large areas in North Tripura, their involvement in providing health care was crucial.

5. Limited resources:

The limited number of doctors and connectivity bottlenecks posed as another issue. There was also frequent and unpredictable absence of the doctor at these hospitals. Because of these problems, residents rarely visited the PHC or even the Sub-division hospital. Thus, providing simple services within the village was likely to be the key to improving health care delivery in remote areas.

6. Poor coordination of services across agencies:

There is usually no coordination at the ground level between the Social Welfare Department, the AWC and the sub-division hospital under the Health Department. Routine Health Camps organised by doctors of the PHCs in the villages were delivered in a sporadic manner, often without the knowledge of the villagers and at inaccessible locations.

7. Poorly integrated funding streams:

Organising awareness campaigns and service delivery requires the availability of sufficient funds. In the district, funds were available for awareness generation and providing basic health services under various programmes of the Government such as the NRHM, Integrated Child Development Services (ICDS), Blindness Control Programme, Malaria Control Programme and the TB Control Programme. Funds were also available under the awareness generation components of ARWSP (Accelerated Rural Water Supply Program) scheme of the Drinking Water and Sanitation Department and 12th and 13th Finance Commission grants earmarked for the Panchayats. The District Administration realised that funds to the tune of Rs. 1.5 crore were already available if they could be pooled and used more efficiently.

8. Barriers to implementing information provided:

A huge problem is that even if the information is given out, it may not be easily actionable. A lot of the information is difficult to remember, especially for illiterate adults, or in some cases may be contradictory to existing beliefs. Hence, even if the information is provided by the local authorities, there is not much assurance that it will be practiced by households.

Given these challenges, the District Magistrate wondered what the most effective course of action would be to ensure another incident like this one did not occur, and to improve significantly the overall quality and access to health services in North Tripura.

EXHIBIT 1. MAP OF CURRENT TRIPURA DISTRICTS

Source: http://en.wikipedia.org/wiki/Tripura#mediaviewer/File:Tripura-district-map.svg

EXHIBIT 2. SUBDIVISION STATISTICS FOR DISTRICT OF NORTH TRIPURA			
	DHARMANAGAR	**PANISAGAR**	**KANCHANPUR**
Area(in Sq Km)	301.37	296.3	824.52
Total Population	2,38,461	81,196	1,02,713
Male	1,20,131	41,337	52,458
Female	1,18,330	39,859	50,255
ST	9,533	26,107	66,937
SC	49,119	18,277	11,560
OBC	71,967	22,454	17,209
RM	52,287	7,423	248
General/Other	55,555	6,935	6,759
Rural Population	1,97,915	80,492	1,02,713
Urban Population	40,546	0	0
Density of Population(per Sq Km)	791	269	122
Sex Ratio	985	957	969
% of Male Literacy	90.71	90	90
% of Female Literacy	87.35	87.50	87.50

Source: http://northtripura.nic.in/glance.htm#POPULATION, Accessed October 18m 2014

EXHIBIT 3. HEALTH DEPARTMENT FOR NORTH TRIPURA DISTRICT	
No. of Sub-Divisional Hospitals	2
No. of Primary Health Centre	13
No. of Dispensary/Sub Centre	66

Source: http://northtripura.gov.in/glance.htm#HEALTH & FAMILY WELFARE, accessed October 25, 2014

3.3 The Village Health and Nutrition Programme in Tripura - Part B

Although the health sector in the state of Tripura is equipped with adequate physical infrastructure and personnel across the state, a wide gap was observed in terms of service delivery at the village level, particularly in the North Tripura district. With most of the PHCs being run by one doctor in the remote areas, monitoring of services became close to impossible. Therefore, ensuring efficient and effective delivery of services by the Health Department, Social Welfare and Social Education Departments at the village level, especially to women and children, became the primary challenge. The death toll in the Kanchanpur sub-division during April- June 2010 in the North Tripura district triggered a strong response by District officials. Taking the existing provision of VHND under the National Rural Health Livelihood Mission as an opportunity to be expanded upon, the District Administration developed a plan for the integration of various government departments, funds and personnel in what was called a "Total Convergence" approach. (Steps Taken in the planning process are summarized in Exhibit 1). Various health related schemes of the government as well as services are offered to the citizens through the common platform created by the Village Health and Nutrition Day which is fixed for a particular date every month. On this day, the various health and health related services offered by different departments are converged together. Thus, the VHND is the primary source for villagers for all essential health needs. The local public representatives and functionaries of various government departments are present on this day at the pre-fixed location in the village along with the public.

Reducing Resource Demands by Clubbing Delivery Sites

A key step taken by the District Administration was to merge the VHND activities of different Anganwadi centres. The convergence project envisages only 2 VHNDs in a month in one Gram Panchayat that is, "clubbing" 3-4 habitations and holding the VHND in a central location. This practice was been increased to 3 VHNDs in exceptional cases, where the habitations were very far apart like in the case of remote villages.

Additionally, all information, education and communication activities of the concerned departments have been clubbed into this one day. This has been done by grassroots-level convergence of funds and personnel as well as comprehensive planning of the exercise. This has been done in order to ensure more public participation as well as improving the interface between the people and the local administration as well as improving the monitoring mechanism of the VHND. Once the fixed day is finalised for each village, the notice is painted on the walls of the panchayat building.

Integration of Programme Activities and Staff

Major efforts were made to improve the integration of service delivery within VHNDs (see Box 1 for a summary of these activities). A few examples of this are:

Integration with Primary Health Centers

Routine Health Camps organised by doctors of the PHCs had been poorly publicized and intermittently delivered previously and were now merged into the VHND schedule which ensured the presence of doctors in a few of the VHNDs in every village. This saves time spent by doctors on mobilisation, ensures better guidance to paramedical staff carrying out activities like testing of haemoglobin or blood pressure, and ensures better public turnout at VHNDs.

Integration with School Health Programmes

The school health programme was also merged with the VHND, wherein students up to the tenth class attend the VHND programme along with the headmaster and the teacher in-charge of the mid-day meal programme. The school teacher/ Headmaster are responsible for creating awareness with the help of flip charts provided under the project.[2] (see Exhibit 2 for details of the flip charts)

Involving local administration - Ground level functionaries of five major Government departments concerned with the well-being of the people of the village, namely, Health, Social Welfare, Panchayat, School Education, and Rural Development, converge on this one day so that their combined presence in the village ensures better service delivery and awareness of health-related issues (see Exhibit 3 for a list of government agencies integrated into the VHND).

Integration with other schemes under NRHM - The other activities include convergence of various activities under the NRHM like Anti Malaria, Tuberculosis (sputum sample collection), AIDS, and Blindness, etc. Instead of working in isolation, all these programmes have been directed to merge their public interface activities into the pre-decided VHND schedule. The District Disability Rehabilitation Centre has also been instructed to merge its outreach camps into the VHND schedule. First Aid Training under the District Disaster Management Authority is also included in VHNDs being held in that village. The mobile medical unit, consisting of diagnostic facilities, has also been merged into the VHND schedule and is deployed at the time of the VHND.

Activities under the Village Health and Nutrition Day

Compulsory VHND activities begin with an awareness discussion using the fourteen flip charts based on various health issues like sanitation, vaccination, breast feeding, clean drinking water, etc. All relevant points are listed in the flip charts and the headmaster of the school, instead of the lesser educated Anganwadi worker, is supposed to read out the charts in order to cover the issues in a comprehensive manner.

Subsequently, a quiz on common health issues based on the information provided in the awareness discussion is held, in which the winners are applauded and given small gifts. This is followed by delivery of various health services which include vaccination of mothers and children, providing Vitamin A drops, distributing iron and folic acid tablets, weighing children and plotting the WHO growth chart, and ante-natal check- up of pregnant mothers. These three activities are the main focus of the whole programme. Other peripheral activities include spraying of DDT, treatment of mosquito nets with deltametrine liquid, demonstration of chlorination of drinking water sources, etc.

With an idea to tackle the issue of malnourishment in the children in the villages, the Social Welfare and Social Education Departments have implemented the WHO system of plotting of children's' weight. On the basis of the children's weight, the grade-III and grade-IV children i.e. those who are malnourished, are given double ration through ICDS. For the purpose of creating greater awareness in the village regarding how many children of that village were malnourished, yellow ribbons are supplied out of VHND fund and given to this category of children. Whenever any child is found to be malnourished, this ribbon is tied on the hand of that child for the duration of VHND. This creates pressure on AWWs and mothers to improve the nutritional status of these children as there will be public awareness regarding the number of malnourished children in the village.

2 *The flipcharts also provided the contact details of various departments, which include health, Social Welfare & Social Education, Rural Development, Drinking Water. This is aimed at bridging the gap between the government officials and the public.*

Health Camps are regularly organized by various societies operating under Health Department like TB control/ AIDS control etc. On this day, a doctor with various paramedical staff visits the village. One school per Primary Health Centre is taken up per month for School Health Camp. The health camps, which are held as a matter of routine, are organized in planned manner by all agencies under the leadership of the Chief Medical Officer. A consolidated 3 month advance schedule of health camps is synchronized with the schedule of the VHND. Thus, a health camp is not held every VHND, but wherever health camp is to be held and doctors are visiting a village, it is scheduled on the date of the VHND of that village.

Other initiatives included the showing of a movie in the Kokborok tribal language with English subtitles, made by Father P. Joseph which was shot in Kangrai village to build awareness on the issue of safe drinking water, sanitation, and health issues like malaria, diarrhoea, etc. The same was disseminated using the infrastructure of the ICAT department. Four teams of young district volunteers travelled from village to village with their generators, laptops and projectors, disseminating health and nutrition issues to the tribals with the aid of the movie

Improved Dissemination of Information about VHNDs

The VHND schedule is decided by Gram Pradhan ahead of time and the programme is painted on the wall of the Gram Panchayat or the venue. The date and time of the programme is also displayed at various places in the village. ASHA and Anganwadi workers conduct a door to door campaign prior to the event in order to register the attendees and identify absentees.

Self Help Group (SHG)

A team of boys, in the age group of 18-22 years, most of whom are 12thstandard pass outs or in college, from the primitive tribal group of Reang, were trained to act as Awareness Volunteers. These volunteers, were trained in various health issues, and would accompany the Collector and other officers to the remote tribal villages. They participate in the public awareness exercises that are undertaken and hold discussions with various PRI members. These volunteers have been registered as a Self Help Group (SHG) and have entered into a formal MOU with the district administration as part of an attempt to institutionalise them. They are a stand-alone SHG and various departments/Boards use their services like the NRHM, Aids Control Society etc. The volunteer group is an asset in the remote district, which has a dearth of NGOs. rThe volunteers are paid on performance linked pattern depending on the number of villages they are able to cover.

Incentives for Public Participation

In addition to the direct delivery of health care services, other incentives are provided for public participation in VHND activities.

Provision of food at the VHND

Since staff and students from the local school participate in the VHND, the school's mid-day meal rations are carried to the VHND location and cooked in the form of a community meal. The supplies of the VHND community meal and rations from the ICDS for the Supplementary Nutrition Programme of the Anganwadi Centre are also added to the kitty. Thus all men, women and children who attend the VHND programme are served a hot cooked meal as part of the programme.

Cultural activities

The villagers and school children organise cultural activities like a song and dance sequence or a sports programme, so that along with the community meal, the entire programme becomes an occasion for village celebration. Cultural activities like local dance, group songs, quiz on health issues, fully-immunised baby shows, sports activities for children and mothers, and street dramas are also organised at VHND camps to generate interest and motivate participation and learning through recreation.

Integration of Existing Funding Streams Available Under Centrally Sponsored Schemes

The integration of monetary resources is an important aspect of the convergence model. The existing funds in the district are efficiently put to use for the organization of the VHNDs. A sum of Rs. 300 per Anganwadi Centre (AWC) is provided by the NRHM funds in the Health Department. In addition to this, the Integrated Child Development Services (ICDS) provides RS. 125 per month per AWC, which sums up to Rs. 750- Rs. 1,000 for the 6-8 AWCs in 3-4 habitations. This fund is used for providing supplementary nutrition to the women and children in the respective habitations. Clubbing of AWCs and coordinating the schedule of health and SWSE department for around 5 AWCs made a fund of up to Rs.2, 125 available per VHND. Moreover, for a small district like North Tripura, with 1,915 AWC's, there was Rs.97.66 lakhs already available in the financial year 2010-11.

The funds for IEC (Information, Education and Communication) activities which come from other schemes like District Blindness Program, AIDS society, Malaria Control Board and the Tuberculosis Program, were also converged with the VHND. In addition, funds of the Adult Literacy Campaign and District Disability Rehabilitation Centre were also used. Thus, approximately, at least Rs. 1.5 crores is available for health related issues under Centrally Sponsored Schemes for awareness generation. In addition, the Panchayat has funds under the Panchayat Development Fund (PDF) and under 12th and 13th Finance Commission guidelines; some unattached funds also devolve to them. These sources of finance were also used for the VHND. Various decisions regarding the maintenance and creation of spot water sources, spraying of DDT, maintenance of the mosquito nets are also taken in the VHND program. A fund of Rs 10,000 per village for the Village Health and Sanitation Committee which were already available with the village Panchayat were also deployed for this.

Staff Training

Copies of booklets containing the basic concept note on the project, instructions to the BDOs, etc., were distributed to all Gram Pradhans, Anganwadi workers, school headmasters, health staff, PRI members, the MLAs and the MPs. Detailed checklists, both in Bengali (the local language)and English, listing the roles and responsibilities of various functionaries starting from the Chief Medical Officer to the grassroots level ASHA and Anganwadi workers and the village-wise schedule for next six months were also included in these booklets.

A district-level seminar was organised where the entire Zilla Parishad functionaries, headed by the Sabhadipati and all the block chiefs were briefed about the project and their suggestions were taken. Copies of the concept note booklet, training and IEC material were shared. The medical officers from the health department and project officers of the ICDS were trained at the district level by the DM and District Surveillance Officer. The trained officers then became the master trainers for training of all the field level functionaries. These training programmes were organised at the PHC level, with

200–300 trainees, including all Anganwadi workers, ASHAs, Anganwadi supervisors, auxiliary nursing midwives and multipurpose workers, school headmasters and teachers, Panchayat Secretaries and all Gram Pradhans. In addition, a training movie, both in English and Bengali, was also created showing an ideal VHND programme for the training of anganwadi workers and other grassroot-level staff.

A special PRI body meeting at the block level was held with the purpose of disseminating information about the VHND organisation and modalities. This was attended by all Pradhans and Chairpersons of the village committees. The school education department held a monthly district-level meeting with the headmasters of primary schools and upper primary schools on two days. For three consecutive months, these meetings were attended by the DM and other district-level functionaries involved with the project for direct interaction and for motivating the headmasters of schools, who also attended the PHC-level trainings held earlier. A separate block-wise training was held for the headmasters of schools.

Monitoring Mechanisms

Two mechanisms were designed for monitoring the project. The VHND register is kept at the village and contains details like the resolution of the Village Health and Sanitation Committee to hold the VHND, the schedule, location, names and signatures of participating officials, visitors' sheet, topics on which awareness discussions were held, report of attendance of women and children and health services rendered, like vaccination, ante natal checkups, etc. A summarised form of the same is reported in the form of a booklet known as "reporting format". In the reporting format, every sheet is filled in duplicate with a perforation, allowing one sheet to be detached and submitted to the Anganwadi supervisor who further submits it to the CDPO. He/She enters it online into the VHND monitoring website which is linked to the district website. This is available in the public domain and thus village-level performance can be monitored online from the state capital or the district level. Committees consisting of the relevant departmental officials and PRI members have been created at the sub-divisional and block levels (these already existed at district level), to ensure periodic monitoring and systematic planning of the VHND programme.

Impact

The impact of implementing the initiative is given in the table below

Table : Comparative Analysis of Key Indicators Before and After the Project Implementation

S. No.	Parameter	Before Start of the Project	Effect of Project Implementation
1.	Regularity of holding VHND	Dispersed. Due to difficulty in monitoring, no data was available regarding the frequency or regularity of holding such camps	4,648 VHNDs held till March, 2012. i.e. around 26 VHNDs per village over an 18 month period
2.	Public mobilisation	Very Sparse, 10-20 women at the most	On an average, around 149 women and children actively attended each VHND. A total of 6,90,465 people attended in 4,648 VHNDs out of which 2,68,730 were children.

S. No.	Parameter	Before Start of the Project	Effect of Project Implementation
3.	Public Awareness on health issues hygiene and sanitation	Lack of basic awareness and good health practices especially in the remote tribal villages	Regular discussions on health issues, especially to the school children yielded changes in levels of consciousness on these issues.
4.	Institutionalisation of the concept of VHND in the village	There was hardly any recognition amongst the general public or PRIs regarding the VHND under the NRHM. Even though funds were available, there was no awareness about the initiative	Increased awareness among the various levels of individuals. As the same has been replicated within next 10 months in other districts of the state, in partial forms, most of the Ministers are aware of the initiative, and it was one of the listed agenda points in the district level review meeting of Hon'ble Chief Minister, held at six monthly intervals.
5.	Conversion of the NEED for health care into a DEMAND for the same	The general public, especially in the remote tribal areas, were not aware of their rights under various schemes like ICDS and NRHM. There was no expectation from the village level functionaries to stay in the village or attend in any monthly program and there was no accountability in the system.	Recently, a team of 40 district level officers visited, possibly, the remotest village in the state which required a walk of 3 hours, (Simluang in Jampui) but the public reported the first item of complaint that VHND is not being regularly held and that the CDPO (block level officer) has attended VHND only once. This is a sea change from the earlier scenario. As Health, and ICDS programs are implemented by dispersed functionaries, who are uneducated, ill-trained and monitoring and accountability procedures remain on paper, the only way to ensure performance is to generate public demand and awareness of the same, leading to pressure from PRI bodies and public in general.
6.	Detection of diseases like fever	In 2008-09, 56,771 cases of fever were detected, while in 2009-10, a similar number of 54,229 cases were detected.Thus, when averaged, 55,500 cases of fever were detected.	In 2011-12, the number of cases detected was 66,988. It would be irrational to allege a cause-effect relationship to these statistics, and there may be only a correlation. It may be speculated that due to more public interface of the village level health functionaries, more such cases, which earlier went undetected, have been reported.

S. No.	Parameter	Before Start of the Project	Effect of Project Implementation
7.	Detection of Diarrohea	In 2008-09, 44,281 cases were reported. In 2090-10, the number was 25,252. This averages to 34,766 cases of diarrohea	In 2010-11, there has been a quantum jump, and 240% cases were detected ie 83,665 cases. Again, the explanation may be that greater interface of health deptt functionaries with the villagers may have led to greater detection of diarrhoea cases which earlier went undetected.
8.	Incidence of Malaria and PF malaria, and death due to malaria	In 2009, there were 2,320 cases of Malaria, and 2,331 cases of PF malaria. There were 11 deaths in 2008 and 39 deaths in 2009 due to Malaria and PF Malaria respectively.	In 2010, there were 1995 cases of malaria and 2065 cases of PF malaria. The number of deaths due to malaria reduced from 11 deaths and 39 deaths in past two years, to 4 deaths in 2010. In 2011, the figure of PF positive cases reduced, though the number of deaths remained the same at 4. Again, it would be irrational to establish cause effect reasoning to this data, without a full scope study into the findings, and this may be purely correlational, but greater awareness on necessity to prevent water from stagnating, greater usage of mosquito net, more effective spray of DDT etc which was a part of the VHND agenda as well as greater awareness, may have contributed to this. Alternatively, it may be purely coincidental.
9.	Quality of health data reported	The figures of immunization achieved/ health statistics were collected, compiled by health deptt alone and monitored by state level health deptt. Only a perfunctory discussion was done annually in the district level health and family welfare committee.	Quality of data reported, including instances of diseases found or deaths occurred or vaccination achieved is much, much better as the data of each village, is every month, reported by three deptts, simultaneously, counter signed by gram pradhan, and monitored intensely at the block and sub-divisional level.

Sustainability

V.H.N.D. has become a part of the official website of Tripura. North Tripura started it on 1st September 2010, followed by Unakoti on 6th Sept, 2010, Khowai on Jan, 2nd 2012 and Dhalai on November 1st 2012. The Web site provides the following information.

District	VHND Camp Held	Adult Participation	Children	Children Immunized	Children Under Weight.
Dhalai	3016	23565	10709	3134	217
Unakoti	2314	338784	138609	3315	1461
Khowau	2698	147115	278729	44252	7390
North Tripura	2698	380944	140147	3500	1271
Total	14123	890408	568194	115401	10339

EXHIBIT 1: STEPS FOLLOWED IN THE IMPLEMENTATION OF THE PROJECT

S.No.	Activities	Action Taken
1	Preparatory meeting with health Department ICDS etc	Completed in July 2010
2	Sensitization of top level PRI leaders	Completed on 6th August, 2010
3	Exercise for planning of fund convergence by plotting of availability of money for VHND in diff departments.	Held on 10/08/2010
4	Preparation of pamphlet in Bengali for Gram Pradhans / AWWs / Asha etc to explain concept of VH and N Day and modalities	Completed
5	Preparation of village wise 3 month calendar of activities	Completed
6	IEC materials to be designed, meeting in DM chamber on 12th August, 2010	Completed
7	Placement of chocolate/biscuits/soap etc. to the Block H.Q. for placement to the Panchayats	CMO-Completed By 1st September 2010
8	Painting of VH & N Day calendar on village walls	Done by respective Panchayats by 20/09/2010
9	7 day training of resource persons at PHC level.	Organized by BDOs at Block level by 15/09/2010
10	Institutionalization of concept and changes in systems: all to give feedback from 1st VH & N Day	From 15th September, 2010 onwards.

EXHIBIT-2: ISSUES COVERED IN THE FLIPCHARTS

Box 2: Issues covered in the flipcharts

1. Personal Hygiene
2. Services of AWC
3. Malaria etc
4. Diarrohea
5. Girl child, age of marriage, education for girl child
6. Prenatal care
7. Breast Feeding
8. Drinking water and sanitation
9. Blindness prevention and eye care
10. Vaccination
11. Nutrition
12. Yoga
13. Dental care
14. Contact details

EXHIBIT 3: LIST OF FUNCTIONARIES PRESENT ON VILLAGE HEALTH AND NUTRITION DAY (VHND)

S. No.	Department	Functionary
1.	Social Welfare & Social Education	• AWW (Anganwadi Worker) from Social Welfare & Social Education • AW Supervisor from SW & SE
2.	Health	❖ Multi Purpose Worker from Health department ❖ Multi Purpose Supervisor ❖ ASHA
3.	DWS	Pump Operator
4.	Rural Development	Gram Rozgar Sevak under MGNREGA
5.	Panchayat	Rural Panchayat Secretary
6.	Public Representatives	Gram Pradhan
7.	Externally Aided Projects like Japan ICA/Indo-German DC	Field Facilitator, Livelihood Facilitator
8.	Nehru Yuva Kendra	Youth Volunteers of Nehru Yuva Kendra
9.	Rural Development (SGSY for SHG)	Dalabandhu (Field facilitator)
10.	School Education	❖ Teacher in charge of Mid Day Meal ❖ Headmaster of the schools ❖ Mid Day Meal Cook and Helper
11.	Volunteers	Awareness Volunteers of District Administration
12.	Information & cultural Affairs dept. (ICA/ICAT)	Staff of all levels

Box 1: List of activities included on the Village Health and Nutrition Day (VHND)

1. Awareness and discussion on various issues of preventive health care for the community using 14 flex charts by Headmaster / Teacher.
2. Quiz for mothers and children organized by Social Welfare Department.
3. Immunization and giving vitamin A drops.
4. Taking weight of children and allied activities like “health baby show”.
5. Ante Natal Check up and monitoring of health of pregnant mothers.
6. School Health Program.
7. Mid-Day-Meal of Schools merged with supplementary nutrition.
8. Distribution of Iron and folic acid tablets.
9. Impregnation of Mosquito net with Deltametrine liquid.
10. DDT Spray.
11. Chlorination of water sources and discussion regarding their maintenance and repair.
12. Filling up of forms for fresh issuance and renewal of RSBY smart card.
13. Supplementary Nutrition.
14. Awareness of Disaster Management
15. Adult literacy programme.
16. Health Camps.
17. Activities of Blindness Control Board
18. Activities of Malaria Control Board.
19. Activities of TB Control Board.
20. Activities of ADIDS Control Board.
21. Disability Camps of DDRC.
22. Street Drama on Health issues and local dance / song.
23. Outreach activities on CHILDLINE Foundation.

4. *Encroachment of Religious Structures in Madhya Pradesh*

4.1 Encroachment of Religious Structures in Madhya Pradesh - Teaching Notes

Case Synopsis

This case describes the efforts of the District Magistrate in Jabalpur to address the problem of religious encroachments on public lands—and in particular public roads—in his jurisdiction. The case shows that a well-planned and executed strategy is necessary to ensure that illegal encroachments are carefully removed without sparking off tensions among the stakeholders involved. Consensus building among stakeholders can be a particularly challenging task, with multiple meetings needed with the parties involved in order to bring everyone on the same page. Persistence and an ability to take measured risks by assuming full responsibility helped multiple stakeholders come to a common agreement. Using media and public pressures, the mind-set of people who are usually intransigent can be changed. Respecting the religious sentiments of people, and disposing off idols in a respectful fashion can help in the prevention of religious unrest. Finally, making the public aware of the legal implications of encroachments and converting the encroached land into utilitarian spaces for the benefit of the society, can help to deter private interests from reconstructing structures on previously encroached lands or constructing fresh encroachments.

Focal Point

The case is a decision case, divided into two parts. Part A focuses on the period immediately after the issuance of a Madhya Pradesh High Court Order in December 2005 directing the state government to remove encroachments from public land. It describes the initial efforts of the District Administration in Jabalpur to build public support for removing the structures. It concludes with the failure of initial peace committee meetings and raises the central dilemma of the case: how can the structures be removed without disturbances to public order, and in particular, without sparking communal violence. Part B describes the processes used by the District Magistrate to build support for the removal, as well as the successful conclusion of the process.

Learning Objectives and Case Usage

The overall learning objectives of the case center on how to build support among multiple stakeholders with conflicting interests, and mobilize diffuse public interests, to achieve a public objective. Stakeholders include the District Magistrate, police officials, front-line workers in charge of demolition, operators of religious shrines, leaders of religious communities, operators of ancillary businesses at the shrines, and patrons of the religious shrines. Additional themes that can be drawn out include media management, multi-agency coordination, conflict resolution, getting cooperation from front-line workers, and policy implementation. The case can be used for a variety of courses and executive education sessions, including public management and negotiation.

Discussion Options, Board Plans and Time Management Plans

The entire class can be focused on issues of stakeholder management, or other topics (e.g., motivating front-line workers to undertake dangerous or unpleasant tasks) can be added to the discussion mix. If the former path is chosen, care should be taken to highlight the heterogeneity within individual categories of stakeholders—especially the operators of religious structures. A board plan for a stakeholder-focused discussion is shown below.

Stakeholder-Focused Board Plan for Discussion of Part A

Stakeholder	Stakeholder's Objectives	Options for Achieving Stockholder Buy-In or Acquiescence

A time management plan focused on the role of stakeholders is shown below. In this plan, Part B of the case is handed out 55 minutes into the class, and a brief discussion of the methods actually employed by the District magistrate in Jabalpur ensues. If the instructor chooses to address additional topics, such as motivating front-line workers, Part B should be handed out at the end of class.

Time Management Plan (75 minute class)

Topic	Time (Minutes)
Review of background information on religious conflict in India	10
Discussion of specific stakeholders and their interests	20
Discussion of strategic options for achieving broad stakeholder buy-in	25
Distribution of Part B and summary by instructor of strategies actually pursued	5
Class discussion of Part B	10
Wrap-up & Key take-aways	5
Total	75

Role-Playing and Simulation Options

An alternative strategy would be to divide the class up into groups representing individual stakeholders and have them spend 10 minutes working in groups to develop a negotiating strategy. The instructor can then on call members representing different stakeholders to state their positions and conduct one-on-one role-playing negotiations over the fate of particular structures in front of the class. A variant on this strategy is to have part or all of the class session spent as a simulation of a peace committee meeting, with members of the class playing different roles. If this option is used, roles should be handed out in the previous class session so that participants have an opportunity to prepare for their roles. The end of the class can then be used as a "debrief" of why actors chose particular strategies and what determined their success or failure.

4.2 Encroachment of Religious Structures in Madhya Pradesh - Part A

Encroachments on public roads and lands through unlawful construction have been a bane of Indian civic life. These encroachments take many forms. In Lema Gardens, Jabalpupur, Madhya Pradesh, for example, illegal housing complexes were built on Jabalpur Municipal Corporation (JMC) land. More than 250 illegal structures were built in a ten acre tract of government land. The JMC land was sold to the encroachers by private individuals using fake documents. The JMC employed as many as seven excavators to rid the land of illegal construction. They were ably backed up by a large police force headed by deputy commisioner Ayachi to ensure peace during the anti-encroachment drive. An FIR was filed against the private individuals who had sold the land.

Encroachments on public or private lands not only cause inconvenience to the citizens, but also often lead to law and order problems. When religious sensitivities are involved, the removal of encroachments is a particularly challenging task. Thus many religious encroachments have not only survived all anti encroachment drives, but also have further proliferated in inconceivable places. These encroachments often take the form of shrines: religious installations that may range from small religious idols (Hindu, Muslim, Sikh or Christian) to large buildings such as temples, mazhars, gurudwaras or churches. In many cases these shrines are built upon public spaces and encroach on government land. It only requires a small quantity of vermilion colour paint to make a Hindu deity and a splash of green colour to mark the presence of Muslim faith.

Often the shrines are accompanied by multi-storey housing and commercial establishments. Given the relatively high rate of return on investment in setting up such shrines, the main reasons behind their establishment are often economic and political gains from public land. Although there are municipal committees which have been established since 1862 to oversee the governance of cities and towns in India, and there exists a framework of legal codes on protection of public spaces, opportunistic land grabbing under the garb of religious sentiments remains an issue

A roadside temple shrine in Jabalpur, Madhya Pradesh

The stakeholders who install shrines on government land may be budding leaders with political ambitions, land sharks who want economic benefit, or local goons. These stakeholders receive considerable economic returns from such establishments in the form of rent and charitable donations by public. Moreover, these establishments attract a slew of stakeholders that include beggars, petty mobile cart owners and vendors who do business with visitors to these temples. The establishments may also appoint priests and caretakers who benefit from the temples. In doing so, not only is the so called land "owner" making economic gains, but he is also establishing political clout among the people who receive direct or indirect benefit and/or employment from these activities and among the public who visit these temples. The stakeholders mentioned above together form a powerful lobby to blunt anti-encroachment drives.

The benefactors often take advantage of the soft nature of government, using religion as a shield to thwart anti-encroachment drives by government authorities. The benefactors also employ diversionary tactics such as expressing resentment and complaining about ineffectiveness of current government policies to support their claims.

The shrines generate considerable public attention during religious festivities and the stakeholders carry out large street processions to further their political and economic goals. Encroachments also lead to traffic safety hazards. This results in great inconvenience to vehicular movement and places enormous pressures on the resources within police departments to ensure communal harmony.

There have been a few successful instances of getting rid of encroachments in public spaces, but these efforts have drawn violent reactions from all the sections of society.
The below table represents data of illegal structures in selected Indian states

State	Number of illegal religious structures
Tamil Nadu	77,453
Rajasthan	58,253
Madhya Pradesh	51,634
Maharashtra	17,385
Karnataka	2,814
Gujarat	15,000
Uttar Pradesh	45,152

**Source: As per affidavit submitted to Supreme Court of India as reported in The Hindu September 14, 2011.*

In a multi religious and pluralistic society such as India, religious notions have often been taken advantage of by individuals/groups to stir up communal violence. Madhya Pradesh alone has witnessed the country's highest fatality rate of 0.14 fatalities per 100,000 population due to communal tensions between 2005 and 2009. [Center for Policy Research, New Delhi].

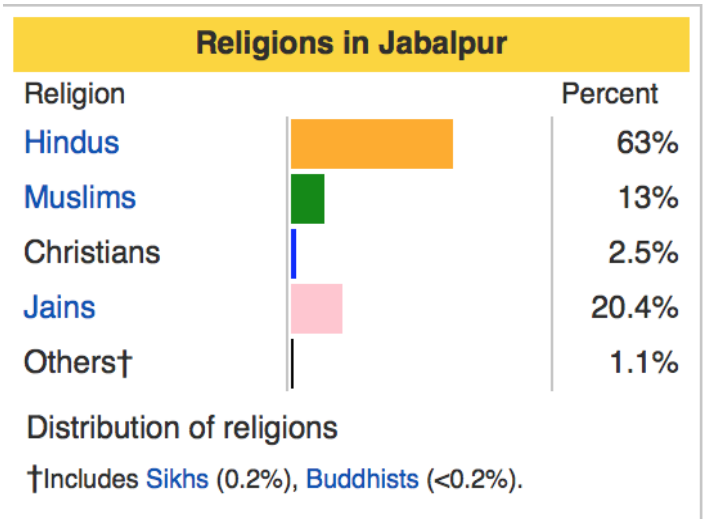
The best known example of a religious conflict centered on religious structures is the political, historical and socio-religious debate over the history and location of the Babri Mosque in Ayodhya, and whether a previous Hindu temple was demolished or modified to create it. The mosque has been at the storm center of contention between the Hindus and Muslims for many years, and its demolition by a Hindu mob in 1992 touched off riots in which more than 2000 Hindus and Muslims lost their lives.

The demolition of other religious structures have also resulted in clashes between the public and police in the past. Demolition of a religious structure in Vadodara, Gujarat in 2006 provided a clear example of the risks involved in a campaign to remove those structures. The Vadodara Municipal Corporation undertook a drive to remove illegal encroachments on public land. The Vadodara Municipal Corporation made the decision to remove a shrine of Syed Chisti Rashiuddin in the city for blocking the development of a road. The shrine was between two hundred and three hundred years old. The Mayor, Sunil Solanki made the decision to remove the shrine to make way for the road. Twenty temples and three dargahs had been razed prior to making the decision to demolish this particular shrine. People who opposed its demolition reacted violently, staging demonstrations against government, officials and the municipal corporation. Six to eight persons were killed and 42 others were injured in the riot and police firing that followed, and a curfew had to be imposed.

The Dargah (Shrine) of Syed Chisti Rashiuddin being brought down in Vadodara, Gujarat, 2006

Jabalpur: A Case in Point

Jabalpur has a population of 2.4 million as per the 2011 India Census.



The Religious composition of Jabalpur as per 2001 census is shown above.

Jabalpur is known to be a communally sensitive area with the first major-scale riot between Hindus and Muslims in post-Partition India erupting in this city in February, 1961. Reports suggest that this riot was linked to the emergence of a small class of successful Muslim entrepreneurs who created a new economic rivalry between the Hindu and Muslim communities. The army was called in on February 5,1961 to control the situation. Fifty-five people died according to official reports, but unofficial accounts put the death toll at more than 200. Violence propagated to nearby villages causing six deaths in Sagar on February 8 and 9, and two deaths in Narsimhapur on February 8.

Various religious installations were constructed on the land of the Jabalpur Municipal Corporation (government land), without permissions and approvals of the government authorities. These illegal religious structures were estimated to number well over 500. These structures would often host functions and social gatherings frequently affecting the free movement of traffic in and around these installations. As a result traffic jams and accidents were commonplace in these regions. The religious constructions on the roadsides also affected the widening of roads and the beautification of main road-crossings and traffic islands.

Between 1981 and 1991 the population of Jabalpur grew by 20.8%, while between 1991 and 2001, its population grew by 28.24%. The number of registered vehicles is growing at a compounded annual growth rate of 9 percent. This places an enormous burden on the city's roads, and roads are already operating at above capacity. Encroached religious installations in the path of development of roads and other public properties deter traffic movements and widening of roadways to accommodate the rise in vehicular traffic.

Several laws prevent encroachment of public properties. Trespassing/Encroachment is considered a crime by the Indian Penal Code as defined under IPC section 441. The Municipal Corporation act of Madhya Pradesh established in 1956 also defines in section 322 and 323 the prohibition of obstruction in streets, maintenance of record and submission of report of encroachment and that streets are not to be opened up or broken up and building materials not to be deposited there in without permission. The MP Land Revenue Code establishes rules over the right to legal land in the state of Madhya Pradesh.

A Court Order

In response to Public Interest Litigation, the Madhya Pradesh High Court on 9 December 2005 directed the state government to try and remove encroachments from public land. The district administration of Jabalpur, took upon itself the task of removing encroachments without compromising the fragile communal situation in the district. The objective of the drive was three fold - to recover valuable government land under encroachment, to discourage the tendency of encroaching on public land in the garb of religious places and to facilitate developmental work in the town.

Identification of Religious Structures

Success of the drive would depend very much upon an impartial and unbiased identification of religious structures that came under the purview of "illegal encroachment on Government land". Teams comprising different members from revenue, police and Municipal Corporation surveyed their jurisdictional area and identified and listed structures. The town was divided into smaller areas which were surveyed by smaller cohesive teams, helping to speed up the identification process. The data base thus prepared contained information on the year of construction, the area under encroachment, valuation of land, etc. This was then verified by SDMs (Sub Divisional Magistrate) and CSPs (City Su-

perintendent of Police). It did not matter to the administration, whether the identified structure was a mandir, a mazars or church: what mattered was the strict adherence to the norms defining religious encroachments. To ensure fair play and transparent decision making, the list was shared with the various 'interest groups' at the police station level, to ascertain its veracity and to gauge their reactions. The feedback given by those who attended these meetings was used to refine the database and to decide about the modalities and timings of removal.

Giving voice to the 'silent majority'

The district administration was well aware that sensitive issues such as the removal of religious structures of different faiths have the potential of transforming any situation into a law and order crisis. District authorities believed that religious encroachments could only be tackled by building public opinion against this mentality. They therefore thought that it was imperative that before undertaking any such exercise, an open and candid discussion should be initiated, feedback received and intelligence gathered.

In Jabalpur, the District authorities started with collating and collecting data for the last five years of road accidents that had taken place near different religious structures in the town. This was then highlighted in various formal and informal forums. Almost everybody was unanimous in accepting, that, there have been several avoidable incidents of loss of life, and that something must be done about it. Yet they remained the 'silent majority'. The challenge was to convert this 'silent majority' into a clear support group – a force to reckon with.

Jabalpur has a fairly-well established practice of organizing peace committee meetings prior to any major festival. It is an informal gathering of political executives, local leaders and respectable citizen practicing different religions and representing all walks of life. It is presumed that committee members exercise control over their communities, groups, associations and 'constituencies'. But, there is no doubt that there are some 'black sheep' amongst them and that they are there to get recognition and respect by being a member of Peace Committee. While the administration generally expects wholehearted support from the members of the peace committee for maintenance of law and order, at times they are the ones who would precipitate trouble. Peace Committee meetings are nevertheless an important forum to reach to the common man, as its proceedings are covered well in local media and are an important means to try and build consensus on a subject.

The first meeting of the Peace Committee to decide the modalities of removal of religious structures was a fiasco. Members were unanimous and categorical that it could not happen and they could be a party to this so-called 'unholy' act of the District Magistrate (DM). They also feared that it might worsen the fragile law and order situation. They had reservations as to how would they respond to their 'constituencies' and how parity in demolition of various religious sites could be maintained. Some participants also saw this as an opportunity to settle individual scores against the members of other faiths. Nothing much came out of initial Peasce Committee meetings except that they were talking about it. There was also coverage in the media.

Even after the dimensions of the problem were established, a successful campaign to rid the city of encroaching religious structures would clearly require efforts on many fronts. Public awareness of the traffic safety risks associated with the structures, and support among the general public had to be built. Negotiations would need to be conducted with the caretakers of the shrines—and in many

cases, their invisible financial backers. Close coordination between the Police, Municipal Corporation, and Revenue authorities would be needed. Numerous court cases filed by priests and local leaders to scuttle the demolition process would need to be defended. Government employees and their families would need to be persuaded that there is nothing unholy in doing one's duty in demolition of religious places; rather, it is part of their moral responsibility to participate in it. And all of this would need to be done with the looming spectre of communal violence in mind.

4.3 Encroachment of Religious Structures in Madhya Pradesh - Part B

Between 2005 and 2008, the district administration razed 311 encroaching religious structures without causing untoward incidents during the process. By 2012, a total of 550 installations were razed. Several strategies were utilized by the District Magistrate and local officials to facilitate this outcome.

Building Awareness

Using the data on traffic hazards associated with encroaching religious structures, the District Magistrate decided to use the opportunity of 'Traffic Safety Week' to build public awareness. He highlighted the hurdles in safe travel, the man-hours wasted in manning and guarding these places of worship during communal flare-ups and its adverse impact on regular policing. He also underlined the fact that a growing populace and increased and intense participation of citizens in religious ceremonies would soon require a large force to maintain peace and tranquility in the city. In one Traffic Safety Week presentation, the District Magistrate presented data on the number of accidents that were taking place in Jabalpur on various roads. These accidents were correlated with the encroachments, but only an oblique reference was made to the encroachments of religious places. Almost everybody, including the Mayor, voiced concern as to why the "administration" was not doing anything on this issue. This was then given wide publicity through print and visual media. This was not sufficient to mobilize enough support and the moral strength to start removing encroachments. But media campaigns highlighting the unlawful nature of encroachments and the inherent dangers posed by illegal encroachments among the general public did help to rally support of the silent majority.

Identification of behind the scene persons

Since demolition of religious structures is a sensitive issue the District administration took precautions to avoid any confrontation with the public. Police station-level meetings gave them an indication of what kind of reaction could come from communities and the sentiments and feelings that were liable to be hurt. District administration identified the persons directly connected with the affairs of such structure. Those persons were then engaged in negotiations. It was soon realized that it was not enough to initiate dialogue with the caretaker alone, but a need to involve the 'man behind the curtain'. These could include local leaders, MLAs, Ex-MLAs, Councillors, Ex- Councillors, and would-be MLAs and peace committee members exercising influence.

Peace Committee Meetings and Individual Persuasion

While the initial Peace Committee Meeting was not a success, the administration believed that the process remained useful in preparing people for impending demolitions. Presented with facts and examples, even the staunchest protagonist against demolition could at least see reasons in for it, though they might not admit it. The initial failed Peace Committee meeting was followed up by one-to-one meetings with various interest groups of business, professionals, etc., who by now were aware of the cause and were supportive of it, but feared to commit it in the open. The District Magistrate along with officials also called on religious gurus, opinion makers and political executives and explained to them the cause and commitment. Though some of them were convinced by the administration's commitment and resolve, they were reluctant to support the drive openly as they felt that the volte-face in their stand would jeopardize their position within their community. The District administration tried to allay their fear by arguing that such a stand would earn them supporters amongst common citizens, even if it antagonized some of the hardcore followers. Some of those who were still opposed to district administration and were threatening dire consequences were told in unambiguous words that district administration was committed to go ahead and was prepared to take whatever steps that was necessary for achieving the objective.

Having been convinced that resistance to demolition had been substantially diluted and district administration had earned some silent supporters to the cause, the peace committee was once again called and the action plan to implement the order of the High Court was explained to the members of the Peace Committee. As expected, there was still reluctance from some members, but by now, they all had the inkling of what was in the mind of the administration. Soon they relented and agreed (at least in principle) to cooperate and support the authorities. However, they decided to play safe by making it abundantly clear that the process of removal had to be impartial and transparent, and they would not be a party to the decision if anything went wrong.

Well-prepared Team

After the initial resistance was diluted, large-scale preparations were taken to demolish the religious structures. Additional police force from local police stations were called, Executive Magistrates and police officials were duly briefed to show restraint in all circumstances. Deployment of forces in the sensitive areas was done to avert any violent reactions during or after the demolitions.

The day was chosen so as to avoid religious festivals or VVIP tours. Political executives of the district were politely requested to be out on tour on the day of demolition to avoid any embarrassment. However, they were promised that they would be kept updated about the developments of the actual situation. In addition, any communal biases were offset by the fact that the team members of the anti-encroachment drive belonged to different religious faiths.

Gradual and time taking process

Demolition of religious structures in the district was not done in haste. Each time a road was identified for development, all the religious structures falling on it were listed and negotiations followed. The negotiations were done at least at three levels, so as to address all the reservations regarding the selection, process and timings of demolitions. For every drive the assessment of man, material and machinery was done de-novo and land reclaimed from demolition was immediately taken up for development. Enough time was given for the encroaching parties to react.

Respect and sanctity of religious sentiments

Regular priests and maulvis were persuaded to conduct ‘puja’ and recite ‘fatia’ before demolitions. However, due to fear of community reprimand or inviting divine wrath, they never turned up on the demolition day. Lastly, religious attire for government employees was organised and they were made to dress like priests and maulvis, who then conducted religious ceremonies. The idols or mazars were then removed in the most respectful manner.

Once the deity was shifted, the structures were pulled down by mechanical excavators. While huge idols were submerged in river Narmada (this is considered an auspicious way to lay anything holy to rest), smaller ones were allowed to be taken by the community, obviating the need for relocation. In case of mazars (Muslim mausoleums or shrines), extra precautions were taken to not damage anything that might be buried beneath the ground.

Soon, district administration started getting mass support and all those who were initially hesitant in coming forward joined the bandwagon.

Mobilizing and protecting front line workers

The anti-encroachment party visiting the encroached land would first hand over the legal notices requesting the occupants/unlawful tenants to evacuate the area. The police forces would then announce to the residents using public announcements to remove their belongings and vacate the property. The front-line team of workers who tore down the structure were provided sufficient police protection during the tearing down operation. The front line workers would then move in and demolish structures and level the foundation platforms, with the police keeping close vigil to prevent any untoward law and order incidents.

Preventing Reconstruction of Encroachments at the same site

In order to prevent reconstruction of shrines, the sites were often transformed into traffic islands with manicured gardens that eased traffic congestion in the area, or parking spaces or wide pavements that facilitated pedestrian movement. In many cases the previously encroached land made way for widened roads with large shoulders, facilitating larger volume of traffic to pass through and lowering the risk of accidents.

Result

In the span of less than three years (from September 2005 to June 2008), 311 religious places of all faiths were removed. Debris was removed from the site immediately, and development work commenced the next day. This gave no opportunity to citizens to complain against the drive.

The removals occurred without creating communal strife or disruptions of law and order. District authorities ensured transparent and uniform removal of religious encroachments of all faiths that were on government land. The deaths and injuries that were common on the main roads within the town declined substantially. In addition, the administration no longer has to protect these places during communal situations, relieving the police force for other law and order duties. The initiation and completion of development activities under schemes like the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) program of urban infrastructure development became easier to implement. Finally, successful removal has emboldened spirits and morale of all the officials involved in the drive, while disheartening those, who were in the business of encroaching the prime land by exploiting religious sentiments of gullible citizens.

Sustainability

During the period since the initiation of this drive, several officials including 3 SPs and 3 Municipal Commissioners have changed. Assembly and Parliamentary elections were conducted, yet the drive continued unabated. Even after the District Magistrate's transfer, his successors continued with the drive. Now, any attempt made to grab valuable Government land can be scuttled by citizens sending information by SMS / Phone to authorities. Since the state has accepted it as a best practice worth emulating, other DMs / SPs in the state are now under moral pressure to do so.

Epilogue

A Supreme Court order was issued on September 29, 2010 pertaining to the construction of illegal religious structures in India. The order states that:

- No unauthorised construction shall be carried out or permitted in the name of temple, church, mosque or gurudwara etc. on public streets, public parks or other public places.
- Unauthorized construction of relegious nature which has already taken place shall be reviewed on a case-to-case basis and appropriate action shall be taken in every matter as expeditiously as possible.

Another order was issued on Jan 15, 2013 by the Supreme Court of India by a bench comprising of justices R.S. Lodha and S.J. Mukhopadhaya which banned the fresh encroachment of roads, pavements and sideways by religious structures/installations along with statues of public figures/leaders. Justices Lodha and Mukhopadhaya have stated that public roads are not anyone's property and that each citizen has a right to use the road and that right cannot be interfered with or impeded by constructing a temple, mosque, church or gurudwara or by installing the statue of a public figure.

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Appendix

Madhya Pradesh High Court Satish Kumar Verma vs The State of M.P. And Ors on 19 July, 2013

Writ Petition No.2214/2005

19.7.2013

Petitioner in person.

Respective counsel for the respondents and some of the interveners are also present.

In the present Public Interest Litigation filed in the year 2005 grievance has been made that unauthorized religious structures have been illegally constructed on public lands including public roads within the municipal limits of Jabalpur and this Court vide order dated 9.12.2005 already directed the district authorities (arraigned as respondents) to remove such religious structures, particularly from public roads, and keep on reporting compliance from time to time once in every month by an affidavit of the Collector, Jabalpur. It is to be noted that while making such direction, following observation was made: "While construction of religious structures on public roads do create a lot of inconvenience to the general public, removal of such structures has to be done very carefully without hurting the sentiments of the religious groups. Hence, such removal of the structures from the public roads of the Jabalpur Civil area and Jabalpur Cantonment area will have to be done by the authorities persuading the religious groups and we hope such religious groups will extend full cooperation in the larger interest of the general public of Jabalpur city."

Admittedly, in compliance of the aforesaid direction, the district authorities have done a commendable job by removing as many as 571 unauthorized religious structures. Status report dated 16.7.2013 filed on the affidavit of Additional Collector, Jabalpur, states that an action plan has been prepared for the removal of 32 more unauthorized religious structures in a phased manner of which a consolidated list has also been prepared. As regards the religious structure namely Mazaar of Machine Wale Baba Sahib, it is stated that notices were issued by the authorities for its removal but due to passing of ex-parte stay order dated 22.5.2013 by the Board of Revenue the same could not be removed. Shri P. K. Kaurav, learned Additional Advocate General, however, assures this Court that an appropriate

application for vacating of the stay order will be immediately filed giving reference to the orders passed by this Court rejecting the applications for stay against demolition of the Mazaar of Machine Wale Baba Sahib. We accept the statement made by the Additional Advocate General in this regard. Also, as stated in the status report, we trust that immediate action will be taken for the removal of Durga Mandir situated at Pandey Chowk and reconstruction of religious structure in George Town School. Needless to mention that since we have not granted any stay order against the removal of unauthorized religious structure of Sai Baba Temple situated at Gwarighat Road, Jabalpur, the same be also removed by the district authorities without any further delay.

We are informed that in Special Leave to Appeal (Civil) No.8519/2006 Union of India v. State of Gujarat the Supreme Court has also vide order dated 7.12.2009 disapproved such unauthorized constructions of religious nature.

Indian Kanoon - http://indiankanoon.org/doc/153824114

Satish Kumar Verma vs The State Of M.P. And Ors on 19 July, 2013

Having regard to the fact that the petition is pending since last more than eight years and as many as 571 unauthorized religious structures have been removed we, instead of keeping pending, finally dispose it of the same with the following directions:

1. The district authorities and respondents shall continue to remove all the unauthorized religious structures in a phased manner and report compliance to the Registrar General of the High Court once in every three months on the affidavit of Collector, Jabalpur who in turn shall supply a copy of the same to the petitioner.
2. The district authorities and respondents shall ensure that no religious structures which have been removed are reconstructed.
3. The district authorities and respondents shall not allow any encroachment on the lands from which unauthorized religious structures have been removed and if encroachments have been made, the district authorities and respondents shall immediately remove the same.
4. The district authorities and respondents shall ensure that no new religious structures are allowed to be constructed by anyone on public lands and public roads.

In the result, all the interlocutory applications stand finally disposed of and interim stay orders passed by us shall also stand vacated.

The security amount deposited, if any, by the petitioner be refunded to him. Certified copy as per rules.
(AJIT SINGH)
JUDGE
ps
(N. K. GUPTA)
JUDGE

5. *The Education and Training Center, Navi Mumbai*

5.1 The Education and Training Centre-Navi Mumbai - Teaching Notes

Case Synopsis

Education requirements of Children with Disabilities (CWDs) are inadequately addressed. Dr. Varsha Bhagat, the Principal of a school for challenged children, was keenly aware of the array of services required by CWDs, which included medical treatment, aids and appliances, therapies and special education and vocational training. She envisioned an initiative to bridge the gap in the education system for CWDs.

Some services for CWDs are separately available at private sector, but are prohibitively expensive. The wide spatial distribution of services required commutation of parents with CWDs which in turn is problematic. To the persons concerned, a one stop service centre where services are rendered free of cost would be a great boon. Additionally, parents need training to handle CWDs. A wide spectrum of professionals also needs to be retained with competitive pay scales. For mainstreaming CWDs into the general educational system, teachers in general schools also have to be trained. Moreover, the general public has a lot to learn about respecting the rights of CWDs. Therefore, efforts have to be made for awareness generation. Although there were many NGOs in the field, they lacked power and funds to operate effectively. The actual percentage of differently abled persons is left untracked and unidentified and stands at 3% percent of the population in official records.

In spite of the innumerable international covenants, legislations and administrative provisions to protect the rights of the children, the condition and position of CWDs remain without change. Therefore, Dr. Varsha Bhagat had the grand vision to ensure the dignity of CWDs and to make them contributing citizens of the country. She acted as the liaison with Mr. Vijay Nahata, the then Municipal Commissioner, to open the Education and Training Centre (ETC) at Navi Mumbai Corporation. The dismal statistics of the state of affairs for the differently-abled persons was an eye opener to Mr. Nahata. He had an arduous task of implementing the ETC project to follow. Organizing funds and appropriate functionaries was a challenge. Catering to the needs of challenged children was not a mandatory function of Municipalities and was generally considered to be the responsibility of the Social Welfare Department of the Government. To realize this vision, there was a need for continuous up-scaling and branching out to special categories of disabled children. The vision driven initiatives resulted in the growth to a 50,000 sq. feet multipurpose holistic one-stop Resource Centre for CWDs. Dedication and devotion of all the stakeholders and continuous capacity building of all concerned individuals were critical to the success of the project.

Learning Objectives

On a general level, this case can be used to pursue several learning objectives, including building political support for policy change, negotiating among multiple stakeholders, and dealing with populations with special needs. Additional issues, such as how to motivate and retain front-line workers with specialized skills, can also be examined using this case.

The case can also be used to focus attention on the particular problems of children with disabilities. If the latter path is chosen, a discussion generated during the case analysis will allow students to identify and delineate:

1. The need for assessing the situation of differently abled children
2. The constraints and challenges in setting up a holistic one stop centre for CWDs and PWDs
3. The international covenants and the legal provisions for protecting the rights of CWDs and PWDs

4. The factors contributing to the success and sustainability of an ETC
5. The factors which can be helpful for the scalability and replication of an ETC
6. The potential for using mandatory Corporate Social Responsibility clauses to obtain corporate funding for replicating this project.

Curricular Positioning

The case is designed to be taught in one 75 minute classroom session. It can be used in a variety of courses, such as management of social services and public management generally. It can also be used at several training levels. If a focus on the particular problems of Children With Disabilities is chosen, it may be particularly effective in a training programme for Municipal Commissioners and district collectors from various states of India to sensitize them to problems of Children with Disabilities.

Assignment Study Questions

The following study questions can be used to help students prepare the case. Which questions are assigned may vary depending on whether the instructor teaches the case as a general case focused on stakeholder engagement and social services management or with a focus on Children with Disabilities.

What are the highlights of the international conventions and Indian statutes to protect the rights and dignity of children with disability?

1. What challenges did Dr. Varsha Bhagat and Vijay Nahata confront during all stages, from building a vision through setting up action plans, implementation of the action plan and monitoring and evaluation of the programme? What strategies did they use to meet such challenges? What are some alternate strategies that could have been used? What opportunities and strengths did they leverage to manage the constraints?
2. What factors do you think have contributed to the success and sustainability of the Navi Mumbai ETC? How did Dr. Varsha Bhagat and Vijay Nahata ensure that these factors will continue to exist to ensure success and sustainability of the project?
3. Is the ETC model scalable? If no, explain why. If yes, what factors contribute to the scalability? Suggest some additional factors that could increase scalability of the programme.
4. Is ETC model replicable in your area? If no, explain why. If yes, give reasons and mention the caveats you think are relevant in attempting to replicate the programme.
5. Do you think that assessing the situation for Persons with Disabilities, as was done of the CWDs in Navi Mumbai, would be required before planning to set up the ETC in your area? How would you go about doing such a study in your area? How would you make use of the findings of the study?
6. If you were to start an ETC in your area, what is the grand vision about the ETC you would use, and how would you explain your vision and link it up with the covenants and statutes? How will you involve the different stakeholders around this vision?

Case Analysis

In addressing these analytical questions, the following topics may be highlighted by the instructor if they are raised by participants, or introduced by the instructor if they do not arise independently. Some of these points (e.g., how well Indian statutes support the concept of an ETC) can serve as points for debate. Participants in the class can also be assigned the role of participants (e.g., Dr. Bhagat and Mr. Nahata, parents of CWDs, teachers, etc.) for either brief or extended role-plays during the course of the discussion.

1. Back up of conventions and statutes for vision building:

The synergy between the passionate vision of Dr. Varsha Bhagat, who was deeply involved in the affairs of differently abled children on a day-to-day basis, and the power to implement and make funds available by Mr. Vijay Nahata as the Municipal Commissioner of Navi Mumbai, made the project a possibility. The Indian Constitution, legislations and judicial provisions also aligned with the concept of a one stop holistic centre for children with disabilities. The fact that the idea took birth in the minds of empathetic souls cannot be over emphasized. This points out to the resolve of a bureaucrat who went forward with a mission, enlarging and enhancing the scope of his position.

2. Statistics to back up the initiative:

Statistics can be used as an eye opener and also as a tool for lobbying. It was the local statistics of the persons with disability which spurred Mr. Vijay Nahata to action. Awareness classes followed by administering of survey questionnaire, Focus Group Discussions, Participative Research, Rapid Appraisals etc. could be resorted to for responding to the demands of a given context.

3. Constraints and Challenges:

Vijay Nahata faced difficulties in selling his concept to the higher authorities. After all, setting up such a centre was not mandatory for a municipality. The lack of a policy for undertaking this project was a major hurdle. Mr. Vijay Nahata had to negotiate the project standing in the context of policy vacuum. Managing the complacency of associates might also be a problem. A lot of effort might have to be spent in convincing the stakeholders regarding the benefits of such a centre and to inspire them with the grand vision. Without the tedium of building up consensus democratically, he might have tried to gather political support and got it approved from minister's level. With this strategy, the initial challenges would have been far less, but the sustainability would have been threatened due to lack of ownership.

4. Factors contributing to Success:

Mr. Vijay Nahata's close association with Dr. Varsha Bhagat and many brainstorming exercises with various stakeholders contributed to the success of the ETC. But the empathetic understanding laid the foundation of ideas related to the structure and functions for the ETC. The need-based approach and the demand driven service delivery helped ETC to be sustained on its own merit. The deep understanding about the role of parents and mainstream educational institutions helped ETC to roll out new need based programmes. They were able to leverage the unmet need for affordable services for persons with disability.

Scalability and Replicability

ETC operations were expanded and a range of professional services were rendered within a span of 4 years, from 2011 to 2014. A person with vision can expand activities, incorporating anything from research to training of international level. It can be seen that ETCs activities go beyond the ETC's boundaries, but also into the field and into the home front of the beneficiaries. Extension services are also there. The growth of mandates given to the local self governments to engage with the problems of persons with disability were a very advantageous factor to undertake such activities. Opportunities and scope is unlimited, constrained largely by the existence of committed and passionate individuals who can plunge into action despite all the bureaucratic and political hurdles. Those at the helm of affairs need to identify and spot such committed individuals and facilitate their operations.

Factors to improve sustainability that can be raised in the course of discussion include the following:

- Incentives to the faculty and experts that aid in retention
- Training as an integral aspect of continuous function
- Weekly workshops for upgrading knowledge and skills
- Processes in place regarding transport, grievance redress and feedback and feedback from children and parents
- All sections of PWD are handled at one place, prenatal to adult
- Outpatient as well as outreach programmes for PWDs and their treatment/welfare
- 3% budgetary contribution for welfare of PWDs helps in sustained financial support Several possible caveats with respect to sustainability can also be raised:
- If there is no proper succession planning, at the time of a change of leadership , only the structure and processes are taken over, without handing over the vision which is the soul of an institution. Will there be the same degree of commitment for the successor?
- The extent of ownership by the public is another potential challenge. It must be nurtured over time by institutional leaders.
- Sustainability also depends on the quality of the range of professionals. Retaining them requires not only competitive remuneration, but also with opportunities for professional and career advancement.

Blackboard Plan

The following matrix can be used to organize participant comments on the case, focusing on the different stages of project management.

Stage of Project	Major constraints and challenges	Strategiess for Addressing constraints and challenges
Background Preparation		
Getting formal and informal action and support		
Operational Phase		
Scaling up		
Sustaining		
Facilitating Replication/ When others replicate		

Time Management Plan

Activity	Duration in minutes
Discussion of the problems of Children with Disabilities	5
Discussion of stakeholders involved in starting an ETC	10
Discussion of challenges and strategies involved in getting ETC started and expanded, using the Discussion Matrix	25
Discussion of factors required to sustain an ETC once it has begun	15
Discussion of replicability, with a focus on participant's perceptions of what would be required in their area	15
Conclusion and Take-Aways	5
Total	**75**

5.2 The Education and Training Center, Navi Mumbai

Differently-abled persons constitute about 2-3 per cent of the total population of India.[1] In order to develop successful programmes for social integration of the disabled, information relating to their magnitude, type of disability, age at onset of disability, possible cause of disability, etc., is essential. While a number of legislations and schemes cover the needs of persons with disabilities, education of children with different abilities requires particular attention.

Children with different abilities (CWDs) are frequently discriminated against in the family, school, community and above all, in the society. Their best interest is seldom considered and as a result, their development and survival is hampered. They often do not get the opportunity to participate. The Universal Declaration of Human Rights (UDHR) is equally applicable to children with different abilities. However, the rights set forth in various human rights conventions are often not accessible to them.

Dr. Varsha Bhagat, the then-principal of a school for physically challenged children, knew that the CWD needed an array of services including medical treatment, aids, appliances, therapies and special education. However, there is not much awareness regarding various issues related to persons with disability. Thus Dr. Bhagat felt the need of a centre that will create the awareness in the society ultimately to reduce the rate of disability and also to sensitize general public to accept and respect persons with disability. There was also a felt need in the Navi Mumbai Municipal Corporation for a one- stop holistic centre providing a wide range of services at reasonable cost. Mr. Vijay Nahata, the then-Municipal Commissioner of Navi Mumbai, was inspired by Dr. Varsha Bhagat to start such an initiative.

Legal Provisions

According to the Indian constitution, disability refers to (i) blindness; (ii) low vision; (iii) leprosy-cured; (iv) hearing impairment; (v) locomotor disability; (vi) mental retardation; and (vii) mental illness. “Persons with Disabilities Act, 1995” gives effect to “The Proclamation on the Full Participation and Equality of People with Disabilities in the Asian and Pacific Region” of 1992 and lays out protectionist policies and special provisions for the disabled. Some of the provisions include reservations for Persons with Disabilities (PWDs) for admission in central and state universities and employment in government agencies. Additionally, Section 32 of the “Persons with Disabilities Act, 1995” provides for 3 per cent reservation for people with disabilities in all poverty alleviation programs of the country. In September 2014, the Supreme Court of India also ruled in favour of 3 per cent reservation for PWDs in the civil services for employment and promotion. However, most of the parents of these children/ persons with disability are either unaware or do not find a proper channel to avail these schemes.

According to the Right to Education Act, all children with disability have to be brought under the educable spectrum. The current thinking is that in order to facilitate the easy mainstreaming of a Person with Disability (PWD) into the wider society to the extent possible what is required is integrated education rather than segregated education. Much work remains to be done for the attitudinal reengineering of the general public towards accepting and respecting a CWD.

1 *The estimates of disabilities among the Indian population are questionable, because in countries like the United States and Australia the figure is much higher. Identification, tracking, reporting and recording of the disabled in India is low.*

Both the Central and State Governments have good laws for welfare of these persons. However, local bodies have neither laws nor awareness of these special issues. There is a policy vacuum in this regard. Decisions would have been much easier if there was policy back up and also clear guidelines from the Government. According to the MNC Act (Chapter 2, article 66) the above mentioned types of services are not mandatory for MNCs to fulfill. Therefore, MNCs are not incentivized to take up these services and treat them as services which are the mandate of the Social Service Department.

The Situation in Navi Mumbai

Navi Mumbai is a planned city, established in the 1970s, under the aegis of City and Industrial Development Corporation (CIDCO), providing residence to more than 11 lakh citizens. It was developed as a solution to the growing population of the city of Mumbai, which was constrained for expansion by sea. Navi Mumbai is governed by a Municipal Corporation- Navi Mumbai Municipal Corporation (NMMC).[2] A survey of the PWDs conducted by the Education Department of the NMMC under the Sarva Shiksha Abhiyan in 2006-07 revealed that there are a significant number of persons with disability in the area of Navi Mumbai. (see Exhibit 1).

Constraints on Non-Government Organisations

There are a few NGOs working towards education and training of CWDs. However, they face some inherent limitations like restricted power to bring about necessary changes and lack of funds. These difficulties interfere in the services they provide and the number of students they can admit. Being a local government body, it was thought that NMMC would be able to overcome these constraints and provide barrier-free services by developing a centre for Persons With Different Abilities (PWDAs).

Burdens on Parents

Special children need an array of special services like medical treatment, aids and appliances, therapies, special education and close assistance. These services involve a lot of expenditure. On an average, parents have to reserve an amount of Rs. 7,000-10,000 per month to follow an ideal rehabilitation plan. Such an amount remains unavailable to 90 per cent of the parent population. NMMC wished to give parents a complete relief from this financial burden by providing them education and paramedical facilities on a free basis by setting up a centre for persons with disability.

In addition to the financial burdens, a special child usually needs more than one treatment and therapy along with special education. It becomes unmanageable for the parents to wander through places with their special child. A one stop holistic centre for Children With Different Ability (CWDA) could ease out these pressures on the parents and save energy and money. Such a holistic centre would facilitate internal discussions and better handling of the child thus facilitating faster progress.

Mobilizing Local Government Support

Fired up by the lofty ideals of Universal Declaration of Human Rights and Child Rights Convention, Dr. Varsha Bhagat wanted to do something to eliminate the all pervading discrimination against such children, to integrate them socially and to ensure their survival and development. In spite of all the favourable schemes and legislations for Children with Disability (CWD), Dr. Bhagat knew that the education needs of this group of children were left unaddressed, both quantity wise and quality wise. She wanted the CWDs to be contributing members of the society. She wanted to empower them to live a life with dignity. She felt that the Corporation needs to conceive and implement such a centre and

2 A municipal corporation is a political subdivision of a state of a defined geographic area which performs state functions at a local level. NMMC is the municipal corporation of Navi Mumbai.

approached Mr. Vijay Nahata with her idea. After lots of discussions, she got positive support from Mr. Nahata to go ahead with her idea. Convincing the general body was, however, a herculean task. Innumerable meetings might have been conducted and disputes resolved before such a vision was 'sold' to the stakeholders and before the entire spectrum of stakeholders were taken on board. This is because of lack of any supportive policy documents like GR from the Government. Decisions are faster when policy guidelines are clear.

The entry of local self government into the area might have disturbed the Social Service Department and NGOs who were hitherto engaged in the subject. Thus, Vijay Nahata might have possibly faced problems from the territory-protecting tactics of the persons concerned. Mr. Nahata might have used the mandated power of a local self-government (through Constitution amendment giving power to local bodies) to conceive it and implement it although they did not consider it their domain of responsibility.

Initiation and Expansion of Services

All the facts mentioned above indicated a serious need to set up a Centre for the Children with disabilities (CWDs) and cater to a variety of needs of Persons with disabilities (PWDs). So NMMC started a small school for Children with Hearing Disability (CWHD). A Centre for education and training for Children with Hearing Disability was started in the year 2007 for 40 students in the basement of the Municipal School, Rabale, Navi Mumbai, on an area of 2500 square feet. According to the Disability Code 1995, NMMC has approved various posts of rehabilitation professionals for the Centre taking into consideration the student-professionals ratio.

As the responses from parents of special children from different types of disabilities increased, they then felt the need to expand the services to other types of disabilities. The original program was converted in to an enormous institute within a span of 3 years. Programs for Children with Intellectual Disability, Learning Disability, Multiple Disability and Cochlear Implant were also initiated. With a high commitment to the importance and seriousness of the project in terms of social and moral responsibility, NMMC made special efforts to initiate this Rehabilitation Centre. Thus the Education, Training & Service Centre for Persons with Different Abilities' was founded in 2008. The centre now provides educational and rehabilitative facilities over an area of 6500 sq. ft.at Airoli, Navi Mumbai, and also at the Rabale centre as mentioned above from 2009. The Centre started a unit of Early Identification And Intervention, Pre-Vocational Training, Individualized Education, Home Based Training, Integrated Unit, Inclusive Unit, Outreach Unit, Outdoor Patient Department and Family Empowerment Cell. The centre also extended its services to adults with different abilities by initiating various schemes for PWDs as a pilot project. It also started a Community Participation and Mobilization program.

Considering the current need and future expansions of ETC, NMMC procured a plot of 2.5 acres with the permission of 4,000 sq meter construction area opposite Vashi railway station, Navi Mumbai (one of the most prime locations in the City) to fulfill the dream of an advance resource centre. Phase I (2011 to 2014) saw the completion of construction of a new Resource Centre. A Rubella vaccination program was also launched to curb disabilities caused by such diseases.

Currently about 105 professionals are working at the NMMC, including special educators, audiologists, speech therapists, physiotherapists, occupational therapists, psychologists, social workers, and administrative staff. Professionals in the institute get a salary supplement approved by the State Government, thus providing economic stability and stopping professional drain out. NMMC is the first

corporation to recognize the efforts taken by the special educators and to offer them an incentive of Rs. 1000 and Rs. 1500 for the Principal per month. The attractive salary package and environment to grow professionally help to attract the manpower needed to sustain the project. Presently 450 Students with various disabilities are getting special education at the centre. 117 special students have been fully or partially mainstreamed to date. The progress rate of individual children is measured and shows the highest satisfaction level.

An Evolving Mission

The primary objective of ETC is to facilitate the process of making PWDAs as contributing members of the society and empower them to live life with dignity. With this broad objective, the Centre has evolved its mission to:

- bring all children with different abilities under the "educable spectrum"
- provide 'all educational options' under one roof
- provide services beyond schooling
- empower the family with PWDAs to work on limitations and focus on their strength
- conduct disability prevention programmes to curb disability
- mainstream PWDAs through protection of their rights; medical, educational, socio-psychological, social and financial rehabilitation
- sensitize general public to accept and respect PWDAs
- create and explore networking amongst the organizations and agencies
- empower other institutes working in the field of special education
- lead the institute towards a holistic 'One Stop Resource Centre' for a range of services.

Future Initiatives

After the demonstration of designing and working of a successful ETC, the Navi Mumbai Municipal Corporation has proposed adding further facilities, such as school for children with visual impairment, quarters for parents and teachers, genetic counselling, mobility training centre, hearing aid repairs and ear mould making lab, musical orchestra, audio visual room, sports club, disability club, water therapy, exhibition centre and professional/ human resource development, etc.

Factors Contributing to the Success and Sustainability of the Initiative

The initiative succeeded because Dr. Bhagat and Mr. Nahata, were able to look at all aspects of the project from the view point of the ultimate beneficiaries of the scheme – children with disability and their parents. They looked empathetically at the unmet range of needs: medical, therapeutic, educational, rehabilitative and transportation issues, parenting challenges, problems faced from and by teachers of mainstream schools, the discriminating, insensitive and condescending treatment by general public, existence of unidentified and untracked children with disability, inadequate number of early detection and intervention etc.

Furthermore, for such institutions to be initiated and sustained, major issues such as finance, needs assessment of target population, infrastructure, planning for present and future along with willingness, dedication and devotion are required. By opening up Outpatient facilities for adult persons with disability (for counseling, treatment and therapy) on a payment basis, there was a sort of cross subsidization across departments which finally enabled giving services free of cost to children on a sustainable basis.

The coordination among public representatives, administrators, teachers, parents and children has contributed immensely to the success of ETC. Parents of CWDs and PWDs in the area of Navi Mumbai have become aware of the facilities and quality of education provided in the ETC. Capacity building of parents has been given highest priority at the ETC, as every parent has both a formal and informal role to play in rehabilitation of a special child. Many parents attended the class room observation sessions along with their wards so that they can minutely watch their ward's behaviour and also grasp the teaching techniques for implementation on their own at home. Mainstreaming of students was key to the success of the Centre.

Replicability and Scalability

The Education and Training Center of NMMC is the first institute in the field of Special Education accredited under National Accreditation Board For Education & Training (NABET-PSA91 001) by Quality Council of India, in 2012. Many aspects of the initiative should be replicable in full or in part by other local bodies in the country. Funding from corporate houses and charitable institutes could also be considered for taking up of such projects. Local bodies can utilize some spare stretch of land available with them for running such a Centre. The local bodies could assist establishments of these centres by passing the necessary resolutions and implementing them at local level so that the technical difficulties faced by other organizations do not arise, and replication becomes a smoother process.

Nevertheless, the Navi Mumbai Education and Training Centre remain the exception rather than the rule in India. Is its success in mobilizing and utilizing resources the result of a unique level of local governmental support, the special dynamism of its leader, or other special factors? Or is it indeed a widely replicable model?

EXHIBIT 1: NUMBER OF PERSONS WITH DISABILITY IN NAVI MUMBAI

Persons with Visual Impairment	Persons with Hearing Impairment	Persons with Physical Handicap	Persons with Mental Retardation	Persons with Autism	Persons with Specific Language Impairment	Persons with Multiple Impairment	Persons with Learning Disability (2008-09)
1434	460	179	493	173	412	75	604

6. Sustainable Plastic Waste Management in Himachal Pradesh

6.1 Sustainable Plastics Waste Management in Himachal Pradesh - Teaching Notes

Case Synopsis

The case discusses the evolution of plastics waste management in Himachal Pradesh. Part A of the case ends with the successful implementation of a plastic bag ban, with two extensions of the policy under consideration: a ban on plastic eating utensils and a much broader restriction on plastic packaging for "non-essential" (or "junk") food that the Himachal High Court may impose.

Focal Point

The case is divided into two parts, the focal point in time is 2011, when two further extensions of plastic waste management policy are under consideration.

Learning Objectives and Case Usage

The case can be used to develop several learning objectives, including:

- Engaging stakeholders
- Importance of Political Support
- Cooperation across departments and levels of government
- Problems that arise during policy implementation
- Supply chain management
- Promotion of behaviour change among individuals and businesses
- The role of courts in setting policy in India

Which topics are discussed in detail will depend on the topic of the course in which it is imbedded.

The case can be taught in several different ways, depending on course context and time available. The primary model here will be for a class that focuses on stakeholders and reform options, with suggested board plans for each of three major discussion blocks in the class.

Teaching Plan for Part A with Stakeholder/Options focus (75 minutes)

Particulars	Time (Minutes)
Overview of the problems posed by plastics management in the context of Himachal Pradesh	15
Analysis of stakeholder positions on plastics waste management	25
Analysis of options for appropriate next steps in HP plastic management, including costs and benefits of specific options	30
Wrap-up & Key take-aways	5
Total	**75**

Potential Board Plan for Part A

Stakeholder	Incentives	Impact on Food Systems	Potential Reform Options

The second discussion block will focus on the roles and interests of various stakeholders. This can be done either through general discussion or through group work (see below).

Board Plan for Second Discussion Block

Stakeholders	Role	Interests	Opportunities and Potential Strategies to win Cooperation	Threats to Cooperation
Department of Environment and Science & Technology (DEST)	Nodal Agency	Environment conservation as the mandate	Power to frame appropriate policies and rules Issue periodic guidelines and instructions	Resistance from business Apart from use in incineration in cement factory and in road construction no other plan for scientific disposal of plastic waste Lack of control over tourist behaviour
Public Works Department (PWD)	User of Plastic (in road construction)	Cost effective material	Savings in road construction	Had to establish a huge network of depots as well as purchase points across the state Sometimes inferior quality of plastics, which made processing difficult.
Cement Factory	User of plastic (incineration)	Lower cost of production	Easy access to input material	Quality of plastic Continuous supply as ban may reduce sufficient quantity
Recycling industries / kabariwallah / rag pickers	Source of income / livelihood	More plastic more income		Loss of livelihood
Businessmen	Selling wares in plastic packaging	No ban till other alternative is available		
Local Bodies	Collection and Sale of plastic to PWD	Source of income Clean surroundings Better environment	Probable political gains	Collection mechanism Loss of power over primary responsibility

Stakeholders	Role	Interests	Opportunities and Potential Strategies to win Cooperation	Threats to Cooperation
District Administration	Monitoring and submission of periodic reports in prescribed formats			Additional responsibility
State Pollution Control Board	Provide information about waste management norms Lab facilities			

Opportunities for Group Work and Role-Playing

Role-playing can be an effective tool for getting students to understand the strategic calculations made by various actors in response to government efforts to constrain and alter their behavior. In this case, groups of student can be assigned the roles of specific stakeholders in the plastics management case (e.g., small merchants, bag manufacturers, ragpickers, and various governmental actors. In the second discussionblock actors in the procurement process, (e.g., millers, procurement officials, farmers and transporters) can help to "road-test" the viability of various reform options. The class can be seated in groups representing these various actors. While the discussion can for the most part be run a normal discussion, when reform options arise in class discussion, the instructor can turn to the group assigned a specific role and ask them how they would respond to that option. This format can be used both in discussing the lead-up to the 2007 reforms (Part A) and discussing implementation problems remaining in 2011 (Part C).

Potential Take-Aways from the Case

Board Plan for First Discussion Block

Problems	Constraints	Enablers
Environmental Degradation	Inadequate waste management system in the state	Political support
Unscientific disposal of plastic waste	Lack of technological options	Multi Agency coordination
Land degradation	Topography / terrain (hilly)	Enabling laws and policies at periodic interval
Plastic waste littering	Lack of control over tourist behaviour	Existence of Eco-clubs and environmental NGOs
Choking of drains	Lack of awareness about ill-effects of plastic in general, especially among tourists	Media support

Alternative Topics

The three-block discussion plan outlined above offers plenty of material for a 75 minute class. Some instructors may want to consider alternative topics, or to have additional topics "in reserve" if the discussion proceeds very quickly on these topics.

Courts

The role of the courts in this case—and in particular their consideration of a much broader ban on use of plastic in food packaging—is an interesting topic for examination. Comparisons can be drawn with the role of Indian courts in other environmental disputes (e.g., in ordering Delhi busses to convert to compressed natural gas (CNG). If this is done, the students should be asked to read the Himachal High Court's 2010 decision. The following questions can be used as the basis for student discussion:

1. On what legal basis did the Court make their decision? Is their legal reasoning convincing?
2. Should the courts be intervening in these types of disputes? Why or why not? Do they have the scientific and administrative expertise needed to make effective decisions? If not, can they acquire it?
3. What options should the government consider to meet the Court's objectives? Which ones should they choose?

Generalizability

Although the strategy, tactics and operational part of this policy is replicable, cost-effective and involves active stakeholder's participation; no other hill state has been able to achieve level of success demonstrated by Himachal Pradesh. "What has led to different outcomes in Himachal Pradesh?" would be good question for the class to ponder at the end of the class.

Study Questions

6.2 Sustainable Plastic Waste Management in Himachal Pradesh - Part A

Introduction

On 15 August 2011, India was celebrating its 64th Independence Day. The state administration in Shimla, scenic capital of the Himalayan hill state of Himachal Pradesh (HP), was also celebrating the Prime Minister's award it had recently received for being best in the country in plastic waste management. But at a busy market in Shimla, a crowd of more than 100 people were protesting against a proposed state government order banning plastic cups, plates, glasses etc. That policy had been scheduled to go into effect on August 15, but complaints from merchants had led the government to announce that its implementation was being delayed until October 2.

Suman, the group leader of a Sangla[1] -bound trek group of twenty-two trainee civil servants from the Lal Bahadur Shastri National Academy of Administration, whose bus had to stop on its way due to the protests, wondered how anyone could be against such an environmentally conducive cause. Earlier on in her journey to Shimla from Dehradun, she had witnessed mountains of trash along the road, discolored polythene on the bed of rivulets and sullied vistas on hill slopes. It was not the presence of garbage that had surprised the group. In fact, it does not surprise Indians anymore; plastic trash is a common sight all over India. What surprised them was the stark change of scenery when their bus entered HP: hills were clean and beautiful. Rivers were beautiful blue and riverbeds clean- as you see in foreign-locale-shot Bollywood movies. The impact of state administration efforts was very visible.

That's why she was wondering how anyone could be against such an environmentally noble cause. She questioned the local SDO, who questioned back: "Tell me what would you do if you were the Chief Minister (CM) of HP today? Your policy has made a difference, but is this enough? Will the market not find ways around the restrictions? Moreover, will you be able to enforce restrictions in areas bordering neighbor states; even if you are able to, at what cost? What are your strategic choices now, and how would you implement them? How would citizens respond to your moves?

Background

Plastic has become an integral part in our daily life, due to its excellent properties of resilience, resistance to moisture, chemicals and photo-and bio-degradation, as well as its stability, and pliability into any desired form. In just 50 years plastics have permeated every aspect of daily life. Plastics have paved the way for new inventions, and replaced materials in existing products.[2] To cater to ever-increasing demand, the plastic industry churns out more than 150 million tonnes per annum (TPA) products globally.[3]

Plastic consumption & waste generation in India:

By 2008, India was consuming about 8 million TPA of plastic products. Considering that 70% of this consumption lands up as waste, approximately 5.6 million TPA plastic waste is generated in the country: this equals 15,342 Tons per day (TPD), or more than 150 normal size trucks every day.[4] By another estimate, on an average, about 5200 plastic bags—popular due to convenience, low cost and easy

1 *Sangla is a hill town on river Vyas, famous among tourists for Apple orchards, lovely scenery and starting point for higher mountain trek.*
2 *Lardinois and Van de Klundert, 1995*
3 *CPET Report, cited in Central Pollution Control Board, Action Plan with Indicative Guidelines for Plastics Waste Management.Delhi, March 2013, p. 2.*
4 *Central Pollution Control Board, Action Plan with Indicative Guidelines for Plastics Waste Management.Delhi, March 2013, p. 2.*

disposability-- reach a middle class colony of 1,000 households every day in India. Plastic forms 20% of the total volume of waste generated by households.[5]

Plastic waste in Himachal:

The story of plastic waste in Himachal was no different from that in other parts of India; rather, it was more complicated. The state's heavy reliance on tourism increased industry's dependence on packaged food. The need to transport essential items over long distances required extra packaging. Storage for long winters necessitated use of convenient materials.

Studies show that the quantity of solid waste generated in different areas of HP varied with the size of population of urban area, ranging between 0.2-0.6 kg per capita per day. Composition of this waste was: a large organic and degradable fraction (50-60%), plastic (40-50%). Other waste like glass and metals comprised less than 1% of the total.[6]

Nine lives of the plastic:

The desirable qualities of plastic--its durability & long life--also mean that it remains on the landscape, without decay, for several years. The proper disposal of this waste—much of which is due to use and throw plastic bags-- is quite a challenge: if thrown on hill slopes, they choke sewer lines; if burnt, they release highly toxic gases; and if dumped, they leach heavy metals like lead and cadmium into water and soil.[7] Hence, sustainable management of plastic waste has emerged as a key environmental challenge all over the world.

Recycling: An Inadequate "Solution"

Recycling is often suggested as a promising way out of the problem of plastics waste. Recycling is not a panacea however: it imposes collateral damage. The recycling process is hazardous and produces many toxic gases. Moreover, recycling can be done only two to three times, because with every recycling the material deteriorates and becomes more toxic. Colors are often added in the recycling process to hide impurities, and those bags leach coloured chemicals into food. Due to cost advantages, ninety percent of plastic bags sold in HP were made from low-grade recycled polyethylene and, again due to cost advantages, they were very widely used by vegetable vendors, grocery stores and general merchants whose low margins did not allow high-grade-high-cost plastics. Some of these bags had been recycled as many as four or five times, and were unsuitable for food storage.

Special Challenge for Hill States

Although the sustainable management of plastic waste was a common environmental challenge all over the world, in HP the degree of difficulty and nature of the problem were of a different order. Poor accessibility made waste collection difficult; high costs of collection and transportation rendered recycling economically unviable; low temperatures prevented decomposition of organic waste contained in polythene bags. In the absence of large landfill sites, waste got dumped on less-productive land: slopes and crevices. This caused soil erosion, choked sewerage, entered the drainage system, and polluted water sources in the low-lying areas. Leaching of chemicals contaminated the food chain.

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5 (CMS, Vatavaran).

6 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/186990/ReportPPPMunicipalSolidWasteManagement270812.pdf, pp. 15

7 Plastic releases noxious cases such as Phosgene, Carbon Monoxide, Chlorine, Sulphur Dioxide, Nitrogen Dioxide and deadly Dioxin. Central Pollution Control Board, Action Plan with Indicative Guidelines for Plastics Waste Management.Delhi, March 2013, p. 2.

Plastic waste also posed a serious threat to key competitive advantage enjoyed by this hill state: scenic views, natural beauty, fragrant air, and sites for adventure sports. Thus, a policy that aimed at halting and reversing the trends toward increasing per capita solid waste and a rapid shift from biodegradable to non-biodegradable products was perceived by the Himachal Pradesh government to have desirable policy consequences and to be economically sound, albeit not without roadblocks. It also had mass appeal.

International and National Efforts to Reduce Plastic Waste

International efforts in fighting plastic waste have had mixed results so far. In Europe, Denmark and the Ireland have led the movement for curbing plastic carry bags use. Denmark started a bag tax in 1993, collected from manufacturers in proportion to weight of the bag. The initial effect of this system was an impressive 60% drop in plastic bag use. The EU also has agreed to reduce plastic bag use by 80% by 2019.[8] Around the world, several countries, regions and cities have enacted legislation to ban or severely reduce the use of disposable plastic bags. 25 Countries all over the world have taken initiatives to reduce plastic bag use and some of the countries-- China, Italy and Uganda-- have imposed outright bans. In United States more than 130 cities have passed anti-plastic-bag legislation.

In India, national level policy initiatives towards safer use of quality plastic, especially for food storage, started when the Ministry of Environment and Forests (MoEF) in association with Bureau of India Standards (BIS) issued criteria for labeling plastic products as Environment Friendly under its Eco-mark scheme in February 1991. Subsequently, BIS issued guidelines on recycling of plastic waste including code of practices for collection, sorting etc. Later, following the lead taken by HP in 1999, the Government of India notified the recycled plastics manufacture and usage rules prohibiting the use of recycled bags for storing, carrying, dispensing or packaging food stuff. These rules also provided that minimum thickness of the bags should be 20 microns and the size should not be less than 18 by 12 inches. The rules were later amended in 2003. Separately, the Food Adulteration Department has issued directives to various establishments to use only food–grade plastic while serving or selling food items.

For better management of plastic waste in India, National Plastic Waste Management Task Force (constituted by MoEF) recommended a strategy and action programme, which led to notification of Plastic Waste (Management and Handling) Rules 2011, under the existing Environment Protection Act, 1986. By 2011, 10 States and UTs had imposed a complete ban on Plastic carry- bags by 2011, and 10 more had imposed a partial ban through Executive Orders[9] (Notification or Acts).

Strategy adopted by HP: Reduce, Reuse, Recycle & Recover

The fragility of the Himalayan Eco-system is a reality recognized at a macro level by the National Action Plan for Climate Change (NAPCC) which established a National Mission for Sustaining the Himalayan Eco-system to counter the challenges posed by rapid growth of population, urbanization, industrialization, and other development imperatives. At the micro level, these challenges are experienced everyday by residents of these areas.

8 *Ben Spencer, "EU demands 80% reduction in use of plastic bags by 2019, The Daily Mail, 16 April 2014, http://www.dailymail.co.uk/news/article-2606167/EU-demands-80-reduction-use-plastic-bags-2019-New-targets-mean-countries-forced-bring-charges-bans.html#ixzz3HCQJkKLE*

9 *(Source: HP-ENVIS-ENVIS NEWS Letter, Jan-June 2011)*

Any policy on plastic waste management in HP required an approach that took into account the unique and diverse social, economic and environmental characteristics of the hilly regions. Hence, the policy implemented by HP was based on an interlocking combination of interventions: source reduction, reuse and recycling, waste combustion and scientific disposal, with objective of recovery of the hilly environment. This encompasses a purposeful systematic control of functional elements of generation, waste handling, separation, processing, transfer, transport and transformation of plastic waste, and disposal. In short, this required end-to-end management from the point of generation to final disposal.

End-to-end sounds simple, but requires enormous effort: sensitization of policy makers, planners, other stakeholders, and implementing departments; enhancing capacity-building of the formal and non-formal sectors; provision for technical and financial resources for improving Plastic Waste Management services; and, above all, a sound legal framework.

Legal Framework

Before 1995, towns and villages in HP had no waste management system: sewage and garbage was ultimately disposed off through the drainage channels into the river systems. When the population was lower and economic activity was primarily agriculture, this system was acceptable, for it had its own annual renewal cycle: monsoons would wash the garbage away, and most of it, being biodegradable, would decompose with time. However, due to increasing population and rapid urbanization, use of plastic became a major problem faced by the towns in general and tourist destinations in particular. Lack of legal tools was identified as the major bottleneck in containing this menace. Initial discourse on the subject also underscored the need for containing the non-biodegradable garbage as a priority.

The public out-cry, media pressure and reaction of tourists forced the Government to enact "H.P. Non-Biodegradable Garbage [Control] Act, 1995": HP was the first state in India to take such an initiative. The Act prohibited throwing non-biodegradable garbage in public drains and sewage system, provided for placement of garbage bins and identification of places for deposition of non-biodegradable garbage, empowered the local governments for removal of non-biodegradable garbage, etc. Although the Act was a unique legal step and generated a lot of publicity initially, its jurisdiction remained restricted to urban/semi-urban areas, and its provisions came into force only on 31 August 1998. Nevertheless, it accomplished an important objective: it sensitized the enforcement agencies on the issues of solid waste management.

1995 to 1999

In accordance with provisions of the Act, "HP Non- Biodegradable Garbage (Control) Rules"were notified in 1996. About the same time, the State Council for Science Technology & Environment sought assistance of two NGO's-- VATAVARAN & Jan Seva Ashram—for launching awareness campaigns and piloting Solid Waste Management Programmes with peoples' participation in Kasumpti area of Shimla and the Jutog view of HP University campus.

In August 1998, the provision the Act came into force within the jurisdiction of Municipal Corporation Shimla, all Municipal Committees in the State, and Nagar Panchayat Manali (an important Hill Station). To generate awareness about provisions of the Act, 'Cleanliness Campaigns' were launched involving local residents, NGO's, Safai Karamcharies and rag pickers. Experience of the pilot programs and public awareness campaigns created an enabling environment that provided a sound platform for the next and a braver policy intervention: on 26 November 1998, HP issued notification prohibiting us of coloured polythene carry bags manufactured from recycled plastic for packaging the goods.

1999 to 2004

By 1999, public discourse focused on recycled polythene bags as a major culprit in the sordid saga of plastic waste. In this background, HP's orders prohibiting colored/recycled bags triggered a nationwide debate. Public pressure throughout the country brought this issue to the top of the political agenda, divided stakeholders opinion based on differing interests and positions, and led to cascading policy initiatives at various levels.

The Government of India (GoI) notified the recycled Plastics Manufacture and Usage Rules, 1999 mandating a nationwide prohibition of use of recycled plastic bags for storing, carrying, dispensing or packaging foodstuff. Manufacturers of such products opposed the notification. The Himachal Pradesh Government engaged the affected parties with the objective of exploring viable alternatives, and commissioned an independent study by Himachal Consultancy Services (HIMCON) to assess impact of this decision.

The impact of these interventions was limited, however. The experience of Himachal Pradesh from 1995 to 2004 highlights the classic gap between policy and implementation: having a legal provision does not ensure automatic compliance. Absence of an effective monitoring mechanism was a particularly strong problem. Interestingly, the market devised its own alternatives, and producers switched over to transparent polythene carry bags instead of colored ones. Essentially the size of the problem remained the same; only it lost its colour and became transparent. Nevertheless, this change did prevent one health hazard: leaching of chemicals from coloured plastics.

2004 to 2009

The next window of opportunity for more stringent policy interventions arrived in 2004, partly aided by climate change debates and somewhat due to a change in government in HP. Realizing that the ban on coloured plastic yielded limited results, the Himachal Pradesh government decided to go a step further and impose restriction on the use of carry bags made of non- biodegradable material having thickness less than 70 microns and size less than 12x18 inches, irrespective of the color and whether the material used was recycled or virgin. This decision proved to be a turning point in stemming the use of inexpensive plastic bags: First, it was a blanket ban. Second, this time, both legal and implementation mechanisms were part of the scheme. Implementation was done through District Administration and with active community participation. From 2004 to 2009, pilot initiatives in door-to-door collection and segregation of waste were implemented and yielded encouraging results. However, as anticipated, markets devised avoidance mechanisms and enforcement was still not very strict.

2009 to 2011

In HP, a realization had dawned by 2009 that various measures taken till now to reduce and limit the plastic were at best partial and piecemeal. In April 2009, the State decided to systematically work towards a "Sustainable Plastic Waste Management Plan" to control the use of plastic wherever possible in a systematic manner. The most decisive and ambitious component of the plan was that the State imposed a complete ban on plastic carry bags; size and thickness did not matter any more. The decision coincided with Birthday of Mahatma Gandhi who was a great proponent of cleanliness and sustainable living.

Public Awareness, Participation, and alignment of institutions:

Once the complete ban was imposed on plastic bag, the next component of the plan was to create awareness among general public about the State Government initiatives. The Government, with involvement of Department of Environment Science &Technology (DEST), HP State Council for Science Technology & Environment, and HP State Pollution Control Board, launched a massive state-wide "Polythene Hatao Paryavaran Bachao" (PHPB, Remove Polythene, Save Environment) Campaign. The campaign was wide in its scope. It aimed to minimize the use of material made from plastic, enforce the ban on plastic carry-bags, find appropriate solutions for disposal of the plastic wastes, create awareness regarding harmful effects of such waste, institutionalize management of plastic wastes, and lastly, to lay down long-term arrangement to control littering of plastic wastes.

The campaign was planned in three phases so that the entire process of creating, implementing and establishing a sustainable solution could be completed in one year.

Phase I of the campaign was launched at Dharamshala from 21 to 26 December 2009, with a focus to ensure people's participation in polythene eradication and to spread awareness among masses on the ill effects of polythene. This stage also focussed on exploring the use of plastic waste in road construction and in Cement Kilns.

To explore possibility of using plastic waste in roads, DEST invited experts from the Central Road Research Institute, Delhi to educate the DEST and PWD. The experts demonstrated the process: shredding and mixing with bitumen for tarring purposes. The advantage of this technology is that the plastic that can be used for tarring includes all kinds of carry bags, as well as disposable cups, and thermocoles (known outside India as polystyrene or Styrofoam), laminated plastics such pouches of chips, pan masala, aluminum foil, and packaging material used for biscuits, chocolates, milk, and groceries. They do not necessarily have to be cleaned. Approximately one ton of plastic is used per km of road. It is also a cost effective technology as it involves replacing 10-15% of bitumen by waste plastic/polythene, which translates into saving of 35,000-to 40,000 Rupees per kilometer.

DEST also piloted and initiated the process of co-processing of plastic waste in cement kilns in the ACC factory at Barmana (Bilaspur district) and the Gujrat Ambuja factory in Darlaghat (Solan district). Major municipalities now feed plastic waste to these kilns.

Subsequently, **Phase II** was implemented during 22 to 26 April 2010, wherein the focus was on sustainability and development of institutional mechanisms for procurement of plastic waste. This stage focused on ensuring participation of community, preparation of an Action Plan & Work Plan, implementation of Action Plans, and Monitoring & Evaluation. To celebrate wins, keep motivation high and facilitate role models, encouragement Awards & Citation Letters were distributed.

Phase III of the Campaign was carried out in the entire State of HP from 25 September to 02 October 2010, during which surveillance, monitoring and regulatory activities were undertaken. This stage focused on consolidation and sustainability through institutional mechanism. DCs notified 1759 "Collection Centres" opened by ULBs/ Panchayats. They also registered the NGOs/Organizations/Institutions/ Kabaris for door-to-door waste collection. The waste collectors were affiliated to specific Collection Centers where they could sell waste thus collected at @ Rs 3.0/kg. From there, the plastic is lifted by PWD authorities for shredding and then for use in road tarring. PWD JEs were made responsi-

ble for this part of the chain. In all, 1795 Hot spots were identified, 1256 cleaned, 1759 Collection Centers have been opened. Regular TV messages, jingles on radio, and clean environment contests created a buzz around this issue. Senior Citizen Committees were formed to monitor the waste management system of their respective areas.

End-to-end: collection to disposal

For efficient delivery of the Solid Waste Management—essentially a public good provided by the local governments-- active citizen participation, adequate finance, sufficient provision of other resources such as technical manpower etc. are required. Government of HP zeroed on the following issues which were of concern to the system:

Primary Collection:

Waste management starts at the source of the waste. Hence, primary collection of garbage was very crucial. The primary collection was made mandatory to all households and it was enforced strictly. Households were sensitized to segregate garbage in distinctly marked dustbins, provided by the Government. The key idea was to capture the garbage that needs to be recycled. Once primary collection was done, the door-to-door collection services were provided by the Municipal agencies or by designated NGOs. Hilly terrain means collection services' vehicle could not reach many houses.In such places, and from other congested sites, collection was done through chutes. After scientific mapping of expected the volume of waste generation, dustbins of appropriate sizes were placed at different locations.

Transportation:

Next step in the waste management was transportation to the authorized collection centers and thereon to PWD and Cement plants for further processing.

Processing and Disposal:

In house capacity of the PWD officials was upgraded for using this plastic waste material in road tarring. Cement Plants are also lifting plastic waste regularly from Municipal Corporation Shimla and Municipal Council Manali.

Economics of end-to-end solution:

Registered door-to-door collectors can sell plastic waste at 1779 Collection Centres at Rs 3.00/ kg. The urban Local Bodies and PWD deploys vehicles for transported waste from Collection Center to the recycling plant. The cost is absorbed by the Departments from the existing funds. Whether this has impacted their other responsibilities, no study has been done. It is suspected that not all vehicle trips would be with full capacity, and given the low mileage on vehicles in hilly terrain, this cost is expected to be significant. Urban Local Bodies and authorized NGO's resold the collected plastic to PWD at a price of Rs. 4/- per kg. This one rupee/kg pr is expected to cover the cost of transportation—which, some feel, may be a highly optimistic expectation.

Micro-innovations by departments:

Various departments have innovated in reducing, reusing and recycling plastic waste in their own areas. Civil Supplies Corporation, which supplies vegetable oil at subsidized prices to needy through PDS, developed a buyback mechanism for collection of empty vegetable oil pouches from the fair price shops: 2302 Kg plastic from empty vegetable oil pouches has been collected and gone into roads built by the PWD. The Forest department also started collecting plastic waste from their nurseries and re-

placement of recycled plastic pouches by virgin plastic pouches. They tried for replacement of plastic bags by other options such as Jute bags, earthen pots or other eco-friendly options. By installing water purifiers at various tourist places in Shimla, Manali, and Dalhousie, use of pet water bottles has been reduced. In the next step, other towns--Dharamshala, Chamba, Kullu—are planned to be covered. The H.P. Excise & Taxation Department replaced plastic liquor and wine pouches with glass bottles. Milk pouches sold by HP milk federation now carry a message that the plastic is recyclable.

Monitoring Mechanism:

Prior to 2004, only Sub Divisional Officers were authorized to challan/compound various offences under the Act. In 2004, 13 different categories of officers were given enforcement powers, which provided multiple options and choice for complainants, and community for implementation of the provisions of the act.

Eco-Monitoring:

The Eco Club Programme-National Green Corps (NGC) Scheme was launched by establishing Eco clubs in 250 schools in each district of all the states. 3000 Eco-Clubs have been established in the State with objective of spreading environmental awareness and carry out action-based programmes for protection and improvement of environment. These clubs spread awareness among students, and general public about minimizing waste generation, separation at source, disposal and negative impacts of plastic waste. This is coupled with initiatives related to tree plantation for school children. Each Eco-club gets an annual grant of Rs 2500 from State. Eco-clubs have adopted a nine-point Environment Conservation Code, which the students recite in the Morning Assembly.

The State has also started the Environmental Audit Scheme for Eco-Clubs. The scheme, inaugurated by the CM on 25 September 2010, strives to monitor existing environmental performance of educational institutions as well as to train and build capacity of students and teachers in natural resource management. As part of the scheme, Environment Audit training has been imparted to every Eco Club; the training provides tools to students and teachers to audit conservation related efforts in five thematicareas: water, energy, air, land and waste.

To sensitize public about littering, Eco Monitoring Scheme was started by Eco-clubs. Under this effort, the Eco-clubs generate awareness amongst general masses about littering and about extant provisions of law. They also ensure effective enforcement of prohibition provisions through complaints to Enforcement Authority. Starting with twelve Municipal areas, the Eco Clubs were identified to undertaken the Eco monitoring task and act as Environment Ambassadors for the cause of conservation and protection of environment.

Governmental Stakeholders

More than twelve departments are involved in the implementations of the provisions of the Act.

Department of Environment, Science & Technology (DEST)

DEST is the nodal agency in the state with the mandate to save the environment by exercising all the powers vested under all Acts and Rules pertaining to protection of environment and control of pollution. It implements and enforces all environment legislations on behalf of the state government, which cannot be implemented by State Board or any other agency.

In this initiative also, DEST was given the lead role. It identified the various stakeholders and designed the plan to manage the plastic waste in a sustainable manner by involving them. One of the reasons that the department got this responsibility was that the Chief Minister was also the minister of environment.He was instrumental in bringing this issue in the public domain and was very much concerned about the harmful effects of the plastic waste especially in his hilly state, where plastic choked the drains and rivers, and affected the ecology.

However, it was not an easy task. The efforts in this direction were there since 1990s but there were also many reluctant stakeholders whose commercial interests were in conflict with the reduction or ban on usage of plastic. DEST needed to consider every stakeholder's interest and plan accordingly.

Public Works Department

DEST looked for scientific solutions to manage plastic waste as part of the strategy. It came to know about processing of household waste in cement kilns (Norway) and the Tamil Nadu's experience of using plastics in road construction. Such roads had better resistance to withstand rain water and water stagnation and resulted in fewer pot holes. Approximately one ton of plastic is used per km. of road. It saves approx. Rs. 35000/- to 40000/- per km. by replacing 10-15% of bitumen by waste plastic / polythene.

To convince PWD, which is mainly responsible for road construction, it invited experts and scientists from Department of Chemistry, Thiagaraj College of Engineering and Central Road Research Institute, Delhi to test the technology through a pilot demonstration in Shimla. PWD purchased the necessary equipment like shredders etc. and started this from March 2010. In 2010-11 it used 27.45 MT plastic waste for tarring 44.23 km. road length. Similar figures for 2011-12 and 2012-13 (up to 30.09.12) were 48.23 MT for 86.45 km and 23.57 MT for 39.90 km. respectively.

PWD had to pay Rs. 4/ kg. for polythene and nominated Junior engineers to arrange for picking them up from collection centres notified by the Deputy Commissioners. The PWD had to deploy some manpower and establish depots for collection of such waste and then buy equipment and engage labour for cleaning and shredding the plastic. One more problem that the department faced after beginning its use of plastic waste is that there was not enough plastic waste available.

Cement Factories

DEST also piloted and initiated the process of co-processing of plastic waste in cement kilns in the ACC factory at Barmana, Bilaspur district and Gujrat Ambuja factory in Darlaghat, Solan. Municipalities of major towns like Shimla, Kullu and Bilaspur sent plastic to these factories. However, it is not known whether, such use is environmentally sustainable or whether these factories have installed appropriate emission control equipment. The cost effectiveness of this process is also not adequately investigated.

Urban Local Bodies

In urban areas, domestic Solid Waste Management (SWM), including plastic, is primarily the responsibility of the municipality. They are supposed to ensure door to door collection and then scientific disposal of SWM, which includes segregation, transportation etc. There are 49 ULBs in Himachal, out of which only 12 have SWM plans, but they too are not very effective. Even in the capital city of Shimla, the municipality has not been able to ensure door to door collection from all households.

Under such circumstances, DEST initiative would at least ensure collection of plastic waste in these urban areas. However, in view of lack of proper plans and lack of data in all the urban areas, only rough estimates about the quantity of SWM and plastic waste can be made. The municipalities have been asked to keep statistics and periodically furnish information in the prescribed format about plastic waste to DEST.

Panchayats

Collection of plastic waste and then selling it to the PWD was incentivised for Gram Panchayats throughout the state. They were asked to identify collection centres in their areas where they purchased the plastic waste from waste collection agencies, rag pickers, households etc. at the rate of Rs. 3/- per kg. and which they subsequently sold to PWD at the rate of Rs. 4/- per kg. for usage in road construction. Since Himachal has a huge tourism infrastructure even in the rural areas, cleaning of villages is very important. The initiative also provided encouragement to the local bodies by way of instituting awards like best performing municipalities, panchayats and the district.

District Administration

District administration was made responsible for monitoring and coordinating the activities related to the implementation of the plan be it collection or a ban. This included the awareness programmes for the general public and proper disposal of the available stocks as well as propagating use of eco-friendly products in the district. District magistrates / Deputy. Commissioners were required to send consolidated monthly returns about compounding of offences from various offices in the district to DEST on the prescribed proforma.

Dy. Commissioners across the state notified 806 collection centres which were the points from where PWD purchased the plastic waste. It can be said that these were the additional responsibilities and the district administration was partly handling the responsibilities of the local bodies. It also required a lot of coordination efforts with various departments like forest, irrigation etc.

State Pollution Control Board

It is the nodal agency in the administrative structure of the state government for the planning, promotion, coordination and overseeing the implementation of environmental programmes. It has been involved with the plastic issue also since 1990s. Its role in present initiative is somewhat seems to have reduced, probably due to primary responsibility being vested in the DEST.

Other Departments

As the initiative was planned to be broad based, several other departments were also roped in by incentivizing it for them. Forest department started collecting plastic waste from their nurseries and replaced recycled plastic pouches by virgin plastic pouches or jute bags etc. out of 1795 'hot spots' many were in the forest areas. Their cleaning itself was beneficial to the cause of forestry. Similarly, Civil Supplies Department sold empty vegetable oil pouches procured under the buy-back scheme to PWD. Many departments were given the authority to collect penalties from the violators and deposit it with the district administration.The authorized officers have made more than 2138 number of challans and compounded a sum of Rs. 16,13,700/-. The HP Environment Fund, in which the fines are received now has Rs. 60,80,494/-. However, this system imposed additional workload on already overburdened enforcement agencies.

Courts

A final governmental actor whose role could not be ignored is the courts. Indian courts have played an activist role in many policy sectors in India, especially on environmental issues. Pubic Interest Litigation (PIL), which offers broad rules of standing to parties who believe that governments have not implemented laws they have enacted because of resistance from powerful interests or fear of political backlash, has been a common instrument for judicial intervention in policymaking. In 2010, the Himachal High Court, in response to three legal petitions, required the HP government to establish a committee to find ways to reduce the use of plastic for storage of non-essential food items. In its order, the Court suggested several possible ways that this mandate could be met—for example by requiring that individuals who receive subsidized vegetable oil in plastic packaging only be allowed to receive more after returning the empty packaging from their prior purchase, and/or that the State "consider setting up vending machines to sell pure and clean water at Tourist Centres so that the plastic bottles which have been purchased can be re-used by tourists by collecting water in them from the vending machines."[10] The government committee, failed to meet the court-imposed deadline, however, so the issue remained unresolved in 2011.

External Stakeholders

Recycling industries / kabariwallah/ rag pickers

These are in general important stakeholders in solid waste management, especially in view of lack of adequate plans in both the rural and the urban areas. For them this initiative this could have been a mixed experience. Normally rag pickers sell their collections including plastics to recyclers or kabariwallas who buy household paper and plastic waste and sell it to recyclers, who recycle such waste. All this is mostly in the informal sector, so not much information is available. However, after this initiative while rag pickers could sell their plastic waste at 'collection centres' at Rs. 3/ per kg. the recycling industries must have faced input material problems. Extension of the plastics ban to other plastic materials constituted a potential livelihood threat to this group.

There are certain standards laid down by BIS and rules formulated by the Environment (Protection) Act, 1986 that should be followed by the recycling industries in developing recycling facilities and process.

It also needs to be ensured that the residue generated from recycling process, are disposed of in compliance with the existing Rules under the Environment (Protection) Act, 1986 and as amended from time to time

Shopkeepers and Vendors

Plastic is extensively used in packaging. Since the state is a thriving tourism destination, visitors were also users of plastics. The ban on certain grade of plastic affected the shopkeepers most. They needed to find alternative solution for packaging. As it affected their business, they initially resisted the move and also somewhat delayed the scheme. However, the political will of the Chief Minister (demonstrated by his direct involvement) and strict enforcement made them to comply with the rules and policies.

10 CWP No. 1732/2010 with CWP No. 1885/2010, June 19, 2010

NGOs / CSOs

Eco-monitoring and eco-audit became an integral part of the initiative. In fact, DEST harnessed the potential of NGOs and agencies like eco-clubs, mahila mandals etc. for plastic waste management. Eco-club members were given the responsibility to make people aware and check littering in their areas, and were also authorized to report about violations to the Deputy Commissioner. Similarly, school children were incorporated into environmental audit at the school level.

Manufacturers

The Municipal Authority in Himachal Pradesh can ask the plastic manufacturers to set up plastic waste collection centres either collectively or individually as part of their Extended Producer Responsibility (EPR). Under EPR the manufacturers also need to ensure that the plastic waste are channelized to a registered recycler.

Next Steps

By 2011, HP had developed a system to address the challenge of plastic waste by initiating and developing a 'Sustainable Plastic Waste Management Plan' to safeguard the ecology of the State. This plan involved a coordinated approach of all concerned departments with active support and participation of various stakeholders. The plan institutionalized a mechanism for collection, transportation, and utilization in roads/cement kilns. Eco clubs, MahilaMandals, Panchayats and other social bodies were involved in monitoring the campaign for a clean and green Himachal Pradesh.

In December 2010, Tribune's Himachal Pradesh edition reported that the experiment of making use of plastic in the construction and tarring of roads seems to have worked well as these roads, built almost six months back, are in a good condition. By 2010 29 tonnes of plastic had been used in constructing 42-km roads under various circles of the Public Works Department (PWD) in the state.

Even though the initial figure of plastic collection pegged at 398 tonne has dipped to a mere 90 tonne, this too has helped the PWD to construct 42-km roads. The PWD was able to take out a total of usable 67 tonne of plastic from the 90 tonne waste collected under the campaign to keep the environment free from plastic. The Principal Secretary of PWD also added that the cost of construction of roads had become cheaper by Rs 35,000. Due to the ban, the collection of plastic had reduced, but since the experiment seemed to be working well, the state could even consider buying it from other places.

The 1759 authorized centers have collected 412.022 MT polythene waste for PWD, who have made 174.718 KM road by using this waste. Units manufacturing plastic/ polythene bags as well as the quantity manufactured have declined. Approximately 1690 tonnes of plastic waste has been used by the Cement Companies.

Although no formal impact analysis of HP's policies has been done, the impact of the polythene ban is quite visible: to a large extent the polybags have disappeared from the state, replaced by paper and cloth bags. The state received the Prime Minister's award for excellence in Public Administration for being best in the country in plastic waste management. Its policies vindicated, the state administration was emboldened to take further steps in the fight against plastic. Plastic bags had been largely eradicated, at least from the major district headquarters and the Capital. But other disposable use of plastic remained common. Roadside hotels, tourists have been using use and throw plastic plates, cups, glasses etc. Nor has the state enforcement machinery found a solution to the plastic carry bags and oth-

er waste brought in by tourists by road and by rail. Would the flow of illegal supply of prohibited plastic from adjoining states of Punjab, UT Chandigarh, Haryana, Uttrakhand and Jammu & Kashmir simply increase if the ban on plastic materials was extended?

In 2011, the state was contemplating for a complete ban on plastic cups, plates, glasses etc. And the High Court order raised the spectre of even more draconian restrictions (see the section on Courts earlier in this case). Businesses in the state, already reeling under impact of earlier sanctions, were up in arm against 'impractical' policy decisions'. They also complained of a non-level playing field: tourists now prefer buying their full supplies before arriving in the state, and the government is not able to enforce ban on border areas. Demonstrations against the government like the one in Shimla noted earlier, are another concern. The Chief Minister of Himachal Pradesh thus faced a difficult decision. Your policy has made a difference, but is it enough? Won't the market find ways around any restrictions you impose? Moreover, will you be able to enforce restrictions in areas bordering neighbor states? Even if you are able to, what will be the cost, both administrative and political? What would be your strategic choices now, and what challenges would you face in implementing them? How would citizens respond to your moves? Is there anything else that you can do to change the behavior of citizens while minimizing protest and implementation difficulties?

EXHIBIT 1

Timeline of Policy measures at National Level:

1. Ministry of Environment and Forests (Government of India) in association with Bureau of India Standards (BIS) issued criteria for labeling plastic products as Environment Friendly under its Eco-mark scheme (Gazette notification 71 dated Feb. 21, 1991.
2. Bureau of India Standards (BIS) issued guidelines on recycling of plastic waste including code of practices for collection, sorting etc. (IS 14534:1998, The guidelines for recycling of plastics)
3. Government of India notified the recycled plastics manufacture and usage rules, 1999 (amended in 2003) prohibiting the use of recycled bags for storing, carrying, dispensing or packaging food stuff. These rules also provided that minimum thickness of the bags should be 20 microns and the size should not be less than 18X12 inches.
4. National Plastic Waste Management Task Force constituted by Ministry of Environment and Forests recommended a strategy and action programme for plastic waste Management in India.
5. Food Adulteration Department (Government of India) issued directives to various establishments to use only food –grade plastic, while serving or selling food items.
6. Ministry of Environment and Forests (Government of India) notified the plastic waste (Management and handling) Rules 2011 on 4th February, 2011 under the Environment Protection Act -1986
7. In compliance to directives of Supreme Court of India, the Ministry of Environment and Forest (Government of India) published the amended Plastic Waste (Management and Handling) (Amendment) Rules 2011 on 2nd July 2011.

Exhibit 2: Agro-climatic Zones of Himachal Pradesh

HP is divided in following four agro-climatic zones:[11]

Shivalik Hill Zone

Sub Tropical Climate, consists of foothills and valley area from 350 to 650 meters above sea level, it occupies about 35% of the geographical area and about 40% of the cultivated area of the State.

11 *Source: Department of Agriculture, HP*

Mid Hill Zone

This zone extends from 651 meters to 1,800 meters above sea level, having mild temperate climate. It occupies about 22% of the total geographical area and about 37% of the cultivated area of the State.

High Hill Zone and Cold Dry Zone

It lies from 1,801 to 2,200 meters & above from mean sea level with humid temperate climate and alpine pastures. This zone covers about 43% of the geographical areas and about 23% of the cultivated area of the State. The high mountains of district Lahaul &Spiti and Kinnaur and Pangi Tehsil of Chamba District lie in this zone.

EXHIBIT 3: BASIC DATA ON HIMACHAL PRADESH

HP became an independent state carved out of Punjab on 15 April 1948, achieved full statehood on 25 January 1971. Spread over 55,673 Sq. Km. its administrative divisions include: 3 Revenue Divisions, 12 Districts, 55 Sub-Divisions, 88 Tehsils, 38 Sub-Tehsils and 77 Community Development Blocks.

It has 68 MLA, 5 MP (Lower House) and 3 MP (Upper House) Constituencies.

17495 Inhabited villages- all electrified- are administered through 3243 Village Panchayats, 77 Panchayat Samitis, and 12 Zilla Parishads and 23 Nagar Panchayats.

State Capital Shimla is a Municipal Corporation, and 25 other cities are administered by Municipal Councils.

Population (2011)	Persons 68,56,509 • Male 34,73,892 • Female 33,82,617
Population Density	• 123 per sq. Km. • Highest 406 per sq. Km.(Hamirpur) • Lowest 2 per sq. Km.(Lahaul & Spiti)
Sex Ratio	974 females per 1000 Males
Population Status (2011)	• Rural -61, 70, 858 (90%) • Urban-6, 85, 651 (10%) • SC -16,94,243 (24.71%) • ST2,75,631 (4.02%)
Literacy Rate (2011)	83.78% (Male 90.83, Female 76.60)

Educational Institutions

Primary Schools 10767; Middle Schools 2303; High School/Sr.Sec. Schools 2094; Colleges 71; PTR Upper primary 16; Lower Primary 15; Enrollment Primary 490000 Upper Primary 740000

Exhibit 4: Performance Indicators

Table below gives Quantity in Tonnesof Co-processing of non-biodegradable plastic waste/plastic in Cement plants (AFR);Co-Processing is being done at present in two cements plants (ACC Cement, Barmana; andAmbuja Cement UnitI & II, Darlaghat)

Year	Quantity (in Tonnes)
2008	0
2009	34.72
2010	75.25
2011	166.52
2012	954.26
2013	459.25

Capacity of Four incinerators

Ranbaxy (for in-house medical waste incineration)
For BMW Plant: Enviro Engineer Pirdi, Kullu (70 Kg/Hour); Enviro Engineer SandliArkiSolan (100 Kg/Hour); Badu Sahib Kalgidhar University, Sirmaur

Plasma pyrolysis Tech. (PPT) Solid Waste/Plastic Waste plant Dharmshala

The MSW Facility at Dharamshala. is located near H.R.T.C. workshop The waste is processed by SulabhThermophilic Aerobic Composting (STAC) system. Approximately 6.0 ton of waste is processed per day. Besides this, a Plasma Pyrolysis plant is also established for plastic as well as bio-medical waste.

No. of units in H.P. Manufacturing Plastic/Polythene Carry bags:-

Years	Units	Manufacturing Capacity)
1998	1	240 Quintals
2004	2	6MT+4.90 Lakhs Bags
2008	4	432 MT +4,63,18,500 Carry bags
2012	3	106 MT
2013	3	125MT

Recycling of Plastic Waste: 4 Plants, Yearly Recycling quantity 660 tonnes

EXHIBIT 5:TIMELINE OF HIMACHAL PRADESH LEGAL PROVISIONS DETAILS THROUGH 2010

HP Non- Biodegradable Garbage (Control) Act, 1995

It was enacted to "prevent throwing or depositing non-biodegradable garbage in public drains, roads and places open to public view and to regulate the use of non-biodegradable material" in the state of HP and for matter connected therewith or incidental thereto. HP Non-Biodegradable (Control) Rules, 1996 were notified vide notification No.: STV(Env.)A(10)-4/92 dated: 19-11-1996 required as under clause (3) of Article 348 of the Constitution.

Initially the provisions of the Act came into force on 31st August, 1998 within the jurisdiction of Municipal Corporation Shimla and all Municipal Committees within the State of HP alongwith Nagar Panchayat Manali. Subsequently with effect from 1st January, 1998 the provisions of the Act came into force in whole of HP and similarly the provisions of H.P. Non- Biodegradable Garbage Rules,1996 came into force with effect from January 1999.

Ban on Use of Plastic Carry Bags, 1999:

As provided in HP Non-Biodegradable Garbage (Control) Act, 1995, the notification No. EDN (S&T) A(S)5/90 dated 26th November, 1998 imposed prohibition on the traders, retailers and vendors in the State for using the coloured polythene carry bags manufactured for recycled plastic for packaging the goods traded or sold by them. The ban was made effective from the 1st January, 1999. Implementing and compounding powers were vested in Sub-Divisional Officers (Civil).

Notification Banning the use of Plastic Carry Bags thickness less than 70 microns in thickness and less than 18" X 12" in size, 2004.

In the year 2004 the State Government, while reviewing the implementation status of its notification No. EDN (S& T) A (3) 5/98, observed that plastic bags of all types, sizes and thickness are being thrown indiscriminately everywhere including forests land, public places, roads, drains etc. thereby causing serious problems related to sanitation and environment degradation. In order to reduce indiscriminate throwing of plastic carry bags and preventing insanitary conditions the State Government imposed a requirement that the stockists, traders, retailers and vendors shall not use carry bags made of non- biodegradable material having thickness less than 70 microns and size less than 12"X 8".

Total Ban on the Use of Plastic Carry Bags, 2009

Vide Notification No.: STE-F(4)-2/2008 dated: 13th July,2009 the State Government directed that no person including shopkeepers vendors, wholesalers, retailers, hawkers , rehriwalas shall use plastic carry bags (irrespective of their sizes and thickness) and plastic items having one time use such as disposable plastic cups, plates etc. which are made up of non-biodegradable material.

EXHIBIT 6: POLITICAL CHANGE

Table below provides the name and tenure of the Chief Minister in HP. In the Indian Administrative system, the CM is the Chief Executive of the state.

Name of The Chief Minister	Political Party	Period
Sh. Virbhadra Singh	Congress	3-12-1993 to 23-3-1998
Prof Prem Kumar Dhumal	BJP	24-3-1998 to 5-3-2003
Sh. Virbhadra Singh	Congress	6-3-2003 to 29-12-2007
Prof Prem Kumar Dhumal	BJP	30-12-2007 to 24-12-2012
Sh Virbhadra Singh	Congress	25-12-2012 onwards

EXHIBIT 7: RESPONSIBILITY CHART OF GOVERNMENT DEPARTMENTS

Table below provides clear responsibilities and roles of various agencies involved in campaigns:

Agencies	Role
District Administration, Urban Local Bodies (ULBs) and Panchayati Raj Institutions (PRIs)	1. To open Collection Centres 2. To register NGOs, Collecting authorities with Collection Centers. 3. To purchase plastic waste from Collection Centres. 4. To put in place surveillance mechanism like CCTV Cameras.
HP Public Works Department (HPPWD)	To lift plastic waste for using it in tarring of roads after shredding.
HP State Pollution Control Board (HPSPCB)	To put Environment Message Hoardings in prominent places
HP State Council for Science Technology and Environment	To spread Environmental awareness through Eco Clubs and Eco Monitoring Schemes to stop the littering of plastic waste.
HP Department of Environment, Science and & Technology.	To co-ordinate in Campaigns.
HP Civil Supplies Corporation	To put in place buy back mechanism for collection of empty vegetable oil pouches from fare-price shops for recycling.
HP Forest Department.	To use virgin plastic pouches in nurseries by replacing recycled plastic pouches
HP Tourism Department	To install portable water dispensers for tourists.
HP Excise and Taxation Department.	To replace plastic liquor pouches with glass bottles.
HP Milk Federation	To print message on the Milk Pouches- “Plastic is Recyclable”
HP Fisheries Department	To encourage use of biodegradable plastic bags.
HP Education Department	To build future environment leaders.
All Departments in HP	To restrict use of plastic folders, plastic waste paper baskets and bottled water in office premises.

EXHIBIT 8: ENFORCEMENT SATURATION

Prior to 2004, only Sub Divisional Officers were authorized to challan/compound various offences under the Act.[12]

The list below provides designations of the Officers authorized to challan/compound offences punishable under section 8 of the Act.

1. All District Magistrates
2. The Commissioners
3. All Additional Deputy Commissioners
4. All Additional District Magistrate
5. All Sub- Divisional Magistrate
6. All Superintendents of Police
7. All Chief medical officers
8. The Assistant Commissioner, Municipal Corporation Shimla.
9. All Deputy Assistant Excise and Taxation Officers in HP, and Excise and Taxation Officer Kinnaur.
10. All Sub-Divisional Police Officers and Deputy Superintendent of Police posted in SP's Office.
11. All Territorial Divisional officers
12. All Tehsildars

All Environmental Engineers, Assistant Environment Engineer of H.P. State Environment Protection and Pollution Control Board.

12 The officers were empowered by notification No.: STE A(3) 4/2013 dated: 4-6-2004, for contravening the provisions of the notification number EDN (S&T) A(3)5/98 dated: 26-11-1998 and notification of even number dated 4-6-2004 issued under section 7 (h) of the Act.

6.3 Sustainable Plastic Waste Management in Himachal Pradesh - Part B (Epilogue)

After imposing a ban on the use of all types of polythene bags made of non-biodegradable materials, the state cabinet of Himachal Pradesh in January 2011 decided to include cups and plates effective August 15, 2011.

Changes imposed as a result of the 2010 litigation took longer. The report of the initial government committee appointed to report on ways to reduce non-recyclable packaging of food items was not deemed satisfactory. The High Court ordered appointment of another committee, whose report served as the basis for an order by the High Court of Himachal Pradesh in January 2013 banning the sale, use, storage, entry, supply or manufacture of 25 non-essential or "junk" food items in non-biodegradable material in packaging throughout the state. Items deemed essential, including milk and edible oils, as well as drinking water, were exempt from the ban (for a list of covered items, see Exhibit 1). Legal challenges of the order by manufacturers such as the Indian Biscuit Manufacturers Association and by retailers went as far as the Supreme Court of India.

The World Bank has approved through Government of India a Development Policy Loan of 200 Million USD to Promote Inclusive Green Growth and Sustainable Development, which will further supplement the efforts of the State for better environment management.

A Himachal Pradesh Environment Fund has been constituted, in which funds are collected through challans from the defaulters and voluntary donations. An amount of approximately 70 Lakhs has been deposited in this fund. This collected fund is utilized on Environment protection/ awareness projects/ activities.

New strategies are constantly being evolved for supplementing the effort for a green and clean Himachal. This includes the development of a 9-point Environment Protection Code for schools, which is repeated by every child daily in school assembly.

The central government and other states have also increased their efforts to reduce non-recyclable waste. The central government imposed a ban on use of metallic packaging material and other material being marketed in plastic packaging to check environmental degradation. However, no other hill state has been able to achieve level of success demonstrated by Himachal Pradesh.

Exhibit 1. Legal provisions, 2011-2013

Notification for Imposing Ban on the Use and Trade of Plastic items, 2011

Vide Notification No.: STE-F(4)-2/2008-II dated: 19th March,2011 order were issued that no person or institution / commercial establishment including shop keepers , venders , hawkers, , rehriwalas etc. shall use and trade in plastic items such as disposable plastic cups, plates and glasses which are made of non-biodegradable material.

Restriction on the Use of Packaging material, 2013

Pursuant to Notification No.: STE-E(3)-9/2010-II and in compliance to the orders of High Court of HP the Government imposed prohibition on the traders, retailers and vendors in the State to store, supply and sale of 25 items in the packaging made of non-biodegradable material with effect from 1-7-2013.

EXHIBIT 1. ITEMS BANNED IN NON-BIODEGRADABLE PACKAGING IN HIMACHAL PRADESH

- Chips/wafers
- Kurkure/mad angles
- Biscuits
- Namkeen
- Lollypop/Candy/candy bar/toffees
- Cookies
- Ice cream
- Chocolates
- Noodles
- Samosas
- Pakoras
- Pizzas
- Burgers
- French fries
- Colas, carbonated drinks
- Shakes
- Synthetic and fruit beverages
- Sweets
- Naan, pav bhajee, golgappa and street foods

Source: Sturat Hoggard, "Indian Plastic Regulations Take the Biscuit, 23 January 2014, http://www.packweba-sia.com/packaging-editorial/asian-packaging/2948-indian-plastic-regulations-take-the-biscuit

7. *Procurement of Paddy and Streamlining of PDS in Chhattisgarh*

7.1 Procurement of Paddy and streamlining of PDS in Chhattisgarh - Teaching Notes

Case Synopsis

The case highlights an important series of interventions by the Government of Chhattisgarh in addressing corruption in paddy procurement and the public distribution system (PDS) of food supply for low-income Indians. Rampant corruption afflicted the entire food grain supply chain in Chhattisgarh state, including procurement of paddy from the farmers, movement and storage of paddy and rice at intermediate stages and also the distribution of food grains from the PDS. This resulted in poor farmers not being able to receive a remunerative price for their produce, and low-income beneficiaries not being able to get food grains at the correct quantity and quality in a consistent manner. With a view to improving the socio-economic conditions of the poor people of the state, the Government of Chhattisgarh decided to introduce Government Process Re-engineering in the entire food grain supply chain and computerized the entire activities across all stages. While introducing the new system, the Government had to face several challenges from different quarters. Several innovative methods were adopted in addressing the challenges. A remaining question at the end of the case is to what extent the new system with innovative measures is delivering the desired results.

Focal Points

The case is divided into four parts, with two distinct focal points in time where the Chhattisgarh government faced major decisions on what policies to adopt. They follow a Problem (Part A), Solution (Part B), Revised Problem (Part C), Revised Solution (Part D) format. Part A discusses the events leading up to the Chhattisgarh government's 2007 decision to undertake a fundamental reengineering of the system. Part B describes the major features of the re-engineering reform and use of innovative methods to overcome logistical and infrastructure problems, and describes its impact. It can be thought of as an extended epilogue to Part A. Part C introduces the second focal point in time, describing concerns that had emerged by 2011 about the 2007 reforms, prompting the Chief Minister to contemplate whether further reforms might be necessary—and if so, what they might be. Part D describes the CORE PDS reforms introduced in response.

Learning Objectives and Case Usage

The overall learning objectives of the case center on how to eliminate or at least reduce corruption in Chhattisgarh's procurement and public distribution system, and how to improve the efficiency and effectiveness of the public distribution system in the state. The case can be used for a variety of courses and executive education sessions, including public management, systems design, logistics and supply chain management, management of information technology, and corruption reduction. Which topics are discussed in detail will depend on the topic of the course in which it is imbedded. Some instructors may prefer to focus on paddy procurement, for example, while others may prefer to concentrate on reform of operation of Fair Price Stores, which are the focus of Parts C and D. Specific topics that may be the focus of discussion include:

- Challenges in paddy procurement by providing minimum support price to the farmers and distribution of rice through FPS.
- Government Process Reengineering in the procurement and distribution system.
- Political and operational challenges of implementing IT reforms in state-wide public procurement and distribution.
- Developing transparency in operations in order to mitigate leakages and diversion of funds.
- Developing partnerships among different groups with different capabilities and interests with a view to creating value for the stakeholders.

The case can be taught in several different ways, depending on course context and time available. For classes that want a detailed examination of systems engineering questions, the class can be taught over two sessions. Students would read Part A for the first class session, focusing on key challenges that policymakers face in reengineering the system and options for doing so. Students would then read Parts B and C for the second class session. The second session could begin with a review of the reform initiatives that were actually chosen and discuss why they failed to eliminate many of the problems they targeted, and then proceed with a discussion of new reform options, with Part D distributed and described briefly at the end of the second session. For instructors who wish to spend a third class session on this topic, the Vaidya and Somasekhar study CORE PDS: Empowering with Portability can be used as source material.

Courses focused on general public management or corruption reduction may examine a more general set of questions about the motivations and strategic actions of multiple actors using Part A. Parts B and C can be used either as an epilogue or to continue the discussion in a second class that again ends with the distribution of Part D. Strategic issues that could be addressed include managing lobbies and aligning stakeholders, building political support for change, eliminating corruption, etc. Analytical issues that could be covered in such a class include reducing asymmetric bargaining leverage at different nodes in the supply chain.

Courses that want to concentrate on a specific topic, such as management of information technology or supply chain management, may also wish to assign Parts A and B together and concentrate on the challenges and efficacy of solutions selected in that particular sector.

Because the case offers such a rich set of potential learning objectives and discussion topics, efforts to cover all topics in the case are likely to result in a superficial discussion. Instructors will probably want to concentrate on some linked subset of topics, while giving less attention to others. Instructors who choose to teach the case over two sessions may wish to focus on some of the topics (e.g., opportunities for collusive corruption between millers and purchasing centre personnel and potential strategies for disrupting that collusion) on the first day and concentrate on a different set of topics (e.g., operation of Fair Price Shops, which are the focus of Parts C and D) in the second session.

Suggested Discussion Questions for Part A of the Case

- What are the root-causes of the persistent inefficiencies in the procurement and delivery of PDS goods?
- What are the different possible solutions and their trade-offs to address the persistent inefficiencies?
- What are the challenges faced by the Government in paddy procurement from the farmers by providing them with minimum support prices?
- What kind of challenges were posed by the millers and the transporters in ensuring fair milling of rice and transportation of the same?
- What are the challenges faced by the Government in ensuring fair distribution of food grains amongst the beneficiaries through public distribution system?
- What are the operations challenges faced in reengineering the entire process right from procurement to the distribution through FPS?

Suggested Discussion Questions for Part B of the Case

- What led to the choice of focusing and narrowing down the solution to reengineer the supply-chain?
- What are the key elements of the government process reengineering and computerization of all activities across the entire value chain? What were the kinds of challenges faced in implementing the solution?
- How were operational and logistical challenges, such as access to internet and electricity, addressed? How were strategic challenges, such as stakeholder alignment, addressed?
- How does the solution implemented aim to address its goals of reducing leakages and diversion of funds? Specifically, how does the new system hinder millers and Fair Price Shop (FPS) owners from indulging in diversion of grains?
- What specific challenges are faced by the fair price shop owners in getting their stock from the CGSCSC under the new system? What opportunities remain for corrupt practices?
- How can partnerships between groups with different capabilities and interests be leveraged for maximum value creation and benefit for the people?
- How were the monitoring mechanisms developed to improve efficiency of the system end-to-end? Why is the monitoring mechanism an integral part of the solution and how does it help in achieving desired outcomes?

Suggested Discussion Questions for Part C of the Case

- How effective was the reengineering of the PDS through computerization of the supply chain? Specifically, has the solution resulted in improved outcomes for farmers and beneficiaries? In addition, has the reengineering resulted in elimination of malpractices of the Millers and FPS owners?
- What are the root-causes of problems that have resulted in poor outcomes for beneficiaries?
- To what extent are the beneficiaries deriving the benefits of PDS from FPS after the 2007 round of reforms?
- What further initiatives can be undertaken to discipline FPS owners with a view to providing satisfactory service to the beneficiaries?
- What mechanisms can be developed by the administration to ensure that the beneficiaries are getting their due entitlements?

Suggested Discussion Questions for Part D

- What led to the choice of focusing and narrowing down the solution to elimination of asymmetric bargaining power of FPS owners over beneficiaries?
- Why were diagnosed root causes addressed through Information Technology-led reforms?
- How does the Annaporna ATM address the problems and intend to achieve desired outcomes?
- What were the challenges faced in implementing the solution? What were the specific innovations that resolved these challenges?

Opportunities for Role-Playing

Role-playing can be an effective mechanism for getting students to understand the strategic calculations made by various actors in response to government efforts to constrain and alter their behavior. If the entire class implicitly assumes the role of government regulators and monitors, they may fail to think through how the targets of government policy will respond to proposed initiatives. For example, assigning groups of students the roles of various actors in the procurement process, (e.g.,

millers, procurement officials, farmers and transporters) can help to "road-test" the viability of various reform options. The class can be seated in groups representing these various actors. While the discussion can for the most part be run a normal discussion, when reform options arise in class discussion, the instructor can turn to the group assigned a specific role and ask them how they would respond to that option. This format can be used both in discussing the lead-up to the 2007 reforms (Part A) and discussing implementation problems remaining in 2011 (Part C).

Time Management Plan for Part A of the case (75 minutes)

Particulars	Time (Minutes)
Overview of PDS reforms through 2003 and the problems faced by the farmers in respect of getting MSP and the beneficiaries in respect of receiving food grains	10
Background information regarding demography, food grain value chain, reform initiatives, challenges of the State etc.	5
Choice of two or three topics, including options for reform, from among: • Challenges faced by the Government in paddy procurement from the farmers • Challenges posed by the millers and the transporters in ensuring fair milling of rice and transportation of the same • Challenges faced by the Government in ensuring fair distribution of food grains amongst the beneficiaries through PDS • Government process re-engineering and computerization of all activities across entire value chain of the food grain	45
Discussion of potential for integrated solutions across several challenges	10
Wrap-up & Key take-aways	5
Total	**75**

Time Management Plan for Parts B and C of the case, taught in one session (75 minutes)

Particulars	Time (Minutes)
Brief overview of the problems	5
Discussion of key elements of the reform, and how likely they are to address root causes identified in the previous session: • Mechanisms to ensure that farmers receive a remunerative price for their produce • Mechanisms to ensure that beneficiaries derive the benefits of PDS from FPS • Mechanisms to ensure that millers perform in terms of their regularity and consistency in delivering right quantity and quality of rice • Specific initiatives undertaken to improve internet connectivity and power supply across all centres • Specific initiatives undertaken to improve the flow and storage of food grain from the origin to the destination • Initiatives undertaken to discipline FPS owners with a view to providing satisfactory service to the beneficiaries	25
Discussion of remaining problems after the reform outlined in Part C	10
Discussion of potential responses to problems outlined in Part C	25
Wrap-up, Distribution of Part D & key take-aways	10
Total	**75**

Potential Board Plan for Part A

	Concerns/ Challenges	Interventions	Outcomes	Reform Options
Procurement *(Farmer to Miller)*	Farmers forced to sell produce at a low price because of limited storage and liquidity constraints.	• Re-2000:Minimum Support Price (MSP) introduced to fix a lower bound on selling price of produce. • Procurement of grains directly from local farmers under the Decentralized Procurement Scheme (DPS) from local farmers at MSP.	• MSP led to marginal improvements as corrupt officials demanded bribes to buy paddy at MSP. • Doubling of rice procurement from under 1 MMT to about 2MMT from 2002 to 2004.	[to be generated by class]
Transportation *(Miller to FPS)*	Massive diversion of grains to open markets. Reselling of paddy to the government.			[to be generated by class]
Distribution *(FPS to Beneficiary)*	Limited access, rampant malpractices by FPS owners, and ineffective & insufficient coverage through ration cards.	Pre-2000:Sarvajanik Nagrik Poorti Vitran (SNPV) established the Public Distribution System (PDS) to distribute grains and necessary goods at subsidized prices.	PDS was limited because of restricted access to remote areas and was plagued with rampant corruption by FPS owners.	[to be generated by class]
		2000-2003:Established franchise based model that allowed private players to set-up FPSs.	Marginal increase in 'effective' access though FPSs almost doubled. Since, private FPS owners, primarily driven by profit motives, were illegally diverting grains to open markets.	

Potential Board Plan for Parts B and C

	Concerns/ Challenges	Post-2007 Shukla Reforms	Outcomes	Reform Options
Procurement *(Farmer to Miller)*	Not all farmers able to sell produce at MSP because of rampant corruption in procurement.	Electronic receipts and cheques made mandatory.	Government officials could no longer cite insufficient funds as a reason to not procure grains, resulting in reduction of corrupt practices.	[to be generated by class]
Transportation *(Miller to FPS)*	Massive diversion of grains to open markets. Reselling of paddy to the government.	• GPS mounted trucks used to transport Rice to FPS. • Computerized receipt management introduced at each step.	Reduced opportunities for diversion of grains.	[to be generated by class]
Distribution *(FPS to Beneficiary)*	Limited access, rampant malpractices by FPS owners, and ineffective & insufficient coverage through ration cards.	Computerization reforms established a strong monitoring, feedback and complaint mechanism.	Limited impact on service level. However, information on corrupt FPS owners now available.	[to be generated by class]

Potential Take-Aways from the Case

- Discussion of conditions that facilitate out-of-the-box thinking in implementing PDS reform
- Potential for, and constraints on, developing partnerships among different stakeholders with a view to providing benefit to the farmers and the people at large.
- Potential for resolving conflict amongst stakeholders – political and institutional – through value generating mechanisms.
- Importance of a clear political objective and backing in delivering solutions.
- Innovating to deliver solutions with limited resources & organizational capacity.
- Operational challenges in carrying out reengineering of a massive supply chain through Information Technology driven reforms.
- Effecting behavioral change to introduce transparency in operation to mitigate leakages and diversion of funds.
- Government process reengineering in making the processes simplified.
  Potential for IT intervention at every stage with a view to making the entire process transparent.

7.2 Case: Procurement of Paddy and Streamlining of PDS in Chhattisgarh - Part A

Introduction

In late 2006, a crucial legislative by-election loss in the Kota constituency by the ruling Bharatiya Janata Party (BJP) to the Indian National Congress served as a wake-up call to the Chhattisgarh State government. Chief Minister Raman Singh, leader of one of India's poorest States, was deeply concerned about improving the socio-economic condition of the people in his State. After coming to power in December 2003, he had undertaken a number of reforms to improve food grain supply chain with a view to improving the living conditions of poor people in the state.

The inadequate performance of the state's Public Distribution System (PDS) for providing basic foodstuff to poor citizens of the state had become a major issue in the run up to the by-election polls in Kota. The former Chief Minister, Ajit Jogi of the Indian National Congress (INC), severely criticized Singh's efforts at reform. The eventual loss of this prestigious election helped Singh realize the electoral potential of reforming PDS — and the risks of failing to do so. Singh was determined to set the system in order before the upcoming State Assembly election in 2008.

Background

Since India's independence, food security has occupied center stage as a major development objective. After a stream of agricultural reforms, India managed to become self-sufficient in food grains since the 1970s. Today India prides itself on having a huge reserve of surplus food grains. However, due to inappropriate agricultural policies, this has not translated into meeting the food needs of the nation's poor. Government's biggest initiatives to correct this situation have come in the form of two major targeted interventions, namely, the Minimum Support Price (MSP) scheme and the Public Distribution System (PDS).

A recent intervention by the Government of India, the **Minimum Support Price (MSP)** aims to help medium and low income farmers get remunerative returns on their produce, specifically rice, wheat and coarse grains. The majority of these farmers are forced to sell their produce immediately after production for two key reasons. First, farmers lack access to adequate storage facilities to store the produce. Second, because of liquidity crunch caused by repayments due towards loans procured to purchase seeds, fertilizers and other inputs for production. Often, this bargaining weakness is exploited by market forces and middlemen.

To protect farmers from the middlemen, Government of India determines the MSP on the basis of recommendations from the Commission for Agricultural Costs and Prices (CACP). The Food Corporation of India (FCI) procures the produce at this MSP and issues them to State Government nominees for further distribution under the Public Distribution System (PDS). Further, there is no limit to how much (i.e. the volume of grains) the FCI can procure provided they satisfy the FAQ (Fair Average Quality) specifications3. MSP, is therefore, perceived by the farmers as a guaranteed price. (Dhand et al., 2009; Government Knowledge centre, case study, E-Governance, 2011; FCI, 2014).

A relatively older intervention, the **Public Distribution System (PDS)** augments the MSP scheme to become a key element in the government's food security system in India. Under this scheme, every Below Poverty Line (BPL) family can purchase rice, sugar, wheat and kerosene at subsidized rates from the Fair Priced Shops (FPS) that have been set up across the country. PDS operates under the joint control of the Central and State Governments. Through FCI, the Central Government handles the

procurement, storage, transportation and bulk allocation of food grains. Other operational responsibilities, including allocation of foodstuffs within the State, identification of BPL families, issuance of ration cards, and supervision of the functioning of PDS rests with the State Governments.

The Scheme of Decentralized Procurement of food grains was introduced by the Central Government in 1997-98 with the twin goals of: (1) encouraging local procurement to the maximum possible extent, thereby extending the benefits of MSP to local farmers and (2) enhancing the efficiency of procurement and PDS with a view to minimizing expenditures on the food subsidy. The FCI issues foodgrains to the States at a uniform Central Issue Price (CIP) which is less than the economic costs incurred by the Central Government in procuring, storing, transporting and distributing them. This difference between the economic costs and the CIP, is called the consumer subsidy, which is borne by the Central Government through its annual non-Plan budget. In addition to this, the FCI also maintains a large buffer stock of foodgrains, which entails a carrying cost. The consumer subsidy and the carrying cost of the buffer stock together add up to give rise to total food subsidy.

Chhattisgarh State: An Overview

Chhattisgarh a landlocked state, carved out of Madhya Pradesh on November 1, 2000 on linguistic lines, is comprised of 27 districts. With 11 national highways crossing it, Chhattisgarh, is well connected, nationally and domestically, with good all-weather roads. Surrounded by hills in the north and south, the state boasts fertile plains in its central part which form the upper basin of Mahanadi river and its tributaries. These fertile plains mostly cultivate rice.

A poor state, Chhattisgarh has about 47.9% of the population below poverty line compared to the national average of 29.5%. About 70% of the population that depend on agriculture for a livelihood 54% are considered to be marginal (with less than one hectare of cultivated land) and 22% are small farmers (with between 1 and 2 hectares of cultivated land). A snapshot of other key development indicators is provided in Exhibit 1.

Previous Reforms

Reforms from 2000 – 2003: Ajit Jogi Government

A predominantly rural Chhattisgarh in 2000 had less than half FPSs compared to its neighboring states. All these FPSs were operated by cooperatives. The Ajit Jogi government argued that owing to their poor financial health these cooperatives were incapable of extending their coverage. To address this, government started granting licenses to private dealers to own and operate FPSs under the Sarvajanik Nagrik Poorti Vitran (SNPV) scheme in June 2001. This resulted in the number of FPSs in the state doubling between 2001 and 2004 to 8637 FPSs, of which 5049 were privately owned.

In order to address procurement challenges the Chhattisgarh government began to participate in the Decentralized Procurement Scheme (DCP), in which state government started procuring rice and wheat directly from local farmers at MSP. This resulted in doubling of rice procurement from under 1 MMT to about 2MMT from 2002 to 2004.

Despite the encouraging outcomes, the ineffectiveness of increased number of FPSs meant that large numbers of beneficiaries were prevented from receiving their entitlements. One important reason was that private FPS operators who lived far away from the shops had little incentive to keep the shop open all day, and did so only for limited hours at their convenience. Further, they would divert a significant portion of food grains to the open market in connivance with millers and other agencies.

Reforms from 2003 – 2006: Raman Singh Government

Chief Minister Raman Singh (BJP) government's rise to power in December 2003, was accompanied by an astute understanding that the positive wave created by BJP's victory would dissipate unless pressing problems faced by the poor, including farmers, tribals and non-tribals, were addressed.

A year after assuming office, the Raman Singh government passed its first major PDS legislation – the PDS Control Order (2004). To address the ineffectiveness of FPSs run by private owners, this order de-privatized the ownership of FPSs. Further, it mandated their operation by Gram Panchayats, Co-operative societies, Self-help groups, Forest protection committees and Urban local bodies only. Not surprisingly, the move attracted severe opposition from existing shop owners, who lodged over 400 petitions. The order became operational only in September 2005 when the High Court dismissed the petitions.

The order also mandated that delivery to FPSs should be ensured within the first week of the month. Further, specific allocations to FPSs were required to be disclosed to local bodies such as the Gram Panchayat. Additionally, social audits were enforced at specified intervals.7 Deprivatization, laid out in the PDS Control Order (2004) was intended to reduce cheating, since cheating through self- or community-owned FPSs would in effect mean cheating oneself.

Singh went on to raise the commission to PDS shop owners from Rs. 8 per quintal to Rs. 35 per quintal. This was motivated by the fact that typical PDS shop run into losses, and that motivates owners to cheat and re-send food grains to the rice millers. This was coupled with the decision to provide interest-free loans of up to Rs. 75,000 to each PDS shop as seed capital to develop the shop and tide over immediate cash flow problems.

The Challenge

Shortly after the loss in the Kota by-elections, Singh commissioned a team of bureaucrats led by the then State Chief Electoral Officer Dr. Alok Shukla to make recommendations to reform the PDS in Chattisgarh. Shukla was given the additional charge of the Food Department.

While, fears of political interference in implementing reforms were allayed by Singh in his meeting with the committee, several other challenges awaited Dr. Shukla's team.

One of the core issues identified on the distribution front, after a quick review of the entire system of food grain supply chain right from procurement from farmers to distribution to beneficiaries, was re-selling of paddy by rice millers. Dr. Shukla emphasized that "…the key to plug the leakages was to stop the recycling [reselling] of paddy done by the rice millers of the state in connivance with the government officials."1Reselling of paddy involved diversion of grains dispatched from government warehouses to FPSs to rice millers. These rice millers would then resell this back to the government as fresh rice. This scam ran into several hundreds of million rupees.

Another concern on the distribution front was diversion of grains into open markets. Dr. Shukla and his team noted that private players responsible for procuring and transporting rice from government warehouses to FPSs, led by vested interests, were involved in diverting food grains in open markets. Further, they also delayed delivery of grains– forcing people to buy from open market.

Private players were not the only ones distorting the supply chain. Government officials were also involved in affecting procurement issues. Notably, they would create an artificial crisis, by announcing midway through the procurement insufficiency of funds as a reason for closure of procurement. Farmers having transported their produce after bearing significant costs and worried about lack of proper storage would panic and bribe the officials involved to consider them out of turn i.e. before the closure of the procurement.

From the demand side, prevalence of bogus BPL cards was a major concern. Not only did this imply diversion of subsidized food grains to ineligible users (which resulted in food grains finding their way into the open markets) it also meant a huge exclusion of deserving candidates, since the state was restricted by the Central government to issue BPL cards above a specific mandated number.

After a through diagnosis of the current systems and its problems through extensive stakeholder discussions and research, Dr. Shukla and his team were convinced that a complete overhaul of the system was imperative. The challenges posed by scale and access, on the supply side, were compounded by the lack of a strong accountability mechanism resulting in huge leakages. Further, identifying beneficiaries, on the supply side, was a major challenge because of lack of standardized documentation of identity, income proof, etc.

Dr. Shukla and his team had important choices to make. Should they address the supply side or demand side problems first? Or should they attempt to address them both simultaneously?

On the demand side, some NGOs argued for an expansion to a universal PDS. Additionally, the talk of direct-cash transfers (or food coupons) rather than provision of below-cost commodities had intensified in the recent years.

On the supply side, multilateral organizations have argued for making state agencies open to competition. The committee was unanimous in their viewpoint that it was imperative to computerize the entire supply chain for efficient operation and monitoring of the procurement and distribution. This, they believed would not only facilitate better record-keeping, availability of real time data, transparency and enforcement of accountability, but also result in better service delivery. Computerization came with its set of challenges, poor internet connectivity, intermittent power supply at procurement centers, massive amounts of data entry, and lack of trained professionals with computer proficiency or knowledge of English language. And even if these technical challenges could be solved through innovation and investment, aligning multiple stakeholders — many of whom had a vested interest in the status quo — with the new system could prove an insuperable challenge.

Exhibit 1: Chhattisgarh - Key Indicators

Key Indicators	Chhattisgarh	India
Population (in millions)	25.5	1210
Total number of poor (in millions)	12.19	354.68
Percentage of poor people	46.8%	29.3%
Per capita income at current prices	Rs. 46,573	Rs. 60,972
Contribution of agriculture towards GDP	18.6%	14.6%
Percentage of people dependent on agriculture	70	50
Human Development Index (HDI)	0.358	0.467
Literary rate (%)	71.04	74.04
Percentage spending towards social sector	13.5	6.5
Road length per sq. km.	21.40 km	42.40 km
Percentage rural population	80%	72.2%

Exhibit 2: Timeline of major PDS reforms in Chhattisgarh

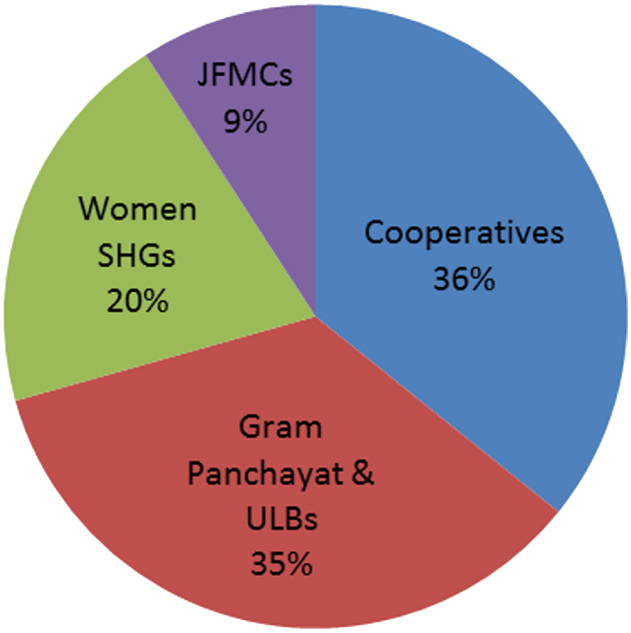
Chief Minister	Year	Reform	Description
Ajit Jogi (2000 - 2003)	2001	Sarvajanik Nagrik Poorti Vitran Scheme (SNPVS)	• Allowed private participation in the distribution of PDS commodities
	2002	Decentralized procurement scheme	• Allowed the state government to procure rice directly from farmers
Raman Singh (2004 - Current)	2004	PDS (Control) Order 2004 (approved in December 2004 implemented in September 2005 after winning legal battle)	• De-privatised FPSs and instituted a number of transparency/auditing mechanism for food-grain distribution. • Working capital assistance to FPS
	2006	-	• Door-step delivery of grains to FPSs. • Revision of commission to FPS from Rs. 8 to Rs. 30

Exhibit 3: Stakeholders and their respective roles

Stakeholders	Role
Farmers	Concerned with the sale of paddy at the procurement centres
Primary Agricultural Co-operative Societies (PACS)	Responsible for procurement of paddy from farmers and making payment to them.
Central Co-operative Bank	Responsible for banking operation of PACS
Chhattisgarh State Co-operative Marketing Federation (MARKFED) Ltd.	Responsible for overall monitoring of paddy procurement through PACS, paddy storage and granting of inter-district approval for milling.
Storage centres of MARKFED	Responsible for storage of paddy

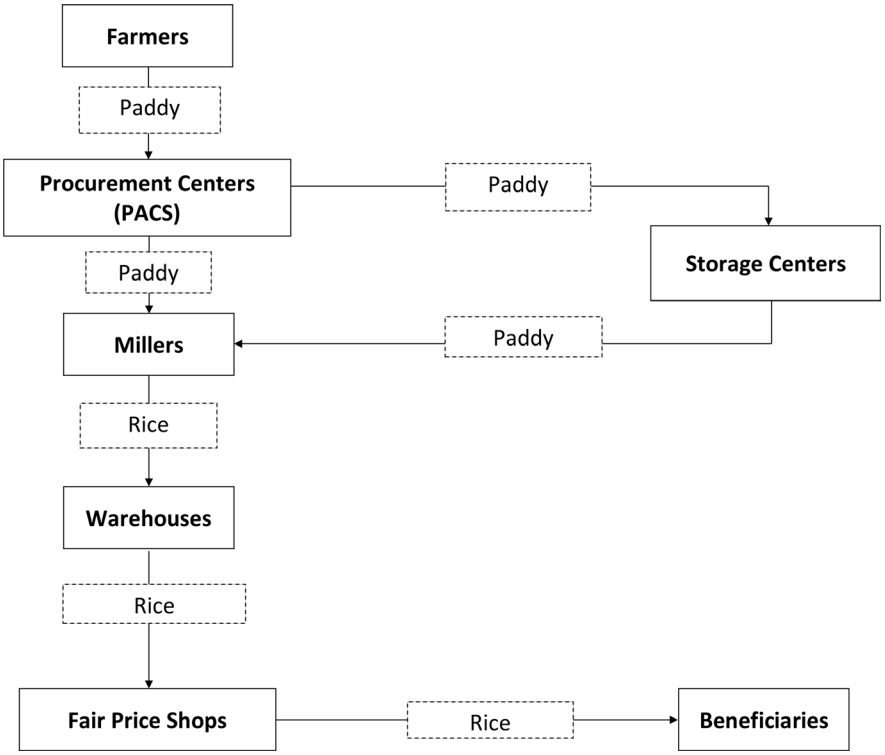
Stakeholders	Role
Department of Food	Responsible for conducting physical verification, registration of mills and granting permission of milling.
Rice Mills	Conversion of paddy into Custom Milled Rice (CMR)
Chhattisgarh State Civil Supplies Corporation (CGSCSC)	On behalf of the State Government, CGSCSC runs distribution centres across the state
Food Corporation of India (FCI)	On behalf of the Central Government, FCI run distribution centres across the state
CGSCSC warehouses	Act as the receiving centres of Custom Milled Rice
FCI warehouses	Act as the receiving centres of Custom Milled Rice
Fair Priced Shops (FPS)	Sell commodities the beneficiaries at government subsidized rates.

EXHIBIT 4: AGENCIES MANAGING FPSS



(Source: D S Mishra)

EXHIBIT 5: PROCUREMENT & DISTRIBUTION OF PADDY IN THE MANUAL SYSTEM



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7.3 Case: Procurement of Paddy and Streamlining of PDS in Chhattisgarh - Part B

Introduction

An assurance from a determined Chief Minister, Raman Singh, assuring zero political interference gave Dr. Shukla and his team the confidence to chalk out an ambitious plan to fix the several lacunas of the Public Distribution System in Chhattisgarh.

The supply side challenges of corruption in procurement, rampant leakages in transportation coupled with demand side challenges of ineffective identification of beneficiaries called for an overhaul of the current system. Dr. Shukla and his team were convinced that a reengineering of the entire supply chain backed by computerization was the only way to increase transparency and consequently improve service delivery1.

The Solution

A Reengineered Supply Chain

The supply-chain was streamlined and massive computerization at every step of the supply chain was introduced to increase transparency and plug leakages. A schematic of the flow of grains is presented in Exhibit 1.

To begin with, about 1 million farmers have registered at a designated, village panchayat level, Primary Agricultural Cooperative Societies (PACS). A total of 1532 PACS act as procurement centers and each of them collect paddy from farmers on pre-specified days of the year at the Minimum Support Price (MSP). These PACS, each with their unique ID number, then generate electronic receipts and cheques for farmers while also printing out delivery orders for movement of paddy to storage centres. These electronic receipts prevent scope of corruption on the part of procurement agencies. Further, electronic cheques have ensured full and timely payment of farmer dues.

PACS transport paddy to pre-assigned Storage Centers owned and managed by the Marketing Federation Ltd. (MARKFED). These 50 Storage Centers further transport paddy to authorized Millers for processing into rice. A rigorous process involving online information filing by millers, approval by the District Collectors office, and physical verification by District Marketing Officers has, so far, resulted in 1400 registered millers.

These Millers then transport Custom Mill Rice (CMR) to the 70 CGSCSC (subset of 99 distribution centers) and 35 FCI storage warehouses. These warehouses then double-up as distribution centers and supply grains to Fair Price Shops (FPSs) using a GPS tracked transportation network. Each of the 10416 FPS has been assigned specific consumers (beneficiaries) who are 3.7 million in total.

A Centralized Database & Transparent Information Flow

Streamlining of the supply chain has been made possible by development of a centralized database and transparent information-flow across the entire system.

Computers have also been installed at all MARKFED Storage Centres to track inflow from PACS and outflow to Millers. An exhaustive online database for Millers is also maintained that includes information such as milling capacity, storage space, etc. Millers upon processing paddy to rice and delivering CMR receive an acknowledgement receipt from the CGSCSC & FCI warehouses.

These warehouses then issue delivery orders and receipts to every FPS indicating the details of the CMR dispatched and details of the truck carrying the consignment through SMS. Each of these trucks, painted in yellow, is mounted with a GPS. This GPS tracking is closely monitored from a control room that keeps a tab on the route taken and stop times. In case of any suspicious activity, information is passed on to concerned authorities who easily track down the truck with the GPS information.

Information about FPSs is stored on a central database that stores details such as location of the shop, agency running the shop, name of the sales-person, ward number, accessibility during rains, number and entitlement to each beneficiary, etc. This information is managed, updated and authenticated by the District Food Controller. Information on entitlement of each beneficiary and their numbers along with data on the inventory at each FPS warehouses now pre-determine and automate allocation of grains to every FPS.

Grains once received at the FPSs are stored for distribution to 3.7 million beneficiaries. Every beneficiary is attached to a specific FPS and is identified by Ration Cards. New Ration Cards were issued by the government after cancelling all previous cards. Also stored on a central database, these cards include details such as head of family, caste, address, entitlements, ration shops, etc.

A Robust Monitoring Mechanism

A clear monitoring policy was designed to fill in gaps left out after reengineering the supply chain and introducing transparency measures.

A third of the FPSs are selected randomly using computer software for physical inspection. The reports of these inspections are then uploaded on the web for public access. Further, a citizen interface website allows spreading awareness and encourages participation in monitoring the supply chain. The website lists data starting from farmer procurement and payments to details of transport and sale of PDS commodities at each FPS. Citizens can also register their mobile numbers to receive automated text messages that give out information of the consignment transported from the CGSCSC & FCI warehouses to their respective FPSs. In absence of a timely delivery, citizens can lodge their complaints on the website.

Additionally, apart from filing complaints and tracking status of action on these them, complaints can also be registered by calling a toll-free number (1800-233-3663) 14 hours a day. A complaint number is generated and also if the complainant chooses to give his/her contact information they are duly informed about the outcome of their complaint.

To further improve transparency and citizen participation, a rice festival is now conducted on pre-decided date of every month to distribute PDS commodities in the village markets in the presence of public and nominated public officials.

The Challenges

Several road-blocks were overcome before the reengineering of the supply chain and its computerization could occur. The challenges were broadly of two types: stakeholder-based and logistical.

Stakeholder Challenges

A legacy of corrupt practices had resulted in a strong nexus between millers, FPS owners, and some Government functionaries. This lobby presented itself in opposition to the reforms, since they were clearly expected to plug many avenues for diversion of grains and corruption. This opposition was however overcome after full support of Chief Minister Raman Singh.

First, Government servants procuring paddy could no longer cite unavailability of cash as a reason to fore-close procurement. Further, public access to information on procurement through the website made manipulation of figures a near impossibility. Secondly, due to automation of entries at PACS and acknowledgment receipts from CGSCSC & FCI warehouses acting as a proof of delivery, millers could no longer engage in diversion or reselling of grains. Finally, the high level of automation at point of sale and pre-determined allocation of grains to FPS posed serious impediments to diversion of grains into open markets by FPS owners. The challenge with FPS owners was partly resolved by increasing their commission from Rs. 8 to Rs. 30 per quintal and providing an interest free loan of up to Rs. 75,000.

Logistical Challenges

Several logistical challenges had to be resolved to enable computerization of the entire supply chain. Most of the challenges centred about intermittent power supply, lack of access to internet, shortage of trained professionals with computer knowledge.

Remote location of PACS to improve accessibility for small farmers posed the challenge of limited access to reliable power supply and no access to the internet. This challenge was resolved by hiring 250 motorcyclists to carry data on hard-drives from PACS to Block headquarters that were all connected to the internet through V-Sat. Further, these motorcyclists would also bring back delivery memos for transportation to MARKFED Storage Centres. The challenge of intermittent power supply was met by making generators available at all PACS.

Lack of trained manpower and user-friendly software posed additional challenges. Software needed seamless portability across six organizations. In addition to conducting 2500 man-days of training for all data entry experts massive efforts were put in helping employees in all stakeholders appreciate the advantages of the new system to prevent any internal backlash. A full dress rehearsal was executed to iron-out any final glitches and instill stakeholder confidence in the system with dummy data.

EXHIBIT 1: FLOW OF PADDY/RICE BETWEEN STAKEHOLDERS

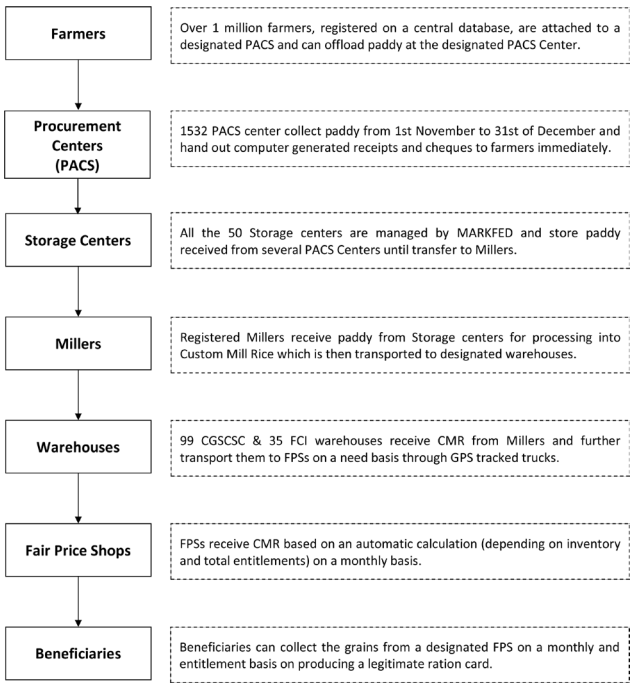

EXHIBIT 3: TIMELINE OF MAJOR PDS REFORMS IN CHHATTISGARH

Chief Minister	Year	Reform	Description
Ajit Jogi (2000 - 2003)	2001	Sarvajanik Nagrik Poorti Vitran Scheme (SNPVS)	• Allowed private participation in the distribution of PDS commodities
	2002	Decentralized procurement scheme	• Allowed the state government to procure rice directly from farmers
Raman Singh (2004 – Current)	2004	PDS (Control) Order 2004 *(approved in December 2004 implemented in September 2005 after winning legal battle)*	• De-privatised FPSs and instituted a number of transparency/auditing mechanism for food-grain distribution. • Working capital assistance to FPS
	2006	-	• Door-step delivery of grains to FPSs. • Revision of commission to FPS from Rs. 8 to Rs. 30
	2007	Transparency Measures	• Creation of Ration Card database • Call centres for lodging complaints
	2008	Mukhyamantri Khadyann Sahayata Yojana (MKSY)	• Inclusion of more poor families in the PDS system
	2011	Computerization of Supply Chain	• Dr. Shukla led reforms implemented resulting in a reengineered supply chain through centralized data keeping.

EXHIBIT 4: STAKEHOLDERS AND THEIR RESPECTIVE ROLES

Stakeholders	Role
Farmers	Concerned with the sale of paddy at the procurement centres
Primary Agricultural Co-operative Societies (PACS)	Responsible for procurement of paddy from farmers and making payment to them.
Central Co-operative Bank	Responsible for banking operation of PACS
Chhattisgarh State Co-operative Marketing Federation (MARKFED) Ltd.	Responsible for overall monitoring of paddy procurement through PACS, paddy storage and granting of inter-district approval for milling.
Storage centres of MARKFED	Responsible for storage of paddy
Department of Food	Responsible for conducting physical verification, registration of mills and granting permission of milling.
Rice Mills	Conversion of paddy into Custom Milled Rice (CMR)
Chhattisgarh State Civil Supplies Corporation (CGSCSC)	On behalf of the State Government, CGSCSC runs distribution centres across the state
Food Corporation of India (FCI)	On behalf of the Central Government, FCI run distribution centres across the state
CGSCSC warehouses	Act as the receiving centres of Custom Milled Rice
FCI warehouses	Act as the receiving centres of Custom Milled Rice
Fair Priced Shops (FPS)	Sell commodities the beneficiaries at government subsidized rates.

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7.4 Case: Procurement of Paddy and Streamlining of PDS in Chhattisgarh - Part C

Introduction

At the end of a busy day, a proud Chief Minister of Chhattisgarh, Raman Singh, sat in his office looking at the clear evening sky through his window. The Chief Minster had accomplished the mammoth task of preventing grain diversions through massive computerization of the paddy supply chain for the PDS. However, unsatisfied and worried about complaints from different quarters, the Chief Minister was committed to fixing the last-mile problems facing the Public Distribution System.

Background

The Reform

Several phases of reforms afforded Chhattisgarh the proud status of being recommended by the Hon'ble Supreme Court of India for replication of its PDS system. These reforms are summarized in Exhibit 2. Most significant of these reforms was the computerization of the entire PDS supply-chain.

This reform included a reengineered supply chain that introduced computerized tracking of grains at all stages to increase transparency and plug leakages. This computerization was supported by development of a centralized database that facilitated transparent flow of information across the entire ecosystem. A monitoring mechanism was also introduced with the help of citizen participation.

Several roadblocks had to be cleared to for the successful implementation of the reform. In particular a strong corrupt lobby of millers and FPS owners was against implementation of any change. Further, logistical challenges of providing internet and electricity at remote PACS were resolved through several innovative solutions.

The Outcome

Many positive outcomes resulted from the massive computerization reform for the farmers besides checking leakages and diversion of grains. Farmers have benefitted immensely from the automatic generation of receipts and cheques. This has reduced the delay in payments to one day from 3-6 days.

Introduction of online registration of millers has helped in preventing agreements with fake millers that had earlier led to rampant reselling of grains. Further, generation and tracking of delivery orders through web-based application has ensured uniform procedures across the state, making it difficult for millers to divert rice to the open market. Additionally, micro-management of inventory through web-applications has resulted in quicker milling cycles, resulting in lesser damage to rice and paddy.

Further, computerized receipts at distribution centres coupled with GPS tracking of trucks carrying grains to FPSs has resulted in effective monitoring and drastic reduction in diversion. Centralized information on ration allotments to beneficiaries and details of the FPSs has enabled automatic calculation of monthly allotments eliminating irregularities and malpractices in allotment of grain to FPS.

Finally, a web based application has helped in fast-tracking turnaround and increased response on complaints received.

Remaining Challenges

Though the reforms proposed and implemented by Dr. Shukla's team have helped in fixing several major gaps in the Chhattisgarh PDS, a few last mile concerns remained, broadly in the three areas (i) technology, (ii) infrastructure and (iii) stakeholders.

Reforms proposed depend critically on access to uninterrupted electricity and internet in the remotest of Primary Agricultural Co-operative Societies (PACS) and FPSs. Though, several innovative solutions have been implemented such as installation of diesel generators and hiring motorcyclists to transfer data (on a near almost real-time basis) to the block headquarters, limitations of these solutions limited the effectiveness of the reform.

A transportation intensive PDS supply chain, farmer fields to PACS, PACS to Storage Units, Storage Units to Millers, Millers to Warehouses, Warehouses to FPSs, is severely affected by the poor state of road infrastructure. Not only does absence of roads prevent delivery to remote parts of Chhattisgarh, poorly maintained roads result in delayed delivery.

The biggest and more immediate challenge, however, is checking stakeholder greed. FPS operators have employed several means to cheat and raise profits. Predominantly the restriction on beneficiaries to shop from a pre-assigned FPS results in a monopoly like situation. This monopoly enjoyed by FPS owners has led to several problems.

Beneficiaries are inconvenienced because FPSs are not open typically in the last two weeks of the month preventing those beneficiaries from benefiting who miss out on collecting PDS goods in the first two weeks. Also, FPS owners declare 'no-stock' in-spite of availability of stocks and force beneficiaries to make multiple visits. All the PDS goods that are 'saved' by the FPS owner through these malpractices are then diverted into open markets by making false entries into the sales stocks.

Beneficiaries are also cheated through rampant under-weighing and extensive overcharging of PDS products. Adulteration of grains and PDS products is also common-place. Under the current system there was no mechanism to ensure whether the beneficiaries were receiving their due entitlements, or if they were receiving food grains, whether they were getting the same in right quantity or not. In addition, poor behaviour of sale personnel coupled with long waiting time in queues adds to the pain of shopping from a FPS.

Deeply concerned by the problems, Raman Singh appointed a committee headed by Vivek Dhand from the Department of Food, Civil Supplies, and Consumer Protection to fix last mile issues in the PDS system. The committee also included members from the NIC, CG State Supplies Cooperation, and District Central Cooperative Bank.

After extensive brainstorming the committee narrowed down to improving service quality, empowering the beneficiary, and eliminating malpractices at the FPS level. Several interventions had already been introduced in few states of India in order to ensure that the food grains reach the beneficiaries. A bio-metric based bar coded food coupon system, introduced in the state of Gujarat to prevent leakage, was one option. Under this system, the card holder visits the FPS along with the bar coded card and hands over the coupon to the FPS dealer. The dealer provides the commodity in return with due entry in the ration card as per the usual practice while the coupon is retained by the dealer. Thus the

coupon becomes the proof of transaction and the dealer would get replenishment of commodities in the subsequent month only against surrender of those coupons at the e-GRAM centre, which captures the relevant information about the transaction. Thus the beneficiary has been empowered to authenticate each transaction.

A second option was providing smart card to the beneficiaries containing their biometric information and a Point-Of-Sale (POS) device at the FPS introduced in Chandigarh was also examined. The identity of beneficiary would be established by means of his/her biometric impression on inserting the card in POS terminal. The beneficiary would be able to know the ration allocation made so far and also the remaining balance in his account. The POS terminal is voice-enabled and would be linked to an electronic weighing scale to ensure proper measurement of the disbursed commodity.

Another option was the Interactive Voice Response system (IVRS) which was successfully implemented in the mid-day meal scheme of Uttar Pradesh and planned to be introduced in the Targeted Public Distribution System (TPDS) in Uttar Pradesh. Under this system, the care holders would receive an automated phone call from the Food Department asking them to report on the items received and their respective quantity from time to time. This information would serve as a basis to make a comparison between the entitlements due to the beneficiaries and the entitlements actually received by them.

All the above interventions introduced in different parts of India aim to ensure as to whether the beneficiaries were getting their entitlements. Any of the above measures could also be introduced in Chhattisgarh with suitable modifications. Chhattisgarh was aiming to improve service delivery in terms of opening the FPS in scheduled timings, good behaviour by the FPS, less queues and less number of trips.

While all of these options showed promise, members of the committee believed that the root cause of the problems faced by beneficiaries was the assignment of a beneficiary to a specific FPS. This created a forced monopoly for the FPS. The officers were convinced that improvement of service was possible only by empowering the beneficiary with the right to choose his/her FPS and thus creating competition among the FPSs for larger business share, and shifting the bargaining power from FPS owners to beneficiaries. Simply introducing cosmetic changes like biometric sensors, etc. would only inconvenience the beneficiaries further. But could this be accomplished without opening up new opportunities for fraud and abuse? And could the complex infrastructure, technology, and training issues be satisfactorily addressed?

EXHIBIT 1: STAKEHOLDERS AND THEIR RESPECTIVE ROLES

Stakeholders	Role
Farmers	Concerned with the sale of paddy at the procurement centres
Primary Agricultural Co-operative Societies (PACS)	Responsible for procurement of paddy from farmers and making payment to them.
Central Co-operative Bank	Responsible for banking operation of PACS
Chhattisgarh State Co-operative Marketing Federation (MARKFED) Ltd.	Responsible for overall monitoring of paddy procurement through PACS, paddy storage and granting of inter-district approval for milling.
Storage centres of MARKFED	Responsible for storage of paddy

Stakeholders	Role
Department of Food	Responsible for conducting physical verification, registration of mills and granting permission of milling.
Rice Mills	Conversion of paddy into Custom Milled Rice (CMR)
Chhattisgarh State Civil Supplies Corporation (CGSCSC)	On behalf of the State Government, CGSCSC runs distribution centres across the state
Food Corporation of India (FCI)	On behalf of the Central Government, FCI run distribution centres across the state
CGSCSC warehouses	Act as the receiving centres of Custom Milled Rice
FCI warehouses	Act as the receiving centres of Custom Milled Rice
Fair Priced Shops (FPS)	Sell commodities the beneficiaries at government subsidized rates.

EXHIBIT 2: TIMELINE OF MAJOR PDS REFORMS IN CHHATTISGARH

Chief Minister	Year	Reform	Description
Ajit Jogi (2000 - 2003)	2001	Sarvajanik Nagrik Poorti Vitran Scheme (SNPVS)	• Allowed private participation in the distribution of PDS commodities
	2002	Decentralized procurement scheme	• Allowed the state government to procure rice directly from farmers
Raman Singh (2004 – Current)	2004	PDS (Control) Order 2004 (approved in December 2004 implemented in September 2005 after winning legal battle)	• De-privatised FPSs and instituted a number of transparency/auditing mechanism for food-grain distribution. • Working capital assistance to FPS
	2006	-	• Door-step delivery of grains to FPSs. • Revision of commission to FPS from Rs. 8 to Rs. 30
	2007	Transparency Measures	• Creation of Ration Card database • Call centres for lodging complaints
	2008	Mukhyamantri Khadyann Sahayata Yojana (MKSY)	• Inclusion of more poor families in the PDS system
	2011	Computerization of Supply Chain	• Dr. Shukla led reforms implemented resulting in a reengineered supply chain through centralized data keeping.

Footnotes

1. www.fcsca.gujarat.gov.in/Images/pdf/tpds-inforation.pdf accessed Nov 24, 2014.
2. www.orissadiary.com/CurrentNews.asp?id=18956 accessed Nov 24, 2014.
3. www.accountabilityindia.in/article/policy-brief/2404-case-study-interative-voice-response-system-based-daily-monitoring-system accessed Nov 24, 2014.

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2. Dhand, V.K., Srivastav, D.K., Somasekhar, S.K. and Jaiswal, R. “Computerization of paddy procurement and public distribution system in Chhattisgarh.” (2009)
3. Krishnamurthy, P., Pathania, V., Tandon, S. “Public Distribution System Reforms and Consumption in Chhattisgarh: An Empirical Analysis.”
4. Mishra, D. S. “Right to Food & Nutrition: Chhattisgarh Model”. Presentation, Credible Chhattisgarh.

7.5 Case: Procurement of Paddy and Streamlining of PDS in Chhattisgarh - Part D

Introduction

Encouraged by the results of Dr. Shukla's innovation to improve the paddy supply chain to improve outcomes, and firm assurance from Chief Minister Raman Singh, Mr. Dhand was committed to reform last-mile challenges facing the PDS in Chhattisgarh.

After through research and extensive stakeholder consultation Mr. Dhand and his team concluded that it was the bargaining leverage exercised by FPS owners that often led to poor and unfair treatment of beneficiaries. This bargaining leverage arises from assigning a particular FPS to each beneficiary resulting in no other avenue for a beneficiary to access PDS goods. The obvious solution was to break-down this monopoly-like leverage enjoyed by FPS owners and allowing beneficiaries to access PDS goods at other FPSs in addition to an assigned FPS.

The success of computerization of the supply chain through transparent and centralized data management led to the choice of using technology driven interventions to provide FPS portability to beneficiaries.

The Solution: Annaporna ATM

The concept of portability was conceived and an innovative intervention titled 'Centralized Online Real-time Electronic (CORE) PDS' was developed for Chhattisgarh. Under CORE PDS, a Point of Sale (POS) device with GPRS connectivity (also termed as internet connectivity) is installed at each FPS. These were called Annaporna ATM's by Chief Minister Raman Singh because they work like an Automatic Teller Machine for food grains. This, coupled with Smart Ration Cards (SRC), issued to every beneficiary enables transaction of PDS commodities by beneficiaries across different FPSs.

Real time data tracking of PDS commodities bought by each beneficiary prevents any scope for consuming more than allotted quota – a constraint that forced a one-to-one assigning of FPS to each beneficiary which led to increased bargaining power of FPS owners.

Beneficiaries claim their entitlements from a FPS of their choice by using a host of authenticating methods. The FPS owner then updates the commodities purchased by the beneficiary into the system, which is attached to a central sever maintained at the NIC data center in Raipur, Chhattisgarh. This system validates the transaction by ensuring that the beneficiary has not exceeded his/her monthly quota. Upon validation and exchange of goods and money a printed receipt is generated at the end. This process has been depicted graphically in greater detail in Exhibit 1.

A key element of the solution is authentication of beneficiaries. A beneficiary may choose to authenticate through either of three ways. One of the ways is by swiping SRC and mutually authenticating FPS and RSBY cards. The other way is to use a Rashtriya Swathya Beema Yojana (RSBY) card, issued by the health department, and mutually authenticating the FPS and RSBY card. Alternatively, a beneficiary could share a One Time Password (OTP) sent to the registered mobile number to authenticate the transaction.

The centralized database is also used to track the level of PDS at each FPS. Every time the level of commodities falls below a pre-decided level, the system directs Warehouses to transport necessary goods to the concerned FPS. On receiving directions from the online system, a transport manager at the Warehouse authenticates and processes the request.

Challenges & Innovations

Computer Literacy

Computer literacy of FPS owners posed a challenge major challenge. An assistant programmer was recruited for every 100 FPSs and they trained in FPS owners in two rounds. In addition to assistant programmers food-inspectors double up as master trainers to help FPS owners navigate the challenges of adopting a new system.

Ecosystem Challenges

Given the very dusty and harsh environment in which most FPSs operate the risk of technology failure is real and high. In order to ensure uninterrupted working of the system 15% of the devices have been procured as a reserve stock.

Internet Access

Though efforts have been made to ensure access to internet across all FPSs maintaining full time internet connectivity at these remote locations is a challenge. In case of an internet outage the system is designed to issue grains in an offline mode to prevent any sort of inconvenience to the beneficiaries. The transactions are then uploaded on the sever as soon as internet connectivity is reestablished. However, to prevent misuse of this facility, only a fixed number of transactions are allowed at a FPS.

Issuing SRC

Issuing SRC to all citizens was a formidable challenge. In order to expand its outreach use of RSBY cards was allowed. RSYB cards are issued as a part of the universal health care program in Chhattisgarh. This innovation has led to lowered process costs, both time and money, besides preventing beneficiaries from the need to carry multiple cards.

Stakeholder Backlash

A few FPS owners saw this innovation as a challenge to pursue their own vested interests. While some of them resorted to means to prevent the use of this technology, others formed localized cartels. The former didn't pose a credible threat because of increased portability to beneficiaries. However cartels posed a threat to the entire system. The government responded by initiating mobile FPS that would come go to an area on receipt of any complaint. This was further reinforced by immediate cancelation of licenses of corrupt FPS owners and granting new FPS licenses.

Outcomes

A study was undertaken to review the impact of implementation of CORE PDS on the reduction of leakages. It was found that 4.5% savings in sale in case of BPL food grains, 40% savings in sale in case of Kerosene and 30% savings in case of APL food grains were accrued through implementation of CORE PDS. Prior to CORE PDS, FPSs used to declare 99% to 100% sale of all commodities. The CORE PDS is presently working successfully in the cities of Raipur, Durg, Rajnandgaon and Mahasamund and the rural block of Mahasamund. Initially, COREPDS was implemented in selected five FPSs in Raipur city. After this pilot study was successful, the project was formally inaugurated by the Chief minister on 20th March 2012. The system was then implemented in all 151 FPSs of Raipur by 1st July 2012. In Durg city (69 FPSs), the project was inaugurated on 1st Nov 2012, while it was rolled out in December 2012, at Rajnandgaon city (49 FPSs). In January 2013, 60 FPSs of Mahasamund city and rural blocks adopted this system. CORE PDS is ready to be implemented in all the remaining 8 corporations (Bilaspur, Bhilai,Ambikapur, Chirmiri, Jagadalpur, Raigarh, Janggir and Champa and Korba) of the State. It is expected that CORE PDS will be implemented in 90% of 10,900 FPSs by 31st Mar 2015.

References

1. Vaidya, O. S. Somasekhar, A. K. CORE PDS: Empowering with Portability. Case Studies on e-Governance in India.
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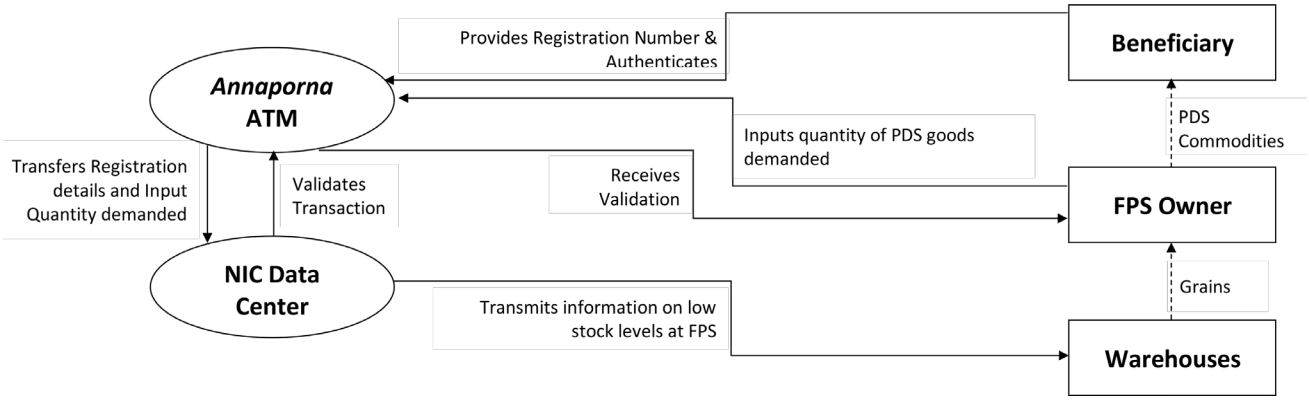
3. www.chips.gov.in/sites/default/files/COREPDS%20Chhattisgarh%20Final%20291012.pdf accessed Nov 25, 2014.
4. nisg.org/files/documents/UP1401111489.pdf accessed Nov, 2014.

EXHIBIT 1: INFORMATION & MATERIAL FLOW



8. Electronic Payment and Application System of Scholarships (ePASS)

8.1 Electronic Payment and Application System of Scholarships (ePASS)[1] Teaching Notes

Abstract

Online scholarship disbursement system, namely Electronic Payment and Application System of Scholarships (ePASS), was envisaged by Andhra Pradesh government to ensure speedier disbursal of scholarships through minimally staffed social welfare department. ePASS was a multi-department, multi-stakeholder application which had impacted over 25 lakh students and several thousand educational institutions in the State of AP. Given the magnitude of financial commitment, which for the years 2009-10 and 2010-11 was about Rs. 4,000 crores each, the need for a complete end to end student / college centric G2C (Government-to-Citizen) ICT (Information and Communication Technology) solution of the nature of ePASS presented itself as a matter of urgency. By adhering to the tenets of "SMART" – simple, moral, accountable, responsive and transparent - government – the ePASS initiative helped bring many economically deprived students into the fold of mainstream education, thus contributing to overall development and making economic growth truly inclusive. The ePASS initiative had also delivered many by-products like streamlining universities and colleges' fee structure, validation of courses offered by the colleges etc.

Domains

1. Government Process Re-engineering [Main theme]
2. Social Welfare

Classification Code for the Case

Not all cases are suitable for all capacity building programs of NISG. The NISG-Case classification code determines the suitability of a case to a capacity building program. Kindly refer to the Case classification index maintained by NISG to determine target audience for the case.

Learning Objectives

While ideas relating to flow of information, improvements to processes etc can spring from intuition and experiences gained from trial-and-error attempts, the subject of Government Process re-engineering is too important and too expensive to be left to an informal treatment. Similar to the mixed experience of the private sector from its investments in business process reengineering, Government process reengineering [GPR] too comes with no guarantees of success nor does it represent a panacea for all ills that e-Governance initiatives seek to redress. That said, the subject of GPR has matured sufficiently to present a practitioner with a set of formal guidelines. These guidelines help answer such questions as the following:

- What problems / issues exist in current processes which come in the way of providing highest quality of service to target beneficiaries?
- Are all current processes necessary?
- What choices / methods are available for effecting process improvements?
- Are process improvements the same as process re-engineering?

This case permits a detailed discussion of the GPR steps.

1 *The original case developed Pradeep Tandon is available at http://nisg.org/case-studies-on-e-governance-in-india*

When to Introduce the Case

The case may be scheduled in any of the following manner

- In a session dedicated to GPR
- In any special session[s] aimed at providing the participants with a opportunity to engage in higher order of thinking and analyses

Time to be Given for Studying the Case

Where the duration of training is more than one day, the case may be given to the participants for overnight study. Where the faculty expects that the participants may respond better under supervised reading, about 15 minutes may be allotted for familiarization with the case.

Not all questions are required to be subjected to class discussion. The faculty may use his/her discretion keeping in mind the focus of the capacity building program and the availability of time.

Introducing the Case

As a first step, the faculty may ask the participants to highlight the key points contained in the case. The faculty may ensure that the following points – at the minimum – are brought out.

- Obtaining the backing of the top political leadership before embarking on the project
- Substantial reduction in the process steps as a result of implementation of ePASS.
- Several bold initiatives such as linking of application process with Aadhar, use of biometrics etc

Question-1

How would you rate the process changes carried out as part of ePASS? Were they mere "improvements" or did they represent "transformation"?

Key learning: The conventional way of defining process reengineering would involve use of such epithets / qualifiers as "fundamental", "significant", "radical" etc. Phrases such as "significant reduction in process times", "fundamental re-think on the steps involved in service delivery" etc convey little meaning in an absolute sense. The question whether or not a Government process change effort resulted in significant savings can only be understood in a relative sense – by comparing two or more time periods / two or more situations etc. Even then, there may be no agreement on whether the differences were "significant" or "radical". In spite of such difficulties, the participants should be encouraged to have a healthy debate on the quality of process changes at ePASS.

Faculty intervention: The faculty may intervene from time to time during the discussions and highlight the following. Each bullet point describes what constitutes "reengineering". The sub- bullet points in italics contain illustrations from ePASS.

- In reengineering, employees become more empowered and participate in higher levels of decision making. In improvements, the scope of work largely remains the same albeit with additional facilities such as use of computerised forms instead of paper ones etc
    - *As a result of ePASS, a sizeable number of employees ceased to perform clerical, documentation related work. Instead, they became empowered to focus more on decisions of approval or rejection of applications.*
- In reengineering, there is a greater likelihood of a functional or a structural "flattening" in the

organisational hierarchies. Improvement exercises generally leave organisation structures unchanged.

- *ePASS resulted in a large number of employees – more than 350 – ceasing to perform any on-site student verification. This functional flattening resulted in their time being better utilised for other tasks.*

- In reengineering, the focus is on tasks rather than on departments. In other words, reengineering focuses on what needs to be done in the interests of the citizens who consume the services and on how best to do it - even at the cost of breaking down of inter-departmental and inter-functional "walls"
  - *The case does not contain details of whether or not ePASS adopted a "task" focus and whether or not it succeeded in breaking down organisational "walls". Ideally, the form or structure of an organisation should be derived from its strategy. It is relatively easy for the private sector to change its form to suit its strategy. A government body may have less freedom to do so and hence rather than looking at strategy as a whole, it might settle for assigning portions of a strategy to different functional units. Therefore, this particular feature of reengineering [breaking down of organisational walls] may show up only infrequently in process reengineering attempted by government bodies.*

The faculty may ask the participants to share their experience and views on whether in Government organisations "form can follow from strategy"

- Reengineering seeks to transform. In several key areas, ePASS appears to have brought about more than small scale incremental improvements.
  - A move from paper based applications to on-line, anytime, anywhere engagement is not merely an example of automation. When this was introduced in ePASS, footfalls of lakhs of students were eliminated [footfalls entailed by visits to Government offices or College premises for Application form collection]. Given that ePASS catered to several hundreds of thousands of Students, the financial, temporal, environmental impact of this move are quite significant.

The class may be divided in its opinion and interpretations. The faculty may permit and even encourage active and constructive differences of opinion. The main aim of this question is to facilitate healthy debate and discussion on what constitutes reengineering in an e-Governance context.

Question-2

The case presents a first level fish-bone analysis of issues which existed in the manual system. This form of analysis is best served if a series of "whys" are posed and the problem drilled down to three or more levels of causes. Perform at least three levels of "why" analysis on the following issues which existed during the pre-ePASS days.

- "Non receipt of scholarship on a timely basis [Student causes]"
- "Non-Receipt of funds on a timely basis [Educational institution causes]"
- "Difficulty in budgeting for funds [Departmental causes]"

Key learning: The figures -1, 2 and 3 shown herein illustrate the different formats in which the analysis can be presented. Various alternatives have been shown so that the participants can understand that non-availability of fishbone diagram and other drawing tools should not be seen as a constraint. It is not the form but the substance contained in the "why" analysis that is pertinent to any GPR exercise. A common "funds" related theme has been taken to illustrate how the same problem can have varying causes when analysed from different angles.

Analysis of "Non-Receipt of scholarship on a timely basis" [Student causes]

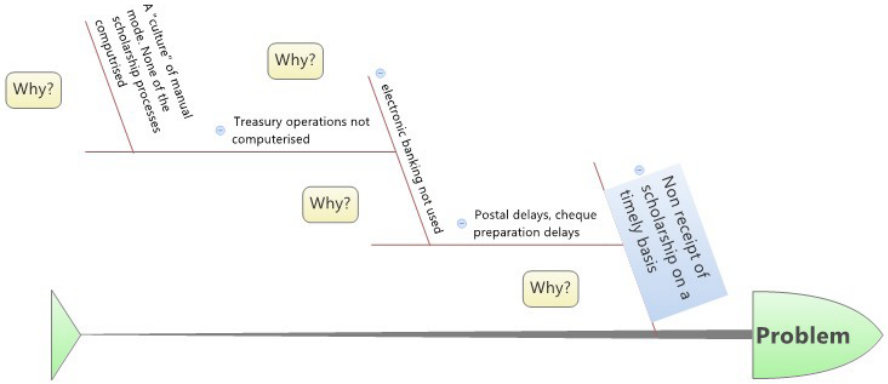


Figure-1 [Fishbone form of analysis]

Analysis of "Non-Receipt of funds on a timely basis" [Educational institution causes]

	Causes [which have been analysed using fish bone "why" technique]		Other Causes which may be taken up by the class for additional fishbone analysis
1	Non receipt of funds on a timely basis	Why ?	
2	Non submission of applications on time to the Social Welfare department by the college[s]	Why ?	Postal delays, Cheque/payment instruction preparation delays at the Social welfare department, mistakes in the application forms submitted by the students, incomplete information provided by the students...
3	Non submission of applications on time by students	Why ?	Lack of clear information on how the application is to be filled and filed, insufficient notice issued by the college for form submission, insufficient notice issued by the SWD…
4	Supporting documents not received by students on time	Why ?	Mistakes committed by the students when filing for income and othe certificate applications, General tendency to wait till the last date
5	Delays at Income and other certificates issuing offices		

Figure-2 [Table form of analysis]

Analysis of "Difficulty in budgeting for funds" [Departmental causes]

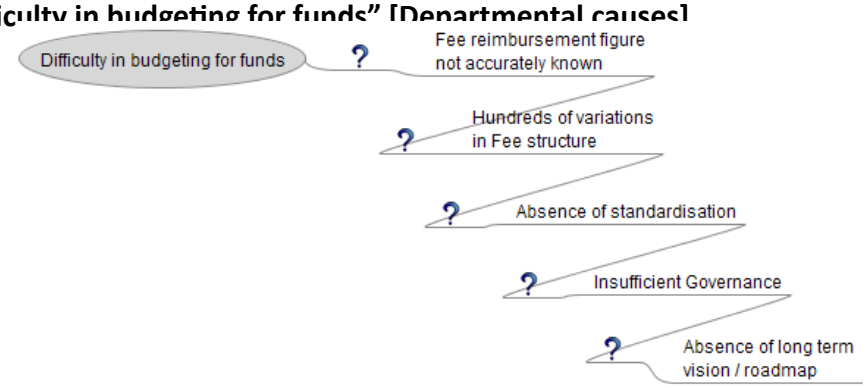


Figure-3 [Mind map form of analysis]

Question-3

To what extent did GPR exercise of ePASS plug the gaps your fishbone analysis highlighted? How do these compare with your own solutions?

Key learning: The question seeks two responses from the participants – one, to study the outcome of ePASS's GPR and map them to the issues identified and two, to propose their own solution[s] to the problems highlighted by their fishbone exercise. Depending on the time allotted to this question, the faculty may indicate whether only some or all of the issues taken up for fishbone analysis should be addressed as part of this question.

The manner in which fishbone exercise is done – Cascading [down] from higher level issues to lower level causes – suggests that solutions should be found in the reverse order - from lower level to higher level.

The following table suggests a format for studying how well ePASS addresses a selected list of causes identified as part of the earlier fish-bone exercise [refer to figure-2].

Analysis of "Non-Receipt of funds on a timely basis" [Educational institution causes]

	Causes [which have been analysed using fish bone "why" technique]	Whether addressed by ePASS	The manner in which the issue has been addressed by ePASS
5	Delays at Income and other certificates issuing offices	No	ePASS exercise did not extend to cross organisational issues. Therefore any delay up to the issue of such certificates were outside the purview of ePASS. However once the certificates were issued, ePASS did not wait for physical movement of papers – [see Sequence 4 below]
4	Supporting documents not received by students on time	Yes	To quote from the case "Caste and income certificate data was populated in ePASS portal automatically from the MeeSeva portal. This way data entry errors and duplication were avoided and processes were optimized"
3	Non submission of applications on time by students	Yes	On-line application form submission on a anytime-anywhere mode combined with automatic population of a number of details from high School records database rendered this process step student friendly.
2	Non submission of applications on time to the Social Welfare department by the college[s]	Yes	As noted in the case, automation, and redundant process elimination exercises carried out as part of ePASS had rendered the task of "submitting" of applications by colleges a formality. To quote from the case "Use of IT application had eliminated manual processes like Consolidate and send application to the social welfare office (step 6), Segregate into Fresh/Renewal (step 10)" were no longer required to be carried out by the colleges.

1	Non receipt of funds on a timely basis	At least partially	ePASS had succeeded in eliminating or reducing delays where causes of delay were other than paucity of funds with the Government. Use of electronic banking, direct transfer of funds to colleges and students etc are able to bring about improvements.

It is very important for the faculty to insist that the participants come out with their own list of solutions to some of the issues identified. For instance, with respect to non-submission of applications on time by students, the college might further ease the application filling up process by asking the students to enter only their Student ID number and "pulling" considerable amount of information from its own database – information such as address details, phone number[s], parent details, course details, fee details etc. Alternatively, instead of treating application for scholarship and fee reimbursement as a separate exercise, the colleges may create an integrated admission cum welfare benefits application system. A simple flag "Do you wish to apply for welfare benefits – yes or no" can determine from whom extra information – if any – should be sought during the college admission exercise.

Question-4

The concept of value-add [VA] and non-value add [NVA] is critical to process re- engineering. Perform VA-NVA analysis based on the details shown in Figure-3 of the case [reproduced below].

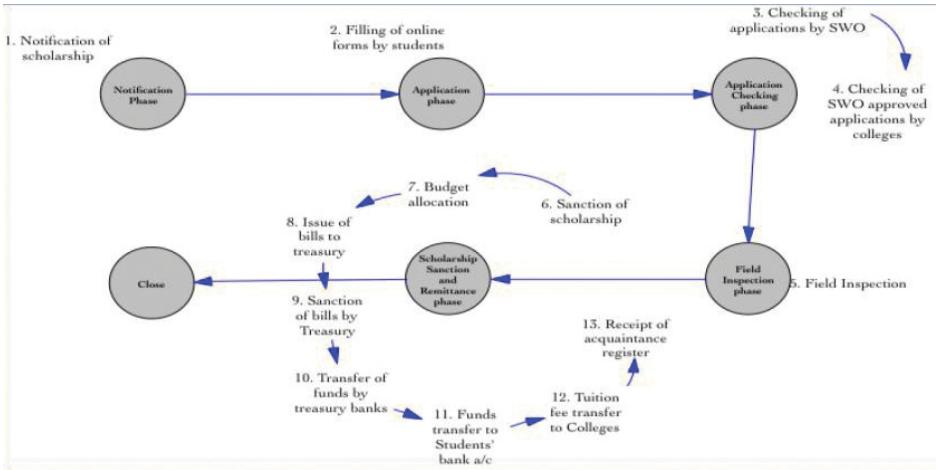


Figure - 3: ePASS - First round of GPR

Key learning: To answer this question considerable amount of knowledge can be borrowed from "lean" management techniques which look upon non- value adding activities as "waste". Waste is using resources – be it labor, materials, or equipment – over and above what is required to satisfy the needs of the consumers of the service. Recognizing the source[s] of waste can lead to going to the root cause of problems.

All non-valued processes / activities can be categorized into eight wastes described below.[2]

1. Overproduction [examples include producing more information than is required, duplicate data sources, producing reports which no one reads etc]
2. Waiting [examples include Waiting for reviews or approvals, Waiting for customer response etc]
3. Transportation - Movement of information, people, or materials that does not add value

2 *Source: Identifying Wastes & Applying Lean Concepts, State of Maine, Department of health and Human Services*

4. Non–Value-Added Processing - Efforts that add no value from the end-user's / department's viewpoint [examples - Redundant reviews/approvals, Use of inappropriate software, Data entry not performed at the source]
5. Work Waiting - More information, projects, material on hand/waiting than can be worked on
6. Errors / defects - Work that contains errors, becomes re-work, or lacks something necessary
7. Excess people motion [Searching for files, Extra clicks or key strokes]
8. Underutilized people / resources

The participants should also be introduced to the six rules of GPR described in some detail in the case study. The six rules also help eliminate "waste".

The faculty may ask the participants to apply the concept of waste and identify those ePASS process steps which add value and those which do not [Non value added steps].

HINT: The faculty may suggest that non-value added steps are those which belong to one or more of the eight types of wastes.

EXERCISE: The faculty should ask the participants to look at each activity, identify whether or not it adds value, the reasons why it doesn't add value [why it is a "waste" using the definitions given herein] and how it may be improved by applying one or more rules of GPR [Elimination, integration, standardisation, optimisation, automation, and self-service]

A sample completed exercise is shown in Appendix A.

Question-5

The success of any GPR effort depends how well the risks associated with the exercise are managed. Suggest a practical way to highlight / quantify GPR risks in your organisation.

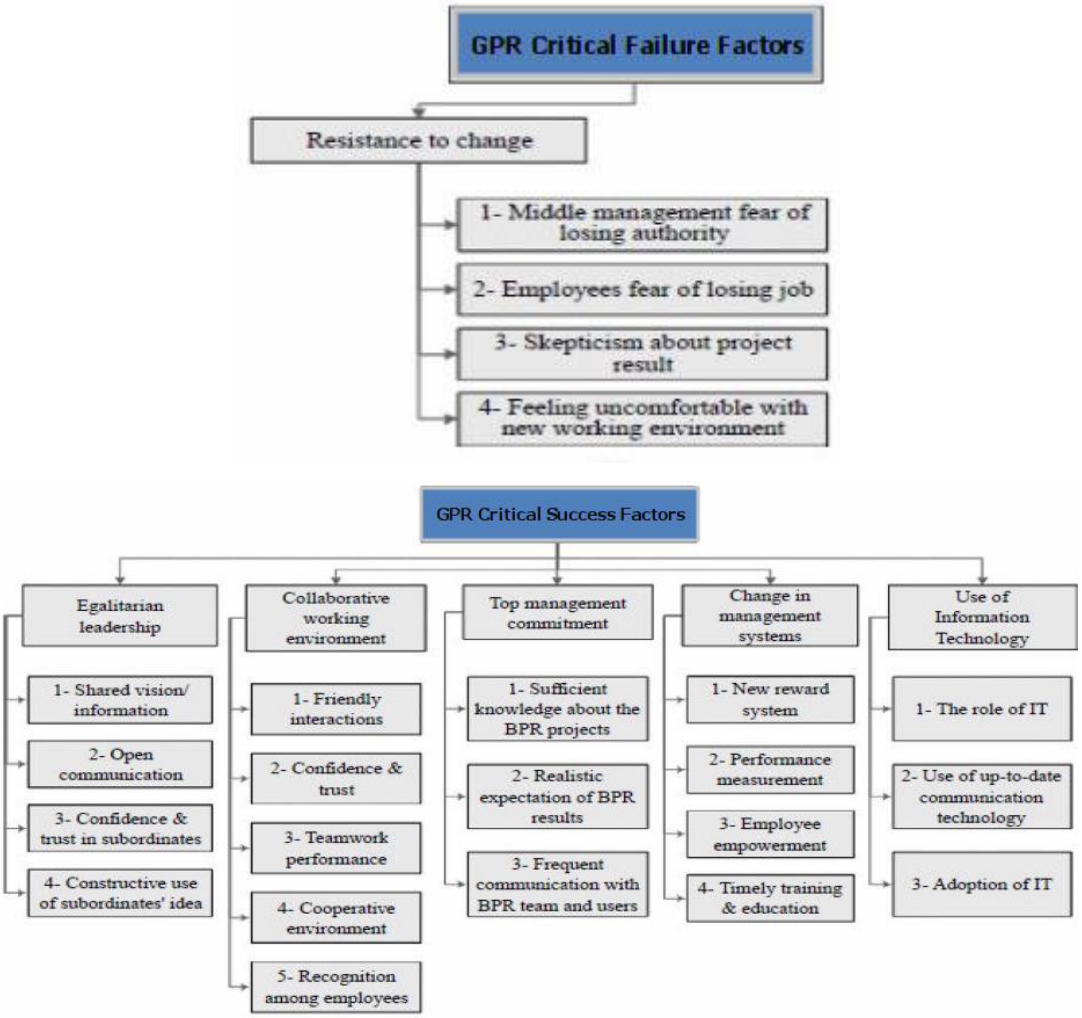
Key learning: Risk defined as the possibility of deviation in the results from the expected goals. It is acknowledged in the domain of risk management that higher the expectation of returns, the higher will be the levels of risks and the likelihood of their manifestation. Since GPR aims at fundamental and radical changes, the risk levels of GPR will tend to be greater than those of less ambitious projects.

It therefore becomes critical for organisations embarking on GPR to assess the risks before GPR is undertaken and to continue to monitor risks throughout the exercise.

To quantify the risks associated with GPR, the following practical solution may be considered:

1. List out the critical success factors [CSF] applicable to the GPR
2. List out the critical failure factors [CFF]
3. Incorporate the success and failure factors in the form of survey questionnaire
4. Ask a certain number of stakeholders of the organisation to answer the survey by grading each factor on a scale of 1 to 5
5. Compute the GPR risk as CSF scores Minus CFF scores for each survey response
6. Obtain an average of the scores and ask the management to comment on how far away the score is from an acceptable level.
7. Based on the first survey, get the top management to publish the level of risk that will be acceptable at various stages of the GPR implementation process.

Faculty intervention: The faculty may ask the participants to prepare a GPR Specific critical success and failure factors. A sample list is shown herein[3]. The sample may be shared with the participants after they have completed the exercise on their own. The participants may be given the worksheets given in Appendix – C.



The faculty may explain to the participants that the CSS and CFF should be phrased in such a manner that higher the score, HIGHER the risk.

References

1. Lean Government Metrics Guide, National Center for Environmental Innovation, USA, http://www.epa.gov/lean/leangovernment
2. BPR – A study in Theory and Practice, John.S Fleischli et al, Stanford University

Disclaimer

1. The facts contained in the case are entirely based on the eponymous case developed as part of the NeGD initiative managed by NISG.
2. All conclusions drawn and presented in the teaching note are based entirely on information contained in the parent case.
3. Given the complex nature of the domain of e-Governance, the conclusions, comments and

3 *Adopted from "Quantitative risk level estimation of business process reengineering efforts", Thomas J. Crowe et al, University of Missouri, Columbia, Missouri, USA*

opinions presented in the teaching notes are meant to provide alternative points of view. Under no circumstances should they be construed as criticism of actual performance of the project or of the project owners or of the personnel involved in its implementation.

Appendix - A

Responsibility	Process Id / Number	Activity description	Value add [VA] or Non-Value add [NVA]	Category of "waste"	Suggested improvement action based on the 6 rules of GPR	Specific plan for improvement
Department	01	Notification	VA			
Students	02	Filling of online application forms	VA		Integrate	Combine with College application form
Department	03	Checking of applications	NVA	Work Waiting, Errors	Automate	It is not possible for a few hundred employees of the department to vet several hundred thousand applications on time and with quality. Hence increase the level of automation and workflow
Colleges	04	Checking of applications	VA		Integrate	There should be increased level of responsibility for vetting of applications by colleges [responsibility for data within their control]
Department	05	Field Inspection	NVA	Non-value added activity, Work waiting, Errors	Automate	Capture biometrics and validate against Aadhar database [Already implemented in ePASS as part of 2nd round of GPR]
Department	06	Sanction of scholarship	VA			
Department	07	Budget allocation	VA			

Responsibility	Process Id / Number	Activity description	Value add [VA] or Non-Value add [NVA]	Category of "waste"	Suggested improvement action based on the 6 rules of GPR	Specific plan for improvement
Department	08	Issue of bills to treasury	VA			
Treasury	09	Sanction of bills	VA			
Treasury	10	Transfer of funds to banks	VA			
Banks	11	Transfer of funds to Students	VA			
Banks	12	Transfer of funds to Colleges	VA			

Appendix - B

Form to be filled by the participants

Responsibility	Process Id / Number	Activity description	Value add [VA] or Non-Value add [NVA]	Category of "waste"	Suggested improvement action based on the 6 rules of GPR	Specific plan for improve-ment
Department	01	Notification				
Students	02	Filling of online application forms				
Department	03	Checking of applica-tions				
Colleges	04	Checking of applica-tions				
Department	05	Field Inspection				
Department	06	Sanction of scholar-ship				
Department	07	Budget allocation				
Department	08	Issue of bills to trea-sury				
Treasury	09	Sanction of bills				
Treasury	10	Transfer of funds to banks				
Banks	11	Transfer of funds to Students				
Banks	12	Transfer of funds to Colleges				

Appendix - C

CRITICAL SUCCESS FAC TORS [CSF]	SCORE 1 = Strongly Agree 2 = Agree 3 = Neutral 4 = Disagree 5 = Strongly Disagree

8.2 Electronic Payment and Application System of Scholarships (ePASS)[4] - Teaching Case

Abstract

Online scholarship disbursement system, namely Electronic Payment and Application System of Scholarships (ePASS), was envisaged by Andhra Pradesh government to ensure speedier disbursal of scholarships through minimally staffed social welfare department. ePASS was a multi-department, multi-stakeholder application which had impacted over 25 lakh students and several thousand educational institutions in the State of AP. Given the magnitude of financial commitment, which for the years 2009-10 and 2010-11 was about Rs. 4,000 crores for each financial year, and which was only expected to significantly increase over the years, the need of a complete end to end student / college centric G2C (Government-to-Citizen) ICT (Information and Communication Technology) solution of the nature of ePASS presented itself as a matter of urgency. By adhering to the tenets of "SMART" – simple, moral, accountable, responsive and transparent government – the ePASS initiative had helped bring many economically deprived students into the fold of mainstream education, thus contributing to overall development and making economic growth truly inclusive. ePASS project initiative had also delivered many by- products like streamlining universities and colleges' fee structure, validation of courses offered by the colleges, initiation of electronic treasury processes, linking bill submission with budget approvals and new PPP service - Meeseva.

Project Context

The "Government Process Reengineering" (GPR) or organisation transformation is undertaken for efficiency in administration and service delivery. The knowledge of GPR enables government personnel to improve government functioning through:

- Improved citizen focus and experience
- Minimized process complexity, cost and service delivery time
- Increased transparency levels
- Reduced administrative burden
- Adoption of best practices

At the same time, GPR is challenging for several reasons:

- Process for changing in government is extremely tedious as this has long history and deep routes.
- Bureaucracies are known for their low tolerance for risk and maintaining status quo. Reengineering means fundamental and radical changes in the existing system.
- Bringing radical changes in government requires very large degree of change management in the department and associated stakeholders which may not be part of the department attempting GPR.
- Motive force for transformation is difficult to come by.

Electronic Payment and Application System of Scholarships (ePASS) is characterised by good practices which span the entire e-Governance life cycle and which collectively have contributed to the success of the project. A well-conceived e-Governance initiative, active top leadership involvement, rigorous rounds of capacity building aimed at obtaining buy-ins from all stakeholders – have all been responsible for the positive impact of ePASS.

4 *The original case developed Pradeep Tandon is available at http://nisg.org/case-studies-on-e-governance-in-india*

Government process reengineering [GPR] holds a special position in the e-Governance life cycle. Perhaps more than any other drivers, the extensive GPR that accompanied ePASS and which contributed to its transformational characteristics merit special mention.

Post Matric Scholarships (PMS) was an important welfare initiative of the Andhra Pradesh Government, aimed at providing financial assistance for pursuing post matric education to students of weaker sections in following categories:

- Scheduled castes (ST)
- Scheduled tribes (ST)
- Backward classes (BC)
- Economically backward class (EBC)
- Disadvantaged classes (DC)

By adhering to the tenets of "SMART" – Simple, moral, accountable, responsive and transparent government – the ePASS initiative had helped bring many an economically deprived student into the fold of mainstream education thus contributing to overall development and making economic growth truly inclusive.

Project Description

The various stages in a typical GPR initiative are shown in figure 1 below. ePASS has also passed through

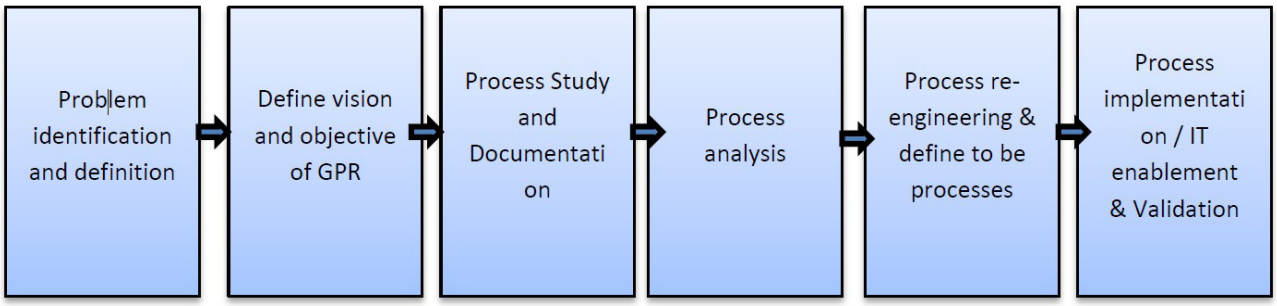


Figure - 1: Typical GPR Steps / Initiatives

Project Objectives

PS-SW started the assignment around July 2009 and gave the name to this assignment as "Electronic Payment and Application System of Scholarships - ePASS". For smooth change of Government processes, PS-SW had requested for high powered team of 10 Group of Ministers and many of them had majority stakes in various post matric colleges in the state of Andhra Pradesh and some of them were effective ministers. This had made the transition / Government Process Re-engineering smooth and easier for adoption of new system - ePASS. ePASS core team has decided following 4 objectives:

1. Ensuring accountability of institutes and colleges and focus on quality of education: When the project started in 2009, it was observed that many institutes only existed on paper and not in reality. Many of these had not renewed their validity after 1999 and yet continued to draw government funds for disbursal of scholarships among students. During the verification process, it was discovered that out of 16,500 colleges, only about 10,500 existed.

2. Making government responsible for timely release of funds to students: It was quite a cumbersome and time consuming process because each and every applicant application was examined manually against set rules for the award of scholarship. After its approval, scholarship was com-

puted at respective district social welfare offices. Total amount for each college was calculated manually and a typed copy of it was submitted to finance department for release of money. Based on the approvals and release of money by finance department, demand drafts for each college were prepared and dispatched by district social welfare office to colleges. It was decided in the core group that AP government should not only clear the arrears but also made timely payments to colleges and students. This has prompted the GPR core committee to undertake finance department and district treasury also as stake holder for processes based approval and online transfer.

3. Reforming fee structures at Universities, Deemed Universities, autonomous colleges, added colleges and affiliated colleges: For the same courses, different institutes were charging different fee from the students and universities were not having any control on it. It was estimated that there were more than 144,000 fee structures. It was decided that universities (about 34 in number) would fix up the fee structure for all types of categories with the approval of state government and institutes would follow the same without any deviations.

4. Shift the student focus to studies: AP Government had 2 to 3 years of tuition fee / maintenance fee (scholarship) backlog at any given point of time. Further, no information was available in public domain about the release of money by the government. Colleges were not permitting students to attend classes without colleting tuition fee. Therefore, students were forced to pay the tuition fee in advance to colleges. Students use to collect fee reimbursement from the college once it was paid to the colleges by AP government. It was observed that colleges were returning the money, with lot of follow ups only, to the students who were continuing in the colleges. Students who had completed their education, had bigger challenge in collecting the money from the colleges and many a times, losing the money as they were not in the college and could not follow up on regular basis.

Key Stakeholders

During study of the manual system, it was observed that scholarship was handled at district level, which gave opportunities to students to claim scholarship from the institutes located in other districts in the state. After GPR, it was decided to treat students scholarship it at state level, evolving state wide unique ID for a student. The following stakeholders were involved in the ePASS system:

1. Social welfare departments (district level) and 330 offices across AP State – receipt of scholarship application, its verification, inspection and approval
2. AP HSC and intermediate board – provision of basic data for students and unique ID (HSC hall ticket number) and year of passing
3. Universities / Colleges / institutes – create fee structures, course duration schedules, course structures, student verification mechanisms, conduct courses and capture student attendance and regularize posting of this information on to the ePASS portal
4. District Treasury offices –release of funds for scholarship payments
5. Centre for Good Governance (CGG) –software owner for ePASS application and provider of data base server and access to stake holders and users
6. Mee Seva centres– provision of income, caste, category certificates and various associated services for users
7. Students – undertake selected course and focus on studies as scholarship was processed in transparent manner and status could be checked on web.

Scholarship Processes under the Manual System Before ePASS

Till FY 2009 – 10 schemes were handled manually. Flow chart (figure -2) explains the manual process of PMS:

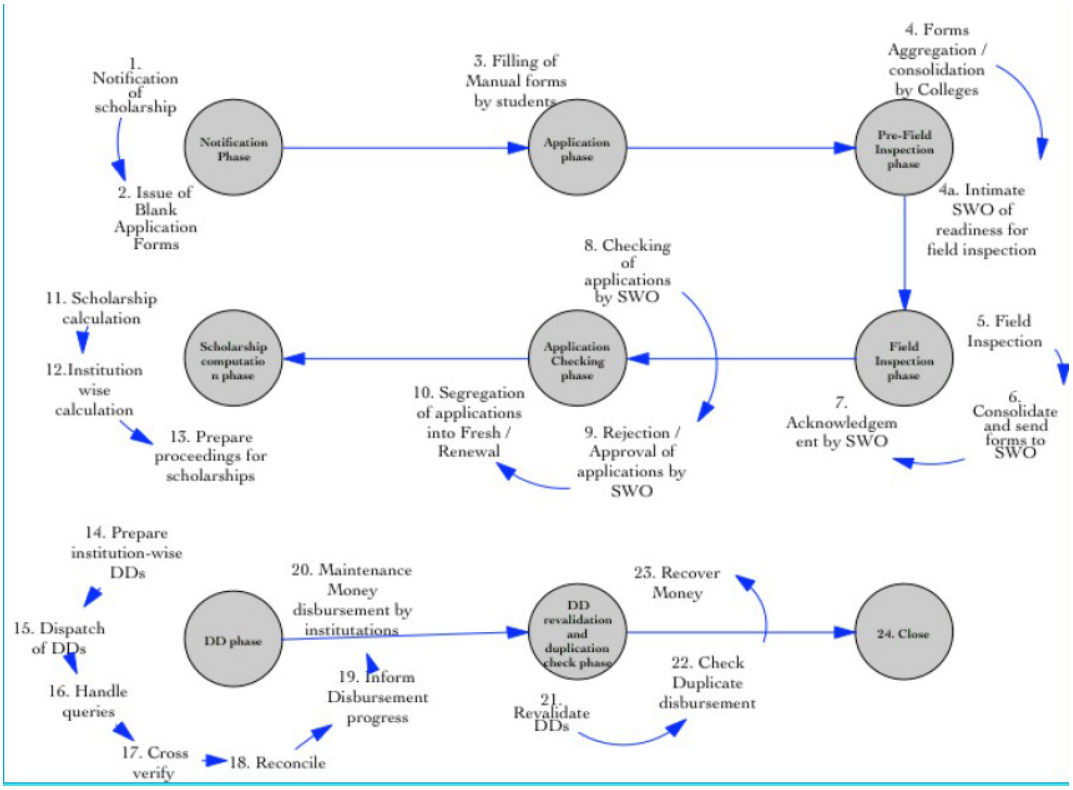


Figure - 2: Pre-ePASS Manual Processes

Scholarship Processes Under ePASS

Post 2009 – 10 to 2012 – 13 process followed with ePASS: The process flow chart after first GPR is depicted in figure 3 below:

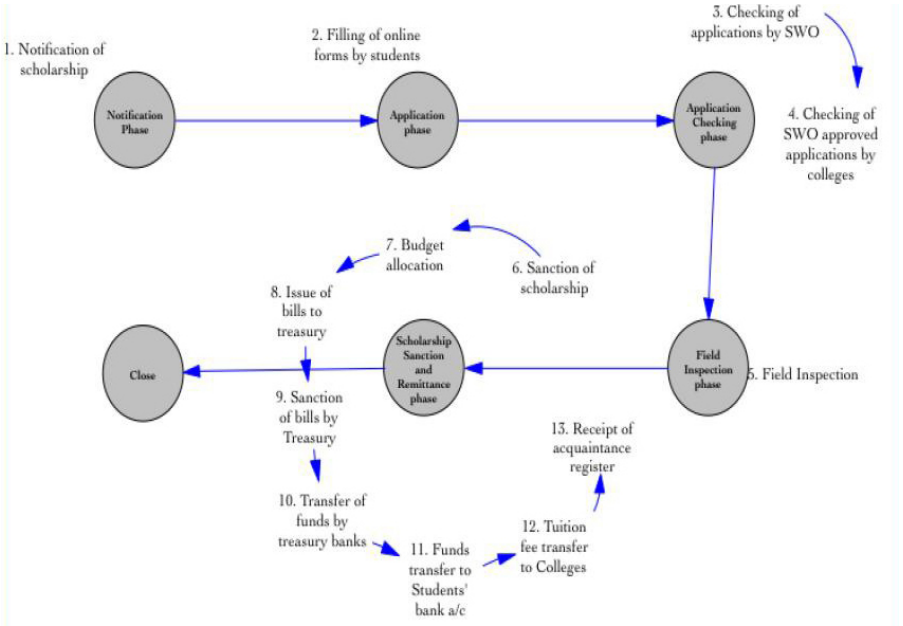


Figure - 3: ePASS - First Round of GPR

PS – SW explained that after first GPR while payments were regular, field inspection was not working well and it was leading to corruption e.g. field inspectors were not verifying the students and associated data properly and were confirming the physical verification of the student while they were on vacation on the day of inspection. To address these issues, second round of GPR exercise was under-

taken. The processes adopted after second GPR were shown below in figure

4. One may observe that encircled area processes were addressed to avoid field inspection issue.

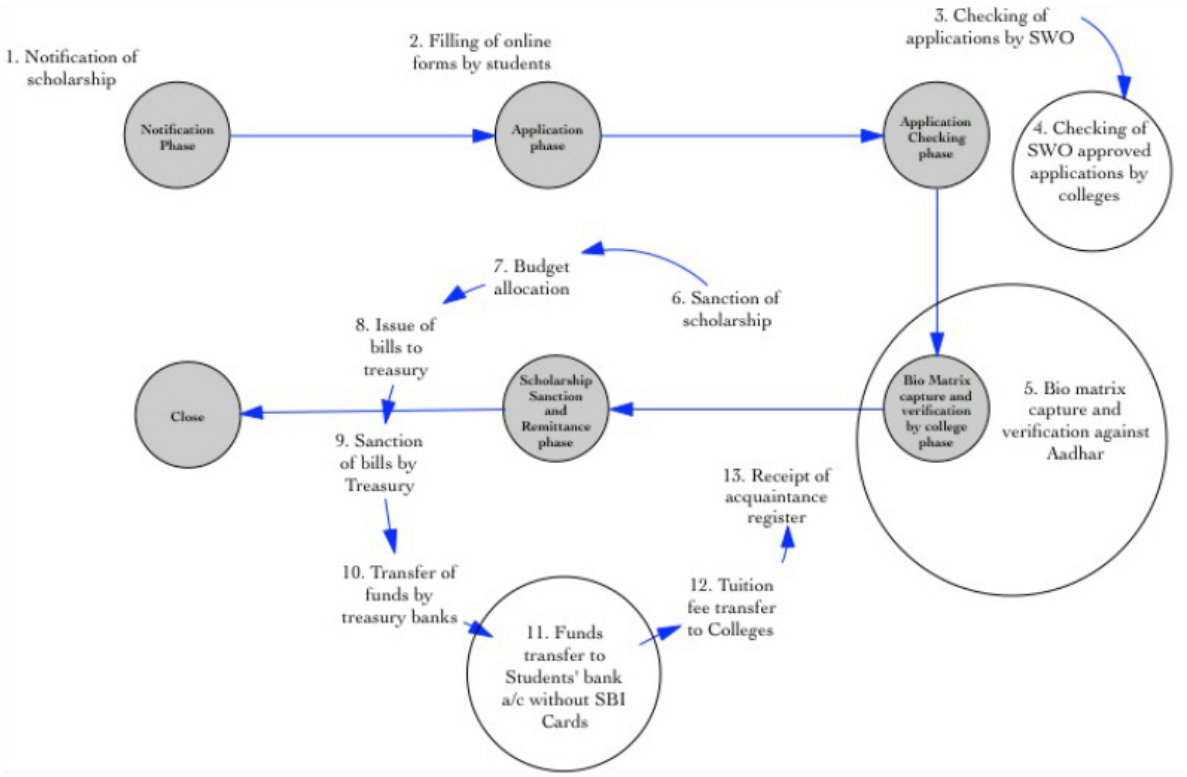


Figure - 4: ePASS - After 2nd Round of GPR [circle areas]

Necessity and Critical Steps Involved in GPR

The following figure 5 shows a fish-bone diagram of the problems which plagued the manual scholarship processes.

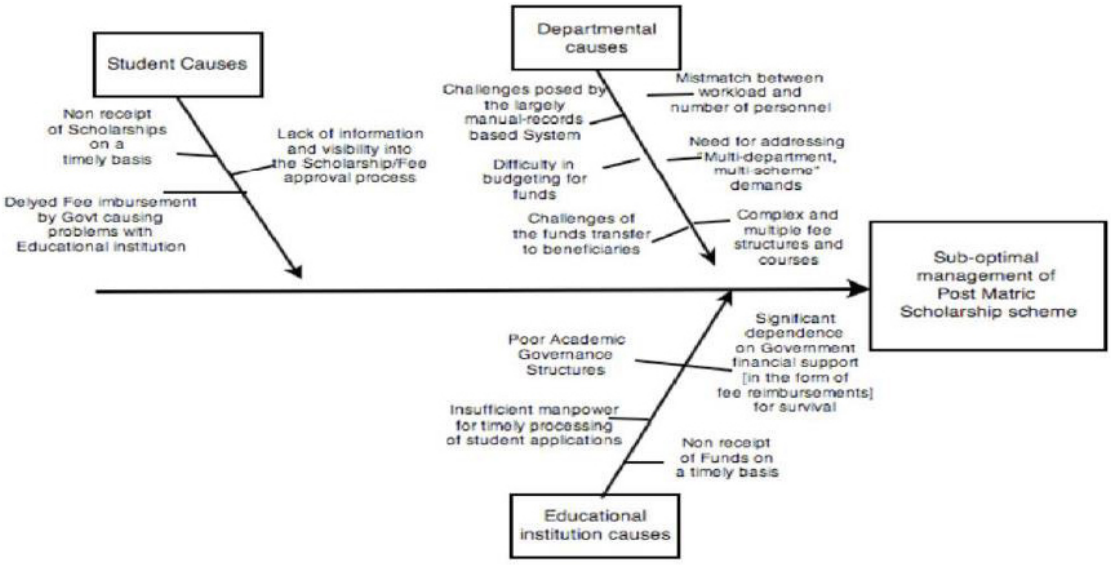


Figure - 5: Fish Bone Diagram

As shown in the above figure, there were several reasons for the sub-optimal performance of the post matric scholarship scheme. For the students, the problems included rejection of application with no adequate reason provided, no payment or few years' delay in release of scholarship and such like. The SW department was facing major issues of bogus and duplicate claims, and inability to verify

caste, income certificates and academic records in time bound manner due to large volume of applications. These problems led to wastage of government funds and inordinate delay in scholarship disbursement for even the genuine students. Therefore, scholarship processes needed to be revamped.

The first important initiative for the ePASS project was constitution of the high power core group/committee headed by the Chief Minister. The committee was empowered and given full liberty to change the government processes, wherever needed.

Technology selection for ePASS was the next step. IT industry was invited to give presentation on different technology solutions and cost of owning the new technology was discussed. Java based open source technology was chosen by the group due to free availability of Java based tools, adequate security provisions and ability to be implemented on general purpose computer servers and PCs.

The following 6 rules[1] are generally considered as guiding theory for any Government Process Reengineering (GPR) initiative:

1. Elimination: As part of elimination, those processes are removed which are not required due to reasons, such as:
   - Inefficient process
   - Painful to use
   - No more valid
   - Does not add any value

A comparison of the manual processes and the processes under GPR iteration 1 shows that few processes were eliminated. These processes were not required after the first iteration of GPR:

- Obtain hardcopy blank Application Forms (step 2)
- Filling of forms by students in the college in triplicate (step 3)
- Forms submission by colleges (step 4)

New processes were introduced wherein students were required to fill-in HSC hall ticket number and year of passing the examination in the on-line application form. Based on this, actual data was picked from HSC database owned by HSC and intermediate board and read only access was proved to ePASS software. Further, students were required to upload the first page of bank pass book

[1] *Source: Managing Transformation – Objectives and Outcomes by Mr. J Satyanarayana, IAS*

where the name and account number are clearly visible. This form was electronically presented to Welfare Officer (SWO) of the area for checking the name on the form and bank pass book. Upon acceptance, form was electronically presented to institute for its verification. During the verification process, institutes were required to upload certificates of the student which included educational, caste and income certificates.

In the first iteration, field inspection, was retained. During second iteration it was replaced with AADHAR database verification avoiding field inspection totally. Field inspection was proving cumbersome since the days when inspection was being carried out, many students were not present. Further, it was not possible for field inspectors to check and verify all records for each student, thereby creating

scope for false entries and corruption. With AADHAR database-based verification, the corruption issue was arrested and 100% verification became possible without requirement of field visit. During institute level verification, student fingerprint was captured and verified with AADHAR database.

Under ePASS, a synergy had been created between various stakeholders involved and their resources had been leveraged and utilized in an optimal manner for ensuring transparency, preventing inordinate delays and minimizing wastage. One can appreciate the manner in which student academic records were procured from HSC / intermediate board database, caste and income certificates were taken from MeeSeva portal, bank pass books were used for ensuring correct name, bank account and AADHAR database verification ensures no duplicate/bogus claims. The AP Government was deploying about 3000 plus employees, engaged in other jobs, to undertake about 3 days field inspection.

Elimination of manual processes existing prior to ePASS:

Under ePASS now, use of IT application had eliminated manual processes like Consolidate and send application to the social welfare office (step 6), Acknowledgement by social welfare office (step 7), Checking at social welfare office (step 8), Segregate into Fresh/Renewal (step 10), Scholarship calculation (step 11), Institution wise calculation (step 12) and Prepare proceedings for scholarships (step 13). All these manual processes were handled through IT programs and reports were automatically generated by the system. Further, Rejection/eligibility at Social Welfare office (SWO) (step 9): One by one checking of each application was done in on-line mode as final check. Processes like Prepare institution wise DDs (step 14), Dispatch of DDs to institutes (step 15) were not required as treasury transferred the money electronically using on- line transfer.

Processes like - handle queries (step 16), cross verify (step 17), reconcile (step 18): Processes were retained with some modifications and became part of self service.

Inform disbursement progress (step 19) was not required and self-service was added where one could track the progress of their application.

Maintenance money disbursement by institutes (step 20) underwent a major change. Initially, SBI cards to students were issued after the first phase of GPR. Based on their eligibility, each card cash withdrawal limit was fixed. However, there were problems with issuance of cards by the institutes and, therefore, money was transferred to student account in second phase of GPR and students could withdraw money using usual bank facilities.

Processes like Revalidate DDs (step 21), Check duplicate disbursement (step 22), and Recover money (step 23) became obsolete as money was transferred to account to institute and students with instant credit in the respective accounts.

2. Optimization : After elimination, the left out processes are examined and redesigned so that forms are simplified for ease of use, front line is empowered for quick decision making, processes are rendered more efficient etc

After the first phase of GPR in ePASS, basic student data like student name, father's name, marks etc. were picked from HSC / Intermediate database using the student HSC hall ticket number. Similarly, caste and income certificate data was populated in ePASS portal automatically from the MeeSeva portal. This way data entry errors and duplication were avoided and processes were optimized.

3. Standardization: Under this rule, one tries to examine common processes which are part of the system and are affecting the solution. In ePASS GPR, a common form was created so that universities/ institutes could enter information like:
   - Courses offered with their structures
   - Course duration
   - Fee details
   - List of affiliated colleges
   - Hostel facility and associated charges

The above data was checked by social welfare department once and rules were created for its full or partial re-imbursements, as government was not able to release full scholarship money in one go. This has avoided cross-checking data every time with each individual student.

4. Integration: Under this rule, one tries to redesign the processes visualizing complete organization/ solution as: Set of processes and functions, Single window for customer interface etc. `Examples in ePASS were:
   Redesign HSC / Intermediate board database such that read-only access to ePASS portal was available
   Read-only access to AADHAR database and verification of student credentials using finger print.
   University database: Students could select courses from university portal through single window with fullclarity on course duration, its structure etc.
   Access to Meeseva portal for caste, cash and income certificate data

5. Automation: Under ePASS, scholarship calculation of student and institute wise amount, reports on proceedings for administrative approval, preparation of treasury bills based on availability of budgets, and other reports were generated automatically for all stakeholders.

6. Self – service: In ePASS system, student was able to track the status of scholarship application, maintenance amount transferred to student's scholarship account and alerts on credit and withdrawal. Institutes were able to track tuition fee approval, rejected student list, amount approved by social welfare office and payment status etc.

Issues and Challenges

Six colleges were sent feedback form, details of which are provided in annexure 4, to obtain user experience on ePASS. Later, author had visited one of the colleges to discuss feedback with college management and students. Following issues and challenges were identified:

1. Internet access to ePASS:

- System is very slow during 9 AM to 5 PM. College staff handling scholarship entries and verification is forced to work before 9 AM and after 5 PM to complete the registration process for the students.

- During day it takes about 8 – 12 minutes per student to verify AADHAR database. At times, one loose web access. However, it takes about a minute at early mornings or late evenings. CGG may look increasing bandwidth for faster access or access to colleges may be schedules so that traffic on server and internet is lowered.

2. Administrative Issues at colleges:

Students generally were not taking the scholarship online entry seriously and colleges were forcing them to complete the activity. It was proposed by colleges that basic information data entry may be completed by students before they report to colleges for admission. It was possible to do this data entry by students before counselling.

3. AADHAR data base related issues

- ePASS displays same error during AADHAR verification - Duplicate AADHAR entry / student already exists or data did not match. Proper error handling message might be displayed for different situations.
- When AADHAR database verification failed at college level, colleges were asking students to go to AADHAR centre for correction of data / finger print etc. AADHAR centres were not working in time bound manner (keeping in view last date of scholarship application) to help students. Follow up with AADHAR centre did not help students. It was reported that about 3 – 4 % students, who looked genuine as per college records, lost scholarship / seat as proper assistance from AADHAR centre was not available till last date.
- There were no clear fixed specifications for biometric equipment. It was observed that optical type devices were cheaper but were less accurate while capacitive type devices were accurate but expensive. Colleges using optical devices often had reported data sets / figure pint not matching.

4. Administrative process issue:

With Supreme Court decision on AADHAR card usage for government scheme use, one would require clarity for the year 2014 – 15 scholarship processing. Agency providing AADHAR card is not processing AADHAR card currently.

5. Government related:

AP State treasury did not work on softcopy communication and expected hard copy of the approved bills. Some time it led to errors and many times delays, as data entry was required at treasury level. A proper system might be evolved so that treasury could have received softcopy / electronic communication along with hard copy communication, to avoid delays and errors. This might have allowed checking the budget approvals electronically. This process would have also helped to push of electronic bills to the tune of approved budgets. A proper formula can be decided in such a way that if lesser budget is available, payments can be processed on pro-rata bases.

Questions

1. How would you rate the process changes carried out as part of ePASS? Were they mere “improvements” or did they represent “transformation”?
2. The case presents a first level fish-bone analysis of issues which existed in the manual system. This form of analysis is best served if a series of “whys” are posed and the problem drilled down to three or more levels of causes. Perform at least three levels of “why” analysis on the following issues which existed during the pre-ePASS days
    a. Non receipt of scholarship on a timely basis [Student causes]
    b. Non-Receipt of funds on a timely basis” [Educational institution causes]
    c. Difficulty in budgeting for funds” [Departmental causes]
3. To what extent did GPR exercise of ePASS plug the gaps your fishbone analysis highlighted? How do these compare with your own solutions?

4. The concept of value-add [VA] and non-value add [NVA] is critical to process re-engineering. Perform VA-NVA analysis based on the details shown in Figure-3 of the case
5. The success of any GPR effort depends how well the risks associated with the exercise are managed. Suggest a practical way to highlight / quantify GPR risks in your organisation.

Reference

1. Lean Government Metrics Guide, National Center for Environmental Innovation, USA, http://www.epa.gov/lean/leangovernment
2. BPR – A study in Theory and Practice, John.S Fleischli et al, Stanford University

Disclaimer

1. The information contained in the case are entirely based on the eponymous case [referred to as the parent case, henceforth] developed as part of the NeGD initiative managed by NISG.

2. The parent case is substantially longer and carries significant amount of additional information. To the extent possible – keeping in mind readability and language factors - this case is a verbatim extraction of selected portions of the original case.

3. Care had been taken to extract such portions of the parent case which support the central idea of this teaching case study and which – read together – are sufficient to serve the teaching purposes. It is however possible that unintentionally, some information have been left out inclusion of which may have led to different sets of opinions being formed about the project. Therefore, under no circumstances should the extracted content of the parent case - which was presented in this document as the “child” teaching case - be construed as criticism of actual performance of the project or of the project owners or of the personnel involved in its implementation.

9. eKrishi Project of Kerala: An Ex – Post Evaluation

9. E Krishi Project of Kerala: An Ex – Post Evaluation

9.1 E Krishi Project of Kerala: An Ex – Post Evaluation[1] - Teaching Notes

Abstract

e-Krishi was a novel ICT initiative in the sphere of agricultural trade. It was implemented by the Kerala State Information Technology Mission (KSITM), the apex ICT implementation agency of Kerala working under the Department of Information Technology. The aim of the project was to address the gap in the flow of agricultural information and transaction management. The vision of the project was to establish a technology enabled community of connected farmer's throughout Kerala with access to expert advice and information on market demand, prices, good agricultural practices, quality agricultural inputs. The project was piloted in Malappuram district during January 2006 to June 2009 under the UNDP funding.

During the pilot stage, the project could collect details of about 1 lakh plus farmers (paddy, coconut, arecanut, cashew nut, vegetables, banana, rubber, medicinal plants, vanilla, honey growers etc.) and posted over 50,000 agricultural products in the sellers corner of the e-Krishi website. In addition, more than 200 buyers registered in the portal as genuine buyers. Direct posting by the farmers in the e-Krishi portal was, however, not allowed. The Akshaya Centres stood as intermediate technology enabled centres for connecting farmers and buyers.

The registration of farmers in the portal was a mega database for all agricultural planning not only at the local level but even at the state level. However, it was found that this information was not preserved for further local level planning. Similarly the co-ordination among the participating departments viz., KSITM, IIITM-K and Agricultural Department was not properly carried out and hence, the vision of the project was yet to be materialized fully. The farmers' participation in e-trading activities was low and the market information provided wss not dependable for want of regular updates.

Classification code for the case

Not all cases are suitable for all capacity building programs of NISG. The NISG-Case classification code determines the suitability of a case to a capacity building program. Kindly refer to the Case classification index maintained by NISG to determine target audience for the case.

Domains

- E-Governance life cycle [Ideation/Strategy formulation, GPR, Business models, Change management]

Learning Objectives

The case is ideally suited for advanced study of all the phases of e-Governance Life Cycle [eGLC]. Through a set of questions, the participants are taken through key issues that they are likely to encounter when designing and implementing a G2C type e-Governance initiative that reaches out to a marginalized population. Specifically, the participants will learn

- To critically assess the outcome of any e-Governance initiative
- About scalability and sustainability that are very important for any e-Governance initiative
- The importance of stakeholder engagement, business model decisions and change management.

1 *The original case developed by Dr.C.Krishnan and Manohar Varghese is available at http://nisg.org/case-studies-on-e-governance-in-india*

Time to be given for studying the case

Where the duration of training is more than one day, the case may be given to the participants for overnight study. Where the faculty expects that the participants may respond better under supervised reading, about 15 minutes may be allotted for familiarization with the case.

Not all questions are required to be subjected to class discussion. The faculty may use his/her discretion keeping in mind the focus of the capacity building program and the availability of time.

Introducing the case

As the first step, the faculty may ask the participants to describe the case in general. This is expected to bring all the participants to a similar level of familiarity with the key ideas contained in the case. The faculty should take care not to allow the discussions - at this stage - to go into the details.

Faculty intervention: No special intervention is required at this stage except to offer encouragement and pointers for the participants to shed their inhibitions and participate collectively.

Question 1

In your view, were the right sets of steps followed by the KSITM to ideate e- Krishi project? What would your approach have been?

Question type: Group Exercise

Suggested duration for this question: 45 minutes

Key learning: The first stage of e-Governance life cycle [eGLC] is ideation and strategy development. Good ideas and strategies evolve through a process of needs assessment, vision and objectives definition, followed by determination of priorities for services. An examination of e-Krishi suggests that none of these steps were followed or, if followed, were given sufficient attention.

This question is intended to help the participants

- Understand how at e-Krishi, the idea and strategies for the project was approached on the back of assumptions and wishful thinking rather than of on the basis of a comprehensive and formal strategy development.
- Appreciate the need for a formal stakeholder engagement to create the right structures, strategies and priorities for an e-Governance project.

On what basis might one say the e-Krishi was based on assumptions and wishful thoughts? In order to address this, the faculty may ask the participants to study the reasons cited in the case for conceptualising e-krishi. The faculty may direct the attention of the participants to the following statement contained in the case which is given as the reason for e-Krishi.

"In order to come out of this malaise, a pragmatic approach was considered necessary and e-Krishi project is seen as a practical intervention towards rejuvenating the ailing agricultural sector in Kerala".

What were the *malaises?* They were shortage of labour, high agricultural wage, low sectoral productivity, farmer suicides, fast conversion of agricultural land to non- agricultural purposes, etc. Did e-Krishi have the ability to address any of these?

e-Krishi was essentially an electronic market place and the question the participants need to debate is whether an electronic market place was a solution to any of these 'malaise". If indeed e-krishi was intended to be a solution to these problems, it would clearly appear that the project designers had chosen an inappropriate solution. And this could only have been the result of basing the idea for the project on assumptions [rather than facts] – assumptions that root cause of all the malaise listed were "insufficient access" to the markets.

It may be pointed out that assumptions and wishful thoughts go hand-in-hand and often feed each other. Studies indicate that self-serving biases [wishful thinking] can affect managerial decision making through the process of overly optimistic planning[2].

As shown by various data contained in the case, the assumed suitability of e-Krishi as the solution was reinforced by what can only be termed wishful thinking of the project designers that farmers, merchants and other intermediaries will be attracted to e-Krishi in large numbers. As can be inferred from the case, at no point during the active operation of e-Krishi was the response of the target population significant.

Caution: The faculty should ensure that the class acknowledges that a virtual market place of the kind facilitated by e-Krishi does have its own usefulness. This acknowledgement should however not detract from the fact that e-Krishi was an answer to a different set of malaise than those listed in the case.

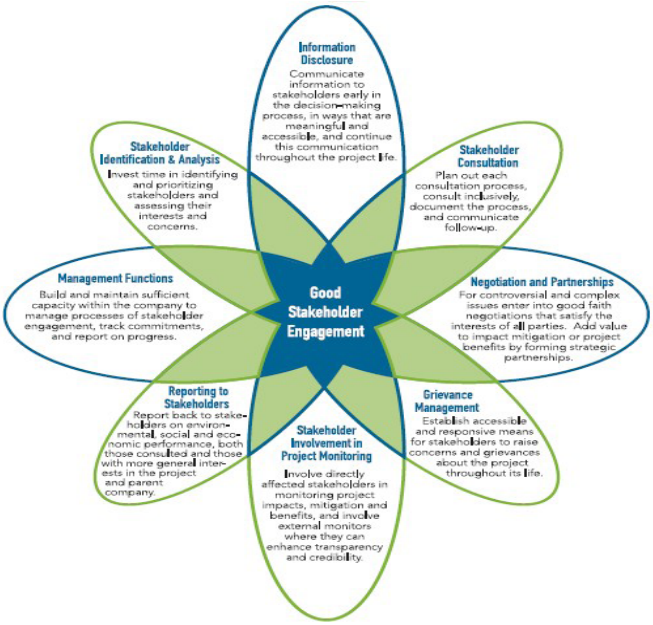


Figure - 1

Once the class establishes that the failure of e-Krishi to sustain itself and attract participation in large numbers may have its causes in poor ideation, the faculty may ask the participants to state their approach.

The point that needs to be put across is one of stakeholder consultation and involvement. The faculty should stress that only active consultation with the stakeholders will guarantee that the strategies devised which have a bearing on the problems faced by the stakeholders. The faculty should further stress that stakeholder consultation should be followed by active and continuous stakeholder

2 *Managerial Myopia: Self-serving Biases in Organizational Planning, Laurie Larwood and William Wittaker http://heatherlench.com/wp-content/uploads/2008/07/larwood-whittaker.pdf [emphasis added]*

involvement. Only such a combination of stakeholder consultation and involvement – jointly termed as stakeholder engagement – can ensure an e-Governance initiative's suitability and longevity.

As shown in figure-1, a good stakeholder engagement involves stakeholders at every stage – right from their identification and analysis to project management and monitoring[3].

The faculty may ask the participants to carry out their own analysis of the issues and formulate appropriate e-Market based strategies to address them.

The following pointers may be used as the starting point for the hands-on exercise

- Should the stakeholders be allowed direct use of e-Krishi without going through the CSCs?
    - Why should this help? Do small farmers desire such freedom? Will they become effective users if provided direct access? What capacity building will be necessitated?
    - What will this mean for the ICT on which e-Krishi was based? Will it need major modifications?
    - What will this mean for the CSC owners? Will their revenue be affected?
- What negative reactions might this invoke from the CSCs? Are they any positives for the CSCs from a strategy that will allow direct access to the farmers and merchants?
- How important is a portal in the vernacular [local language]? Is this facility required only if the strategy is to allow direct access to the farmers and other stakeholders?
- Will access to the portal through mobile help? What problems will this solve?

Question 2

The utilization of the services provided by e-Krishi was very low. Perhaps one contributing factor was e-Krishi's sub-optimal processes. If you were in charge of the project, what changes would you have made to the processes? In other words, what would your "to-be" processes look like?

Question type: Group Exercise

Amount of time to devote to this question: 45 minutes

Special note: In order to address this question, the faculty may ask the participants to ignore the issue of whether or not an e-marketplace was a good solution to the various "malice" listed in the case. This aspect has already been covered by the earlier question.

Key learning: An e-marketplace such as e-krishi is a complex proposition. To succeed, a virtual marketplace should

i. Add real value to the stakeholders
ii. Achieve economies of scale and be financially viable
iii. Be trustworthy
iv. Improve the liquidity [cash position] of the participants
v. Manage the services / product offerings catalogue very well

3 *Stakeholder Engagement- A good practice handbook for companies doing business in emerging markets, International Finance corporation*

Figure-2 points to issues around which the process mapping and analysis could be carried out.

Element	Issues to consider
Focus	- Identifying which specific buyer and seller segments to target - What type of products are available on the e-marketplace - Key players in a given industry - Geographic coverage - Horizontal vs. vertical e-marketplace
Governance	- Degree of neutrality (i.e., neutral or biased toward buyers or suppliers)
Functionality	- Commerce (i.e., trading mechanisms) - Content (i.e., commerce content and other value-added content) - Collaboration (i.e., between buyers and sellers, and with third parties) - Coordination of Commerce, Content, and Collaboration
Technology	- Type of technological platform - Platform's ability to support development of advanced market-making tools, integrated procurement tools, advanced collaboration tools. - Possibility of frictionless integration with the ERP* systems of participating buyers and sellers. - Scalability - Flexibility - Security
Partnership	- Core competence - Acquisition of complementary skills

Figure-2 e-Marketplace - Foundations for Success

Faculty intervention: The faculty should ask the participants to first list the issues identified by them and follow this up with design of their new "to-be" processes.

The Faculty may find the following examples useful for conducting the exercise.

a. **With respect to value proposition:** A virtual agriculture related market place which focuses solely on price discovery is doomed to failure. Price discovery helps farmers to obtain a good price but this is not the only main problem for farmers. This may not even be the main one for many farmers. A key reason why middlemen are unavoidable under the current environment of agriculture is that farmers [especially the small farmers of the kind attracted by e-Krishi] depend on loans and advances from middlemen without which they cannot make their ends meet.

   A key value proposition for e-Krishi should be an ability to arrange such bridge loans and advances.

   - Suggested "To-be" to address this value proposition: Processes to connect small farmers with banks on priority and preferential basis for obtaining bridge loans on terms better than the ones middlemen offer. [the class may discuss to what extent the loan application process can be automated]. The following software specific features may be considered

i. A farmer enters details of his produce including the date when it can be supplied to a merchant
ii. E-Krishi performs a "mark-to-market" at the current price for the commodity [or at some moving average price etc] and computes the value of the farmer's produce
iii. The farmer accepts the valuation [or rejects and makes an alternative proposal]
iv. The final valuation is "broadcast" by e-Krishi software [or alternatively, "pushed" to the Banking system of the subscribing banks as a formal loan application]
v. Loan approval intimation / rejection steps
vi. Loan credited to farmer's bank account steps
vii. And so on…

b. **With respect to trust:** e-Krishi carried no guarantees that a farmer who offered to sell via e-Krishi would indeed deliver his produce nor did it ensure that a buyer who agreed to buy will make good his offer.

Participation in an e-Market depends on the extent to which it can be trusted and the extent to which relationship among the participants is governed. A system of guarantee is therefore essential to ensure that all parties to a transaction in e-Krishi will stand by their commitment and not back away from their obligation at the time of fulfillment.

- *Suggested "To-be" to address the issue of guarantees and governance* – Either an insurance facility or a regulatory role or a guarantor role for the e-krishi authorities is required to be put in place to ensure that all parties fulfill their obligations. The following software specific features may be considered
  i. Registration of insurance companies steps
  ii. "Do you want to insure this transaction" button on all purchase and sale screens
  iii. Insurance fee computation, display, acceptance, payment steps
- Alternative "To-be" – a fee based guarantor role for the PPP partner[s] who in-turn may be supported by an insurance facility

c. **With respect to financial viability:** It was completely shortsighted to expect that the CSCs [Akshaya centers] will remain motivated to indefinitely support e-krishi for a one time receipt of Rs.10 per farmer.

- "To-be" – fee based support for all transactions and facilities supported by e-krishi with appropriate steps for fee computation, deduction etc

d. With respect to product / services catalog: The key challenge to cataloging agricultural commodities for an e-Marketplace such as e-krishi lies in the ability of the system to capture quality parameters. Establishment of standard codes and descriptions therefore becomes extremely critical. It is not clear how e-Krishi provided for this.

- Suggested "To-be" – Create ready-to-use and mandatory codes for description of commodities, quantities and qualities.
  i. Process steps - Intelligent drop downs to capture quality and other parameters to reduce transaction entry time and transaction capture complexity
  ii. Pre-formatted templates to quickly capture the context of the information exchange [fertilizer related templates, seeds related templates, sale of commodity templates etc]

The above are only a few examples of the "To-Be" that might have rendered e-Krishi attractive, relevant and sustainable. The faculty may encourage the participants to come out with a longer list of new processes [buyer aggregation, seller aggregation, auction/ reverse auctions, real-time banking etc]

Question 3

In your opinion, what kind of business model is appropriate for a system like e- Krishi? Explain your recommendations through value proposition statements / business case analysis.

Question type: Group Exercise
Amount of time to devote to this question: 45 minutes

Key learning: The question is intended to help the participants understand what a business model is, whether a partnership model [PPP, for instance] is suitable for e- marketplace where Government is an active player, how initial funding / grants for a project like e-krishi should be best utilised etc.

Though the terms strategy and business models are often used interchangeably, with respect to initiatives such as e-Krishi, it is a good idea to distinguish between the two.

The faculty may ask the participants which of the following Venn diagrams best describes the relationship between Strategy and business models[4].

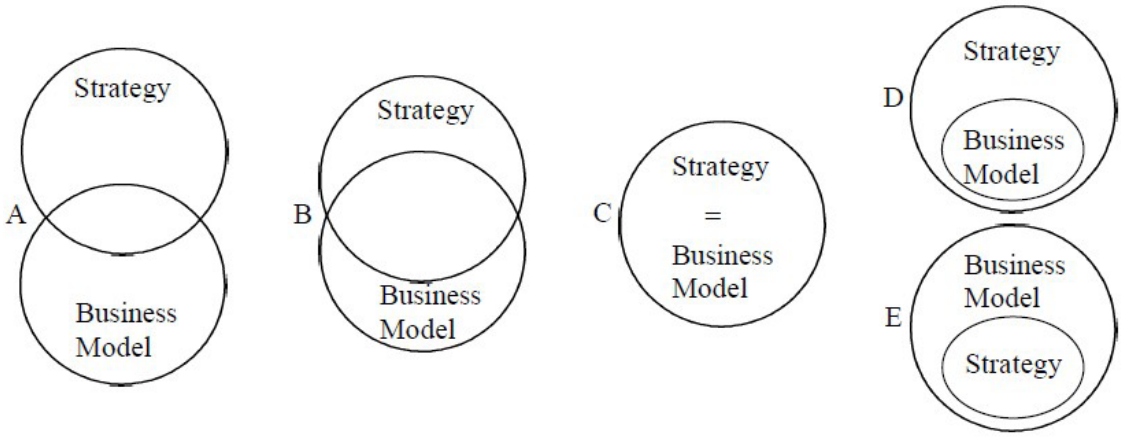


Figure-3 The correct is answer is none!

A business model can be viewed to be "an abstract representation of some aspects of a firm's strategy" (Figure 4). This definition suggests that an organisation's strategy is less abstract than its business model[s]. Why is strategy less abstract? This is because [good] strategies are highly specific and tailored to the needs of a specific organisation. Taking the example of an Agriculture department, its strategies have to do with "Agriculture department's beneficiaries" [farmers], "Agriculture department's vendors" [seed merchants, fertilizer manufacturers…] etc. Agriculture department's strategies are specific to Agriculture department. They may not be applicable, say, to Forest department. Quite possibly, they may not even be applicable to other States. For instance, Tamil Nadu's agricultural department's strategies may not be suit agriculture department of Mizoram.

What about business models? The faculty may explain to the participants that a business model explains "the underlying economic logic that explains how value is delivered customers at an appropriate cost". In general, there is nothing "unique" about business models since their features may be applicable to many organisations. Thus e-marketplace as a business model may be as suited to the strategies of Forest department as they are to agriculture department. As shown in figure-4, the aim of business models is to create an abstract that is cleansed of all irrelevant details that exist within a strategy.

4 Seddon, P. B., & Lewis, G. P. (2003, 10-13 July). Strategy and Business Models: What's the Difference? http://dr-ama.com/wp-content/uploads/2012/12/business-model.pdf

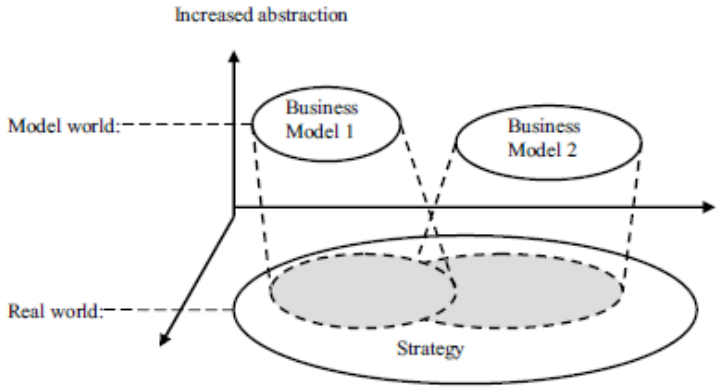


Figure-4[5]

An important component of business modeling is business case analysis [BCA]. BCA establishes why a particular course of action enhances value. To understand this, a value chart of the kind shown in Figure-5 may be introduced by the faculty to the participants. The faculty may explain the value shift effects [shifting of value from one set of stakeholders to another] and the value creation effects [creation of new set of values, a win-win situation] of a business model.

	Source of Value	Driver
Value shift activities Activities that take value from one party and transfer it to another (a "zero-sum" game)	Aggregation	- Achieved discounts by consolidating volume
	Process automation	- Decreased maverick buying
	Transparency/auctions	- Increased competition among suppliers
Value creation activities Activities that create new value through improved efficiencies or productivity (a "win-win" scenario)	Lower marketing and sales costs	- Lower cost to reach and serve customers
	Lower transaction costs	- Fewer ordering errors - Streamlined approval process - Lower supplier-evaluation costs - Streamlined accounts-payable-and-receivable process
	Lower costs in use	- Access to superior products - Customization of inputs and after-sale service raises quality and yield of output
	Lower inventory costs	- More efficient supply chain reduces need for inventory - Less obsolescence, less rework
	Lower cycle time	- Collaborative design and project management improve products, reduce redesign, and speed time to market
	Improved asset utilization	- Increases scale by reorganizing the value chain - Higher labor productivity - Better capacity planning and utilization

Figure-5 Sources of value creation in e-marketplace[6]

5 *ibid*

6 *Andrew, J. P., Blackburn, A., & Sirkin, H. L. (2000). The B2B Opportunity: Creating Advantages through E- Marketplaces.*

Component	Examples
Pricing model	Cost plus; CPM (cost per thousand)
Revenue model	Advertising or broadcast model; Subscription or cable model; Fee-for-service
Channel model	Bricks 'n mortar; Clicks 'n mortar; Direct-to-customer
Commerce process model	Auction; Reverse auction; Community
Internet-enabled commerce relationship	Market-maker; Aggregator; Virtual supply alliance; Value network
Organizational form	Stand-alone business unit; Integrated Internet capability
Value proposition	Less value and very low cost; More value and the same cost; Much more value at greater cost

Figure-6 Components of typical e-marketplace Business model[7]

Faculty intervention: The faculty may conclude the discussions on business models by stressing that viability analysis – socio-economic, technical etc – is a critical component of business modeling. Since the case is silent on the financials, the class will not be able to conduct e-Krishi specific viability analysis. A general discussion on socio-technical viability analysis may however be encouraged by the faculty.

Question 4

Under the banner of e-Krishi, about 50 training programmes were conducted to various stakeholders. In addition, the Bhoomi clubs promoted e-krishi activities through pest disease management training, farmer's day celebration etc. Were such activities sufficient to bring about change and to encourage large-scale subscription to e-Krishi's services?

Question type: Group Exercise

Amount of time to devote to this question: 20 minutes

Key learning: At the time the e-Krishi case was written, the project was already in a dormant state. As noted in the case, much of the transaction history had been lost, and with only a handful of links still operational, the e-Krishi portal had all but ceased to exist. This clearly indicates that if indeed there had been any change management effort from the project owners, it had not borne fruit.

This question presents an opportunity to the participants to revisit the case and critically assess the change management efforts [if any].

7 *Linder, J., & Cantrell, S. (2000). Changing Business Models: Surveying the Landscape: Accenture Institute for Strategic Change.*

For the purpose of change management, experts classify change into 1st order, 2nd order and 3rd order depending on the context, content and impact of change [figure-7].

Order	Description
1st: Sub-system	• Adaptation of systems or structures • Occurs within part of an organisation or sub-system • Is incremental
2nd: Organisation	• Transformational change • Movement in core organisational paradigms • Organisation-wide • Whole systems change
3rd: Sector	• Identity change • Cross-organisational change • Change spans specific organisational boundaries • Affects many organisations/sector-wide change

e-Krishi was anything but a simple ICT initiative. It was intended to bring about structural changes in the way agricultural markets operated and in the manner in which local markets had the potential to open up to the world. Had e-Krishi succeeded, it would perhaps have brought about 3rd order of change encompassing individual, organisational and sector level changes. The point that the class should discuss is that the change management efforts at e-Krishi were not of sufficient maturity to propel e-Krishi to such heights. Simple training programs, exchange of news and information etc – of the kind documented in the e-Krishi case study – perhaps were adequate to address 1st order of change. Such endeavours are however quite insufficient for level-3 [which should have been the intention].

This question may also be used to introduce the concept of ADKAR to the participants. Taking the example of the small farmers, the following questions may be deliberated upon by the participants:

1. **Awareness:** Did the change management effort of e-Krishi succeed in creating sufficient awareness among the small farmers about e-Krishi?
    - *Sub-questions:* In the context of e-Krishi, is awareness merely the news about a program called e-Krishi or is it an appreciation of the power of an electronic market place called e-Krishi?

2. **Desire:** What might have been the cause of desire of the farmers – especially the smaller ones – to participate in e-Krishi?
    - *Sub-questions:* What were the farmers' expectations from e-Krishi which kindled their desire to work with e-Krishi?
    - Were the expectations realistic?
    - Were farmer's expectations shared by e-Krishi project designers?
3. **Knowledge:** Were the farmers knowledgeable about the processes for participating in e-Krishi?
    - Sub-questions: What was the nature of knowledge? Was it implicit or explicit?
    - What formal efforts were made by the project designers to assess the level of knowledge?
4. **Ability:** Were the farmers given sufficient opportunity to translate their knowledge into practical application?
    - Sub-question: How was a farmer's ability to participate in e-Krishi assessed?
5. **Reinforcement:** How were the behavioural changes in farmers kindled by e- Krishi reinforced?

Given the low participation and repeat transaction rate, clearly the change management effort had failed on the reinforcement front [and quite possibly the other fronts – A, D, K & A - too].

Faculty intervention: In addition to the explaining the useful of the ADKAR approach, the faculty may highlight the need for a formal change management plan, and a roadmap for introducing change for any program to be effective. The faculty may ask the participants to prepare an ADKAR worksheet and document their findings.

Question 5

In your opinion, what were reasons for e-Krishi's inability to scale-up and sustain itself?

Question type: Individual Exercise
Amount of time to devote to this question: 20 minutes

Anticipated first set of responses from participants: Participant's would generally agree that all projects should be so planned as to ensure scalability and sustainability. The point is how they should go about creating such plan is important.

Key learning: For all intents and purposes, e-Krishi was a failed project which had ceased operations completely. It was alive only on paper. This question is intended to elicit participants' views on why e-Krishi did not succeed in sustaining itself after the initial funding from UNDP had dried up.

Faculty intervention: It is recommended that the faculty assist the participants in their analysis with the following sub-questions.

1. The case recommends that the stakeholders [merchants and farmers, for instance] should have been allowed to transact directly through e-Krishi instead of going through the CSCs. What ICT related issues may have prevented the project owners from supporting this?
    - **Hint** - CSC application provided for user authentication and other controls. Opening up the system to farmers etc would have meant application level changes for authentication in which perhaps the department did NOT want to invest.

- One cannot assume "going-through-CSCs" arrangement was meant to improve the financials of the CSCs since they were remunerated only one in the entire e-Krishi cycle [at the time of farmer / merchant registration].

2. E-krishi had little of intelligent transaction capabilities. There was the absence of auctions, order consolidation etc. Why?
    - **Hint:** Technically, providing information type screens is a minor task and would have required very little [if any] modifications to the core CSC application codes. But providing advanced transaction type features would have meant that the CSC system could no longer be used since that would have required considerable re-write. Advanced transaction features would also have delayed the roll-out of e-krishi.
    - Put together, these factors meant that little ICT investment was made in e-Krishi.
3. Except for the one-time registration fee, no other transaction fee was levied on the stakeholders. Why?
    - **Hint:** Since the case does not contain sufficient background information on this, one can only guess the reasons for this. It is possible that project owners mistakenly believed that the stakeholder will not pay for transactions. Or they may have believed that during subsequent phases of the projects, fee could be introduced. Both of these behaviours point to poor stakeholder consultation [as noted under question 1] and change management effort.
4. No efforts were made to broad base the ownership for e-Krishi by inviting various government agencies from the State and local government levels. Why?
    - **Hint:** The reasons could lie in power struggles.
    - Equally likely, the reasons could lie in resource shortage. More the number of "owners" of e-Krishi, more might have been the need for feature upgrades, more the need for investment in manpower and ICT, more the need for financial investment etc

The faculty may encourage discussion on other point too – the need for ABCs, the high rate of turnover of officers at KSITM etc.

In conclusion, the faculty may suggest that it is pertinent that planning for scalability and sustainability is done at the time of project conceptualization itself. The key to sustainability is also making the stakeholders part owners of the project through their involvement in all stages and phases of the project.

Disclaimer

1. The facts contained in the case are entirely based on the eponymous case developed as part of the NeGD initiative managed by NISG.
2. All conclusions drawn and presented in the teaching note are based entirely on information contained in the parent case.
3. Given the complex nature of the domain of e-Governance, the conclusions, comments and opinions presented in the teaching notes are meant to provide alternative points of view. Under no circumstances should they be construed as criticism of actual performance of the project or of the project owners or of the personnel involved in its implementation.

9.2 E Krishi Project of Kerala: An Ex – Post Evaluation[8] - Teaching Case StudyAbstract

e-Krishi is a novel ICT initiative in the sphere of agricultural trade implemented by the Kerala State Information Technology Mission (KSITM), the apex ICT implementation agency of Kerala working under the Department of Information Technology. The aim of the project is to address the gap in the flow of agricultural information and transaction management.

Data collected from the stakeholders of the project led us to believe that the project was taken positively by all the main stakeholders viz., the farmers, buyers and Agri- Business Centres (ABCs). The co-ordination among the participating departments viz., KSITM, IIITM-K and Agricultural Department is not properly carried out and hence, the vision of the project has yet to be materialized fully. As a project for inter- connecting farmers and buyers, the pilot level implantation of e-Krishi was very successful in terms of registration of farmers, postings of commodities and transactions. However, of late, these activities were found to be rather slow. Now, it is understood that the KSITM is planning to make further changes in the project including the opening of a bilingual platform for the farmers and buyers.

Project Context

e-Krishi, an ICT for Development project envisioned to provide livelihood to rural people evolved in 2006, is implemented by the Kerala State Information Technology Mission (KSITM) working under the IT Department of Government of Kerala. It was a joint venture of NISG, UNDP, KSITM, IIITM-K and Agricultural Department. It was implemented as a pilot project in Malappuram district of Kerala during 2006–09 through 146 e-krishi centres spread over 99 Grama Panchayats. The centres were so placed that a farmer need not travel more than three kilometres to reach any one of the e-krishi centres. Seeing the benefits of the project, the government expanded the e-krishi activities to 6 more districts in the state.

The Vision and Mission of the Project

The vision of the project is to establish a connected farmers' community throughout Kerala who have access to information on market demand, prices, good agricultural practices, quality agricultural inputs supported by a technology enabled robust transaction platform that facilitates all their offline activities. The project addresses the existing gap in agriculture information flow and transaction management. The objectives of the initiative include (i) aggregation of responsive farmer community of about 100,000 with a cumulative farm land of 100,000 hectares cultivating priority crops as determined by the market demand (ii) enrollment of buyers in key markets including manufacturers (iii) enrollment of agricultural input providers , (iv) Warehousing facility providers (v) enrollment of logistics services support providers, (vi) enrolment of banks and insurers (vii) legal, accounting, documentation support, and, (vii) establishment of a robust IT enabled platform where the members can seek information, transact and make or receive electronic payments.

8 The original case developed by Dr.C.Krishnan and Manohar Varghese is available at http://nisg.org/case-studies-on-e-governance-in-india

Institutional Arrangements

The Project envisages an extensive institutional framework for its execution. The KSITM looks after the project management where as IIITM-K takes care of the web related matters. Agriculture Department provides resource persons for various training programmes arranged by the project and also help to identify progressive and interested farmers. .

e-Krishi Portal

The project e-Krishi relies heavily on the portal (www.e-krishi.org) developed for the purpose. The features of the portal include a home page with a lot of other menus useful for the purpose. It contains information about farm advisory services, resource library, agricultural market information etc. Trade takes through the Trade Centre Corner where the sellers as well as buyers can register themselves. The sellers (farmers) and buyers (merchants) register through the nearest Akshaya Centre or log on to www.e-krishi.org. They post the materials for selling/buying. The buyers and sellers post and view advertisements and in the final stage virtual meeting of buyer and sellers through the web effecting transaction is the substance of the e-Krishi project. A toll free Call Centre (1800-425-1661) is also functional with the aim of helping farmers and buyers in solving trade related doubts and providing details on good agricultural practices including local weather. It is being managed by qualified agricultural specialists.

Akshaya Business Centres

The activities under e-Krishi programme were planned to be run utilizing the ICT infrastructure and the existing linkages of the Akshaya e- Kendra entrepreneurs with the local community of farmers, Local Self Government institutions, the Government offices and the traders in the locality. It was envisioned that spatial planning of Akshaya e- Kendras and infrastructure available at each Akshaya e-Centre would enable the project to take off immediately. The Agri-Business Centres (ABCs) based at Akshaya e Centres are the nodal point for service delivery. It was envisioned that one ABC of minimum 7 members with the Akshaya e-Kendra entrepreneur as Information Officer shall be established at each of the Grama Panchayats.

Bhoomi Clubs

This club consists of all those who are actually involved in the production and marketing of the agricultural produce of the area. A total of 73 Bhoomi clubs were formed in 53 panchayats of the Malappuram district during the pilot stage. The Bhoomi clubs co-ordinate e-krishi activities with the support of Akshaya entrepreneurs and field coordinators attached to the project. Various activities were organized under the auspices of Bhoomi clubs in different parts of the district such as pest disease management training, farmer's day celebration, organic farming etc.

Business Model

As a project run on PPP basis, the business model of the project is very important. The project envisages income stream from transaction fees, administrative charges, advertisement income, campaign fees, training fees etc. Similarly, the expenses include charges for data centre management, content development, maintenance of data, ABC office administration expenses etc. In the initial stage, the Akshaya entrepreneurs were provided Rs.10/- each for posting the registration of each farmer in the portal. So, the income stream envisaged in the project was limited to the registration fee of farmers in the portal. Other sources were not tapped fully.

Impact of the Project

Over a period of seven years since its implementation, e-Krishi has been successful in setting an atmosphere whereby the small and marginal farmers can also do business through a web platform. The project could identify the small and large buyer groups within the district and also identified 177 exporters of vegetables, cashew, coconut, arecanut and banana. Identification of more institutional buyers like Orphanages, Convents etc., was mooted. Under the banner of e-Krishi, about 50 training programmes have been conducted for farmers, ABC entrepreneurs, agricultural officers and panchayath members. The project could establish 114 e-krishi centres across the district and established a toll free call centre '1800- 425- 1661' for agriculture trading.

There were instances of better income benefits to the farmers through the aggregation of commodities. For example, ball copra which was used to be sold at Rs.8/- per piece in the local market was sold at Rs.10/- per piece when a major buyer wanted a big consignment. The revival of mushroom cultivation is also found to be another striking development through the project.

3.3. Buyers

Only 160 buyers were found registered with the e-Krishi portal by 2009, the latest year for which data is available. Interaction with a few buyers indicated that small quantity of farmer posting, difficulty in aggregation; product quality related issues etc., were the major hurdles in the way of transaction. Again the skepticism among the sellers in e-trade also made a serious blow to the growth of transaction. Hence, the number of transactions through e-Krishi was very low. There was also an attitudinal issue. The farmers, though they are educated, were not exposed to trade through a web platform and as such there were the problem of acceptability of transaction through the e-Krishi site.

3.4. Transactions of Commodities

The postings of buyers were commendable, yet not up to the expectation of the visionaries of the project. During 2008-09, an amount of Rs.2.71 crore worth benefits was able to be passed on to the farmers. There was the problem of aggregation of commodities also. The small quantity postings of the farmers, unless it is aggregated at least at the panchayat level, the buyers found it unprofitable to purchase from different locations. For example, during 2006-07 only 35 transactions could be effected in the district as a whole. It had risen to 300 transactions during 2007-08, i.e., on an average three postings per ABC. Actually, the project had failed even to extent the required awareness among the farmers about the uses and abuses of trade through e-Krishi project. Another most important weak link in the transaction process of the project is lack of a warehousing hub.

Current Status of the Project

The project has been rolled out to a few more districts of Kerala after its pilot stage. Now, 7 districts out of 14 have initiated e-Krishi project. Most of the central agencies of the project viz., UNDP, NISG and IIITM-K have been de-linked from the e-Krishi project since 2009. Currently the entire project is carried out by the KSITM.

Though almost 20+ links in the portal were active in the initial years of its operation, of late, some of them became inactive. Presently, it is seen that only less than 5 links are working effectively. The stakeholders have been demanding for a local language portal for e-krishi for a quite a long time. But, so far no progress in this direction has come up. The bulk buyers argue for aggregation of the products, at least at the panchayat level, to make the transactions effective. This argument is found true considering the innumerable small growers in the region.

The ABC entrepreneur has been assigned the role of a technology enabled supporter for farmers, local buyers etc. The initial enthusiasm shown by the ABCs was not seen of late. The ABCs were not trained in the e-Krishi functions especially marketing of agricultural products.

One of the vital components of the e-Krishi viz., the Bhoomi Club, is found to be dysfunctional after its piloting stage. For example, in 2006-07, there were only 20 Bhoomi Clubs and it had increased to 73 by 2008-09 in the study area. Practically, not even a single Bhoomi Club is currently functional in the district. Even the most valuable data once collected through the Bhoomi club formation were found lost.

Key Lessons

The project has been rolled to seven districts in the state but not materialized as envisaged.

Developments in the pilot phase were attributed to the consistent and co-operative working of the participating departments. However, once the external funding was over, the project could not be carried over in a scale and strength as envisaged in the blue print of the project.

Technology frame was not familiar to grass root level users

From the second phase of the implementation of the pilot itself, the farmers and other stakeholders were demanding for a web portal in regional language/bilingual. This is yet to be implemented.

Participation of Local Self Government Institutions (LSGIs)

Though, agriculture has been the main domain of activities of the LSGIs, most of them has not put any serious thought in supporting initiatives like e-Krishi. There are possibilities for incorporating e-Krishi in their annual budgets. However, the experience in the selected panchayat shows that the expected co-operation from the LSGs has not come up.

Political will is an important component of projects like e-Krishi

It should be noted that development projects should not be judged on political considerations. One of the weakest links in the project was lack of political will. As and when a political change comes in the state, the functionaries were also found to be changed.

Proper role to the ABCs

The project in the present form is successful mainly because it is being piggy-backed on the existing Akshaya Centres, currently the Common Service Centres. Since the ABC is the central platform in the e-Krishi project, its selection and working is highly important. As the Akshaya tele-centre has high acceptance in the village all over Kerala, at least one Akshaya tele-centre should be selected for hosting e-Krishi service in each grama panchayat. Hence, the Akshaya centre can act as the co-ordinator of the knowledge community and a representative of farming community. They should be given frequent training in the sphere of agricultural trade, insurance and cultivation practices.

Sustainability

One of the serious problems of any development project is its long term sustainability. However, in the case of e-Krishi, there is no reason to lament about it because of several reasons. The project is sustainable as it is in the public- private-partnership mode. The ABCs can charge a minimum amount for the transaction. They can also earn revenue through the advertisements given in the portal. If the par-

ticipating departments provide all the backend support, the forward support can be ensured through the ABCs and hence the project can be sustainable.

Questions

1. In your view, were the right sets of steps followed by the KSITM to ideate e- Krishi project? What would your approach have been?
2. The utilization of the services provided by e-Krishi was very low. Perhaps one contributing factors for this was its sub-optimal processes. If you were in charge of the project, what changes would you have made to the processes? In other words, what would your "to-be" processes look like?
3. In your opinion, what kind of business model is appropriate for a system like e- Krishi? Explain your recommendations through value proposition statements / business case analysis.
4. Under the banner of e-Krishi, about 50 training programmes were conducted to various stakeholders. In addition, the Bhoomi clubs promoted e-krishi activities through pest disease management training, farmer's day celebration etc. Were such activities sufficient to bring about change and to encourage large-scale subscription to e-Krishi's services?
5. In your opinion, what were reasons for e-Krishi's inability to scale-up and sustain itself?

Disclaimer

1. The information contained in the case are entirely based on the eponymous case [referred to as the parent case, henceforth] developed as part of the NeGD initiative managed by NISG.
2. The parent case is substantially longer and carries significant amount of additional information. To the extent possible – keeping in mind readability and language factors - this case is a verbatim extraction of selected portions of the original case.
3. Care had been taken to extract such portions of the parent case which support the central idea of this teaching case study and which – read together – are sufficient to serve the teaching purposes. It is however possible that unintentionally, some information have been left out inclusion of which may have led to different sets of opinions being formed about the project. Therefore, under no circumstances should the extracted content of the parent case - which was presented in this document as the "child" teaching case - be construed as criticism of actual performance of the project or of the project owners or of the personnel involved in its implementation.

10. *Project Kaveri, Karnataka Vendor Transit Ioning: An Outsourcing Setback*

10. Project Kaveri, Karnataka Vendor Transit Ioning: An Outsourcing Setback

10.1 Project KAVERI, Karnataka Vendor Transitioning: An Outsourcing Setback[1] - Teaching Notes

Abstract

Vendor Outsourcing has become a norm in both public and private sectors. Often it is adopted to achieve cost arbitrage and leverage technical expertise of the vendor. Customers with time have become accustomed and experts in hiring new vendors. They were well versed with the rigour required for vendor selection, procurement and contracting. The difficulty arose when these vendors had to be replaced by a new vendor. Customers, in most scenarios, were unprepared primarily for two reasons, namely, lack of certainty regarding methods to adopt for switching vendors and difficulties in retaining best practices from incumbent vendor and while resisting the lacunae/gaps in existing contract and vendor relation. The Department of Stamps and Registration, Government of Karnataka, was facing a similar issue when it decided to replace an existing vendor which was working for over 10 years with a new vendor. This case study provides an overview of vendor switching, focusing on the department's need to switch vendor, the approach adopted, gaps in the approach and best practices adopted. The case study also details some CSFs (critical success factors) that helped the department through the vendor transitioning and implementation phase without facing any serious operational disruptions. "Vendor switching is a painful phenomenon for customers primarily because they are unprepared and secondly because they are not sure how to retain the best practices from existing contract"

Domains

1. Vendor Transitioning / Vendor Risk Management

Classification code for the case

Not all cases are suitable for all capacity building programs of NISG. The NISG-Case classification code determines the suitability of a case to a capacity building program. Kindly refer to the Case classification index maintained by NISG to determine target audience for the case.

Learning Objectives

Several factors combine to introduce special and urgent need for managing vendor transitioning well in the domain of e-Governance. One of the main factors is the speed with which technological changes rapidly render the existing systems and practices outdated. The other factor – which is perhaps related to the speed of technology diffusion - is the attractiveness of outsourcing services to specialist technology firms. As technologies change, as newer and newer service providers make their entry, it becomes incumbent on Government departments to introduce new vendors in their ICT plans. Every incoming vendor firm brings its own challenges just as the outgoing ones leave behind their own when they make their exit. The behavioural, the technical, the financial and the political issues which surround vendor exit / transition management renders the field quite complex. This case highlights some of the issues involved in vendor transitioning and seeks to introduce to the participants a few emerging best practices.

When to introduce the case

The case may be scheduled in any of the following manner

- In a session dedicated to Procurement / Vendor Management
- As part of e-Governance Risk Management training program or training Session
- In any special session[s] aimed at providing the participants with a opportunity to engage in higher order of thinking and analyses

1 *The original case developed by akash Shrivastava and Prabhakara H.L is available at http://nisg.org/case-studies-on-e- governance-in-india*

Time to be given for studying the case

Where the duration of training is more than one day, the case may be given to the participants for overnight study. Where the faculty expects that the participants may respond better under supervised reading, about 15 minutes may be allotted for familiarization with the case. Not all questions are required to be subjected to class discussion. The faculty may use his/her discretion keeping in mind the focus of the capacity building program and the availability of time.

Question-1

What are your key observations about the KAVERI project?

Key learning: The case is about vendor transitioning and hence the faculty may ensure that the following points are appreciated by the participants

1. Vendor transitioning is inevitable in the domain of ICT and that every organisation will go through it at one time or the other
2. Organisations often fail to manage the transition well, because vendor transition falls through the "cracks" – it has its origins in a past procurement and it is not the center of focus of the new procurement.
3. Transition is viewed entirely as a procurement related issue rather than as a component of a complex risk domain and a complex relationship management domain
4. A procurement approach focuses on operational issues – getting the RFP right, ensuring transparency in bidding and bid evaluation, contract management etc. A vendor relationship and risk management is a strategic point of view that seeks alignment of larger sets of goals.
5. Though it is not necessary, one indication of the dominance of "procurement" point of view instead of risk management point is view is that the preparation for transition takes place too late to be fully effective. This was evident from Kaveri.
6. Another indication of absence of a strategic approach is that most – if not all – procurement activities are given similar attention. In Kaveri too, the PMU was attempting to balance numerous other ICT projects when clearly the projects were of very different strategic and operational importance and the project described in the case should have taken precedence.
7. The case does not describe the business model of the new initiative except to state that it was of the nature of facilities management, and a move from the existing "constrained BOOT model" to more "operationally and economically balanced model" was preferred. BOOT is a popular Public-Private Partnership [PPP] business model. It would however appear from the very limited descriptions contained in the case that the new business model preferred was one which was either not in the nature of a PPP or was of a relatively more elementary form – of managing facilities. Considering that the ICT sector was progressing towards virtualization, cloud computing etc this shift from a PPP model to a more traditional one appears to be a knee-jerk reaction to the problems the department had faced with the vendors who had served the organisation for two tenures.

Question-2

The exit from a large sized ICT service arrangement of the nature of KAVERI exposes an organisation to a variety of different risks. What are some of the key risks? Collectively, what impact can the risks have on post transition plans?

Key learning: It is no exaggeration to suggest that an organisation is at its most vulnerable state when it is in a transitioning phase involving mission critical ICT systems. Unless this phase is managed well, an organisation exposes itself to risks that may overwhelm it on many fronts – strategic, operational, and reputational.

The faculty may encourage class discussion on this idea. The class should take care group the risks.

Faculty intervention: Through discussions, the faculty may help the participants to draw up a list along the following lines

- Operational / Performance Risks:
    - Disruptions or discontinuity in the supply of services
    - Delays in the supply of services
    - Poor termination / transitioning assistance provided by the exiting supplier[s]
    - Delays in exit processes
- Financial and contractual Risks:
    - Unplanned costs
    - Being locked into specific but inflexible exit arrangement
    - Real or effective "loss" of critical assets, software, know-how or other intellectual property
- Reputational and compliance risks
    - Damage to reputation
    - Disclosures of confidential / sensitive information or data
- People / Knowledge risks
    - Loss of critical staff
- ICT risks
    - Security risks
    - Poor follow-up/ action on change requests, bug fixes
    - Technology & knowledge "lock-in" risks [hardcoded and undocumented rules/algorithms, tying codes to particular versions of OS/DB etc]

Each risk is able to affect an organisation in its own particular way. For instance, experienced staff of the departing vendor carry with them very valuable process knowledge, ICT knowledge and organisational culture knowledge. It may be possible to minimise the impact of this risk by offering placement to them as part of the new e-Governance initiative. But collectively, the risks assume such potent powers that often they leave behind a "stickiness effect" which bind the organisation to certain sub-optimal decisions.

The faculty should ensure that the participants understand that, in effect, a transition period begins not when a contractual notice is served on the current vendor but when the current vendor senses that his contract is unlikely to be renewed. For instance, in a five year BOOT arrangement, such a feeling may creep into the project as early as the, say, the third year. Therefore, even if the transitioning commences in the fifth year contractually, in effect it may have commenced much earlier – in the third year itself.

A vendor, sensing in his third year that his contract is unlikely to be renewed, has little motivation to adopt good coding, testing and documentation practices. This may render a mission critical application – such as KAVERI – completely inflexible with most rules and process information hardcoded and buried deep inside codes and tied to particular versions of the OS.

The class should be made to understand that it should take cognisance of two types of transition periods – a contractual vendor transition period and an effective vendor transition period. The latter may commence much earlier than the latter. The greater the effective period of transition, the greater is the likelihood that the risk levels will be high and stronger will be their power to reduce the choices for the future.

Question-3

Comment on the issues A1 to D1 highlighted in the case. Which of them specifically belong to the domain of vendor transitioning? Do you agree with this?

Key learning: It is very important for the participants to understand the difference between issues which belong to the general domain of procurement and those that are specific to Vendor exit or transition phase. The class should be encouraged to debate the various issues listed. Through this question, the faculty should aim to segregate poor procurement practices [poor requirement analysis, for instance] from poor vendor transition management practices [poor exit clauses in the contract, poor SLA administration etc]

Faculty intervention: The faculty may ask the participants to reflect on each of the 12 issues mentioned in the case – from A1 to D1 – and identify the ones which rightfully belong to the domain of vendor exit management.

The following nine issues out the twelve listed in the case are NOT exit management specific. They are the kind of issues that point to a general inability to manage the department's procurement activities well and they pertain to earlier phases of the procurement process – phases such as Requirement analysis etc.

- A.3: The selected vendor failed to supply and installs the equipment on time because of his heavy reliance on a single OEM who failed to deliver on time
- A.4: The new software for asset management, Service desk etc. used network extensively which resulted in slower connectivity for mainstream services
- A.5: In between the tendering phase, the department planned to upgrade all the offices to three phase power supply which necessitated procurement of new UPS which was not covered in the contract with the vendor
- A.6: Sub-optimal functioning of PMU due to many disassociated e-Governance initiatives running in parallel
- A.7: The existing KAVERI application could not support newer Windows OS. Effectively, the new vendor was pushed to downgrade the OS of all desktops.
- B.1: Due to administrative and legal delays, the proposed system configuration was called off from the market by OEM and the vendor had to
- C.1: The RFP published did not detail about the pre-delivery inspection
- C.2: Department did not consider preparing a detailed project report in addition to the RFP to define scope, activities and process flows

- D.1: The revamp project got delayed by almost a year due to administrative backlogs and legal complications by almost a year. This affected the project milestones and expected procurement and installation plans by the vendor

Out of the 12 issues listed, only the following three are specific to the challenges of vendor transitioning / exit management.

- A.1: Exit management plan was not present at the time of work order allocation.
- A.2: absence of overlap period between the incumbent and new vendor.
- B.2: The project lacked defined exit planning which resulted in communication gaps at the time of vendor transition. The department faced a situation where it could have faced severe shortage of consumables because none of the vendors had clarity about the supply.

Using the re-classified examples given above, the faculty should drive home the point that an ability to distinguish among issues of various phases of the procurement process is important to designing remedial measures.

The faculty may take the discussions to a higher level by asking the participants to state how even the non-exit phase specific issues can impact the smoothness with which the transition can take place from the old set of vendors to the new.

A sample exercise is shown herein.

Non-transition issue	Primary Impact on / during the Transition phase	Secondary impact during the transition phase, overall impact on the project
A.3: Vendor's failure to supply and install equipment on time	• Increase in the duration of the transition phase	• Increase in transition phase risks • Strengthening the position of the project detractors
A.4: New software for Service desk etc – mainstream activities impacted	• End user dissatisfaction	• Strengthening the position of the project detractors • Increasing strength of lack of support for the project

Figure-1

Question-4

Transfer of knowledge from the outgoing vendor[s] to the incoming vendor[s] is one of the biggest risks during vendor transitioning. How can an organistion ensure that knowledge of its practices, culture and needs is transferred to the incoming vendor team effectively?

Key learning: The existing literature suggests that transitions in ICT projects are prone to knowledge transfer blockades, i.e. situations in which the activities that would yield effective knowledge transfer do not occur. Especially in situations where one set of vendors are being replaced by another, there is little motivation for the outgoing team to share knowledge with the incoming one. Research suggests that blockades emerge from a vicious cycle of weak learning which operates as shown in figure-2.

The figure is self explanatory. It may be read clock-wise from the top.

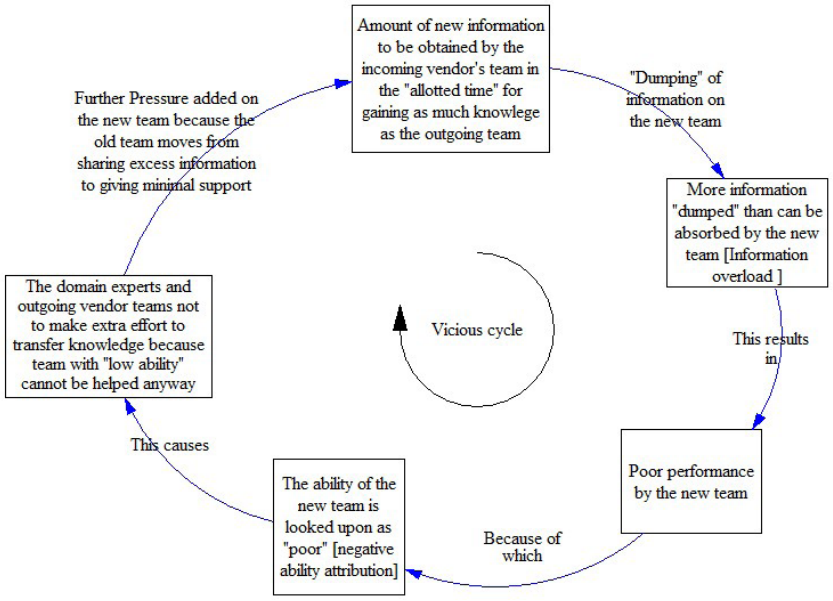


Figure-2

Faculty intervention: Figure-2 has serious connotations for the success of the vendor transitioning exercise. What the figure suggests is that

- Sharing of knowledge with the new vendor's team should be carefully planned
- The information / knowledge about the current practices to be shared should be packaged in reasonable sizes
- Client management may avoid these vicious cycles by selecting vendor staff with strong prior related experience.
- The client management should ensure that the team that is brought in by the new vendor has experience which is related to the client's project. Mere number of years of experience will not help mitigate the problems associated with knowledge transfer. The experience should have relevance to the client's project.
- Knowledge is of two types – explicit and tacit. Explicit knowledge exists in the form of process manuals, data dictionaries, technical documentation etc. Both research AND experience has shown that "dumping" of such explicit knowledge does not make the incoming vendor team knowledgeable and productive. Sharing of such knowledge should be carefully planned and executed in logical segments.
- The outgoing vendors should be contractually bound to participate in the knowledge sharing exercises.
- Going beyond the contract, greater amount of knowledge exchange is required from the "tacit knowledge" domain. It should be the responsibility of the user department to ensure that a number of opportunities and forum are created for exchange of tacit knowledge between the outgoing and the incoming teams.

Question-5

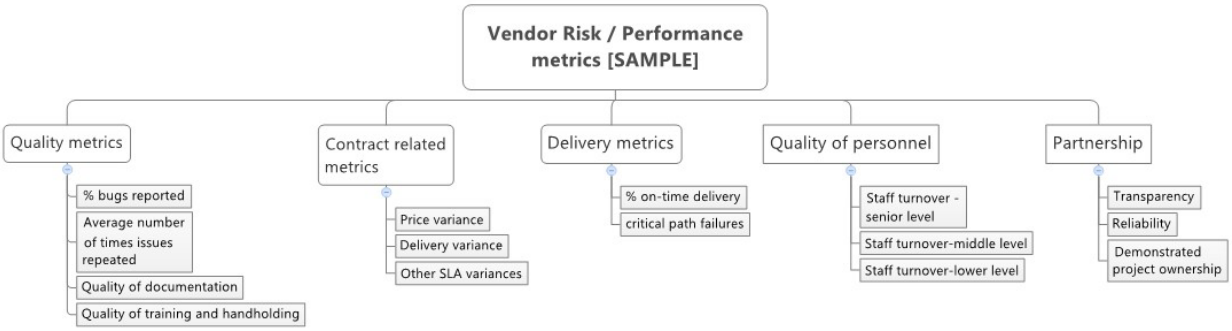
What is the right time for planning for transition? In order for the Department of Stamps to have a better transition experience in future, what will your recommendation be?

Key learning: The best time for vendor exit planning is at the time of "entry" – that is to say, at the time of entering into the contract itself. This will ensure that the contract contains all the learning from the past vendor transition experiences.

In order for the department to have a better experience with vendor transitioning in future, the department should implement a vendor management program. The key to vendor management is

1. Continuous audit of vendor performance and vendor risk assessment
2. Use of formal tools as vendor scorecard metrics
3. Establishment of control limits / standards for various performance / risk indicators
4. Periodic comparison of the actual performance against standards for each measure
5. Open engagement with the senior management of the vendors for review of performance
6. Viewing the relationship with vendors providing mission critical solutions as a strategic and partnership
7. Provision of full support to the vendors to overcome performance / risk issues
8. Notwithstanding the partnership approach, not hesitating to issue formal warnings – where warranted
9. Keeping the end users in the loop at all times

A sample performance metrics template is shown herein.



Needless to say, a good vendor management demands that the user department fulfills its contractual obligations in the right spirit. The department may consider basing is vendor management and transitioning program on the following principles[2] adopted by Bristol City Council, UK.

2 http://www.bristol.gov.uk/sites/default/files/documents/business_in_bristol/Decommissioning%2 0guidance_0.pdf

Principles	Processes
Focus on achieving outcomes	Base change on evidence of need and shared aspirations
	Effective inclusion of all, focusing on vulnerable and equalities groups
	Engage service users in decision making
Build Consensus	Communicate, within a clear structure and process, with all stakeholders
	Be open, transparent, timely and respectful
	Develop a shared understanding of both processes and outcomes
	Secure political and senior management ownership
	Manage expectations
Informed and robust decision making	Use accurate data in information, communications and documentation
	Establish a clear and credible evidence- base
	Clarify ownership of the decision-making process
	Fully understand the impact of the 'whole-system'
	Clearly identify and forecast resources
	Understand the impact on equalities communities
	Be transparent
High quality project management	Set out and communicate a well planned process
	Clearly define roles and responsibilities
	Undertake good quality risk management
	Identify adequate timescales, and resources
	Review and learn for the process

References

1. 2014 Vendor Risk Management Benchmark Study - http://www.protiviti.com/en-US/Documents/Surveys/2014-Vendor-Risk-Management-Benchmark-Study.pdf
2. Governing Individual Learning in the Transition Phase of Software Maintenance Offshoring: A Dynamic Perspective, Oliver Krancher, University of Bern, Sandra Slaughter Georgia Institute of Technology
3. A Risk Management Standard © AIRMIC, ALARM, IRM: 2002

Disclaimer

1. The facts contained in the case are entirely based on the eponymous case developed as part of the NeGD initiative managed by NISG.
2. All conclusions drawn and presented in the teaching note are based entirely on information contained in the parent case.
3. Given the complex nature of the domain of e-Governance, the conclusions, comments and opinions presented in the teaching notes are meant to provide alternative points of view. Under no circumstances should they be construed as criticism of actual performance of the project or of the project owners or of the personnel involved in its implementation.

10.2 Project Kaveri, Karnataka Vendor Transit Ioning: An Outsourcing Setback[3] - Teaching Case

Abstract

Vendor Outsourcing has become a norm in both public and private sectors. Often it is adopted to achieve cost arbitrage and leverage technical expertise of the vendor. Customers with time have become accustomed and experts in hiring new vendors. They were well versed with the rigour required for vendor selection, procurement and contracting. The difficulty arose when these vendors had to be replaced by a new vendor. Customers, in most scenarios, were unprepared primarily for two reasons, namely, lack of certainty regarding methods to adopt for switching vendors and difficulties in retaining best practices from incumbent vendor and while resisting the lacunae/gaps in existing contract and vendor relation. The Department of Stamps and Registration, Government of Karnataka, was facing a similar issue when it decided to replace an existing vendor which was working for over 10 years with a new vendor. This case study provides an overview of vendor switching, focusing on the department's need to switch vendor, the approach adopted, gaps in the approach and best practices adopted. The case study also details some CSFs (critical success factors) that helped the department through the vendor transitioning and implementation phase without facing any serious operational disruptions. "Vendor switching is a painful phenomenon for customers primarily because they are unprepared and secondly because they are not sure how to retain the best practices from existing contract"

Project Context

About the Department

The Department of Stamps and Registration is one of the oldest departments under the Government of Karnataka. The department falls within the jurisdictional ambit of the Revenue Ministry of Government of Karnataka. The department is as old as 150 years and the earliest records available date back to 1856. The Department is the third largest revenue generating entity in the State with approximately 1600 employees across 248 Sub-Registrar offices and 34 District Registrar offices in the State.

The services of the department are currently computerized, though partially, through implementation of a software application christened as 'KAVERI'.

About KAVERI

The primary function of KAVERI was to computerize the registration process, facilitate archival of registered document in the form of scanned images and generate reports from the data digitized as a result of computerized registration. The system had been developed for following category of users:

- Frontline users/ Operators: Data entry and other operations built in KAVERI for registration
- Managerial staff: Generate and access reports
- General Public: Market valuation, Model deeds and general public information.

Incumbent Vendor Partners KAVERI was successfully rolled out in all Department Offices by 2004 on BOOT (Build, own, operate and transfer) Model and had been operational since then. Two Vendors were selected for running the operations at department offices across state. The contract was signed for five years initially but was later extended till February 2014.

Business Model The vendor work was manpower intensive with over 1000 employees deployed by vendors to work with department across its offices. The business model was based on revenue sharing wherein the vendors were paid for scanning and registration service based on the number of pages scanned.

3 *The original case developed by akash Shrivastava and Prabhakara H.L is available at http://nisg.org/case-studies-on-e- governance-in-india*

As per the contract with incumbent vendors, the hardware procured by department in 2003 was to be maintained and repaired by the vendors. In 2011, the department rolled out RFP to select new vendor to take over the entire project from incumbent vendors and to simultaneously revamp the old and ailing IT assets. "For almost a decade, vendors had been using same hardware across offices. The ailing hardware reduced the operational efficiency and lack of adequate monitoring tools increased cases of n/w failure and downtime"

Why did the DS&R switch Vendor?

Department of Stamps and Registration (DS&R), Karnataka hired two vendors for running and maintaining the IT infrastructure in 2003 with initial contract period of 5 years. The department later further extended the contract by 5 more years for these vendors. Around 2008, department conducted a detailed As-Is study to understand the root cause of falling operational efficiency, to study the lacunas and gaps in the existing structure, to reengineer the processes and transform the departmental services through e-governance. As an outcome of the study, it was decided to revamp the existing ailing IT hardware and transform KAVERI with more citizen centricity and to upgrade technological platforms.

The key factors impacting department's decision to switch vendor were –

Growing issues with existing ailing hardware:

The department procured hardware in 2003. With passing time, not only did the cost of maintenance increase but also the system performance deteriorated which raised the cases of system failure causing operational disruption. This made it apparent for the department to replace and upgrade the existing setup. The existing contract with the vendors didn't have any clause for hardware replacement and considering the volume of hardware involved, it was not feasible for the department to make amendments in the existing contract. All these factors combined made a strong case for RFP.

Need for enhanced IT support systems:

KAVERI system relied on KSWAN (Karnataka state wide area network) for data transmission from local servers in department offices to servers in state data centre. This heavy reliance made it imperative for the department to have enhanced monitoring systems to check the network status on a real time basis and report abnormalities. Also, remote monitoring of IT assets and expedited issue resolution was also desired to improve up-time. The existing setup failed to provide department with these services which prompted the department to go for fresh tendering with a revised RFP.

Need for business model change:

The contract with existing vendors had expired in 2008 post which department renewed the tender till 2013. Since then the same vendors had been operating the KAVERI system across department offices through the same contract with existing infrastructure. As-Is study conducted in 2008 suggested major revamp in software and hardware to meet the growing registration needs. The incumbent vendors were operating on constrained BOOT model wherein drastic expansion and revamp was not feasible. Thus, the department decided to go ahead with RFP and changed the business model in revised contract to accommodate future expansions. "Poor infrastructure, high maintenance cost and lack of flexibility in existing contract topped with concerns over software hardware incompatibility compelled the Department to go for tendering."

Proposed Business Model

With the existing BOOT model for vendor deployment, department not only had constraints relating to modifications in the scanning fees as it directly impacted the vendors' income but also there was limited flexibility for the department to revamp the existing setup. Considering this, the department decided to shift to facility management model with upfront payment for hardware infrastructure, office upgradation and resource deployment to the new vendor. In the new model, the vendor shall be paid by the department and will have no rights on collected scanning fees thereby removing any vested interest in increasing the registration count hampering the quality. Also, the vendor will be required to deploy advanced IT support systems and will be stringently governed by operational SLAs to ensure timely closure of technical issues. This is not only expected to improve the operational efficiency but also provide flexibility to the department to upgrade IT assets as and when required without affecting the contract terms.

Scope of work for new vendor

Figure - 4: Scope of work for new vendor

Department's approach for vendor transitioning

1. Analysis and Requirement Gathering

The department conducted a detailed requirement gathering exercise for preparing new RFP, capturing existing infrastructure details and additional requirements.

2. Design and Development

It was observed that the existing BOOT model of vendor operation was not optimal over long term as it had bigger financial implications and little scope for enhancements and upgrades. Hence, it was decided to shift to a more operationally and economically balanced model.

3. Selection and Contracting

The Department adopted the standard two envelope tendering process i.e. selecting the lowest financial bidder post technical qualification. It followed the conventional contract management process. SLA standards were defined for the contract to ensure timely delivery of hardware and rollout of project.

4. Transitioning and Implementation

ISSUES AND CHALLENGES FACED DURING TRANSITIONING & IMPLEMENTATION

The department conducted a root cause analysis to identify the lacunas and gaps in the way the entire vendor transitioning effort was managed. A brainstorming session was conducted with all stakeholders to identify the key issues faced by them during the entire transition process.

A. Lack of Adequate Planning

A.1 ISSUE Description:

Exit management plan was not present at the time of work order allocation. This created a lot of scope for confusion and assumptions for incumbent and new vendors. As a result not only did the transition get delayed but also there were gaps during the planning and implementation phase between stakeholders.

A.2 ISSUE Description:

One of the biggest gaps in the initial planning was absence of overlap period between the incumbent and new vendor.

A.3 ISSUE Description:

KAVERI revamp project scope included procurement and installation of hardware and furniture in large volumes which was governed by SLAs. The selected vendor failed to supply and install the equipment on time resulting in breach of SLA at multiple instances. On conducting a thorough analysis, it was observed that vendor had heavy reliance on a single OEM who failed to deliver on time.

A.4 ISSUE Description:

As drafted in RFP, the new vendor deployed new software for asset management, EMS, Service desk etc. This software used network extensively to capture data and share details which resulted in slower connectivity for mainstream services and hence, posed a risk of service disruption.

A.5 ISSUE Description:

Department has 282 offices which had one phase electricity connectivity at the time of tendering. In between the tendering phase, the department planned to upgrade all the offices to three phase and simultaneously go for revamp. During the implementation study, it was observed that new UPS will have to be procured in nearly 70 offices. The existing contract with the vendor did not cover this in scope and the department went for change control notes and multiple rounds of approvals to procure the additional hardware.

A.6 ISSUE Description:

The department since 2012 had taken multiple initiatives to increase its e-governance footprint. These initiatives included website revamp, office automation, social media, software revamp, etc. With so many disassociated initiatives running in parallel, it became difficult for the Project Management Unit [PMU] to focus on this project.

A.7 ISSUE Description:

When the hardware RFP was written and subsequently published, it was envisaged that the KAVERI II software (a refreshed version of KAVERI based on latest platforms with numerous added features) will be available for use. But unfortunately, the development of KAVERI II got delayed and it was later decided that the existing KAVERI will run on this new hardware. But due to lack of sufficient due diligence and planning, it was missed out that the Operating System proposed in new hardware is Windows 8 whereas the existing KAVERI application could not support OS newer to Windows XP. Effectively, the vendor was pushed to downgrade the OS of all desktops.

B. Delay in decision making

B.1 ISSUE Description:

The department finalized, approved and circulated the RFP in early 2012 but the overall process of tendering and work order allocation took over a year due to administrative and legal delays. In between, the new selected vendor had proposed a system configuration which by the time of installation was called off from the market by OEM. As a result, the vendor had to go back, submit a change control note with proposed new configuration. This further delayed the process.

B.2 ISSUE Description:

The project lacked defined exit planning which resulted in communication gaps at the time of vendor transition. The department faced a situation where it could have faced severe shortage of consumables because none of the vendors had clarity about the supply. The department asked the new vendor to take it up with immediate effect but there were delays as the managers deployed by vendors had no financial decision making powers and getting approval from senior management took time.

C. Lack of Understanding

C.1 ISSUE Description:

The project's scope included procurement and installation of IT hardware in large numbers by the vendor. The RFP published did not detail about the pre- delivery inspection. Also, the department did not have any plan at initial stages to manage the inspection and testing. There was no clarity and understanding on how this had to be undertaken. Initially, the department decided to go ahead with STQC but later it was decided to go for an RFP. All this not only created confusion between the stakeholders but also it delayed the entire project.

C.2 ISSUE Description:

Department did not consider preparing a detailed project report in addition to the RFP to define scope, activities and process flows. This resulted in delay and gaps during the project planning and implementation phase.

D. Poor Communication and Coordination

D.1 ISSUE DESCRIPTION:

The revamp project got delayed by almost a year due to administrative backlogs and legal complications by almost a year. This affected the project milestones and expected procurement and installation plans by the vendor. But when the backlogs were cleared and work order was issued, the vendor was unable to deliver on time due to non-supply of hardware and furniture equipment by the associated sub vendors and OEMs.

Key Lessons

The KAVERI revamp project was a massive project affecting the daily operations of department across its 282 offices in state. Though the project faced some impediments during its planning and implementation but overall the project was a success as a result of critical processes followed by department and vendors during the implementation phase to overcome the gaps posed from planning or pre-planning phase. Below are few best practices and critical success factors:

1. Effective Communication Strategy:

The department realized it very early that it was important to develop an effective communication channel with vendors and department officials located remotely. Social messaging tool "WhatsApp" was introduced to officials and groups and sub groups were formed to communicate real time.

2. Continuous follow-ups and monitoring:

Considering the project size, it was important to effectively and timely monitor the progress and follow-up with stakeholders on a regular basis to understand and accordingly remove the bottlenecks:

1. A monitoring strategy was put in place and detailed milestones chart was prepared and mapped with SLAs.
2. Daily status meetings were conducted to follow-up and weed out the bottlenecks.
3. Detailed MIS reports were prepared to track daily status change.
4. Escalation strategy was formalized to timely escalate the issues to concerned senior management from vendors. All SLA breaches were formally documented and communicated.

All these measures helped in near real time analysis of project and in avoiding some of the major impending hurdles.

3. Flexibility and Trust:

In government setup, decision making and approval process is time consuming and requires adequate paper work. While running large projects like this with tight deadlines, it was important to understand this factor and take it into account. Both the new and existing vendors were flexible in delivering services and at instances, they went beyond the contract scope to ensure successful roll out of the project. The department too was flexible and certain stringent criteria were relaxed post approval.

4. Resource Retention:

KAVERI is a manpower intensive project with over 1000 technical resources from vendor working for the department. Many of these resources were working with the department for over 5 years and were a knowledge asset with deep understanding of department functioning and legalities. Also, there was a risk to data security and of operational disruption if these resources had to be replaced / removed. Therefore with mutual consent from new vendor it was decided to organize a 'Job Mela' for hiring of resources and preference was given to existing resources with the intent to retain majority of resources provided they met the eligibility criteria. This not only avoided the risks posed but also resulted in healthier transition and handover.

Conclusion

Switching vendors is a reality in today's era of outsourcing and therefore it deems fit that, sooner customers and vendors take cognizance of this fact and prepare to tackle it, the better. With Proper planning and analysis, and backed by a strong vendor, the customer can certainly exit from an engagement with the incumbent and partner with the new vendor with no impact on the business or services.

Questions

1. What are your key observations about the KAVERI project?
2. The exit from a large sized ICT service arrangement of the nature of KAVERI exposes an organisation to a variety of different risks. What are some of the key risks? Collectively, what impact can the risks have on post transition plans?
3. Comment on the issues A1 to D1 highlighted in the case. Which of them specifically belong to the domain of vendor transitioning? Do you agree with this?
4. Transfer of knowledge from the outgoing vendor[s] to the incoming vendor[s] is one of the biggest risks during vendor transitioning. How can an organistion ensure that knowledge of its practices, culture and needs is transferred to the incoming vendor team effectively?
5. What is the right time for planning for transition? In order for the Department of Stamps to have a better transition experience in future, what will your recommendation be?

Reference

1. 2014 Vendor Risk Management Benchmark Study - http://www.protiviti.com/en-US/Documents/Surveys/2014-Vendor-Risk-Management-Benchmark-Study.pdf
2. Governing Individual Learning in the Transition Phase of Software Maintenance Offshoring: A Dynamic Perspective, Oliver Krancher, University of Bern, Sandra Slaughter Georgia Institute of Technology
3. A Risk Management Standard © AIRMIC, ALARM, IRM: 2002

Disclaimer

1. The information contained in the case are entirely based on the eponymous case [referred to as the parent case, henceforth] developed as part of the NeGD initiative managed by NISG.
2. The parent case is substantially longer and carries significant amount of additional information. To the extent possible – keeping in mind readability and language factors - this case is a verbatim extraction of selected portions of the original case.
3. Care had been taken to extract such portions of the parent case which support the central idea of this teaching case study and which – read together – are sufficient to serve the teaching purposes. It is however possible that unintentionally, some information have been left out inclusion of which may have led to different sets of opinions being formed about the project. Therefore, under no circumstances should the extracted content of the parent case - which was presented in this document as the “child” teaching case - be construed as criticism of actual performance of the project or of the project owners or of the personnel involved in its implementation.

11. ICT for Women – Creating Gender Sensitive Espaces for MGNREGA

11.1 ICT for Women – Creating Gender Sensitive Espaces for Mahatma Gandhi - National Rural Employment Guarantee Act (MGNREGA)[1] - Teaching Notes

Synopsis

The ICT Ecosystem project for the implementation of the Mahatma Gandhi National Rural Employment Act in Rajasthan was launched in the year 2009 by One World Foundation India in collaboration with the Ministry of Rural Development (Government of India), Government of Rajasthan and the United Nations Development Programme. This project was officially known as the 'Knowledge for Community Empowerment and Enhanced Livelihood Opportunities'. The primary objective of this project was to leverage ICT to improve the delivery of services under MGNREGA. The empirical reality in the villages where this project was launched was that women formed over sixty percent of the workforce. The thrust of this initiative was to empower this workforce by improving their access to information regarding their entitlements set out by the Act. An end-to-end ICT framework was created by user friendly technologies such as Soochna Seva Kendras (Information Kiosks), GPS verified attendance tracking tool, community radio and SMS job card. This ICT Ecosystem was designed and developed keeping in mind capacity of target users, primarily rural women with low levels of literacy and their contextualized incapacitation in access to information due to gendered patterns of knowledge and hierarchy in rural Rajasthan. The project was launched as a pilot in 20 villages of the districts of Bhilwara and Udaipur in Rajasthan.

This pilot proved the success of leveraging a combination of ICT tools for streamlining the implementation of MGNREGA particularly in terms of creating awareness about the Act amongst the intended beneficiaries and facilitating a transparent and accountable process of job demand, job allocation and wage payments. This ICT Enabled Ecosystem was highlighted as a successful model for upscale by the Ministry of Rural Development (MoRD), Government of India (GoI) in the National Policy Framework on biometrically enabled end-to-end ICT applications on August 20, 2010.

This project involved a section of society that has traditionally taken a backseat in demanding their rights and ensured increased outreach of the services and managing the information and records to enhance governance transparency and accountability.

Domains

- Sustainability and scaling up

Classification Code for the Case

Not all cases are suitable for all capacity building programs of NISG. The NISG-Case classification code determines the suitability of a case to a capacity building program. Kindly refer to the Case classification index maintained by NISG to determine target audience for the case.

Learning Objectives

The focus of this Teaching case is on understanding the dimensions of sustainability and factors which can help in scalability of a project and how the institutionalization of project is important for sustainability.

1 *The original case developed by Shruti OneWorld Foundation India is available at http://nisg.org/case-studies-on-e- governance-in-india*

Time to be given for studying the case

Where the duration of training is more than one day, the case may be given to the participants for overnight study. Where the faculty expects that the participants may respond better under supervised reading, about 15 minutes may be allotted for familiarization with the case. Not all questions are required to be subjected to class discussion. The faculty may use his/her discretion keeping in mind the focus of the capacity building program and the availability of time.

Introducing the Case

As a first step, the faculty may ask the participants to describe the case in general. This is expected to bring all the participants to a similar level of familiarity with the key ideas contained in the case. This may result in the participants highlighting the features of rural employment guarantee schemes and the benefits it brings to the country as a whole. The faculty should take care not to allow the discussions - at this stage - to go into the details.

Faculty intervention: No special intervention is required at this stage except to offer encouragement and pointers for the participants to shed their inhibitions and participate collectively. The faculty may ensure the points such as the following find mention at this stage of discussions

- Gender spaces in the rural welfare schemes
- Successful projects in MNREGA in other states
- Problems associated with these projects

Question 1

Many projects do not expand beyond the pilot stage due to limited capacity of the implementing agency in terms of finances, human resources etc. What is your understanding of "sustainability"? How important is sustainability for projects to be termed successful?

Key learning:

"Sustainability" refers to the continuation of a project's goals, principles, and efforts to achieve desired outcomes. Ensuring sustainability means making sure that the goals of the project continue to be met through activities that are consistent with the current conditions and development needs.

Dimensions of project sustainability:

There are several factors that influence long-term impact and sustenance of any project:

- Political sustainability – government commitment, an enabling policy environment, stakeholder interests, strong lobby groups and political influence/pressure.
- Social sustainability – social support and acceptability, community commitment, social cohesion.
- Ownership – whether or not communities, local government and beneficiaries accept and own the outcomes of the project in ways that are sustainable.
- Institutional sustainability – institutional support, policy implementation, staffing
- Economic and financial sustainability – resilience to economic shocks, financial viability, and increased capacity to cope with risk/shocks.
- Technical sustainability – technical soundness, appropriate solutions, technical training for operations and maintenance.
- Environmental sustainability – projects' positive/negative contributions to socio-economic- politic environment.

Faculty intervention:

The Faculty may ask the participants to reflect on the relationship between "long-term" and "sustainability. Example of a Research project may be brought in, where continuation may not needed. The faculty may bring up the case of MNREGA project at Rajasthan and its short lived success during the pilot stage. Challenges like lack of infrastructure and funds, illiteracy of the main beneficiaries, lack of internet connectivity and social- economic context of Rajasthan can be brought up for discussion .

Discussions can be further extended to include the effects of failure. These include:

- Wastage of resources
- Loss of knowledge
- Unsatisfied beneficiaries
- Sowing seeds of distrust in the minds of beneficiaries rendering future initiatives difficult

Cross learning:

The participants may be encouraged to discuss sustainability issues / features of ICT projects from their organizations.

"Can projects can be considered successful even if they do not sustain over a long term?"

Question 2

While the MGNREGA project started with three kiosks, finally only one kiosk was operational. How can proper project planning and design help in sustainability of the project?

Key learning:

Both research and experience show that sustainability is a serious issue for all types of projects - not just the ones involving ICT. Certain strategies can be adopted to increase the impact and sustainability of the project. These include introducing key elements of a sustainability strategy early in the project during the conceptualization and design phase and facilitating a community-led development model. It is observed that community involvement is especially beneficial and powerful in contributing to sustainability in locations that have not fully benefited from macroeconomic improvements due to language, illiteracy and other cultural barriers.

Steps to sustainability planning:

- Conduct an assessment of the current project, and use the data collected on the performance to help determine specific activities that can and should be continued and the desired scale of activities that should be sustained- set realistic expectations.
- Conduct a planning process for sustainability- set clear goals
- Identify the resources needed to sustain the project and work toward obtaining them- build capacity
- Develop buy-in among the strategic partners like the political parties, public officials, funding partners and beneficiaries –consider ways to institutionalize and collaborate with partners.
- Document and evaluate outputs and outcomes
- Continuously monitor the project for its ability to adapt to changes in the dynamic external environment

Faculty intervention:

At this stage the faculty may work on developing a sound understanding of the project level components which are critical for sustainability and how these components should be handled for success. The triad of project management – cost, time and quality - can be brought in to understand the importance of various components like planning, realistic goals, participation of all stakeholders, leadership support and monitoring and evaluation.

The participants can be encouraged to bring in the case context and discuss the following:

- Was planning for sustainability carried out at MNREGA project at Rajasthan?
- What were the issues which should have been considered more seriously?
- Were locally appropriate approaches considered strongly while planning for the project?
- What are the dimensions of project design which can add to its flexibility?

The points from the case which talk about capacity building through training of a few public officers, women kiosk manager, private partnership for running the kiosks et can be brought in for discussion.

Sustainable project design principles:

Sustainable project designs are simple and flexible. They build on both local and global implementation support systems in order to minimize recurrent costs and enable the development of clear exit strategies. Sustainable project designs also create explicit linkages between individual project components and institutional components. It should also introduce opportunities for knowledge management and learning through monitoring and evaluation.

Faculty can bring in discussions on principles of project design for sustainability which can lead to scaling up of activities. Concept of recurrent costs, exit strategies from one stage to another and monitoring and evaluation can be stressed on.

Question 3

The project was launched on a pilot basis and was exclusively funded by United Nations Development Programme (UNDP) and implemented by the Government of Rajasthan. The project could not be scaled up due to lack of on-going budgetary support. How should sustainability be planned under tight budget conditions?

Key learning:

Any sustainable project should go through two phases- initiation or pilot and continuous or ongoing phase. The initiation phase includes establishment of service, creating awareness and generating a buy-in amongst the various stakeholders, planning for providing service[s], design and construction of physical and/or technological infrastructure required for providing the service, establishment of institutional framework and initial commissioning. The ongoing sincludes operating the service to satisfy the beneficiaries, revenue collection, maintenance of infrastructure, administration for adapting to and surviving the risks in the external environment. The second phase is the more difficult one to succeed in.

As ongoing phase of an e-Governance project is more difficult to handle, it is important to plan for the phase during the initiation or pilot phase itself. In fact sustainability should be planned at the project design stage itself .Projects which are funded by funding agencies need to specially consider their budgeting very strongly. The budget which is procured for pilot stage from the funding agencies should have big allocations for construction and maintenance of physical and technological infrastructure, capacity building for adapting to the risks in the environment and developing a monitoring and evaluation system. Most of the project planners hold a very myopic view and try to achieve short term results. Projects which may seem to be successful in the pilot stage fail to plan for sustainability and scaling up beyond the funds by the funding agencies.

Sustainability also suggests minimizing waste. Projects should aim at preventing 'waste' of energy, resources and materials during the initiation/ pilot stage and plan for ongoing phase which lead to sustainability and scaling up.

Sustainable development is a process of change. Change from the conceptualization and design phase to a more mature and adaptable, result giving phase. Sustainability is a more holistic concept that needs transparency, accountability and proactive stakeholder engagement.

Faculty intervention:

Discussion can be initiated to re-evaluate the success of the pilot stage of MGNREGA through the following questions:

- How well planned and managed was the pilot stage of the project? Did the phase meet the goals that belong to this phase?
- Was design and construction of physical and technological infrastructure done adequately for sustainability and scaling up?
- What was the influence of UNDP as a funding agency and the leadership relevant? Did this translate into project sustainability?
- Could better project organization and management have helped the project sustain and scale up after the end of UNDP funding?
- How can the funds through the funding agencies be better budgeted during the pilot stage?

Cross Learning:

Participants can be encouraged to share their experiences on challenges of scaling up under conditions of tight funding.

Question 4

The institutionalization of a project and its complete integration with the local governance apparatus is important for sustainability. How can a project achieve institutionalization?

Key learning:

Institutions are multi-faceted, durable social structures, made up of symbolic elements, social activities, and material resources. Institutionalisation[2] is the creation of structures of symbolically accepted goals linked to relevant social activities and supported by appropriate material resources.

2 *Digital inclusion projects in developing countries: Process of institutionalisation – Shirin Madon et al, London School of Economics*

Institutionalization of employment guarantee as a policy instrument has been short lived and overall, has not been able to take a stronghold. This has led to non-sustainability and scalability of most of the employment guarantee and other welfare schemes. In order to ensure the long- term impact of interventions, project designs should explicitly address institutional capacity needs and should actively cultivate effective policy and strategy linkages between governmental and non-governmental institutions. Developing the quality of the institution is the key to improving its chances of being sustainable. Investment in institutional capacity and governance is crucial for long term success.

Faculty intervention:

Faculty can encourage a discussion on:

- What is institutionalization of a project?
- How does it contribute to sustainability of any project?
- How can institutionalization attract funds for scaling up?
- How does partnering with less resourceful private partners affect sustainability?
- What do such factors as structural hierarchies, political pressures, corruption, non- involvement of the government officials impede "inclusion" of a project and thus weaken its chances of institutionalization?

Collaborating for institutionalization

Collaboration with government and private partners for funds is crucial for sustenance and institutionalization. If the local public officers, private investors become a part of the system, the project will also become a part of the institutional and social apparatus. Thus it will be easily adopted and sustained.

The faculty can encourage discussions on collaboration with different government and private partners at MNREGA Rajasthan. Public private partnership as a source for institutionalization and sustenance can be discussed. Discussions can explore whether options like collaborating with private partners for increasing the number of kiosks, improving the transport facilities would have helped sustain the project more effectively.

Cross Learning:

Participants can bring is their experiences related to institutionalization of ICT projects in the organizations.

Question 5

The case highlights the need to support any form of technological development with simultaneous strengthening of the socio-economic context. In case of MNREGA, what might be done to strengthen the socio-economic context of the project?

Key Learning:

Most e-Governance projects fail to strike an appropriate balance between social capital formation, income generation, and community participation. While many projects include participatory measures in project design, projects that obtain sustainable results take the commitment seriously and put it into practice with sound concepts, focused dedication, careful monitoring, and appropriate adaptive measures when necessary. Successful projects use bottom- up planning to determine priorities and then accurately reflect community needs in project design. Designs with promising sustainability results include plans for development in socio- economic context.

Three areas are considered to have constrained women from fully benefiting from employment guarantee schemes; they are policy environment, social cultural setting and women illiteracy. Women's activities are not part of the mainstream planning and they do not benefit from the allocation of various financial resources. Besides the policy environment, women have also been constrained by existing socio-cultural norms.

Sustainable development requires, among other things, a socio-economic, political and cultural environment which enables people to engage in and sustain the development process. It is important that the design considers basic human rights, social security, fair pay for the work the women perform, and the right to participate in the management.

Faculty Intervention:

The faculty can bring the insights on project design from the earlier discussions and also the project context. The areas which need to be focused during the discussions are:

- Was socio-economic development an aim of the project?
- How well were the community needs studied before designing and implementation of the project?
- Were there any change management activities carried out to create awareness amongst the beneficiaries and the government stakeholders?

The faculty can also facilitate discussions on the socio-cultural and economic status of the main beneficiaries i.e. women in rural India. The project context of MNREGA Rajasthan can be brought in for detailed discussion.

Rural Rajasthan is not free from discriminatory laws and practices that promote early marriage for girls and limits to their education, domestic violence and lack of control over household resources. This negatively affects the efforts to empower women to generate social capital and income for women. Therefore, it is not surprising that gender e-spaces planned to be created through the project were not easily achieved.

Discussion can help generate ideas to bring about change for women in the socio-cultural and economic context. MNREGA appointed female officers for helping illiterate women to use the benefits of MNREGA.

- Was this sufficient to bring in the change required?
- What socio-economic contexts need to be created for gender specific e-spaces for guaranteed employment generation?

Change management activities should be planned in the design of the project as changing the socio-economic and cultural context of the community is essential for adoption and sustenance of any welfare schemes like employment guarantee.

Cross Learning:

Participants can be encouraged to talk about their experiences regarding gender sensitivity at the projects in their organizations and how the socio-cultural and economic context of the community were handled.

References

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- Portland State University
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DIsclaimer

1. The facts contained in the case are entirely based on the eponymous case developed as part of the NeGD initiative managed by NISG.
2. All conclusions drawn and presented in the teaching note are based entirely on information contained in the parent case.

Given the complex nature of the domain of e-Governance, the conclusions, comments and opinions presented in the teaching notes are meant to provide alternative points of view. Under no circumstances should they be construed as criticism of actual performance of the project or of the project owners or of the personnel involved in its implementation.

11.2 ICT for Women – Creating Gender Sensitive Espaces for Mahatma Gandhi - National Rural Employment Guarantee Act (MGNREGA)[3] - Teaching Case

Project Context

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) was notified in September, 2005 and its first phase was implemented in 200 districts of India in 2006. Presently, MGNREGA covers the entire country except those districts that have a hundred percent urban population. The objective of the Act is:

"…to provide for the enhancement of livelihood security of the households in rural areas of the country by providing at least one hundred days of guaranteed wage employment in every financial year to every household whose adult members volunteer to do unskilled manual work and for matters connected therewith or incidental thereto".

This was done by creating an environment for facilitating sustainable livelihoods and strengthening the economic and social infrastructure in villages. The Act prescribed mandatory and active participation of the local community and had components that encourage women's participation in this scheme while also securing complete transparency at all operational levels in its implementation.

The gender sensitive women empowering aspects of MGNREGA are:

- At least one third of the beneficiaries shall be women who have registered.
- Individual bank/post office accounts must be compulsorily opened in the name of all women MGNREGA workers and their wages directly credited to their own accounts for the number of days worked by them.
- To identify widowed women, deserted women and destitute women who qualify as a household under the Act, to ensure that they are provided 100 days of work.
- To ensure that pregnant women and lactating mothers (at least up to 8 months before delivery and 10 months after delivery) are given work which require less effort and are close to their houses.
- To conduct time and motion studies to formulate gender, age, level of disability, terrain and climate sensitive Schedule of Rates (SoRs) and to ensure accurate capturing of work done by women at worksites.
- To ensure that at least 50% of the worksite supervisors (mates) at all worksites are women.
- To ensure that worksite facilities such as crèches, drinking water, shade etc. are provided through convergence with Women and Child Development Schemes like ICDS.
- To encourage participation of women groups, including Self Help Groups in awareness generation, capturing demand, planning, implementation, monitoring and maintenance of works.

Seven years into its functioning, MGNREGA had come under severe scrutiny with respect to its implementation. Questions on its efficacy had been raised the public space. It had been argued that while the Act offers a legal space to the poor to claim employment, insufficient knowledge about the entitlements and low awareness level have hampered its implementation. A challenge was to deal with the diverse socio-cultural and demographic contexts in which workers, particularly women, work for wages as provided under MGNREGA.

3 *The original case developed by Shruti OneWorld Foundation India is available at http://nisg.org/case-studies-on-e- governance-in-india*

With a view of addressing these challenges, United Nations Development Programme (UNDP) India initiated a pilot project named 'Knowledge for Community Empowerment and Enhanced Livelihood Opportunities' also known as 'ICT Enabled Ecosystem for MGNREGA' in partnership with One World Foundation India and the Ministry of Rural Development, Government of India in October 2009. The project aimed to arrest the challenges faced due to a deficit of information in the implementation of MGNREGA. The role of ICTs was envisaged keeping in view its potential to effectively plug the loopholes permeating the delivery of benefits accruing from the Act.

The hostility of the panchayat functionaries and male relatives of women to their participation in MGNREGA resulted in the exclusion of names of women from job cards in many instances due to the local male resistance to women's access to the coveted higher paid MGNREGA jobs.

The ICT Enabled Ecosystem for MGNREGA project aimed at leveraging ICT tools such as information kiosks, internet, mobile telephony and community radio for increasing the awareness of rural women about their entitlements under the Act and strengthening their ability to demand their entitlements. The project was piloted in Bhilwara and Udaipur districts covering 20 villages.

The architecture of this end-to-end ICT enabled ecosystem was based on four key components:

- **Soochna Seva Kendra (information kiosks)** were equipped with text-to-speech enabled and icon based touch screen computers, voice based gateway, and mobile technology to provide information on job cards, job availability, work status, wages accrued and received to rural citizens in real time.
- **GPS Verified Attendance Tracking Tool** facilitated the formulation of worksite muster roll.
- **Community Radio** acted as a medium of grassroots empowerment by deepening local women's awareness about their rights based entitlement under MGNREGA in addition to facilitating skill enhancement on health, education and sustainable livelihood options.
- **SMS Job Card Retrieval** catered to easy access to job card information (number of days worked/ remaining for work).
- **Digital Knowledge Repository** enabled monitoring and enhanced knowledge dissemination and exchange.

Project Objective

The ICT Ecosystem for MGNREGA aimed at creating a transparent and accountable mechanism of information management and dissemination for the implementation of MGNREGA. By improving access to information, the project aimed at enabling the poor, especially women, to demand their rights based entitlements and ensuring effective devolution of government responsibilities provided under the Act.

Implementation Strategy

The ICT Ecosystem for MGNREGA was conceptualized for a socio-economic set up that was rural and inhabited by a population with poor levels of illiteracy and unfamiliar to technology. The Rural women were further incapacitated in their access to technology and literacy keeping in view the socio-cultural realities of Rajasthan. Hence the pilot included mechanisms to ensure that this section of population could access it. Further, the delivery mechanism was designed to be simple and did not require much dependence on text. Given the level of technological awareness of the target group, user trainings became an important starting point for the implementation agency.

Technical and administrative support of the District and Block level officials played an important role in the diffusion of the technology at the local level. The head of the district, district level officials, block officials and block development officers provided expertise and insights to secure the effective adoption of the technology at the rural level.

In order to engender this initiative, efforts were made to make it easily accessible to the rural women. Keeping in view the traditional distances maintained in communication between genders, a local woman was selected and trained as the kiosk manager at Suwana village to ensure a smooth inclusion of the largest beneficiary group of this scheme in Rajasthan.

Project Outcome

Creation of a successful model for up scaling

The Ministry of Rural Development and the Government of India recognized the success of the pilot phase of the ICT Ecosystem for MGNREGA in Bhilwara and Udaipur district, Rajasthan and highlighted this model in its National Policy Framework on biometrically enabled end- to end ICT application in 2010.

Improving access to information through utilization of technology

The introduction of information kiosks under the ICT Ecosystem ensured that precise information related to the Act was available to the citizens at any given time. Earlier, the workers had to rely on the information provided by gram panchayat functionaries who acted as middlemen and to the detriment of the workers.

Generating awareness and enhancing participation: reaching the last mile

Improved access to information empowered the local population to become more aware about their rights under MGNREGA. This increased their confidence levels to a significant extent. The women felt comfortable approaching the kiosks and operating the machines as earlier they had to primarily depend on men for procuring information about their rights.

Challenges in Implementation

Absence of adequate number of kiosks.

While the project started with three kiosks, finally only one kiosk was operational at Suwana panchayat in Bhilwara district. Limited capacity of the implementing agency to expand the project in terms of finances and human resources could be attributed as the primary factor behind its inability to support and sustain the expansion of the project in the region beyond the pilot stage.

It is important to note here that the project was launched on a pilot basis and was exclusively funded by United Nations Development Programme (UNDP) and implemented by the Government of Rajasthan. Planning for scaling up of the project could not be taken up for lack of budgetary support. Poor roads and lack of adequate public transport facilities restricted the mobility in rural areas in significant ways. The lack of basic infrastructural development surfaced as a major roadblock to efforts at expanding the outreach of the project. Although the essence of ICT Ecosystem for MGNREGA lay in awareness generation and ensuring accountability, a deeper understanding about its purpose and methodology continued to remain very low in rural areas. Reaching out to people at the grassroots level and making them understand the nuances of the project remained a major challenge that needs to be addressed.

The SMS job card retrieval component that provided easy access to job card information was not received well by the rural beneficiaries. Effective implementation of any initiative not only depends upon the demand side sensitization but at the same time the capacity building of public officials to strengthen the supply side adequately. The service delivery mechanism was yet to be institutionalized into the government processes adopted for implementation of the Act. Government officials had to be included and trained in the process of implementing and up scaling the ICT Ecosystem model because they will play a key role in the successful working of the model.

Questions

1. Many projects do not expand beyond the pilot stage due to limited capacity of the implementing agency in terms of finances, human resources etc. What is your understanding of "sustainability"? How important is sustainability for projects to be termed successful?
2. While the MGNREGA project started with three kiosks, finally only one kiosk was operational. How can proper project planning and design help in sustainability of the project?
3. The project was launched on a pilot basis and was exclusively funded by United Nations Development Programme (UNDP) and implemented by the Government of Rajasthan. The project could not be scaled up due to lack of on-going budgetary support. How should sustainability be planned under tight budget conditions?
4. The institutionalization of a project and its complete integration with the local governance apparatus is important for sustainability. How can a project achieve institutionalization?
5. The case highlights the need to support any form of technological development with simultaneous strengthening of the socio-economic context. In case of MNREGA, what might be done to strengthen the socio-economic context of the project?

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1. The information contained in the case are entirely based on the eponymous case [referred to as the parent case, henceforth] developed as part of the NeGD initiative managed by NISG.
2. The parent case is substantially longer and carries significant amount of additional information. To the extent possible – keeping in mind readability and language factors - this case is a verbatim extraction of selected portions of the original case.
3. Care had been taken to extract such portions of the parent case which support the central idea of this teaching case study and which – read together – are sufficient to serve the teaching purposes. It is however possible that unintentionally, some information have been left out inclusion of which may have led to different sets of opinions being formed about the project. Therefore, under no circumstances should the extracted content of the parent case - which was presented in this document as the "child" teaching case - be construed as criticism of actual performance of the project or of the project owners or of the personnel involved in its implementation.

12. Prisoner Management System (PRISMS), Goa

12. Prisoner Management System (PRISMS), Goa

12.1 Prisoner Management System (PRISMS), Goa - Teaching Notes

Abstract

The Prisons Management Systems (PRISMS), a landmark e-governance initiative of Goa government had not only been pioneering but had also been influential in many such initiatives in other states as far as automation and efficiency of Prisons management was concerned. PRISMS was an effective ICT-enabled prison administration and management system with the objective of providing an easy, effective and efficient mechanism benefiting the prisoners and the concerned prison department. This case study aims to bring forth the importance of Government Process reengineering (GPR) in the context of implementing ICT systems and the resultant benefits to stakeholders.

The period prior to implementation of PRISMS was marked by multiple complexities and hurdles including manual based time consuming process, human errors, insufficient security due to time consuming record keeping, difficulty in managing visitors, faulty calculation of correct remission and release dates, delay in application process, negligence of records and so on. The shortcomings fostered corrupt and inefficient administration and compromised constitutional rights of prisoners and the rule of law.

Post PRISMS, implementation had weeded out key limitations of prisons management in Goa resulting in drastic improvements in prison administration and in the lives of the prisoners. Whereas PRISMS had emerged as a source of tremendous positive change among the stakeholders, it had also established its sustainability on the basis of being cost-effective. However, PRISMS had had its own share of challenges and limitations; for example, difficulty in motivating the staff in the new system, system design and deployment with 23 diverse modules, network building, and rendering the system foolproof.

Domains

- Government Process Re-engineering [main theme of the case]
- Prisons

Classification Code for the Case

This case is suitable for inclusion under NISG's case classification code: C-40. Not all cases are suitable for all capacity building programs of NISG. The NISG-Case classification code determines the suitability of a case to a capacity building program.

Learning Objectives

The case is ideally suited for participants who have taken a formal GPR course. Through a set of six questions, the participants are taken through key issues that they are likely to encounter while designing and implementing a G2C type e-Governance initiative that reaches out to a specific population.

1. Q1 and Q2 require the participants to work upon problem statement creation and articulate the statement well.
2. Q3, Q4 encourage the participants to understand Government process from the
3. perspectives of as-is, and to-be. They will also understand the centralized and integrated way of approaching process changes in contrast to a stand-alone approach. Stakeholder analysis would also become clear in the minds of the participants.
4. Q5 deals with issues involved with dove tailing change management strategy in large scale transformation projects

5. Q6 introduces the topic of project sustainability. The discussions relating to this question will enable the participants to factor sustainability factors as part of process transformation exercise.

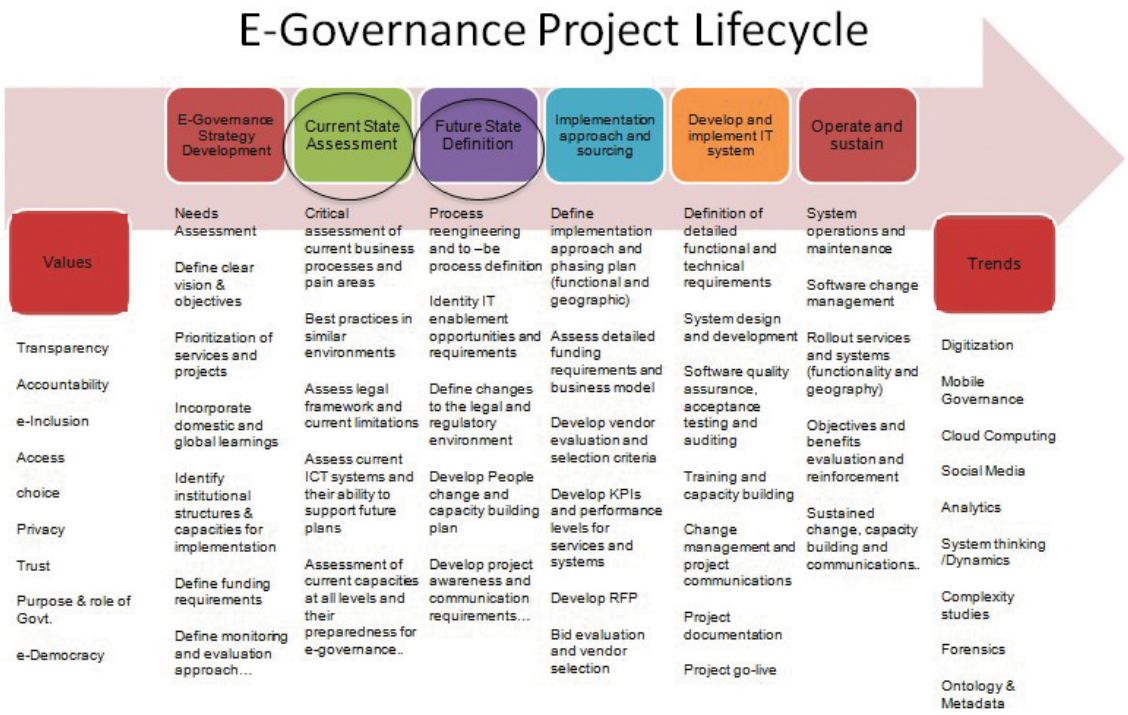

Figure -1

The focus areas of the teaching case

Time to be Given for Studying the Case

Should the duration of training be more than one day, the case may be given to the participants for overnight study. Where the faculty expects that the participants may respond better under supervised reading, about 20 minutes may be allotted for familiarization with the case.

Introducing the Case

As the first step, the faculty may ask the participants to describe the case in general. This is expected to bring all the participants to a similar level of familiarity with the key ideas contained in the case. The faculty should take care not to allow the discussions - at this stage - to go into the details.

Points likely to be covered by the participants:

effectiveness of GPR, understanding of processes as-is and to-be, centralized initiative vs., standalone, benefits accrued to various stakeholders.

Faculty intervention:

No special intervention is required at this stage except to offer encouragement and pointers for the participants to shed their inhibitions and participate collectively.

Question 1

What does the case speak about and what do we understand? What could be the problem statement? How well had the re-engineering been carried out?

The case talks about the introduction of ICT in bringing about a transformation in the jail administration. The project is understood to have overcome the challenges of the manual prison administration. Multiple complexities and hurdles including manual, time consuming processes, human errors, insufficient security, difficulty in managing visitors, faulty calculation of remission and release dates, delay in application process, negligence of records were some of the key challenges. These shortcomings fostered corrupt and inefficient administration and compromised constitutional rights of prisoners and the rule of law.

Faculty intervention:

In order to ensure that all points are covered, the faculty may encourage the participants to take up concerns one by one and determine how well PRISMS addresses them. It is important for the faculty to help participants identify specific features of PRISMS that serve to address the concerns. Though the manual process (AS-IS) in not defined in the main case study. The whole project seems to have been re-engineered as it appears.

The following two aspects of Govt. process re-engineering may be tackled through class discussions.

- The first is, in the opinion of participants what could be the problem statement?
- The second is the opinion of the participants on whether or not the entire prison processes were re-engineered? What is their understanding?

The intention of this exercise is NOT to arrive at the right problem definition. There can be many points of view on this. The Faculty may stress that defining a problem statement is intended to help the participants understand the importance of clearly stating the problem and quantifying the same.

Possible participant reaction:

It is difficult to say if the entire project is re-engineered. This is a fair statement since the case is not detailed enough on this. However, having designed 23 modules for implementation definitely implies that a significant number process changes were attempted. It is quite likely that some of the changes were in the nature of processes improvements rather than process transformations.

OPTIONAL Higher order discussions:

Depending the nature of the training program in which this case study is being used and / or depending on the seniority/influence level of the participants, a higher order discussion on the “vision and objectives” may be taken up covering such features as the kind of metrics one would employ to understand the success of the project. A project like this is an inspiring thought for any State govt. as police is a state subject and by implementing such a project the visibility among the stakeholders as well as the image of state would be very high. Can the participants find such departments in their State?

Key takeaway:

Participants understand the value of writing a clear problem statement as well as the re-engineering concepts.

Question 2

What do we understand by processes and process reengineering? Is technology necessary for process reengineering?

Possible participant reaction:

participants might jump to lot of conclusions based on the limited information available in the case. The faculty should encourage a healthy debate on the role of technology in process re-engineering.

Faculty intervention:

Faculty might bring in the discussion in a structured way as to what possible questions / thoughts might have gone through the minds of people who conceived the idea before they arrived at carrying out GPR and implementing the new design (digital way of working). Had PRISMS not come into existence, might they still have succeeded in streamlining the prison administration? Was it necessary to use technology for carrying out GPR?

Key takeaways:

Participants need to be trained into the thinking that they question the existing processes of their department as to "why the process is the way it is? Is there a better way of doing things? Also it is not necessary that every time we carryout GPR, technology is a must. For eg., simplifying a form does not require technology. Likewise, reduction in "approval" steps [and hence flattening of organisational structure] may not require technology.

OPTIONAL Higher order discussions:

Participants may be asked to think about their own processes in their departments and find out how many processes can be simplified without using automation. Can they think differently to carry out a process and still provide a quality service by carrying out rudimentary GPR?

Question 3

Whenever we carry out GPR exercise, it is necessary to understand the application architecture in order to exploit the capabilities of the system application. What made the project team to go for centralized architecture and not stand alone / distributed database model?

Possible Participant's reaction:

It is likely that the some of the participants may feel that since they are not technically proficient in ICT, this question is a difficult one to answer. The faculty may intervene and suggest that this question concerns itself, not with technology and more with understanding of the big picture of the project. How clearly can one visualize one's project?

Faculty intervention:

In the e-GLC programme (STeP), this question may not be relevant as the amount of understanding a participant gets is just an overview and hence cannot answer such a question. The faculty can however discuss the pros and cons of operating in distributed mode vs. centralized. The discussion should lead to benefits derived from various interventions and their reach.

Key take away:

The faculty must stress that centralized data base better where considerable amount of functional integration is required.

Question 4

What benefits did the project reap for all its stakeholders? How did it help the prisoners and the Prison administration as a whole?

Possible participant reaction:

participants may talk about benefits mentioned in the case and may not think beyond what the case explicitly mentions. This is where the faculty may intervene.

Faculty intervention:

The faculty may mention that the participants should go beyond merely listing the benefits. The faculty may take the example of if a prisoner serves 50 % of the jail tenure time; he is eligible to appeal for bail himself.

The faculty may ask, in a traditional/manual setup why might this be difficult?

The key issue with manual systems is who would keep a tab on prisoner's jail term and who would inform a prisoner. What is the effort involved in carrying this out from manual records?

The faculty may further ask the participants how PRISMS might help address this need.

It is quite simple for systems such as PRISMS to have a pop up / an SMS alert / an email alert / hardcopy report / an online query etc that appears as soon as the mentioned time is over for a prisoner so that prison administration can inform the prisoner accordingly. From such examples, the faculty may lead the discussions to stakeholder analysis.

Key takeaways:

Participants would understand how to analyze the stakeholders and how look at the big picture.

Question 5

"GPR is always carried out dove tailing Change management strategy for successful implementation of project." What do you understand about this statement? What change management was observed in PRISMS?

Possible participant reaction:

It is difficult to anticipate participant response to this question. Those familiar with the change management intervention might come forward with observations.

Faculty intervention:

it is mentioned in the case "It was a challenge with regard to switching from using the manual system to the newly inducted ICT system. The manual system was in place for 40 years and the officers over time had got used to a certain way of working and thinking, so there was initial resistance in connection with changeover to PRISMS."

Depending on participant feedback, the faculty may introduce for discussion, the importance of change management in successfully rolling GPR. It should be made to understand that any change in the environment due to GPR would have problems with change in institutional structures, at times subordinate legislation; change in Standard Operating Procedure (SOP's) and change in authority of person etc.

How would one handle resistance in the department? Faculty may let the participants come out with strategies for the answer.

Question 6

How do we sustain e Government projects?

Possible participant reaction:

Among the factors which contribute to an e-Gov initiative's sustainability, top management support and political will are often cited as the obvious.

Faculty intervention:

In order to facilitate a more rounded discussion, the faculty may ask the participants to describe an ideal situation for sustainability of any e-Gov initiative. It is suggested that the following be elicited from the participants themselves through guided discussions.

- voluntary buy-in from a majority of all categories stakeholders for the preferred processes and procedures,
- only a small measure of refinements and changes necessitated to the preferred processes and procedures
- refinements and changes evolving slowly necessitating minimal stakeholder re-training and re-learning
- equitable and comparable benefits accruing to all categories of stakeholders
- how would the funding be ensured

Disclaimer

1. The facts contained in the case are entirely based on the eponymous case developed as part of the NeGD initiative managed by NISG.
2. All conclusions drawn and presented in the teaching note are based entirely on information contained in the parent case.

Given the complex nature of the domain of e-Governance, the conclusions, comments and opinions presented in the teaching notes are meant to provide alternative points of view. Under no circumstances should they be construed as criticism of actual performance of the project or of the project owners or of the personnel involved in its implementation.

12.2 Prisoner Management System (PRISMS), Goa - Teaching Case Study

Abstract

The Prisons Management Systems (PRISMS), a landmark e-governance initiative of Goa government had not only been pioneering but had also been influential in many such initiatives in other states as far as automation and efficiency of Prisons management was concerned. PRISMS is an effective ICT-enabled prison administration and management system with the objective of providing an easy, effective and efficient mechanism benefiting the prisoners and the concerned prison department. This case study aims to bring forth the importance of Government Process reengineering (GPR) in the context of implementing ICT systems and the resultant benefits to its stakeholders.

The period prior to implementation of PRISMS was marked by multiple complexities and hurdles including manual based time consuming process, human errors, insufficient security due to time consuming record keeping, difficulty in managing visitors, faulty calculation of correct remission and release dates, delay in application process, negligence of records and so on. The shortcomings fostered corrupt and inefficient administration and compromised constitutional rights of prisoners and the rule of law.

Post PRISMS, implementation had weeded out key limitations of prisons management in Goa resulting in drastic improvements in prison administration and in the lives of the prisoners. Whereas PRISMS had emerged as a source of tremendous positive change among the stakeholders, it had also established its sustainability on the basis of being cost-effective. However, PRISMS had had its own share of challenges and limitations; for example, difficulty in motivating the staff to use the new system, system design and deployment with 23 diverse modules, network building, and rendering the system foolproof etc.

Project Background

Prison management was a daunting task and especially when the number of Prisoners were too high to handle, resources were minimal to manage and there was lack of trained manpower to manage pressures and crisis situations. In case of Goa, two major set of challenges were identified in relation to prison management.

One challenge was from the prison administration perspective. The prison administration was plagued by ills of a traditional administrative and management structure. These included time consumption process, human errors in administering records and registers of prison inmates, and hurdles in compilation and analysis of data due to lack of data and information accuracy. For example, the manual visitor's management could not track photographs of visitors, fingerprints taken but were not recorded, difficulty to track the previous convictions of the inmates with regard to other trials pending and so on. Remission, release and bail calculations were extremely time consuming and prone to data and information errors. Human errors in information and data management amounted to 40 % to 50 % of total faults.

Overall, the impact from these was no less disturbing. Sharing of accurate data and information within the department and other stakeholders was a problem. Right decisions at right time could not be taken when needed. "Rule of law" could not be successfully implemented.

The bigger challenge was in record management of about 23 activity functions related to prison and prisoners. These included areas like prisoners information, court related information, remission management, prisoner admission and release, detention of under- trials, prisoners work allotment and monitoring, prisoners medical management, victim compensation, parole and furlough management, prison reforms, and so on.

The manual system had failed to keep timely, updated records of all these activities. There was negligence, worn out and casual attitude in managing records in all these critical areas.

The other set of challenge was from the prisoners' perspective. This had to do with uneasiness and insecurity in the minds of the prisoners related to appropriate justice by the system in various aspects including parole, remission, release, emoluments etc. The old structure and functions led prisoners to view strongly that the system "was all about fraud and malpractices."

The perception among life convict prisoners, which accounted for 10-15 % of total, was that they would never be released from jail though prisoners sentenced for life had the right to be considered for release after a period of 14 years of prison term. The reason for this was lack of accurate information and record management of remission calculations. Further insecurity was related to wages earned by the prisoners. Prisoners felt they were left in the dark on the money they had earned and felt "cheated" by prison officials. The problem was also related to parole. There was delay in parole which was due to lack of efficient record management and an alert system that failed to keep dates with court hearing and resultant release of prisoners. One impact was that applications would be kept pending for more than a year. The parole surrender days were often forgotten within the manual system. There had been situations where in the administration "only after month realized that the Prisoner has run away". In addition, during the pre-implementation period the victim compensation fund was not implemented and "nobody knew about the rules". The poor management and operational system under the traditional framework also had problems in managing court cases, health status, under trial detention, prisoner work allotment and monitoring, prisoners' movement, and so on. All these happened due to the acute absence of a transparent information and communication system that connects the front end with the backend processes of prison management.

Thus the issues were no less serious and urgent remedy was required. What suffered severely was administrative efficiency and prisoners' rights. "We realized that we had to wake up, something was radically wrong and we needed a cure, whole system was going down, hence something radical was needed to be done." Implementing ICT systems in areas like these opened up opportunities for Government Process reengineering (GPR) at many places as can be seen from the case presented.

Project Description

The office of the Goa Inspector General of Prisons decided to develop and deploy a one-stop solution to all the problems related to prison management. The core idea was to "streamline the administration and make it efficient to serve not only jail authorities but also prisoners" (Times of India 2009).

From the inception, the management wanted the development of the software to be inclusive, involving the prison officers in the process of software development, since "it was people who shall make the difference". In the process Goa became the first State in India which had opted for a centralized jail monitoring system covering the entire State. Goa Electronics limited (GEL) developed the

software for the project. GEL had installed the software in five jails and was additionally supported by video conferencing facilities between jails.

PRISMS, launched in May 2008, completed in February 2009 was envisaged to guarantee the effective implementation of the "3 aspects of prison administration" which involved catering to the optimal management of the prisoners by the jail authorities while maintaining and maximizing the existing security standards within the facilities in accordance with the Prison Act of 1900 and the Goa Prison Rules and the Prison Manual.

The three-tier PRISMS architecture was designed as a centralized database and application, with real time operation at the point of 100% implementation across all jails, judicial lockups and prison departments. It was hosted by the National Informatics Centre (NIC) data center with coverage aimed at a 24/7 availability in all government offices, jails and judicial lockups connected through the Goa-net and accessible to all government employees through individual access. PRISMS operate as a module based system with touch screen kiosks which were easily accessible to prisoners. The technology consisting of hardware, software and frontend devices was implemented at Central Jail Agued, Sub Jail Sada, Judicial Lockup Mapusa and the Inspector General of Prisons Office in Panaji.

Efforts went into technology design and implementation. The software, for example, was capable of automatically calculating the probable date of release of prisoners with details of the remission earned. It was also able to calculate wages, attendance and remittance towards the common victim compensation fund, expenditure for legal services, savings and day-to-day expenses. The application aimed at ensuring a user- friendly design with the goal to facilitate system wide integration to increase efficiency and ensuring uniform services. It sought to avoid redundant data entry using the framework of a modular design to cater to the specific needs of each agency whereby the software was configurable for an unlimited number of users.

Objectives

The overall objective of PRISMS was to scale up prison governance by ensuring a transparent, user friendly, problem solving, and trustworthy prison management system across Goa. Additionally, the PRISMS was initiated with the following key objectives:

- To implement a fully functional system that delivers close to 100% efficiency in prisons management in Goa using ICTs; that delivers holistic functionalities in covering all aspects of prison management from the admission to the release of the prisoner and connectivity across jails; brings in administrative efficiency and security; leads to prisoner empowerment and victim compensation; increases efficiency of prison management process and administration; improves administration of Inspector General of Prison's Department;
- To bring in transparency and efficiency in an otherwise secrecy driven system.
- To bring in maximum accuracy in the prison management in all key functional and operational areas

Stakeholders

The stakeholders of the project were the prisons department, the collector and Inspector General of prisons to implement the project, Goa Electronics Limited (GEL), which developed the software for this project, the Goa State department of IT (which drives all ICT initiatives in the state), the jails and judicial lockup facilities, police departments and the prisoners.

Services Offered

The PRISMS practice offers the following vital services to its stakeholders:

1. The PRISMS centralized database-3 tier-web based system [within the framework of its 23 functional modules and 2 MBPS connectivity across all 6 jails and judicial lockups] was providing a holistic understanding and 100% coverage of all prisoner related processes across all jails and levels of prison administration.
2. The 23-module system was supporting the duties and responsibilities of the executive and clerical staff with regard to all aspects of prisoner information management consisting of personal information of the inmates such as registration number, nationality, age and height, biometric identification, photographs, marks of identity, and employment status.
3. PRISMS is supporting high security standards. For example, Prisoner movement module records in and out movement of jail inmate and tracking related to parole, furlough, case hearing or trips on account of medical reasons; second, the gate management module keeps track of the exact date, hour and even minute of the opening or closing of all prison gates, recording of all person's entering or leaving and; third, the 'escape and escort' management module involves the maintenance of an escape register, the automated selection of escort in connection with keeping account of actual escort details.
4. The new system was providing high-end security through the transmission of information via SMS to prison department officials and the police as well as the media in case of escape of prisoners. It had helped to strengthen the externalities with regard to the strengthening of the security of prisons in Goa through effective visitor information management system. This also includes victim information management notifying all activity of prisoners like court appearance, release and execution, furlough or parole.
5. PRISMS provided administrative support to victims. Further, the speedy and smooth judicial and administrative functioning was provided by the 'Court Information' module which keeps track of details such as the court in charge, the authority concerned, parties involved, court hearings and crime and charge sheet information.
6. PRISMS provide for the personal well being within the framework of the rule of law, constitutional provisions as well as basic human rights which were all monitored. For instance, the parole and furlough management system keeps a complete history of all approved and rejected applications and orders as well as a list of the prisoners expected to surrender after parole and furlough
7. The well being of the inmate was further supported by effective prisoner's medical management that captures the complete medical history of a prisoner and activities therein. Further, the inmate property and cash management module provides the Goa prison authorities with the ability to look after personal items and clothing of a prisoner as well as the maintenance of inmate cash account such as wages earned and credited according to the work's module.
8. The new system had opened windows of information for prisoners. The touch screen kiosk management available to the prisoners' guarantees easy access to the inmates to all personal property or account related information and secures access to grievance redressal within the administrative structure.

Outcome & Benefit of PRISMS

The PRISMS practice had entailed the following desirable outcome &benefits:

1. The system facilitated provision and receipt of factually correct, accurate, and timely data and information and got rid of time consuming and errors prone records and registers of prison related activities.
2. PRISMS calculated the sentences, remission, release dates automatically and without human errors. It had fostered the process of more transparency within the system through the above-described services.
3. Records management became easier now after the introduction of PRISMS

Issues and challenges faced during implementation

The deployment and implementation of PRISMS had its own share of challenges and issues.

Implementation strategy / methodology:

The challenge for PRISMS was in gap assessment, e-readiness assessment, technology infrastructure requirements, and risk assessments in implementation. The task was clearly identified in terms of setting a strategic vision and direction to the new project.

1. ***Developing and finalizing the services ecosystem under PRISMS:***
   This involved mainly the informational services both from prison administration perspective as well as prisoner perspective.
2. ***Delivery and Access channels:***
   It was equally critical to focus on how the information and data will be shared, exchanged, displayed at a given time, speed and relevance.
3. ***Implementation / Rollout strategy:***
   The entire PRISMS project was decided to be completed within 1 year and should cover as many activities and beneficiaries as possible. The project was launched in May 2008 and was to complete by February 2009. All the 23 modules were to be implemented in the stipulated time frame.
4. ***The provision of daily monitoring of implementation of the application by the Development Team had a positive effect. A standard format of status to keep track of developments and targets was maintained by each engineer.***

Change Management:

Change Management through PRISMS was brought about with a series of changes in key structure and function variables of prison administration. This involved a renewed vision for prison reform, design of reform measures and plan, introduction of measures, skill deployment, resource allocation and distribution and an inclusive framework for the target beneficiaries and in this case, the prisoners. Overall, the change was to come through reforms in the 23 prime activities whose streamlining determined the level of efficiency in prison administration and empowerment of the prisoners.

Another aspect of change management was changes in prisoners work allotment and monitoring mechanism. PRISMS additionally introduced a new module. It ensured introduction of Master with classification of Labor and wages; auto contribution of wages in accordance with the rules (50% Victim Compensation Fund, 15% joint savings account, 15% legal aid, 20% personal expense).

Challenges in Change Management

Among the main challenges faced include improper automation and workflow in the application leading to its non-usage. Other issues related to a lack of standardization in the application, lack of emphasis on service delivery to the Visitors, lack of enthusiasm from certain sections of the departments to use the application. There had been absence of proper finalization of the requirements by the department resulting in project over runs. Much time was invested on capacity building of the nodal officers of the departments to understand the concept of BPR, Change Management, and Software Development Life Cycle (SDLC). Making the system inclusive was a holistic challenge along with training of the jail staff to use the system.

It was a challenge with regard to switching from using the manual system to the newly introduced ICT system. The manual system was in place for 40 years and the officers over time had got used to a certain way of working and thinking, so there was initial resistance in connection with changeover to PRISMS.

Key Lessons

1. Reform in prison governance was a serious human right matter and its efficient management was possible with right dose of ICT applications in right spirit. The extreme necessity of having a reformative system based on ICTs support like the PRISMS stands as a great timely need based intervention towards better prison governance.

2. A critical initiative like PRISMS shall always call for timely and supportive project leadership and enough motivation in the team. In other words, the ideation, design and implementation of PRISMS had all round support of the top administrators including political as well as willingness and cooperation from the line staff.

3. An overarching government process reengineering practice like PRISMS requires a rigid and efficient project planning, implementation, monitoring, and evaluation mechanism on continuous basis.

Questions

1. What does the case speak about and what do we understand? What could be the problem statement? How well had the re-engineering been carried out?
2. What do we understand by processes and process reengineering? Is technology
3. necessary for process reengineering?
4. Whenever a GPR exercise is carried out, it is necessary to understand the application architecture in order to exploit the capabilities of the system application. What made the project team to go for centralized architecture and not stand alone / distributed database model?
5. What benefits did the project reap for all its stakeholders? How did it help the prisoners and the Prison administration as a whole?
6. “GPR dovetailing into Change management strategy for successful
7. implementation of project.” What do you understand about this statement? What change management was observed in PRISMS?
8. How do we sustain e Government projects?

Disclaimer

1. The information contained in the case are entirely based on the eponymous case [referred to as the parent case, henceforth] developed as part of the NeGD initiative managed by NISG.

2. The parent case is substantially longer and carries significant amount of additional information. To the extent possible – keeping in mind readability and language factors - this case is a verbatim extraction of selected portions of the original case.

3. Care has been taken to extract such portions of the parent case which support the central idea of this teaching case study and which – read together – are sufficient to serve the teaching purposes. It is however possible that unintentionally, some information have been left out inclusion of which may have led to different sets of opinions being formed about the project. Therefore, under no circumstances should the extracted content of the parent case - which was presented in this document as the "child" teaching case - be construed as criticism of actual performance of the project or of the project owners or of the personnel involved in its implementation.

13. A Case Study of 'KheTi' - Knowledge Help Extension Technology Initiative

13.1 A Case Study of 'KHETI' - Knowledge Help Extension Technology Initiative[1] - Teaching Notes

Abstract

The Knowledge Help Extension Technology Initiative (KHETI) – an Information Communication and Technology (ICT) design solution, had been developed under Rural e- Services Project in India (ReS-PI). It was an action research project to bridge socio-economic divide digitally with uses of participatory interactive designing methodologies that resulted in a customised solution for so called 'less privileged groups' such as poor farmers. The farmers as the user of technology were co-designers in the designing processes that helped development of an indigenous, contextual and robust designing solution.

KHETI system was conceptualised around the mid of 2006 and was formally started at the grass-roots (Sironj block of district Vidisha in Madhya Pradesh) in India from April 2007.It was rolled out in August 2008 and continued till April 2009. The government has not been thought of as an active partner to the project. The role of private sector has also not been thought of.

The KHETI services stopped functioning from May 2009. DOMAINS

- e-Governance Risk Management [Individual and organisational Behaviour focus]

Classification Code for the Case

This case is suitable for inclusion under NISG's case classification code: A. Not all cases are suitable for all capacity building programs of NISG. The NISG-Case classification code determines the suitability of a case to a capacity building program.

Learning Objectives

Stated one way, the case is about one single document – the Bank Realisation Certificate. And yet a study of the magnitude of issues and challenges that exchange of information from this one document across organisations can entail can be both surprising and illustrative at the same time. Though the case views the challenges and the solutions from the point of view process reengineering, it equally well touches upon other facets of cross-organisation collaboration and co-operation having their basis in technology, leadership and economics. This teaching note provides guidance on the how several such facets can be highlighted and deliberated upon with a view to deriving action plans which can be implemented by the participants in their own department / eGov projects.

When to Introduce the Case

The case may be scheduled in any of the following manner

- In a session dedicated to Risk Management
- In any special session[s] aimed at providing the participants with a opportunity to engage in higher order of thinking and analyses

Time bo be given for studying the case

Where the duration of training is more than one day, the case may be given to the participants for overnight study. Where the faculty expects that the participants may respond better under supervised reading, about 15 minutes may be allotted for familiarization with the case.

1 Original case developed by Dr. S. M. Haider Rizvi is available at http://nisg.org/case-studies-on-e-governance-in-india

Introducing the Case

As the first step, the faculty may ask the participants to highlight the key points contained in the case. At this stage, the faculty may suggest to the participants not to engage in any in-depth discussion on the points highlighted.

Question-1

Comment on the objectives with which this action-research initiative was conceived and rolled out. Might there have been conflict of interests among stakeholders?

Question type: GROUP EXERCISE

Accompanying exercise [optional]:

- *Key Risks template[2] worksheet– Section 1.1*
- *Key Risks to be addressed worksheet[3]*

Key learning: *By definition, the term "risk" refers to 'the effect of uncertainty on objectives'. Therefore, the first step in any e-Governance project risk assessment should be to critically examine how the objectives of the eGov initiative were framed and whether the objectives served to further the interests of all key stakeholders in an equitable manner. KHETI presents an interesting picture in this regard. Firstly, it was an "action-research"initiative. Any attempt to combine action and research is in itself one fraught with difficulties since only rarely do these two share the same time scales, project management ideas, feedback / data collection thoughts, and beneficiaries' interests.*

- *e-Governance initiatives look for long term commitments while most research initiatives concern themselves with shorter durations of a few years.*
- *Funding for research initiatives are typically very limited – often covering a period as short as one year with a limited number of renewal options.*
- *Research initiatives have a clear and narrow focus which permits little maneuverability should the circumstances change. The needs of citizens who are the beneficiaries of eGov initiatives however change with time, with competition, with weather conditions, with Government schemes etc.*

Thus, clearly, it is likely that the research objectives of the Universities funding KHETI and the objectives of other participating stakeholders were congruent to less than full extent. It is further clear from the case that the original objective of the project was to create a system which would support financial transactions. However, what was delivered was a system of information sharing.

Judgments of value are at the core of prospect theory. The theory makes three key claims about such judgments[4]: reference dependence, loss aversion, and diminishing sensitivity. Reference dependence—the cornerstone of prospect theory—argues that people do not normally judge value in terms of absolute states of the outcomes but rather in terms of gains and losses against a reference state. Reference dependence implies that value is a function in two arguments: the reference state that is being employed and the positive or negative distance from that reference state.

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2 *Internal Control and Risk Management Framework Project – Volume 2, DARPG, GOI*
3 *ibid*
4 *"Stakeholder Judgments of Value: Advancing stakeholder theory through prospect theory" , Leena Lankoski, University of Helsinki and INSEAD, N. Craig Smith INSEAD*

The second key element in prospect theory is loss aversion. Loss aversion makes the point that the value function is asymmetric, being steeper for losses than for gains. In practice this means that "losses loom larger than gains". The risks given rise to by prospect effect is such that if the gain value is, say 10, then the same object's loss value might be more than 10.

A third element in prospect theory is diminishing sensitivity. Diminishing sensitivity implies, for example, that against a reference state of a permitted amount of effluent discharges, stakeholders are likely to be more sensitive to a firm improving its modest track record than to another firm improving its strong track record even further. In other words, people are relatively more sensitive to changes that occur near the reference point than to changes that occur far from it.

One might surmise that the original goals of KHETI aimed at stage three – the transaction stage - of the "Gartner e-Governance Maturity Model" [viz. Information, interaction, transaction and transformation] while what was implemented was perhaps stage two – the interaction stage. This "loss" [drop from stage three to stage two] might have suffered from prospect theory/endowment effect and the research institutes backing the initiative might have had cause for disappointment.

The watering down of objectives and the likelihood of some amount of conflict must have been an important source of risk[s] for the KHETI project.

Question-2

Action of individuals seeking to promote their self-interest at the expense of the whole group's long-term interests is termed as the "tragedy of commons". Do you find any scope for this to play out in KHETI?

Question type: GROUP EXERCISE

***Key learning:** The faculty may first explain to the participants that "commons" is a british term for pasture / grazing land. The faculty may recall what the phrase "tragedy of the commons" means. The following is a quote from the original author of the idea.*[5]

"Picture a pasture open to all. It is to be expected that each herdsman will try to keep as many cattle as possible on the commons. As a rational being, each herdsman seeks to maximize his gain. Explicitly or implicitly, more or less consciously, he asks, "What is the utility to me of adding one more animal to my herd?" This utility has one negative and one positive component.

1. The positive component is a function of the increment of one animal. Since the herdsman receives all the proceeds from the sale of the additional animal, the positive utility is nearly + 1.
2. The negative component is a function of the additional overgrazing created by one more animal. Since, however, the effects of overgrazing are shared by all the herdsmen, the negative utility for any particular decision making herdsman is only a fraction of - 1.

Adding together the component partial utilities, the rational herdsman concludes that the only sensible course for him to pursue is to add another animal to his herd. And another.... But this is the conclusion reached by each and every rational herdsman sharing the pasture. Therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit -- in a world that is limited. Freedom in a commons brings ruin to all."

5 *"The Tragedy of the Commons," Garrett Hardin, Science, 162(1968):1243-1248.*

The idea of the tragedy of the commons often plays out in e-Governance initiatives. Though the case does not provide details which might illustrate this conclusively, one might not be wrong to opine that since the farmers did not have to pay for the services and since there was no limit on how many times they could seek information, it was not detrimental to them if they sought out the services of the Munna and the AS with impunity. The case does not state that the farmers had to first exhaust other possibilities before they contacted KHETI. The case does not state that there was any distinction among experienced and inexperienced farmers. All were equal and hence any farmer could approach KHETI for any issue. And the services were free.

Though the case is silent on several counts, one reason for insufficient interest among the research institutes to keep the initiative alive might have been a disproportionately large information requests which were not of research interest.

It is important for the faculty to drive home the point that risks established by situations of tragedy of commons [where stakeholders place unchecked and uncontrolled burden on the resources of the project] have serious implications. Taking the discussions further, one might further drive home the point that a free hand given to users to raise software change requests, request for additional functionality, request for exemptions from rules and all similar demands which enrich individuals or individual departments to the detriment of the organisation's interest is perhaps one of the main reason for project's delivering less than what they were designed for.

Question-3

Government agencies were not active participants in the initiative. What risks might Government's involvement have helped address? Can you think of other stakeholders / beneficiaries who too should have been included?

Question type: GROUP EXERCISE

Accompanying exercise [optional]:

- *Key Risks to be addressed worksheet[6]- Section 2.2.2.2 / 2.2.13.2 / 2.2.16.2*

Key learning: *It is recognized from a behavioural perspective that a project is in a weak position where individuals and organisations who are in a position to reduce risks in a project but do not suffer from any negative consequences should the project fail.*

Taking KHETI as an example, the Government WAS in a position to help the project. But since the Government would not have suffered any negative consequences from KHETI's failure, there was no incentive for Government to intervene. In fact, one might even argue that there was perverse incentive[7] for the Government to allow KHETI to fail – not simply because Government was ignored in the first place but because that would have placed Government in a stronger moral and political position should it desire to provide a similar service on its own in future.

The faculty may ask the participants to ignore the possibility of perverse incentive and study why Government may not have been invited from the beginning and what risks – if any – inviting Government participation may have entailed.

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6 ibid

7 It is a service or benefit to which one is not now eligible for or receiving, but which in order to receive one engages in perverse behavior.

It is to be expected that with government involvement will come different sets of reporting and functioning requirements which might be viewed as interference by international bodies [and local ones too]. Specifically, one might identify the following by way of illustration.

- Policy and strategy risks [the possibility that KHETI will not be allowed to freely determine its policies and strategies]
- Agency reputation risks [the possibility that KHETI will not be viewed as an independent initiative]
- Political risks [the possibility that KHETI will be identified with certain political denominations and be subjected to interference of ruling and/or opposing political movements]

The above list is not exhaustive and may be put to debate since there can be multiple points of views on this.

The faculty may also ask the participants to deliberate on whether or not other stakeholders – such as privately owned farm sector vendors – should have been made a part of KHETI. The participants should be encouraged to discuss both positive and negative impact of such inclusion.

- *Private vendors may encourage and support KHETI if they see credibility and/or business gains from their association.*
- *It is equally likely that they may see KHETI and its set of Agriculture advisors as a threat since they may influence farmers' buying behaviour*

The participants should be asked to devise proper capacity building / risk mitigation measures as part of their discussions.

Question-4

Was KHETI inherently a risky initiative? If yes, to what key factors would you ascribe the risks? What kinds of risks do such short-sighted initiatives leave behind which might impact other projects that might follow?

Question type: GROUP EXERCISE

Key learning: *Arguably, initiatives of the kind of KHETI are inherently risky. Such projects have significant exposure to risks arising from the following factors*

1. Lack of clear ownership for project's success
    a. [who was responsible to ensure KHETI's success? The British institutions? The NGO PRAGATI? The ICT vendors?]. Ownership is key to assuming risks and taking corrective action. Since risks will manifest themselves whether or not there are clear owners, any doubts about ownership will only permit risks to "fall through the cracks" and to go unattended.
2. Divergent goals influenced by requirements of action which often competes with the demands of research
    a. Time scales are different, responses to beneficiary demands may be different…

3. Propensity to set unrealistic user expectation early in the project
    a. This is usually followed by negative endowment/prospect theory effects during later stages of the project
4. Uncertainty with respect to the quantum and timing of funding [often funds are released *in keeping with progress of research which may have little affinity with the fixed and recurring project expenses]*

Projects – especially those in the key sectors of agriculture, health, education etc – which are badly conceived and even more badly executed from long term sustainability point of view carry with them considerable reputation risk and trust risks. While a failed project will wind up its operations and leave, all future projects undertaken shortly thereafter involving the same set of beneficiaries will face considerable mistrust and resistance since the beneficiaries will bring with them the bitterness of their wasted time / effort / trust etc.

Disclaimer

1. The facts contained in the case are entirely based on the eponymous case developed as part of the NeGD initiative managed by NISG.
2. All conclusions drawn and presented in the teaching note are based entirely on information contained in the parent case.
3. Given the complex nature of the domain of e-Governance, the conclusions, comments and opinions presented in the teaching notes are meant to provide alternative points of view. Under no circumstances should they be construed as criticism of actual performance of the project or of the project owners or of the personnel involved in its implementation.

13.2 A Case Study of 'KheTi' - Knowledge Help Extension Technology Initiative[8] - Teaching Case

Abstract

The Knowledge Help Extension Technology Initiative (KHETI) – an Information Communication and Technology (ICT) design solution, had been developed under Rural e- Services Project in India (ReSPI). It was an action research project to bridge socio-economic divide digitally with uses of participatory interactive designing methodologies that resulted in a customised solution for so called 'less privileged groups' such as poor farmers. The farmers as the user of technology were co-designers in the designing processes that helped development of an indigenous, contextual and robust designing solution.

Background and Pre-Implementation Scenario

The Rural e-Services Project was one the four primary research projects funded by the Engineering and Physical Sciences Research Council (EPSRC), UK under it's 'Bridging the Global Digital Divide Network Programme' for bridging digital divide. The other three projects were Storybank, Fair Tracing &VeSeL across the globe.

Before the running of KHETI services the farmers were largely using the traditional knowledge and information informally supplied by others quarters e.g. companies and shops selling fertilisers, pesticides and other products for enhancing agriculture produce. The ICT design solution KHETI developed under ReSPI was meant to ensure flow of information at various levels for the poor farmers for their livelihoods empowerment.

Description of Implemented Project

ReSPI was an action research project to develop sustainable ICT solutions for livelihoods empowerment through ensuring flow of timely information on agriculture practices for farmers in remote rural areas in India under Bridging Global Digital Divide Programme. It was conceptualised around the mid of 2006 and formally started at the grassroots (Sironj block of district Vidisha in Madhya Pradesh) in India from April 2007. It was managed by Sheffield Hallam University, U.K in collaborations with Oxford University, UK; Overseas Development Institute, UK/University of West England, UK and Saral Services/ Safal Solutions, India. PRADAN, India was other major collaborators and intermediary organisation and the project was implemented at Sironj Crop Producers Company Private Limited (SCPCL) – a cooperative of marginalised farmers.

Objectives of the project

Initially the project was envisaged to design ICT solutions using participatory interactive methodologies that would help farmers in their financial transactions with relevant stakeholders and agencies and also develop their financial profiles under broader objective of bridging the digital divide. But after the entry to the field and a series of participatory exercises with the farmers on their need, the objectives of the project got changed to 'ensuring of agriculture information flow at various levels' through designing an ICT-enabled solution.

8 Original case developed by Dr. S. M. Haider Rizvi is available at http://nisg.org/case-studies-on-e-governance-in-india

The designing processes – use of participatory ICT methodologies and their outcomes

To ensure the participation of farmers in designing processes, intensive participatory rural appraisal (PRA) techniques such as focus group discussions, interviews, timelines, matrix ranking etc. were used. The focus always remained to get the technology designed as per their needs and local realities and make the processes themselves empowering to people/users where they have control over the processes and decide nature of and features in the designed solution. Besides seeking participation of users at every stage, the software developers/programmers were oriented towards the contextual realities. They were motivated and made to visit field and participate in PRA exercises.

The participatory exercises helped in identifying the needs of the farmers in general and information need in particular. It was followed by a project establishment meeting to get agreement on the sector/s where application of ICTs could be explored.

The requirements identified from the system by farmers were of three kinds; *[i] general, [ii] information related and [iii] report and analysis*.

In general requirements, the areas covered were member registration, socio-economic profiling and family details, photo, below poverty line status, member land plot details, crop profile, seed plot registration, quantity of produce, crop sowing patterns, acre, registered area, crop plan planning and crop inputs, crop produce/land, crop: produce, diseases, inputs, land report/data: kind, slope, plain, water availability, farmers' experience report: audio, video, images, successful experiments and fee details for inputs/services.

As far as *information related requirements* were concerned, the farmers wished to have plot wise advice (planned plot), crop advice report (irrigation, POP, fertilizer use, pesticides, chemical) – for specific crop report. In report and analysis, the exchange of information/messages, responded messages, time taken in responding messages, details of messages not responded, reasons for not responding to the messages etc. were covered.

As an immediate need the farmers wished to have a device where they could exchange information (audio-visual) on their problems/issues in agriculture practices with experts quickly from their places and get timely inputs. The need of having a MIS about the co-operative containing details on socio-demographic profiles of members and patterns of agriculture practices in relation to their land and habitation was identified as the second priority that system should provide to them. Out of the 12 features identified by the farmers, 5 features were developed.

Technology

KHETI was designed on mobile phone platform. It helped in speeding-up communications amongst various stakeholders in particular amongst Agriculture Specialist (AS), farmer representatives and farmers.

The farmer representatives along with the farmers with help of mobiles could create 'Short Dialogue Strips (SDS)' using 6 images and 1.5 minutes voices at their fields/villages and send it to AS by uploading on the web to get back responses on their queries, problems and other areas of interest within a cycle of 24 hours.

The farmers themselves desired to have somebody relatively better trained who could assist, initially, in making SDSs, uploading and downloading the same to the server and communicating on their behalf with AS. They named this person as 'Munna' (a popular character in a Hindi feature film Munna Bhai MBBS). Having Munnas was also important because that the farmers were not in possession of multi-media mobiles (Nokia Navigator and Nokia N73) with internet connectivity and it was neither feasible for the project to provide such mobile to entire members of the cooperative nor the farmers were financially capable to buy these high end mobile (in 2008). Other actor was Agriculture Communication Specialist (ACS) – a full time person on the job with qualifications in agriculture and moderate level of technical/ICTs understanding to facilitate the communication and developing and maintaining agriculture knowledge bank and disseminating and exchanging knowledge at various levels. The role of ACS was like a bridge between the Munnas and AS.

Impact of Kheti

The system was rolled out in August 2008 and till April 2009 about 300 queries were handled on various crops. The response time from the AS was maximum 24 hours so the farmers were satisfied. The making of SDS was done using five simple steps with instructions in Hindi, as entire interfaces in the mobile phones were in Hindi. They could also talk to AS using IVRS.

Issues and Challenges Faced During Implementation

KHETI system was rolled out in August 2008 and continued till April 2009. With the exhaustion of project funding it was difficult to run the services, as farmers were not willing to pay for the services. The intermediary organisation (PRADAN) took care to pay for the Agriculture Communication Specialist but found it difficult to take care for the maintenance of the systems and paying to Munnas who were paid Rs. 1000 per month. The implementing agency (the collaborating universities) was more concerned to handing over the project and KHETI to an appropriate partner who could take it forward. Besides the consultations, information and procuring data, the government has not been thought of as an active partner to the project, so the government couldn't be made to take and run the project. The role of private sector has also not been thought of.

The KHETI services stopped functioning from May 2009.

Questions

1. Comment on the objectives with which this action-research initiative was conceived and rolled out. Might there have been conflict of interests among stakeholders?
2. Action of individuals seeking to promote their self-interest at the expense of the whole group's long-term interests is termed as the "tragedy of commons". Do you find any scope for this to play out in KHETI?
3. Government agencies were not active participants in the initiative. What risks might Government's involvement have helped address? Can you think of other stakeholders / beneficiaries who too should have been included?
4. Was KHETI inherently a risky initiative? If yes, to what key factors would you ascribe the risks? What kinds of risks do such short-sighted initiatives leave behind which might impact other projects that might follow?

Disclaimer

1. The information contained in the case are entirely based on the eponymous case [referred to as the parent case, henceforth] developed as part of the NeGD initiative managed by NISG.
2. The parent case is substantially longer and carries significant amount of additional information. To the extent possible – keeping in mind readability and language factors - this case is a verbatim extraction of selected portions of the original case.
3. Care has been taken to extract such portions of the parent case which support the central idea of this teaching case study and which are sufficient to serve teaching purposes. It is however possible that unintentionally some information may have been left out the inclusion of which may have led to different sets of opinions being formed about the project. Therefore, under no circumstances should this extracted content of the parent case be construed as criticism of actual performance of the project or of the project owners or of the personnel involved in its implementation.

14. Health Care Management – Aravind Eye Care System

14.1 Health Care Management – Aravind Eye Care System - Teaching Notes

1. Case Synopsis

This case is about a 1000 bedded teaching hospital that is suffering from poor financial health, rising costs, static revenue and declining quality of care.

Mr. Raghav, the newly appointed Medical Superintendent, seeks to meet the mandate given to him on his appointment, of improving the quality of care, operations and productivity of the hospital, by studying the healthcare model of Aravind Eye Care System that could supplement the efforts of the government and also be self-supporting.

He gets to understand how the various components of AECS are interlinked to achieve high operational efficiency. Optimizing processes, integrating AECS with its own production facilities, conducting well-coordinated outreach programmes and enriching human resources by having a unique staffing solution helps to provide the right mix of operational efficiency ensuring cost effectiveness & sustainability.

The various process flows, staffing patterns and other features which were discussed, make AECS unique in terms of organizational culture & best practices.

The replicability of this model endorses how it could successfully help senior executives like Raghav overcome such challenges in the industry today.

2. Focal Point

The main aim of this study is to discover how an organization can provide maximum value to its customers in a cost effective way without compromising on service delivery & excellence.

3. Learning Objectives

a. To derive a unique mix by optimally mapping and implementing the various processes, integrating the function of all facilities, conducting frequent, well-coordinated outreach programmes and enhancing staffing to achieve operational excellence
b. To harness technology that helps to facilitate efficiency and reduced costs.
c. Use of Analytics to enhance decision making, and thus help the organization to scale up and cater to different and diverse sets of customers without compromising on quality and service delivery.
d. Organization's funding structure, which not only helps to meet its operational cost but also generates surplus.

4. Suggested Discussion Questions

a. What factors do you think have contributed to the success and sustainability of AECS?
b. Is the AECS model replicable in your work area? If yes, explain how. If no, give reasons.
c. How could Raghav use the AECS model to improve his organization's operational efficiency. Explain any two ways with suitable examples.
d. What could be the challenges in replicating this model elsewhere? Explain.

5. Opportunities for Role-Playing & Simulation

Role-playing can be an effective mechanism for getting the trainees to simulate a challenging environment reflecting various forms of administrative functions that then could elicit responses from the audience, proposing alternatives mentioned in the case, tailor made to overcome the simulated act/problem.

While some represent the Management, other particpants could enact the effect on them as staff/patients against a predefined scenario closely related to their day to day activities and challenges.

Group discussions and debates could also encourage the trainees to relate to their own work environment and challenges and revert with out of box solutions.

6. Time Management

Particulars	Time (Minutes)
Brief overview of the case	10
Discussion on how it relates to the current activities and challenges of the participants in their work activity	20
Role play, Group Discussion, Debate on how the alternatives mentioned in the case could be mapped to the current challenges outlined just before	20
Discussion of potential responses that surfaced from the case discussion and activity	10
Take home message	10
Total	**70**

14.2 Health Care Management – Aravind Eye Care System

1. Introduction

Raghav got butterflies in his stomach after taking charge as the Medical Superintendent of a 1000 bedded teaching hospital in Pune. Established about 35 years ago, the hospital is supposed to have made a fortune by now but it is badly suffering from rising costs, static revenue and declining quality of care.

Also, being the only well-established health facility for the people of nearby districts, the hospital is expected to improve its outreach programme initiative to help realise the State government's vision of accessibility and affordability of healthcare at rural community level.

Raghav was hired with a clear mandate to improve the quality of care as well as to strengthen the operations and productivity of the hospital. How did Raghav achieve a remarkable turnaround in the face of challenges like inadequate infrastructure, rising costs, aging population, diseases in epidemic proportions and illiteracy in the community? How could he establish an alternate healthcare model that could supplement the efforts of the government while being self-supporting?

A report that Raghav went through provided the answers. An excerpt in the report reads as:

"As an initiative of community outreach programmes 2,841 camps were conducted through which 5,54,413 patients were screened 90,547 surgeries performed from April 2012 to March, 2013. During the same period 3.1 million outpatients visit were handled and 3,71,000 ophthalmic surgeries and laser procedures were performed across all Aravind Eye Hospitals" (Aravind Eye Care System: Activity Report 2012-13).

Raghav then felt that his questions could be answered by studying the model of Aravind Eye Care System, Madurai. It indeed worked wonders for his hospital.

About Aravind Eye Care System (AECS)

Aravind Eye Hospital was founded in 1976 by Dr. Govindappa Venkataswamy (affectionately called - Dr.V) in Madurai, Tamil Nadu. In order to deliver value to the patients, many new organizations have been created since then around the core hospitals of Aravind and today all these organizations are components of a group of organizations which make the Aravind Eye Care System (AECS). The core vision of AECS however, remains eliminating needless blindness[1] in the country. AECS has since then established itself in India (and in much of the developing world) as a Centre for Excellence, in mainly cataract related therapies.

Aravind Eye Care System runs with the mission "to eliminate needless blindness" which is achieved through various innovations of its constituent entities i.e. Aravind Eye Hospitals, Lions Aravind Institute of Community Ophthalmology (LAICO), Dr. G. Venkataswamy Eye Research Institute, Aravind Eye Banks and Aurolabs.

An Ophthalmologist at any Aravind hospital performs about 1500 cataract surgeries in a year, whereas the national average is only 540 per ophthalmologist.[2] The total surgeries performed in India

1 *Due to lack of awareness, inaccessibility to eye care facilities or fear of eye surgery, several people with treatable blindness mostly due to cataract related problems remain unattended in India.*

2 *As per the ICO website, http://www.icoph.org/ophthalmologists-worldwide.html*

last year was about 6.3 million cataract surgeries.[3] So, the cataract surgeries performed in Aravind hospital remains one of the lowest cost eye care facility in the world and one third of which are being conducted free of cost. It has now expanded to 10 Hospitals, 42 Vision Centres and all are scattered in the provinces of Tamil Nadu and Puducherry in southern India. It also runs arguably the most effective and efficient outreach activities for eye care in the country. AECS is also diversifying into research, developing innovative technology, engaging in training and teaching, other activities to support the organization.

Box - 1: Key Achievements

A day in AECS
- 10,000 outpatients in hospitals
- 1500 surgeries
- 5-6 outreach camps
  - 1,500 examined
  - 300 transported to base for surgery
- 700-800 telemedicine consultations
- Classes for 100 residents/fellows and 300 technicians and administrations

Community Outreach Programme by March 2013
- Total number of screening camps: 2,841
- Number of patients examined: 5,54,413
  - Total number of surgeries: 90,547
  - Source: AECS Annual Report - 2012-13

2. Operational Efficiency at AECS

The various components of AECS are interlinked to achieve high operational efficiency. Cost effectiveness is attained primarily by adopting a right mix of operational efficiency and process optimization. Integrating them with its own production facilities, AECS conducts a well-coordinated outreach programme[4] managed by its specialized human resources with a unique staffing solution. Thus, AECS is self-sufficient and does not depend on either government grants, or grants from any other aid-agency. It is fueled by a self-funding model, about 40% of its patients, those "paying" for its services, provide the profit margins to deliver a high-quality service for the rest of the 60%, "non-paying" poor patients.[5]

3. Unique Features of Aravind Eye Care System

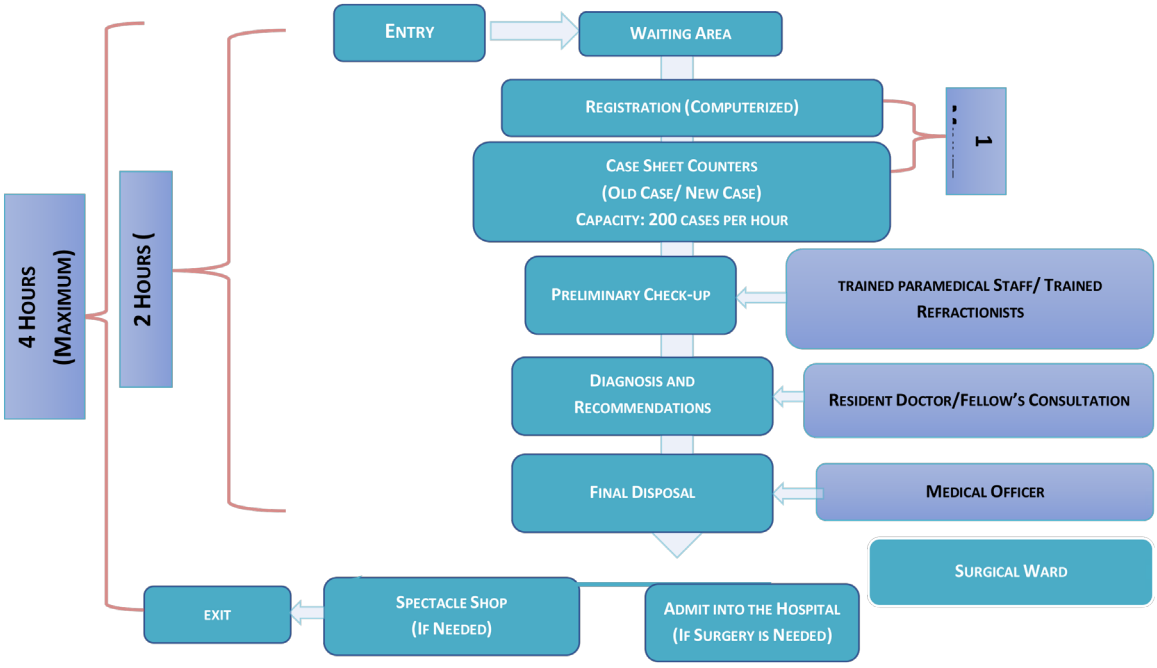
3.1 Efficiency through Process of Optimization

The internal processes in Aravind Eye Hospitals are designed to reduce the waiting time of patients and provide a seamless movement between various facilities of the hospitals. The average ratio of doctors to nurses in the surgical ward is between 1:4 and 1:6 respectively. Therefore, the doctors only focus on their surgeries and leave the supporting duties to their trained ophthalmic assistants (Mid-Level Ophthalmic Personnel [MLOP]). This in turn increases the number of surgeries performed per day by each doctor and also enhances their productivity, efficiency. A schematic diagram of the out-patient process is given in Figure – 1 (Out-patient Ward Processes):

3 http://npcb.nic.in/writereaddata/mainlinkfile/File292.pdf

4 The outreach activities of Aravind have, however, been limited to a few districts in Tamil Nadu and its services are predominantly related to cataract related surgeries.

5 V. Kasturi Rangan and R.D. Thulasiraj, "Making Sight Affordable - Innovations Case Narrative: The Aravind Eye Care System", Innovations, Fall 2007, p. 36.



(i) Out-Patient (OP) Processes

In the Out-patient Department, the maximum time for a patient's diagnosis from the time of entry to exit is 2 hours. If a patient is given a prescription for spectacles, it might take an additional 2 hours for obtaining the finished lenses at the hospital itself. The spectacle shop in the hospital undertakes grinding and fitting of the lenses within the premises, and the patient can go home with the prescribed spectacles. If a patient requires a surgery after diagnosis, he/she is admitted in the hospital immediately or at the patient's earliest convenience. The out-patient fee for the paying patients is Rs. 50, which is valid for three visits or three months, whichever is earlier. Due to the reasonable OP charges, more number of patients (3:1) come through the paying channel.

(ii) Surgical Wards

The surgical wards comprise of at least 2 operating tables, in between which a doctor alternates. Each doctor is supported by at least 4 nurses/ophthalmic assistants (MLOP). While the doctor is working on one patient, the other patient is brought in and is prepared for surgery. This allows the doctor to quickly complete one surgery and move to the other, while leaving the task of pre and post operation preparation and care in the hands of the trained nurses and assistants. This workflow increases the efficiency, while maintaining the quality of eye care. The Figure – 2, given below, is a schematic diagram of the workflow at the surgical ward.

Table-1: Productivity of Aravind's Surgeons VS Other Hospitals

It is clear from the Table - 2, where A is Aravind's eye surgeon and B is an average eye surgeon in any other hospital; A performs an average of 6-8 surgeries per hour in comparison to B, who performs 1 surgery every hour. A operates on 2 tables with the support of at least two nurses and six instrument sets. Whereas B is supported by only one nurse and has only one set of instruments.

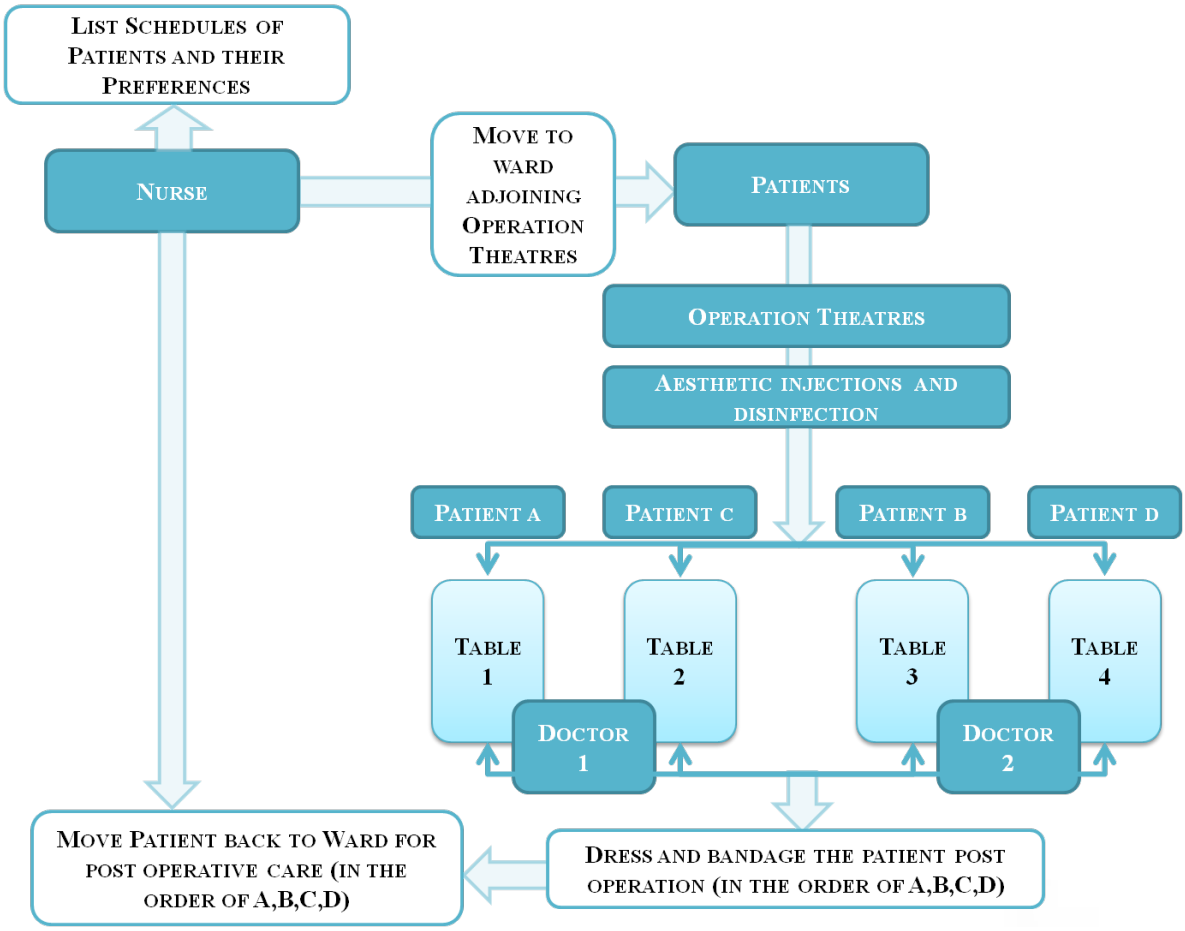


Figure - 2: Work Flow within the Surgical Ward

3.2 Right Staffing: Doctors, Ophthalmic Assistants/Mid-Level Ophthalmic Personnel

Most of the doctors working at AECS are usually absorbed from the residency programme. The courses offered in this programme are Master of Surgery (MS) in ophthalmology (three years), Diplomate of National Board (DNB) and Diploma in Ophthalmology (two years). During this, participants are paid a stipend and are trained in ophthalmology. At least 30 residents are inducted every year as part of the program.

Aravind's Post Graduate (PG) students undertake surgeries within the first 6 months of the program. They begin with one surgery per day, under supervision, and eventually perform more number of surgeries by themselves. In their first 6 months they perform about 25 surgeries, which is the same as the average number of surgeries performed by a PG student during 3 years of other programs. About 10% of the graduates are retained by AECS. A fellowship programme is offered to those who already have a Master's degree but intend to specialize in any one particular branch. Not all fellows from the programme continue with AECS, only the top 400 out of 6,000 PG candidates make into it.

The ophthalmic assistants and MLOPs are hand-picked from the community. They are usually women between the age group of 17-19 years hailing from rural areas of the province. Over 300 girls are selected every year. Compassion, curiosity and culture are the qualities of potential candidates rather than mere academic qualifications. After the recruitment, the girls undergo training for a period of two years (see Appendix - 1) and they perform majority of the clinical routines and the doctors solely focus on re-diagnosis and surgical responsibilities. About 99% of these trained assistants are retained with AECS and they comprise of at least 60% of the workforce.

3.3 Community Outreach

Community outreach is a programme run by AECS in which eye camps are organized mainly in rural communities where the people are checked for eye care interventions. Only diagnosis and eye checks are conducted by the doctors, surgeries are never conducted at these camps. While ensuring access to eye care in the rural communities, AECS benefits by building its brand and informing people about the hospital. At the same time the outreach camps also function as a training ground for its medical staff.

3.4 Vision Centres

With an idea to increase the outreach of the eye camps, the concept of Vision Centres in each community was mooted. Vision Centres are permanently set up by AECS. Today, there are a total of 42 such Vision Centres in the state of Tamil Nadu. These Centres typically have basic equipment like the slit lamp, ophthalmic torch etc., besides a trial box with a variety of lenses. The Centres are operated by MLOPs and trained assistants, those who are trained to do complete eye examination, but the final prescription is authorized by a doctor who interacts with the ophthalmic assistant as well as the patient through a video conference. The Centre is also equipped with lenses and spectacle frames, which the patients can purchase on the site itself. The MLOPs are trained to take charge of commercial transactions on the Information Technology (IT) system and also to handle accounts. The collections are deposited at the local bank.

3.5 Greater integration with supplies through the components of AECS to reduce costs and deliver greater value

The constituents of AECS are integrated in a way that it helps the hospital to deliver value to patients at a very low cost. In a sense, all the requirements for treating a patient are met through the components of AECS. Doctors who treat the patient are being developed at the hospital, the nurses and MLOP are also being trained in-house. While Aurolab lens constitutes majority of the AECs surgical volumes. The AECS have implanted other brand lenses– such as Alcon, etc. in the paying section. The Intraocular Lenses (IOL), surgical consumables required for a cataract surgery are being made at Aurolab, the eye banks provide for the donor corneas when such replacements are required. So, the hospital has achieved almost complete backward integration, which helps it to deliver treatment at costs that are several times lower than the market rate. This strategy of AECS helps it to deliver value to the patients at a very low cost.

3.6 Integrated Information Technology (IT)

The online hospital management system was started in 1991, since then a lot of improvements were undertaken. There is an automation report, which continuously updates the system as and when the information is uploaded into it. The utilization of IT systems in AECS facilitated for efficiency and reduction of costs. The hospital management system has been custom developed and built on the Windows Operation System using an SQL server database. This system has automated all the routine processes of the hospital. The IT team at Aravind consists of around 40 people, which include 20 people in the development team. All the units of AECS are connected by Wide Area Network (WAN) through leased line connectivity.

3.7 Unique Organization Culture

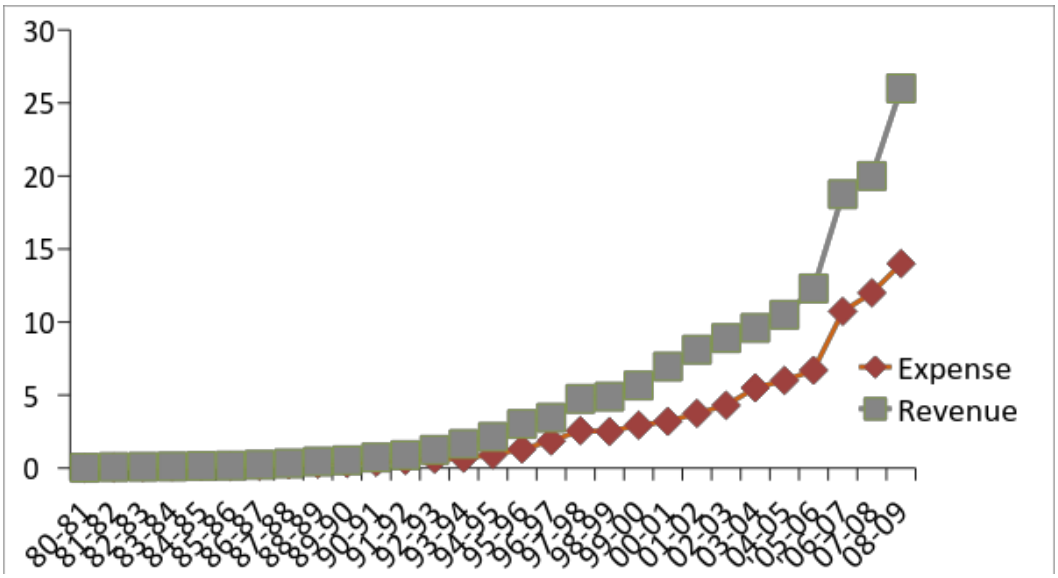
Aravind has evolved a unique organization culture in which patients are at the core. Doctors and staff feel a sense of pride working for the organization. The organization does not pay more to any doctor who performs more surgeries, but the peer pressure is such that each doctor ends up doing many times more surgeries than the national average. The doctors and staff have empathy for the patients and this in turn lead to better service delivery. Also, there is very little difference between paying and non-paying patients at the hospital. Same doctors operate in both cases and there is no difference in the success rates except of providing the living space for paying patients. The organization has achieved high levels of discipline in every activity that it performs and is fair in its approach to employees and patients. The overall culture of healthcare professionals is to ensure service, humility, kindness, and equality (Prahalad, 2004; p. 267).

3.8 Numbers Driven Approach to Management

All decisions at AECS are made on the basis of analytics. This numbers driven approach to decision making has helped the organization to scale up and cater to different and diverse sets of patients without compromising on quality in any group. The analytics driven approach has also helped the management in setting issues in their perspective rather than being judgmental about them. This approach runs all across the organization and is not limited to the top management alone. From managing patients flow in OP wards by forecasting, using past data to analyzing the performance of doctors and staff based on the number of patients served, almost all decisions are based on analysis of data.

4. Funding Structure of Aravind Eye Care System

The initial funds for setting up the hospital were obtained from the Govel Trust, which in turn borrowed from the State Bank of India. After the first five years of operation and sustenance, the Aravind Eye Hospital in Madurai accumulated adequate surplus to set up new hospitals in other locations. From then on, all the hospitals meet their operational costs and expenditures and generate a surplus fund, which is used to develop better outreach for people in the province. The major source of funding is the revenue generated from the paying patients (about 40% of the total patients). The organization's financial self-sustenance can be attributed to tight financial control, appropriate pricing and transparency (Prahalad, 2004).



Source: Aravind Eye Care System

Figure - 3: Revenue and Expense of Aravind Eye Care System from 1980-81 to 2008-09

5. Discussion

It is evident that the culture of AECS is geared towards delivering maximum value to the patient, and a cost effective way without compromising on excellence. All systems and process of the entire organization is focused on this. Though the profits are not the end objective, a necessary means of sustenance and future growth is an essential element. All the targets of AECS are focused on quality service to patients and not on any parameter of earning.

The entire organization works on developing markets through demand generation by converting a need into demand through its outreach programmes. Although, only about 40% of the patients are paying, the demand is sufficient enough to generate profits for future development. AECS also believes and delivers on excellence in execution and all the processes are designed to achieve maximum efficiency with high quality. Despite the fact that a majority of the patients of the hospital pay close to nothing, the high quality of services at AECS is not compromised. In fact, there is no difference in the success rate of paying and non- paying patients and the same doctors alternate between them.

The organization also takes the issue of sustainability very seriously. The entire process is working in the backward direction, while keeping the affordability of the patient in mind. Therefore, the costs are estimated depending on the economic capability of the patients.

The hospital of AECS is well integrated with other setups like Aurolab and LAICO. Aurolab provides the equipment, lenses, medications and other products required for eye care. Some of its products have greatly reduced the cost of surgeries; most of the LAICO's training is offered to the staff from other hospitals, there is also an international intake which is one-year fellowship programme to develop strong mid-level management capacity. LAICO provides training to produce highly qualified professionals who are absorbed back into the system. It ensures an inflow of highly qualified human capital.

AECS has succeeded in doing excellent work in the provinces of Tamil Nadu and Puducherry, and this can be mainly attributed to the culture and values of the organization, which have remained intact. Once the leadership shifts from the hands of the founding members, these values may slowly dilute over a period of time. Also, the competition from other eye care services adds tremendous pressure on the organization to pay its staff on a comparable scale. As of today, the brand value has attracted people from across the country; however, the issue of raising pay scales and retaining the staff, while keeping the costs at a minimum for the patient, is one of the issues to be dealt by Aravind. It has a lot of scope to further develop its services in other aspects of ophthalmology and expand its services to other states. However, the community's receptiveness to the programme would be a key for the success of the operations. The organization has succeeded in Tamil Nadu, solely due to their vast knowledge about the people in the state.

6. Replication

Starting from the 11-bedded hospital in 1976, the Aravind Eye Care System is now a big entity comprising 3,500 beds in 10 hospitals. The Aravind hospitals offer cost effective and quality eye care services in Tamil Nadu and Pondicherry. The outreach activities of Aravind have been successful in reaching the people of the adjoining states like Andhra Pradesh, Karnataka and Kerala. The Aravind model, in the past, has been attempted to be replicated in the form of management contracts at Sanjay Gandhi Institute of Medical Sciences at Amethi, Uttar Pradesh and Belle Vue Hospital in Kolkata. However, the experience of Aravind with management contracts and taking over of government hospitals

has not been very effective. The Aravind model is observed to work well when the entire chain of activities is replicated while replication of parts of the chain cannot yield effective results. In addition, the replication of the culture and values of AECS in a government environment is extremely challenging. The best operational practices of AECS can be replicated which include cataract operation procedures, the Vision Centres and telemedicine. If each state has 5 or 6 ophthalmologic or specialty eye hospitals, the Vision Centres can be strategically dispersed within a radius of 50-60 Kms. The high level of efficiency and quick turnaround of patients is the primary reason for Aravind to generate surplus revenues while charging a very low fee. When it comes to the government setting, it is also difficult to avoid influences that will break the principle and thereby creating dissatisfaction. If the Aravind model needs to be replicated, it is not only essential for hard elements like infrastructure, facilities and manpower but also soft elements such as adherence to discipline, being fair to employees and patients and very high levels of service orientation are to be taken care of.

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Appendices

Appendix - 1: Training for MLOPs

The mode of instruction for the training of MLOPs is Tamil. However, they are taught some basic English medical terminology and are trained in conversational English, so that it will help to communicate with the patients from outside the province and also to converse with doctors who may not speak Tamil. During the course of training, on the job experience is given due importance and the girls are rotated among all the different hospital units so that they can understand the entire process and work in any of the units when they are fully trained. The Ophthalmic Assistants are trained to perform various tasks in the Out-patient Department, Operation Theatre, Counselling, etc. They perform majority of the clinical routines, therefore allowing the doctors to solely focus on diagnosis and surgical responsibilities.

Training Module for the Paramedical Staff/ Ophthalmic Assistants		
Term – I	4 months	Basic training in science and human anatomy and physiology
Term – II	8 months	Ophthalmic Assistants selected for performing various tasks and are trained in the Department they are selected for.
Term – III	6 months	Apprenticeship with a trained nurse in the specified Department
Term –IV	6 months	Work in the hospital under the guidance of nurses and doctors
Source: Prahalad, 2004		

About 99% of these trained assistants are retained with AECS and they comprise at least 60% of workforce.

Appendix - 2: Vision Centre Infrastructure

(i) Human Resources

a. Vision Centre Technician: Diagnosis of common eye problems and refractive errors using trial set, direct ophthalmoscope, slit lamp, etc. and dispensing eye glasses, facilitating video consultations between patients and ophthalmologists.

b. Vision Centre Coordinator: Administrative functions such as Registration, Counselling, Accounting, Maintenance, Reporting, etc.

c. Vision Centre Field Worker: Engaged in service promotion and awareness through outreach programmes in the Vision Centre service area.

(ii) Equipment

Slit Lamp	Applanation Tonometer	Slit Lamp
Streak Retinoscope	Basic sterilizer	Streak Retinoscope
Direct Ophthalmoscope	78D Lens	Direct Ophthalmoscope
Trial Set	IPD Scale	Trial Set
UPS	Generator	UPS

(iii) Hardware & Software

- Computer with all accessories (40GB HDD, 256 MB RAM, Pentium IV) – Logitech 5000 webcam, headset, speakers, UPS)
- Printer Digital camera: Canon A540

- Connectivity: Internet Wi-Fi connectivity (minimum 2 mbps)
- Videoconferencing: Marratech Client 6.0; Server 6.0;

(iv) Scope of service in Vision Centre

Category	Case Finding	Referral	Intervention			Compliance & Follow-up
			Promotion	Prevention	Curative	
Cataract	+	+				+
Ref. error	+				+	+
Eye Care to children	+	+	+	+		+
Diabetic Retinopathy	+	+	+			+
Glaucoma	+?	+				+
Corneal injury & infections	+	+			+?	+
Key: + = can be done to the desired level +? = can be done to some level or some aspects of it can be done						

Service Promotion through Outreach

- Working with local NGOs, Physicians, Philanthropists
- Screening of Children, Employees in Industries, Diabetic patients etc.
- Awareness campaigns during World Diabetic Day etc.

Quality Assurance

- Every outpatient interacts with the doctor through Video Conference (VC)
- Vision Centre technicians and coordinators undergoes CME programme in base hospital to get updated to the advancements
- Constant monitoring and evaluation through performance parameters periodically
- An ophthalmologist and support team members from base hospital visit vision center once a month to ensure the quality in clinical and non-clinical areas. This is kind of medical auditing. The ophthalmologist screens few complicated cases during the visits.
- Maintaining medical records for all the patients visiting the Vision Centre

Pricing

- OP Registration: Rs. 20/- (< half a dollar) (for complete examination in VC)
- Spectacles ranging from Rs. 150/- to 800/-
- Blood sugar test: Rs. 25/-
- Medicines at MRP

Appendix - 3: Outcome of Aravind Eye Care System

The outcome of AECS is analysed through the application of SWOT technique. The SWOT analysis of AECS is presented below.

Strengths	1. Highly efficient and low cost delivery of eye care 2. Deep knowledge about the population of Tamil Nadu 3. Highly recognizable brand name in the state 4. Progressive management that is constantly innovating 5. Total control of the delivery chain right from demand creation to post-operative care 6. Well-developed system to select and train quality manpower, doctors as well as paramedics 7. A strong value system 8. Elaborate use of IT	1. Though a not-for-profit-trust, it is largely family driven 2. Due to a strong association with free and subsidized treatment, it is seen as a low end brand 3. Still largely a South Tamil Nadu and Puducherry 4. Research is still nascent 5. Perceived as a cataract surgery specialist. Other aspects of ophthalmology are relatively less known 6. The strong value system of Aravind comes in the way of scaling up quickly and also in management contracts.	Weakness
Threats	1. Rising competition from private and other chains like Vasan, Dr Agarwal etc. 2. Growing difficulty to attract young girls from villages to be trained as MLOPs 3. Pressure on costs due to rising wages. 4. Further productivity gains are difficult. Fees have to be increased	1. Rapidly ageing population and increasing life expectancy means more people need eye care; at least 20 % of the population 2. Diabetic retinopathy a fast growing segment 3. Geographical expansion to other states, starting with neighbouring states 4. Vision Care Centres combined with telemedicine is an area of vast potential 5. Aurolab can enter more medical devices and consumables 6. Allied treatments like diabetes 7. Taking over eye Departments in government hospitals in select states	Opportunities

Source: SWOT Analysis Report

Appendix – 4: Performance of Out-Patients - Hospital/Clinics/Outreach from April 2012 - March 2013

Out Patients - Hospital/Clinics	Madurai	Theni	Tiruneveli	Coim-batore	Pondi-cherry	Tirupur	Dindigul	Salem	Tutic-orin	Udumal-pet	Total
Paying Patients (New + Review)	516,154	80,003	253,100	346,280	240,965	38,998	60,969	90,071	39,793	21,306	1,687,639
Free Patients (New + Review)	154,406	21,967	67,241	11,1741	7,6187	1,506	-	-	2,140	9,165	444,353
Community Eye Clinics (including City Centres)	79,686	19,021	20,038	-	15,962	-	-	-	-	-	134,707
Vision Centres	108,502	49,549	54,283	29,806	28,579	5,611	-	-	-	-	276,330
Outreach											
Comprehensive Free EyeCamps	114,400	26,305	51,087	87,632	71,000	990	-	1,725	-	-	353,139
Diabetic Retinopathy Screening Camps	4,899	2,634	1,978	15,794	5,549	-	-	154	-	-	31,008
Refraction Camps	11,091	3,657	13,086	15,768	10,319	-	-	656	-	-	54,577
School Eye Screening Through Base Hospitals	2,315	1,577	1,056	9,088	8,145	-	-	333	-	-	22,514
School Eye Screening - Through Vision Centres	1,723	-	313	899	114	-	-	-	-	-	3,049
School Eye Screening by Lavelle Project	-	-	16,452	-	19,596	-	-	-	-	-	36,048
Paediatric Eye Screening	1,021	2,508	11,416	3,745	29,377	-	-	-	-	-	48,067
Mobile Van Refraction Camps	-	6,011	-	-	-	-	-	-	-	-	6,011
Total Out Patient Visits	994,197	213,232	490,050	620,753	505,793	47,105	60,969	92,939	41,933	30,471	3,097,442

Source: Aravind Eye Care System Activity Report 2012-2013

Appendix - 5: Performance of Surgeries and Laser Procedures from April 2012 - March 2013

Surgeries	Madurai	Theni	Tiruneveli	Coimbatore	Pondicherry	Tirupur	Dindigul	Salem	Tuticorin	Udumalpet	Total
Paying Patients	69,298	6,507	26,956	41,418	25,478	1,934	2,952	7,763	1,482	823	184,611
Subsidized (Walk ins to Free Hospital)	41,637	3,292	12,227	25,566	12,974	381	-	8	335	861	97,281
Free Patients (Through Outreach)	35,647	3,360	13,470	19,071	16,943	87	-	1,423	-	-	90,001
Total Surgeries	146,582	13,159	52,653	86,055	55,395	2,402	2,952	9,194	1,817	1,684	371,893
Surgeries in Detail											
Cataract Surgeries	98,436	10,646	33,824	52,334	35,156	1,895	2,042	6,129	1,148	1,305	242,915
Trab and Combined Procedures	2,417	240	1,176	1,950	735	48	26	107	26	-	6,725
Retina and Vitreous Surgery	4,778	5	1,063	3,500	1,248	1	-	245	2	-	10,842
Squint Correction	1,061	0	294	620	242	-	-	-	1	-	2,218
Keratoplasty	960	3	357	853	226	1	-	4	0	-	2,404
Pterygium	1,752	227	434	1,049	786	27	41	185	14	1	4,516
Ocular Injuries	551	15	128	790	381	2	2	52	0	1	1,922
Lacrimal Surgeries	3,078	101	871	943	1,274	44	-	58	8	-	6,377
Laser Procedures	24,674	1,673	11,841	18,711	11,351	315	793	2,154	554	344	72,410
Other Orbit and Oculoplasty Surgeries	3,233	181	1,075	1,619	1,459	49	37	123	55	16	7,847
Others	2,697	68	728	2,440	1,438	20	11	137	9	17	7,565
Refractive Surgery	2,945	-	862	1,246	1,099	-	-	-	-	-	6,152
Total Surgeries	146,582	13,159	52,653	86,055	55,395	2,402	2,952	9,194	1,817	1,684	371,893

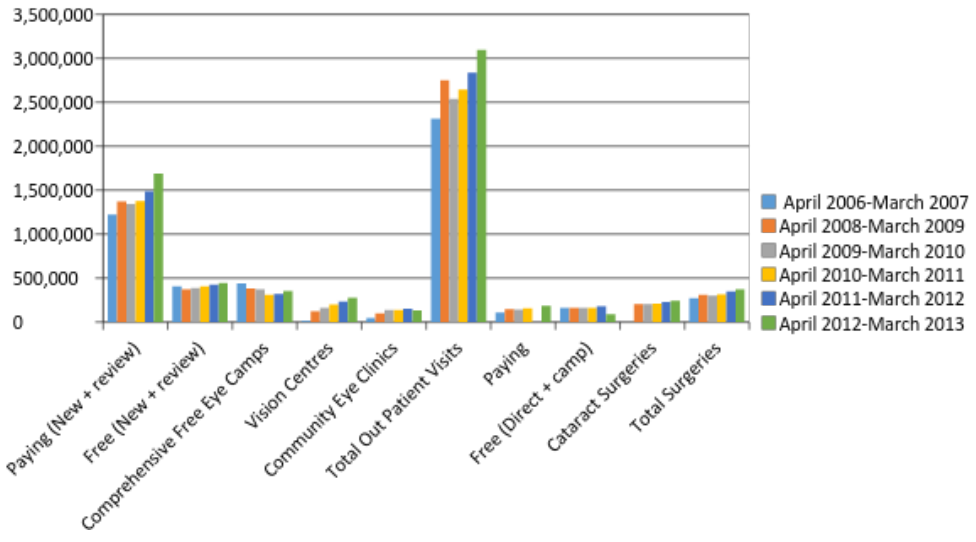
Source: Aravind Eye Care System Activity Report 2012-2013

Appendix – 6: Key Performance Indicators of Aravind Eye Care System from April 2006 –March 2007 to April 2012-March 2013

Agglomeration	April 2006-March 2007	April 2008-March 2009	April 2009-March 2010	April 2010-March 2011	April 2011-March 2012	April 2012-March 2013
Out Patients						
Paying (New + review)	1,220,795	1,371,029	1,341,582	1,378,150	1486,859	1,687,639
Free (New + review)	405,329	373,642	387,523	405,177	426,470	444,353
Out Reach						
Comprehensive Free Eye Camps	439,366	383,609	371,006	312,129	320,808	353,139
Vision Centres	13,871	123,198	159,634	201,512	234,695	276,330
Community Eye Clinics	43,621	100,249	138,159	136,897	152,057	134,707
Total Out Patient Visits	2,313,398	2,748,216	2,539,615	2,646,129	2,838,689	3,097,442
Surgeries						
Paying	110,314	146,206	141,030	155,089		184,611
Free (Direct + camp)	159,048	162,809	161,150	160,394	178,984	90,001
Cataract Surgeries	NA	204,672	202,481	207,874	227,976	242,915
Other Surgeries	NA	7,877	5,540	6,081	7,443	7,565
Total Surgeries	**270,444**	**309,015**	**302,180**	**315,483**	**349,274**	**371,893**

Source: Combined data from different years of Aravind Eye Care System Activity Report

Appendix – 7: Key Performance Indicators of Aravind Eye Care System from April 2006 – March 2007 to April 2012-March 2013



Source: Aravind Eye Care System Activity Report of Different Years

15. Improved Health Care Through Access to Generic Medicines Chittorgarh, Rajasthan

15. Improved Health Care Through Access to Generic Medicines Chittorgarh, Rajasthan

15.1 Improved health care through access to generic medicines – Chittorgarh, Rajasthan - Teaching notes

1. Case Synopsis

The main objective of this case is to have a distribution system of generic medicines, which are very cost effective, freely accessible to the poor and marginalized sections of the population. Presently, these sections are suffering due to high cost medicines, which make their financial resources dried up for medical treatments and pushed towards below poverty line.

Even though our pharmaceutical industry is the world's largest and produces bulk of the generic medicines, the patients who are at the losing end are the underprivileged categories. To increase visibility and to gain market share, drug manufacturers employ medical representatives to lobby with doctors and convince them to prescribe their expensive branded medicines instead of generic medicines in return for various privileges

To overcome these problems and for ensuring proper distribution system, Rajasthan Government set up a Rajasthan Medical Service Corporation (RMSC) to stream line the distribution system of free medicines and generic medicines through establishment of Drug Distribution Centers (DDCs) and District Drug Warehouses (DDWs). They are monitored by RMSC through online and e-Procurement system so that the distribution system functions effectively.

2. Focal Point

The main aim of the project is to provide access to generic medicines for all poor and downtrodden sections of the Rajasthan, so that their health needs are taken care of.

3. Learning Objectives

a. Creating awareness on the generic medicines, to empower people on the usage of generic drugs over the branded ones.
b. Establishment of a centralized authority for streamlining the processes and implementing the scheme (namely RMSC).
c. To increase the people's trust on the government institutions by developing a system which is transparent and accountable.
d. Adopting modern technology like online and e-Procurement procedures.

4. Suggested questions during discussion

a. Why generic medicines are not prescribed by doctors and the reasons for the preference of branded medicines.
b. What are the advantages of generic medicines?
c. How do generic medicines differ in quality with the branded ones?
d. What are the administrative measures taken by the government in promoting generic medicines?
e. To what extent, they are available for common man in normal medical shops?

5. Role playing and simulation options

The replication methodology can be taken up for other states of India in providing generic medicines for the needy.

Around thirteen other states in India run free medicine distribution schemes. The table below gives details of these states

Sl. No.	Name of the State	No. of Drugs in EDL
1	Andhra Pradesh	162
2	Assam	270
3	Bihar	280
4	Delhi	250
5	Chhattisgarh	374
6	Gujarat	423
7	Haryana	300
8	Jammu & Kashmir	300 (Approx.)
9	Karnataka	246
10	Kerala	528
11	Madhya Pradesh	203
12	Odisha	100
13	Tamil Nadu	268

Other states in India with free drug distribution schemes
Source: Rajasthan Medical Services Corporation

Among these thirteen states, not all have dedicated centralized machinery for the procurement, quality control and distribution of medicines. T.N., Karnataka, Kerala are few states that have such centralized machinery. The T.N Medical Corporation (*Refer to Annexure 4*) is amongst the first and most well run organized institutions in this field in the country and has been a major source of inspiration, guidance and a model for the inititative in Rajasthan. The point where the initiative in Rajasthan is different is its focus on generic medicines and the combination of its fair price shops and free drug distribution centres.

States across the country can learn from the Rajasthan model's emphasis on generic medicines, which not just saves costs for beneficiaries but also for the state while keeping its comitments under free medicine schemes. The model that began in Chittorgarh is a revolutionary model. It is self sustaining, economical and workable in the long run. It provides an excellent example of tapping the ccountries untapped resources in a well planned manner. Not only is an effort being made to provide most essential medicines to people at free of cost but also a system is in place to ensure low cost supplies in case of emergencies. Such a well knit network of fair price and free medicine centers has made medicines largely accessible by the people of Rajasthan. States all across the country should make efforts at spreading awareness about generic medicines at all government medical institutions. This has the potential of significantly altering the nature of cure in the country.

The success of the effort in Rajasthan has been facilitated by the streamlined procedures adopted through the RMSC at all levels, be it procurement, quality control or distribution. This success of the initiative has been possible due to the political will and good leadership of government officials and this is reflected in the manner in which the initiative was up scaled from one district Chittorgarh to the entire state andd motivated the creation of a state wide scheme.

That said, as of now many mefor chronic illnesses are beyond the reach of the people not just in Rajasthan but across the country. In order to deal with this issue, efforts need to be made at the national level. The NLEM should be increased to about 500 medicines from its current list of 350 to include mdedicines for rare conditions and unnecessary fixed dose combinations and drugs of doubtful or no value can be removed. The prices of all medicines should be regulated and pressure should be built on all medical associations across the country to bind doctors to prescribe generic medicines compulsory with few exceptions. Such efforts can go a long way in creating people access to affordable medicines and ability to receive adequate treatment.

6. Time Management Plan

The time schedule in the class room for this program is 90 minutes.

Introduction: 10 minutes.

Importance of Generic medicines especially monetary benefits: 10 minutes

Discussion on differences & similarities between generic medicines & branded medicines: 30 minutes.

Different classes of generic medicines and distribution methods: 30 minutes.

Conclusions: 10 minutes.

15.2 Improved Health Care Through Access to Generic Medicines Chittorgarh, Rajasthan

Introduction

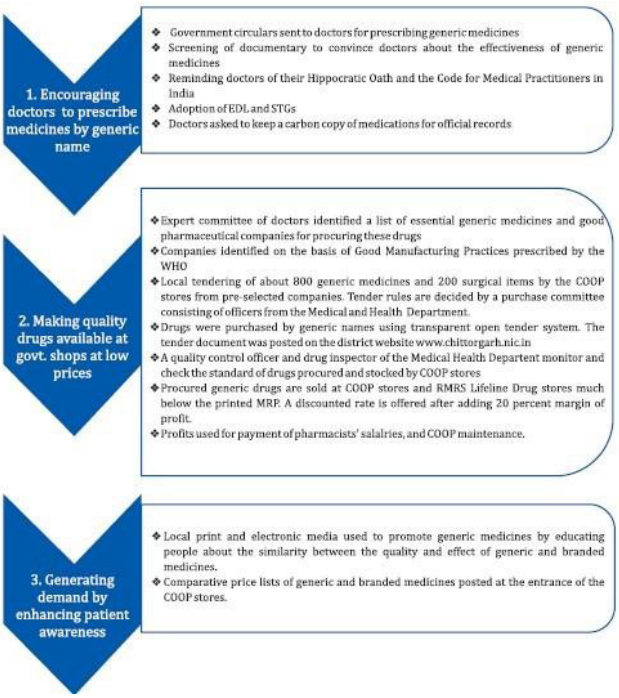
A major portion of the income of Samsher, a farmer from Rajasthan's Chittorgarh district, goes into the purchase of medicines for his ailing parents and wife. Ever-growing cost of the medicines, in fact, crippled the family financially. He borrowed money from his friends and relatives only to meet the medical expenses of his family members. However, the Chittorgarh officials' initiative provided the much-needed succor to Samsher and many more families in the district.

Notwithstanding the fact that our pharmaceutical industry is the world's largest and it produces bulk of the generic medicines, patients are still forced to pay more for medicines. Even though the production cost is very low compared to the selling price, the flattened cost is due to an unholy nexus among drug companies, medical representatives and some medical practitioners. With the sole aim of increasing their company's visibility and profitability, drug manufacturers employ medical representatives to lobby with doctors, who in turn prescribe expensive branded medicines instead of generic medicines in return for various freebees and privileges.

To put a check to this unethical business practice, the Government of Rajasthan (GoR) is providing access to low cost generic medicines for patients. It had set up a workable frame work to achieve its objective of access to generic medicines to poor and marginalized families like Shamsher's.

The frame work was based on the past experiences. In 2007, the district administration of Chittorgarh in Rajasthan came up with an initiative to provide low cost drugs to the people with a three-point mission:

1. Asking doctors to prescribe generic medicines instead of patented ones.
2. Procuring quality drugs for the government run co-operative stores.
3. Spreading awareness among the target groups to avail this affordable healthcare mission.



The detailed description is as shown below:

Implementation strategy of the low cost generic medicines initiative in Chittorgarh

In this direction, the district administration has setup low cost drug shops, wherein the generic medicines were given free of cost. These shops are on the lines of Fair Price Shops. After the initial resistance, private pharmacists also started supplying generic medicines rather than branded ones, which is a notable achievement. Still the GoR had some practical difficulties at the field level.

The state purchase organization under the Medical and Health Directorate of Rajasthan is responsible for procurement and distribution of medicines to government health institutions across the state. It had a mandate of only 45 types of essential medicines and the hospitals were advised to procure medicines needed additionally all on their own. This organization, even though its objectives were good, failed to achieve them at ground level. Supply and packaging of essential medicines and surgical equipment, lengthy contract processes, poor maintenance, inadequate logistical support, quality control issues, inventory management problems and a lack of dedicated Information Technology (IT) support to manage the activities are some major concerns.

Implementation Strategy

1. Taking into consideration all these ground level problems, state government established a company named "Rajasthan Medical Service Corporation" (RMSC) under Company's Act 1956, to achieve its objectives and act as a nodal agency for ensuring smooth functioning.
2. RMSC is responsible for the centralized system of procurement, quality monitoring and distribution of drugs. Infrastructural development which includes upgradation of District Drug Warehouses (DDWs) and establishment of Drug Distribution Centers (DDCs) was also undertaken.
3. Formation of monitoring committees at the district and state level to ensure smooth progress of all the work for the scheme's implementation and to ensure the allegiance of all government medical facilities with scheme norms.
4. Creation of awareness on this scheme through issuance of government orders and circulars to all government hospitals informing about the formation of RMSC and other schemes like Chief Minister's free medicine scheme etc., and the steps that hospitals need to take for implementing these schemes. Subsequently circulars were also sent to doctors asking them to prescribe only generic medicines. Further, efforts were made to create awareness among the public and beneficiaries.
5. Rajasthan Medical Service Corporation (RMSC): This corporation had different operating units catering to each activity. There are five units i.e. for procurement, finances, logistics and supplies, quality control and IT.
    a. Procurement: This unit framed a procurement policy to eliminate inconsistencies in the procurement procedure of medicines/drugs. A Technical Advisory committee (TAC) was constituted by the board of directors to provide guidance and supervise various technical issues regarding procurement of drugs and other items.

       After studying the National List of Essential Medicines (NLEM), Rajasthan State's Essential Drugs List (EDL), Standard Treatment Guidelines (STG) and after referring to the EDLs of other states (Tamil Nadu, Karnataka, Kerala and Delhi) the procurement unit prepared their own list of drugs, surgical and diagnostic kits. The new list meets the standards of efficacy, safety, suitability and cost effectiveness. The specifications of the drugs to be procured will be decided in consultation with the TAC of RMSC. Procurement is carried out on the basis of requirements ascertained from all state controlled health facilities. The procurement list is revised time to time and its focus is on the procurement of

cheap generic medicines only. Thus RMSC procures about 400 essential medicines, 42 surgical items and 71 drugs prescribed by various national health programs centrally.

The entire procurement is through an open tender two bid system – technical and financial. After the public opening of the tenders, the technical bids of all the companies are evaluated. All companies, who are participating in the bidding, must have a turnover of INR 20 crores and their manufacturing practices must meet the Good Manufacturing Practices (GMP) of World Health Organization (WHO). They must also have a quality control laboratory to check the products. An inspection team consisting of quality control experts from Drug control department of RMSC and end user departments verify the suitability and credentials of the companies bidding the tender.

Contracts are awarded for those technically qualified bidders who quote the lowest price (L-1). In this procurement system, purchase preference is restricted to 25%, out of which state pharmaceutical companies receive 10% preference and small scale industries 15% if they match the L-1 rate, unlike earlier 100% and 80% respectively. After finalizing the rates, the entire purchase details are placed before purchase committee for its verification and approval. After the approval the purchase orders are placed for execution of agreements and security deposits. The L-2 and L-3 bidders are kept at reserve for any additional requirement or exigency. In case the purchase committee does not approve any bids, tenders are re-invited and the process starts afresh. RMSC initiated an e- procurement system and the work flow of the system is as below:

The logistics unit of RMSC compliments the procurement process. It sends the RMSC procurement list to district project coordinators who take these lists to hospitals and record their needs of all the medicines. The record of medicine requirement is sent back to RMSC on the basis of which the purchase orders are placed for the requisite quantities of different medicines. The movement of the required medicines and other items to DDW is monitored by the logistics unit. The logistics unit was made responsible to strengthen the DDWs by providing infrastructural and human resource facilities.

The infrastructural up-gradation/strengthening includes 1. Seating space for staff 2. Adequate facility for storage of medicines. 3. Quarantine area for storing medicines, waiting for quality control approval 4. Cold storage facility. Along with the infrastructural facilities, extensive man power deployment was also carried out.

Inventory Management

Once the supplies are received from the pharmaceutical companies, clear guidelines are issued to each DDW for recording receipt details and ensuring proper facilities for their storage. The logistics unit will closely monitor the stocking of medicines and surgical equipment in the DDWs and their utilization. To ensure complete recording and monitoring of the movement of products in and out of the DDWs, various mechanisms and procedures are adopted.

- Maintenance of inward and outward goods register to track the receipt of products from companies, their outward and inward movement during quality control and issuance to hospitals.
- Maintenance of expired drugs register so as to separate them and take necessary action.
- Indent forms to be filled by the hospitals to raise their medicines demand.
- Maintenance of passbooks for issuance of drugs to hospitals. For every hospital and medical center, there are two passbooks. One is with the DDW and other one with the concerned hospital/medical center. When the hospitals raise the indent form for medicines, at the time of delivery of medicines, DDW records in both the passbooks, the quantity of the medicines issued with the signatures of DDW in-charge and the receiver from the hospital.
- Online inventory management software e-Aushadhi.

e-Aushadhi

e-Aushadhi is a web based application that deals with the management of stock of various medicines and drugs. This software was developed by Centre for Development of Advanced Computing (C-DAC) and continuously upgraded in-house by the IT unit of RMSC. The software utilizes a propriety software Oracle for the back end and Java for the front end.

Key features

- Drug inventory desk to store, maintain, update, search & display information related to medicines & drugs.
- Drug issuance desk for indent generation and issuance of medicines to hospitals, medical centers and other institutions.
- Quality control desk for tracking quality of the products.
- Sample register for recording the receipt of sample, return of sample and disposing of sample.
- Condemnation register desk.
- Drug locator and transfer of drugs to help the location of drugs in different warehouses and facilitating transfer of drugs between drug warehouses whenever needed.
- Ability to prepare comprehensive reports.
- It also helps in maintenance of record of lost drugs, returned drugs, any miscellaneous consumption and conducting periodic physical stock verifications by cross checking it with database.

The software is given to

- Suppliers to check the delivery and status of their products.
- Chief Medical & Health Officer (CM&HO), Principal Medical Officer (PMO) for monitoring.
- The heads of various units of RMSC.
- All DDWs for inventory management and transfer of drugs to and fro.

Necessary precautions have been taken at DDWs with proper provisions of security against fire, pests etc. A cold storage facility is arranged for safe keeping of medicines with proper labeling of all racks.

The figure shown below indicates the operations carried out by the quality control unit of RMSC.

If the drug falls short of any parameter, action is taken by the quality control department immediately. The stock of medicines from that batch is frozen, removed from the main stock and kept separately until it is cleared by quality control department. If it is found that the medicine fails to meet its specifications, steps are taken to return to the supplier. If he does not take them back within 30 days, a penalty is imposed on a weekly basis till the stock is destroyed by RMSC (90 days). The amount of penalty is 2% of the total value of the stock in warehouse.

Distribution of drugs

For free distribution of generic medicines and surgical equipment, free Drug Distribution Centers (DDCs) have been set up across the state from the level of district hospital to primary healthcare centers and hospitals of medical colleges.

These DDCs can obtain generic medicines and surgical equipments from DDWs by raising indent forms and maintaining records in their respective passbooks. The request for medicines by the health sub-centers can be filled by concerned Primary Health Centers (PHCs). The transportation cost of medicines from DDWs to concerned medical facilities are borne by RMSC. Particular dates are fixed for transportation.

Apart from DDCs, generic medicines are also made available at the Below Poverty Line (BPL) counters.

Monitoring and grievance reprisal

RMSC is the primary monitoring body and also monitoring committees have been formed at each district level to monitor the progress of DDWs. And they will address the grievances of people.

Awareness Creation

The most important thing in this whole process is convincing doctors to prescribe generic medicines and creating awareness among the citizens, villagers about the scheme. For this purpose, various Information Education & Communication (IEC) activities were conducted across the state, posters were circulated, awareness vehicles were moved across the state and information was provided at all government hospitals. Electronic and print media was utilized for generation of awareness. Doctors were issued circulars and government orders to prescribe generic medicines. Doctors were asked to keep a carbon copy of their prescriptions that could be randomly checked by monitoring officials.

Financial provisions

From the Chief Minister's Free Medicine scheme, the medicines are given free of cost. The funding for this scheme comes from Central Government to an extent of 50% and rest from state funds. Each hospital and institution's budget is mentioned in its passbook and on the basis of this medicines are made available. Every entry is recorded in the passbook. Apart from this, 20% funds are kept in reserve for emergency. DDCs are given 10% for local purchases.

Sustainability

This improved healthcare through access to generic medicines scheme in Rajasthan, it is also a financially well planned scheme which covers a vital public need and provides relief to a larger portion of the state's population. The long term implementation strategies have made a culture of long term transparency and sustainability and make it a successful scheme even in long term.

Benefits

1. Creating access to affordable medicines across Rajasthan.
2. It increased the people's trust on government institutions. After the launch of the scheme, number of patients coming to government hospitals increased from 44 lakhs to 62 lakhs per month.
3. Increased transparency through technology aided procedures.
4. Creating awareness about Generic medicines.

Challenges

1. Convincing doctors and patients to use generic medicines. Though the Government Orders and circulars were being issued, still some doctors prescribe branded medicines as they are influenced by pharmaceutical companies. Similarly, it is also very difficult to convince the patients on use of generic medicines as they feel the cheaper medicines are not of good quality.
2. Availability of medicines is also a challenge.
3. Lack of clarity in understanding the scheme benefits.

Potential for Replication

States across the country can learn from the Rajasthan's model of generic medicines, this is cost effective for the beneficiaries and also for the state while keeping its commitment under free medicine schemes.

The success in Rajasthan has been facilitated by the procedures which were streamlined through RMSC at all the levels.

Annexure 1

The cost difference from Generic and Branded medicines (a few examples are given). For RMSC list of medicines please see the CIPS report.

S.No.	Name of the Drug	Quantity	Branded one Cost	Generic One Cost
1.	Ciprofloxacin 500	10 tab.	60.54	12.85
2.	Nimesulide	10 tab.	25.00	2.12
3.	Cetrazine	5 tab.	17.50	0.75
4.	Amikacin	14 inj.	980.00	121.38
5.	Ofloxacin	14 tab.	91.00	12.88
6.	Paclitaxel/Innotaxel	Inj.16.7 ml	4022.00/4500.00	338.66
7.	Azithromycin	10 tab.	308.33	58.80
8.	Doxorubicin	25 ml.vial	1725.00	212.47
9.	Clopidogrel	10 tab.	215.50	6.10
10.	Albendazole	10 tab.	175.00	6.28 + VAT

CIPS Report Link: http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Health/Generic-Medicines/access-to-low-cost-generic-medicines-rajasthan.pdf

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16. *Improved Rural Health Care through Rural Medical Practitioners in Assam*

16. Improved Rural Health Care through Rural Medical Practitioners in Assam

16.1 Improved Rural Health Care through Rural Medical Practitioners in Assam - Teaching Notes

1. Case Synopsis

The current health indicators reveal, more in the case of North Eastern states including Assam that the primary health services do not seem to be working very efficiently and effectively within the tenets of public health system. The overall health indicators are directly proportional to the medical resources in rural areas, which are accessible only to a little over 50% of total population of the state. Getting access to primary health care services at a Sub-Centre or Primary Health Centre (PHC) is challenging especially in hard to reach rural areas. Often it has been observed that even if one succeeds reaching a PHC, chances are that the centre would be ill equipped, under staffed and in many cases without a doctor. This is the real state of affairs in most of rural India regarding health care.

Assam government has tried to circumvent this crisis by attempting to reinforce supply of primary health service providers through creation of a new education program focusing on community based rural health. This education program is the evolution of the course "Diploma in Medicine and Rural Health Care" (DMRHC), which is aimed towards meeting acute shortage of skilled medical human resources in rural areas of Assam. The diploma holders are called Rural Health Practitioners (RHP). This was necessitated to fill up the urgent need of vacancies in the rural areas with trained medical human resources.

2. Focal Point

The main aim of this course is to bridge the divide of health care in rural areas by appointing the candidates successfully completed this diploma course as a supplement to the doctors unavailable to the rural India.

3. Learning Objectives

a. Health Care Service to the Rural Population of India: This program caters to the health care needs of rural population of India. It has proved during last three years that it is a very effective program and could treat nearly 20 lakh outpatients and perform nearly 13,000 maternal deliveries.
b. Execution of the Program: The plan and execution by Assam government in establishing a medical teaching institute and using the diploma holders for health care needs of rural population is worth noting.
c. Finances from Government funds – best utilization. The program is being largely subsidized by State Govt. and puts less financial burden on the incumbents and retains the lucrative appeal even with the limiting factor of rural posting at sub-centres.
d. Bridging the divide: This program bridges the gap between doctors working in the PHC and the outreach section of people of rural community. It replaces village quacks and self-made doctors in those areas spreading unscientific knowledge of health with trained health personnel.

4. Suggested questions during discussion

a. To what extent this diploma course is able to help the rural population health care?
b. What are the promotional and carrier opportunities of RMPs?
c. The investments in these programs are supported by government. How long is the support and can they generate resources on their own?
d. Do they have authority in critical cases at rural places, where hard/or little communications are available?

5. Role Playing and simulation options

Considering the RHP program as a part of learning continuum, other states can certainly benefit from its experience, and adopt best practices suiting their own local conditions. Since the Licentiate Medical Practitioner (LMP) program was discontinued by Medical Council of India (MCI) in 1964, The RHP program being in its tenth year now, qualifies to be the longest surviving one that has gained momentum in scale in days to go ahead. With changes in outcome indicators slowly becoming visible, the Assam model of the RHP program is generating credibility in proving the concept and seems well poised to cross the boundaries of the state in forth coming future.

6. Time Management Plan

The aim was achieved with proper planning of time bound course with practical utilization of the imparted education and training to the young generation for the development of rural India.

Class room schedule: 90 minutes.

Introduction: 10 minutes

About the Course details: 30 minutes

Beneficiaries of the course and utilization of the diploma holders in rural healthcare: 30 minutes.

Replication and conclusions: 20 minutes

16.2 Improved Rural Health Care through Rural Medical Practitioners in Assam

Introduction

A 25-year-old Jayanta Kalita was bitten by a snake in the midnight in a highly remote village in Assam. His parents and friends were worried because it would take at least three hours to shift him to a hospital in a nearby town, located 25 kilometers away from the village. On noticing froth coming out from Jayanta's mouth, his father summoned Chitraroop, a medical practitioner in the village.

Chitraroop, without wasting any time, rushed to Jayanta's home and gave him the first aid. He also administered a dose of anti venom serum to Jayanta before shifting him to the hospital in the town. Thanks to the Chitraroop's timely treatment, Jayanta could save his life. Chitraroop is not a medical doctor but he acquired the medical knowledge by working under a famous doctor in the town for six years. Besides, he did a diploma course in medicine.

All said and done, medical practitioners like Chitraroop are an integral part of the highly populous countries like India. The World Health Statistics Report (2011) says the density of doctors in India is six for a population of 10,000. India is ranked 52 among 57 countries facing human resource crunch in healthcare and is expected to take at least two more decades to reach the WHO's recommended norm of one doctor per 1000 people. Hence, the rural population of India, at staggering 870 million, has some succor in relying on medical practitioners like Chitraroop.

The current health indicators reveal that the primary health services do not appear to be working very efficiently and effectively within the tenets of public health system. It is more so in the case of North Eastern states, including Assam. The overall health indicators are in a way directly proportional to the medical resources in rural areas, which are accessible only to a little over 50% of total population of the State. Accessing primary health care services at a Sub Centre or Primary Health Centre (PHC) is challenging especially in hard to reach rural areas. Often it has been observed that even if one succeeds reaching a PHC, chances are that the Centre would be ill-equipped, under staffed and in many cases without a doctor.

The Government of Assam tried to circumvent this crisis by attempting to reinforce supply of primary health service providers through creation of a new education program focusing on community based rural health. This education program is an evolution of a course "Diploma in Medicine and Rural Health Care" (DMRHC), which is aimed at meeting acute shortage of skilled medical human resources in rural areas of Assam. The diploma holders, called Rural Health Practitioners (RHP), are coming in handy in treating minor diseases apart from attending to urgent cases.

The population of Assam is 31.17 million as per 2011 census and is scattered across twenty-seven districts and 26,312 villages. The health care scenario in select states is presented in Table 1. The data depicts two facts. Firstly, it shows the skewed distribution of allocated medical infrastructure. Secondly it shows easy correlation of its impact on key health indicators.

Table 1.

State	Population	No. of Medical colleges	No. of MBBS seats	Infant mortality rate (IMR)	Maternal Mortality Rate (MMR)
Mizoram	10,91,014	0	0	37	163
Meghalaya	29,64,000	1	50	55	349
Assam	3,11,69,272	5	626	58	390
West Bengal	91,347,736	15	2000	32	145
Karnataka	6,11,30,704	43	6005	38	178
Maharashtra	11,23,72,972	43	5195	28	104
Kerala	3,33,87,677	23	2850	13	81
Andhra Pradesh	8,46,65,533	40	5600	46	134
Tamil Nadu	7,21,38,958	42	5555	24	97

Plan of Action to improve the situation

A Diploma in Medicine and Rural Health Care (DMRHC) fills up the urgent need in the rural areas for trained medical human resources. Therefore, the Assam Rural Health Regulatory Authority under the powers conferred in it by the Assam Rural Health Regulatory (ARHR) Act 2004, started a three-year full time diploma course. The course is designed with a special focus on primary health, with the intent of creating a cadre of professionals, to be registered as Rural Health Practitioners (RHP) on completion of the course and internship.

Placement, Powers, Authority and Responsibilities of RHPs

The RHPs are placed at the level of Primary Health Centres (PHCs) and Sub Centres as per the vacancies declared by the government. They are permitted to treat a series of ailments and perform certain medical procedures as defined by the employing authority, National Rural Health Mission (NRHM) Society. With the power vested in them through registration, they are authorized for practice only within a primary care set up defined by the government. This course however, does not offer a license to practice modern allopathic medicine as a private practitioner and also does not authorize RHPs to be addressed as a doctor or allow the prefix Dr. as a symbol of recognition.

- The rural health practitioners are permitted to treat diseases, prescribe drugs and carry out only those procedures that have been outlined in the relevant rules.
- RHPs are not allowed to carry out any surgical procedures, invasive investigations or treatment.
- Medical treatment of pregnancy is permissible under specific guidelines.
- RHPs are permitted to practice only in notified rural areas as defined in the ARHR Act.
- RHPs are permitted to issue illness certificates and death certificates.
- RHPs are required to maintain name, address, age, sex, diagnostic & treatment records of all patients treated by them.
- RHPs are not eligible for employment in hospitals, nursing homes and health establishments in Urban areas (e.g. as General Duty Physicians involved in patient care, at Out Patient Department, Emergency & Indoor services etc.)

Objectives of the initiative

- To increase the supply of trained manpower in the rural areas of Assam.
- To bridge the gap between doctors working in the PHC and the outreach section of the people of rural community.
- To facilitate efficient implementation of government health programs.
- To fill up the vacant posts of health personnel in rural areas.
- To replace village quacks and self-made doctors in those areas spreading unscientific knowledge of health with trained health personnel.

Execution of the Program

Course Location:

Initially the course was conducted at Jorhat Medical College and the doctors of the Hospital were entrusted the job of teaching and training the students of DMRHC course. Later on 8th April, 2005 a Government Order was issued for establishing a Medical Institute at Jorhat, exclusively for teaching this course and infrastructure and human resources were created. On 9th December, 2010, the Government of Assam passed an order to use Jorhat Medical College Hospital for purpose of practical training of the students of DMHRC. Medical Institute, Jorhat got affiliated to Sri Sankardeva University of Health Sciences in 2009. Since 2005, eight batches have been enrolled and 361 students have successfully completed the course and have been registered as Rural Health Practitioners (RHPs). Among them, 354 personnel have already been posted across different districts of Assam with budgetary provisions made under NRHM.

Medical Institute, Jorhat – Facilities

The definition of "Medical Institute" as a teaching institution for the DMRHC course comes under certain norms with minimum accepted levels of infrastructure and resource allocation for a minimum batch strength of 100 students.

The Medical Institute should have an independent campus with the teaching hospital situated within three kilometers radius. It should have an administrative block and three class rooms of hundred seating capacity each. Three rooms of thirty-five seating capacity each should exist for tutorial rooms. There should be one more practical hall with facilities for practical work in pathology, microbiology, hematology, physiology and pharmacology, for basic demonstrations. Also an additional hall accommodating at least ten tables for dissecting cadavers is necessary. A library including a fifty seating capacity reading room with different text books is essential. Provision of Hostel is preferable. Such Medical Institutes are empanelled with Medical College, Jorhat for practical training of the courses.

The following outpatient services are run regularly in the Hospital of the Institute:

a. Medicine–for simple clinical ailments like fever, malaria, typhoid, cough & cold, diarrhea, dysentery, abdomen pain, hypertension, asthma, tuberculosis, skin diseases, leprosy, Sexually Transmitted Disease and other common medical problems.
b. Surgery– Minor surgical problems like management of wounds, abscess, uncomplicated fractures, first-aid in cases of accident, application of splints and bandages etc.
c. Pediatrics– common childhood problems, vaccination and nutrition.
d. Obstetrics &Gynecology – Care of antenatal cases, vaccination of mother, nutritional aspects of mother, family welfare counseling and common gynecological problems.
e. Laboratory – basic pathological tests for blood, stool, urine, blood for malarial parasite, sugar, urea, Widal test etc.
f. Radiology– Plain X-ray of chest and abdomen, skeletal X-rays, barium meal X- ray, barium meal follow through and barium enema X-ray, intravenous Urography, Ultrasonography etc.

g. In-patient services for all common diseases including surgical treatment for general surgical and O&G patients.

DMRHC Course details

The curriculum of the Diploma in Medicine and Rural Health Care (DMRHC) is oriented towards training students to undertake the basic responsibilities of a physician at first contact, capable of looking after the preventive, promotional and curative aspects of health in the rural areas. It has been framed in such a way that the RHPs can be trained to deal with common diseases and obstetric cases including family planning programs and can help in implementation of the National Health programs.

The curriculum of DMRHC includes subjects like anatomy, physiology, biochemistry, community medicine, pathology, microbiology, general medicine, O&G, surgery (including Orthopedics, Basics of Eye, ENT & Dentistry).

As part of the course design, theoretical, practical and clinical knowledge are imparted in three phases.

Phase I: Anatomy, Physiology, Biochemistry & Community Medicine.

Phase II: Community Medicine Part-II, Pathology, Microbiology & Pharmacology.

Phase III: Medicine, Pediatrics, Surgery & allied subjects, Obstetrics & Gynecology.

Concepts of Nutrition are integrated into the syllabus as part of the Community medicine module.

Each phase is a course of one-year duration and at the end of each year, students need to clear the annual examinations conducted by Srimanta Sankardeva University of Health Sciences, Assam. The text books of MBBS course are given to the students on loan basis and need to be returned after the completion of the year. Classes are taken regularly throughout the year except on government holidays.

Students appearing for Phase I and Phase II examinations are allowed to attend second and third year classes respectively. Students failing to clear any subject/subjects are allowed to sit in the repeat examinations. If the candidate fails to clear the subject/subjects then he/she will have to appear in the subject(s) in the next Phase I & Phase II examinations. No student is allowed to appear for the Phase III examination unless he/she passes in the subjects of Phase I & Phase II examinations.

Internship

After completion of the course, students undergo internship for six months. Emphasis is given on community health care practices and the students are given practical exposure to prevalent health problems in the rural health communities. They are further trained on methods of managing community based issues relating to personal hygiene, sanitation, nutrition, immunization, birth control, etc.

After successful completion of the course, they are appointed as RHPs by NRHM society.

The terms of reference of their appointment

A Rural Health Practitioner is guided by certain norms and regulations while being appointed for rural placements by the NRHM Society. The frame work defining the job description and operating principles are clubbed together under “Terms of Reference” and forms a part of the contractual obligation that the RHP needs to accept and abide by, during the tenure of employment. The salient features of the Contract are as follows:

a. Place of employment: The RHP is posted at any Sub-Centre in any rural location as might be deemed suitable by the NRHM Society within the state of Assam. The RHP is expected to arrange his/her own accommodation within 1km radius of the sub-centre.
b. Team Responsibility: The RHP will be required to manage a team of about one or two ANM(s) (Auxiliary Midwife Nurse) and female attendant, as may be posted in the respective Sub-Centre.
c. Schedule of work: The RHP is expected to conduct out– patient services at the Sub– Centre in the following schedule:
   - During regular working days: Morning 8.00AM– 12.00 Noon
   - Afternoon 2.00 – 4.00 PM.
   - Holidays (excluding Sundays) 8.00– 12.00 Noon.
   - Sundays(only emergency services)

Job Description

1. Curative Services: The RHP needs to provide first line of curative care as per the schedule of ailment he/she is allowed to treat. The RHP is also expected to arrange for basic lab services to support diagnosis and treatment plan.

2. Maternal & Child Health: The RHP plays both the role of direct intervention and supervisory support to the ANM in the areas of maternal and child health. He/she is expected to manage the whole spectrum of antenatal, prenatal and post natal care. The RHP would need to conduct normal deliveries in the Sub–Centre whenever needed, identify complicated and emergency cases of labor and arrange for swift referrals.

3. Disease Surveillance: The RHP is needed to engage in passive and active monitoring national health programs like Revised National Tuberculosis Control Programme (RNTCP), National Vector Borne Disease Control Programme (NVBDCP), National Programme for Control of Blindness (NPCB), National Leprosy Eradication Programme (NLEP) and ensure critical information is channelized suitably.

4. Counseling Services: The RHP is expected to utilize available tools in IEC (Information, Education & Communication) and engage with the community suitably for effective dissemination of information, covering areas of family planning, substance abuse and general health, hygiene and nutrition.

The RHP is paid a consolidated monthly remuneration of Rs. 20,000/- per month. The other terms of conditions include a pro-rata basis of 2.5 days per month leave and travel allowance as per financial norms if he/she is required to travel outside the Head Quarters as per the direction of the Authority. Tax is deducted at source by the Society.

Critical Assessment of the program

Unique features and best Practices:

During the last three years 19,68,793 outpatients have been treated and 12,684 institutional deliveries have been performed across the sub-centres network of Assam. These were led by RHPs with the support of ANMs and other health workers at the sub-centres. Certain processes involving innovative planning were noted during the survey that merit special mention. They are as follows:

1. The State Government has taken the onus of offering the program with almost full subsidy. A shepherding approach is very vital for the future success of any program in its experimental stages. Relieved from the worries of the financial burden of the invested fund and the returns, the students can focus on the course itself.

2. The course is managed within a dedicated teaching institution with adequate faculty support. More importantly, the internship program has forward linkage with Medical College, Jorhat, that also ensures each of the students undertake twenty assisted normal deliveries within controlled environment. This exposure and understanding is critically important for future success of the program. In this context it may be mentioned that the ANM program requires similar exposure in course curriculum, but lack of referral linkages with the ANM training centres in many cases, do not allow compliance to such exposure in obstetric care. As a result, low confidence over independent management of deliveries; deprive communities of the services that an ANM is meant to deliver in role of a skilled birth attendant.

3. After completion of the three year academic session and six months of internship, the RHPs further undergo a handholding period of two months in PHC to have a realistic orientation of managing patients and conducting normal deliveries in a less than ideal remote set up.

4. Automated HR deployment Program: A software has been developed by the NRHM Society of Assam to ensure absolute transparency during the counselling and placement process of the RHPs. The system displays real time information on available choice in vacant locations for posting on basis of merit and generates appointment letter immediately following the choice exercised by the inductee.

5. Ensuring merit based selection of candidates from the rural (district) level. This strategy being factored in the selection criteria for admission ensures to certain extent that the incumbents are cued to the rural context and therefore, stand a better chance of managing the deficiencies of the system effectively at the grassroots.

Recommendations: In order to preserve the viability of the program and ensure its efficacy in future, the following points are recommended for consideration and probable incorporation:

1. Career Aspirations : Many of the RHP candidates are district toppers by virtue of the selection process and also a sizeable proportion among them chose to enroll in the program as a second best option after not being selected in MBBS entrance exams. From the consistent feedback given by both student groups and currently posted RHPs, it was evident that their career aspirations see their role beyond that of only being a RHP posted at a Sub-centre in the long term. The career planning and growth prospect for the RHP Diploma holders need to be well defined and communicated. There is concern that RHP program is not a degree course and so the pass-out candidates do not qualify to be referred as regular graduates. Furthermore, options to pursue relevant post graduate programs or lateral entry to mainstream medical courses need further evaluation.

2. Affiliation Related Concerns : The RHP program had its share of legal hassles from Indian Medical Association. It still is awaiting a formal acceptance from central apex body on medical education, Medical Council of India. Approval from federal agencies can be instrumental to offer

national acceptance and regularity to the course. It is also important to be aware of the fact that there was similar problem related to program identity and recognition of the diploma program in Chhattisgarh. First, the, course was declared as 'Practitioner in Modern Medicine and Surgery' strangely with no initial clarity if it was a Diploma or Certificate program. The name was shuffled a number of times since then with sole objective of dealing with MCI or IMA and make an attempt to bypass legal issues over affiliation. Predictably, these nomenclature related incidents resulted in significant unrest and agitation among the student groups, that delayed the academic sessions and finally was one of the key contributory causes to halt the course continuity.

3. Pending approval : As of 30th April 2012, the Assam Rural Health Regulatory Act 2004 is still pending for the consideration and assent of the President of India.

4. HR Planning : The program is still in its early days, but subsequently it needs to be planned on how the program could be effectively plugged into the health system and not limiting it only as contractual placements. A logical career advancement plan also needs to be defined for the RHPs posted in sub centers. In context, appraisal process needs to include qualitative indicators and ideally it should also be able to capture training needs of assesses. The teaching institutes can work in close coordination with Directorate of Medical Education and NRHM Society to plan a suitable 'CME' / Refresher Course calendar at least bi-annually, based on ongoing program feedback. There is also scope of making the monthly assessment dashboards of RHPs more comprehensive and robust. The feedback on present vacancies in the system and those foreseeable in future, needs to be updated with the ARHRA in a continuous form, to ensure match between the state requirement and output of trained RHPs. This is to be noted that it is possible that some of these concerns might already be considered by appropriate authority for necessary measures.

5. Program Communication: It has been observed that in certain cases the RHPs view themselves as poor substitutes for MBBS Doctors. Such comparison and self-perceptions could significantly compromise with program impact and quality in long run. It might be helpful to consolidate the communication right from the admission process that the concept of RHP is to complement the MBBS Doctors, not to compete with them. It could be equally helpful if the doctor at PHC level be assigned the role of a mentor and not a monitor for the RHPs assigned under them. Appropriate authorities might also like to promote the RHP program in a manner in the state that the RHP prefix becomes a badge of honour for the incumbents and not an identity for them to feel inferior and defend.

6. Selection Criteria: The current selection criteria emphasize academic scores other than reservations under demographic norms. Considering the nature of job, that makes the RHP guardian of about 5000 lives almost overnight in unfamiliar locations, it might be worthwhile to consider inclusion of psychometric parameters to map leadership and allied traits while enrolling applicants.

7. Course Content : There is scope to revisit the curriculum. At present the syllabus comes across as an abridged version of the MBBS course. With three years of field experience already being there, the feedback on actual disease profile being treated by the RHPs may be considered. A

greater focus on treating and dealing present health priorities relevant in a community setting can be helpful in increasing program efficiency. Considering scope of its wider acceptance, it might not be essential to have translated vernacular versions, yet it would be important to emphasize creation of content and reference material in English exclusively addressing the course objectives.

8. Redefining Job Descriptions: With already 354 RHPs posted on rural locations and with about three years of program experience, it is important that learning from the field is incorporated now and to revisit course content. This is also necessary to re-evaluate the job description of other staff at the Sub-centre and avoid possible overlaps.

9. Community Linkages: Considering the limited sample of RHPs interviewed, their knowledge levels cannot be ascertained adequately but there could be scope of greater understanding of allocated NRHM and other government funds across different levels of the health systems. Given that the RHPs play a crucial leadership roles at the grass roots, their strong technical knowledge could be instrumental in ensuring better fund utilization.

Annexure - 1 : List of diseases and ailments authorized for treatment by RHP

- Acute Bacterial and Viral infections.
- Parasitic Diseases like Malaria, Filaria etc.
- Common Respiratory Diseases like RTI, Bronchial Asthma, Bronchiectasis, Haemoptysis etc.
- Common GI Problems like Peptic Ulcer, Acute Gastritis, Diarrhea, Dysentery, Intestinal Colic, Biliary Colic, Cholera, Acute Gastroenteritis, Food poisoning, Haematemesis, Malaena, Jaundice, Helminthiasis etc.
- Common Cardio Vascular Problems like Hypertension, Heart Failure, Angina, First Aid in IHD etc.
- Common Uro Genital Problems like UTI, Renal Colic, Retention of Urine, STD, Orchitis, Cystitis, Preliminary management of Nephrotic Syndrome and Nephritis etc.
- Common problems related to CNS like First Aid in CVA, First Aid in Unconsciousness, Preliminary treatment for epilepsy, status epilepticus, meningitis and encephalitis, First Aid in Spinal injury and Head injury, Preliminary Management of Common Psychiatric Disorder etc.
- Common Musculo Skeletal diseases.
- Common Skin Diseases
- Anaemia and nutritional deficiency disorders.
- Common metabolic diseases like Gout, Rheumatoid, and Arthritis.
- Common Gynaecological problems like menstrual disorder, leucorrhoea etc.
- Implementation of family planning programmes like prescription of oral contraceptives etc.
- Common Obstetric problems like Antenatal and Postnatal care, PET, Eclampsia, Pregnancy induced Hypertension, Anaemia and other common diseases during pregnancy.
- Paediatric problems like Common bacterial and viral infections, respiratory infection, common diarrhoeal diseases, common nutritional deficiency diseases, neonatal jaundice, common skin problems.
- Common infective problems of Eye and ENT, Epistaxis, Foreign body in the ear and nose.
- Common Dental diseases like Pyarrhoea, Gingivitis, Carries tooth etc.
- Emergency Management of any Accident, Shock etc.

Annexure - 2 : List of procedures authorized for an RHP

IM Injection, IV Injection/infusion, Acupuncture, venesection, application of bandages and dressings, nasogastric intubation, Oxygen Therapy, catheterization, peritoneal tap, normal delivery.

Repair of minor wounds by stitching, drainage of abscess; burn dressing, wound dressing, application of splints in fracture cases, application of tourniquet in case of severe bleeding from wound in a limb injury.

Conduction of delivery, episiotomy, stitching of vaginal and perineal tear during labour, Application of IUCD.

Annexure - 3 : List of Drugs authorized for prescription by a RHP

1. Antacids, H2 receptor blockers, proton pump inhibitors, sucralfate
2. Antihistamin
3. Antibiotics – effective against Gram-Positive Bacteria; Gram-Negative Bacteria; Chlamydia & Rickettsiae; Fungi; Protozoa.
4. Anti-Helminthic
5. Anti-Malarial
6. Topical Drugs – Antibiotic, Antifungal, Steroid, Analgesic, Antiseptic, Antihistaminic.
7. Antiviral Drugs
8. Anti-Amoebic Drugs
9. Anti-Scabies
10. Anti-Cholinergic
11. Anti-Emetics
12. Anti Pyretics and analgesics
13. Anti-Spasmodic
14. Enzyme preparations, Anti Flatulent
15. Laxatives
16. Oral rehydration solutions.
17. Hematinic and vitamins & minerals, liver supplements
18. Diuretics and Anti-hypertensive
19. Nitroglycerine
20. Sedatives and Anti Epileptics
21. Bronchodilators & Expectorants
22. Uterine stimulants and relaxants, oral contraceptive pills.
23. Surface and infiltrative anesthetics
24. Antibiotic Eye drop and ointment.
25. Nasal decongestant
26. Skeletal Muscle relaxant – Oral tablet.
27. Hemostatic Agents
28. Anti-Rabies vaccine.
29. Anti-Snake Venom
30. Lifesaving Drugs
31. Drugs under National Health Programme

17. *Balabadi – Empowering Kids with Natural Knowledge/Teaching*

17. Balabadi – Empowering Kids with Natural Knowledge/Teaching

17.1 "Empowering kids with Natural Knowledge/Teaching – Sodhana Foundation, Vijayanagaram District, A.P." - Teaching Notes

1. Case Synopsis

The emphasis on this case is to empower kids, i.e. children below 6 years to undergo pre-school training through natural knowledge utilizing natural teaching methods like play and learn techniques. The system was adopted in villages of Vijayanagaram district of Andhrapradesh by Sodhana Foundation, an NGO organization devoted to the rural development and child care. They have devised methodology in a novel fashion suitable for village environment and to the needs of the young child. They devised the infrastructure, curriculum, human resources, motivation among the villagers for child's pre-schooling and successfully implementing it.

Even though the government sponsored Andanwadi workers' system is existing in the villages, because they are over burdened with other nutritional programs, they are not able to focus on kid's development. Therefore, Sodhana foundation started this pre-schooling system as their primary activity. Pre-schooling actually lays foundation for further development. Therefore, it is a very essential step for rural uplift.

2. Focal Point

The objectives in the program are clearly defined and to empower the child with natural methods of learning such as play and learn. For that they have devised programs and infrastructure which is very well suited. The methodology and infrastructure is from the natural environment of the villages.

3. Learning Objectives

a. Motivation of the people: There is an attempt to strike a balance between school readiness of rural children and community support/ownership towards education by contributing for the pre-schooling infrastructure.
b. Execution of the program: Different stages of implementation is given in this case with details. Planning, infrastructure establishment, human resource, curriculum, teaching methods, learning materials etc.
c. Financial sustainability: Finances from different sources and philanthropists were pooled and the project executed.
d. Higher attendance rate in primary schools: There is a reduction in the drop out rate of the older siblings from the primary school as they are free from the responsibilities of taking care of their younger siblings.

4. Suggested Questions during discussion

1. How did Sodhana Foundation mobilize finances initially?
2. What was the motivator to introduce Balabadi, when government has already institutionalized Anganwadi?
3. Are there any special approaches for slow learners?
4. What are the parameters that determine the sustainability of this program in the long run.

5. Role playing and simulation options

The necessity for replication wasdiscussed with other villages.

Reasons for Replication

- The play way method is appropriate method for pre-school children. It enhances the creativity and talent of a child.
- The curriculum is very simple and it can be translated into any other language.
- The Teaching Learning Material (TLM) is from natural resources or low cost material, so it is cost effective.
- Balabadi allows parents to progress in their career. It also releaves the elder siblings from the responsibility of taking care of younger siblings. In particular, it reduces the dropout rate of elder girl children.
- As kids go to Balabadi they are well equipped to join in formal education system, and it reduces the dropout rate in formal education.
- It's a great opportunity for rural and tribal children to learn the basics in an innovative approach without any financial burden for their parents.

6. Time Management Plan

They made it as trimester course and detailed course study was prepared and the targeted results are achieved.

The details of the program can be explained in a class within Three hours.

Introduction of the program: 10 minutes.

About Balabadi activities:30 minutes.

About curriculum:30 minutes

Details of the curriculum& different activities: 90 minutes

Discussion of replication: 10 minutes

Conclusion: 10 minutes.

17.2 Empowering kids with Natural Knowledge/Teaching – Balabadi (kids school) by Sodhana Foundation, Vijayanagaram District, A.P.

Introduction

Suguna, a 5-year-old-girl and Sarvesh, a 4-year-old-boy, are lovely kids of Somesh and Sakku, daily wage laborers, in Vijayanagaram district in Andhra Pradesh. Even as the kids of their age started learning alphabets and rhymes in private pre-schools, Suguna and Sarvesh would spend time playing at fields or construction sites where their parents got work to earn the day's bread. Joyful childhood is a child's right but they shouldn't be deprived of learning before marching into school education. Somesh and Sakku always felt that their penury is impacting the basic learning of their kids.

Early childhood (3-6 Years) is the base for kids' future and whatever he/she learns in this stage makes a deep and strong footprint in his/her life. So the period of 3-6 years in children is the beginning of their mental development. Nurturing in this stage is very important because it reflects their thinking process and behavior in childhood but kids like Suguna and Sarvesh are missing it badly. Helping such kids acquire knowledge by adopting natural methods is essential for their overall development.

With the sole aim of imparting pre-school knowledge for the kids like Suguna and Sarvesh, Sodhana Foundation, an NGO committed to empowering kids of rural areas to natural knowledge/ teaching methods, launched an initiative called "Balabadi" (pronounced Baala Badi - Kids' school) in Cheepuripalli Mandal of Vizianagarm District of Andhra Pradesh. It not only provides school readiness for rural children but also helps to gain community support and ownership towards education. Joy of parents like Somesh and Sakku knew no bounds as their wards are learning new things and showing interest in going to school.

In Andhra Pradesh, the Anganwadi Centres were started in the year 1975 as a part of the Integrated Child Development Services (ICDS) that aim to provide preschool education and to fight against malnutrition, morbidity and mortality in India. These Anganwadis are the centres for pre-schooling in rural areas and helping the kids. As per the ICDS program, the focus of Anganwadi Centre is on "Supplementary nutrition, immunization, health checkups, referral service, health and nutrition education to children, women and adolescent girls" apart from pre-school education. The details of their functions are as follows:

- Supplementary nutrition – This includes supplementary feeding and growth monitoring. Anganwadi Worker (AWW) provides supplementary nutrition to children below six years, Pregnant and Lactating Mothers (P&LM) with the help of Anganwadi Helper.

- Nutrition and Health Education – Women (15-45) are covered under this provision. Nutrition and Health Education is the key component of the work of Anganwadi Teacher. This has the long term goal of capacity building of women of the age group 15-45 years. Hence they can look after their own health and children and other family member's health care properly.

- Immunization – Immunization of pregnant women and infants protect children from six vaccine preventable diseases such as poliomyelitis, diphtheria, pertussis, tetanus, tuberculosis and measles. The service is facilitated by Auxiliary Nurse and Midwife (ANM) and Medical Officer (MO) through Public Health Infrastructure under Ministry of Health & Family Welfare (MoH & FW). AWW assists ANM in identifying the target group.

- Health Check-ups– The target group is children below six years and P&LM. This service is also delivered through MH&FW. The AWW assists ANM in recognizing the referred group. It includes regular health check-ups, recording weight, immunization, and management of mal-nutrition, treatment of diarrhea, de-worming and distribution of simple medicines.

- Referral service - During health check-ups and growth monitoring, sick or malnourished children are referred to Primary Healthcare Centre (PHC) or its sub centre. The AWW has also been oriented to detect disabilities in young children and she should record the cases in a separate register and refers them to PHC/sub centre.

- Pre-School non formal Education –The children of 3-6 age group are covered in this service. Anganwadi Teacher should provide informal pre- school education to the children before they enroll in formal education system.

So the intended services of ICDS in terms of pre-schooling may not gain adequate focus and importance as it is the last one of the many functions of anganwadis. National Advisory Council (NAC) 2011 report reveals the following points.

- In many states, the ICDS has got reduced to a feeding program operated through an overburdened and underpaid anganwadi worker (AWW)
- The pre-school component is missing
- Early childhood care has never got the attention it deserves
- Linkages with the public health system have been weak
- Anganwadi centres (AWCs) have not had the physical space to operate efficiently and effectively
- Community engagement and participation are virtually non-existent
- Falsification of data, poor management information systems (MIS) and delays in release of funds and payments to AWWs are also reported from different states

Empowering Kids with Natural Knowledge – Methodology

Balabadi strongly believes that joyful childhood is a child's right. It aims at bridging the gap between rural and urban education system. *Balabadi* creates "Sahaja abhyasa vaathavaranam" which means "natural environment for learning" i.e. an environment where a child can be without any fear/ hesitation/pressure, participates on his/her own and learns without his/her knowledge. In this concept, a child learns the basics through three main elements namely chitram (picture), abhinaya-geyam (Rhyme with action) and krutyam (game). It brings out the creativity and talent of the children.

Balabadi stresses upon learning through play-way methods using many activities from various themes such as action songs, games, fairy tales, diagrams and toys. Play-way method is the appropriate way for children to learn new concepts and to develop skills that will provide the basis for success in the formal education system. Play-way method explores a child's imagination to discover the world on his/ her own and achieve success with his/her creative thinking. It also helps children to express themselves without fear. In addition to this, play-way develops social behavior of a child towards the society and it helps children to develop emotionally, physically and intellectually. Unlike adults, children have minds that are free and creative. Through play children learn without their knowledge.

Another striking feature which makes '*Balabadi*' different from other pre-schools is the school operational timing. The *Balabadi* time (9 AM – 4 PM) fits well with the working hours of rural parents engaged in agriculture and its allied activities. Majority of the parents are neo-literates. The *Balabadi*'s schedule also frees the older siblings, especially girls, from the responsibilities of taking care of their younger siblings, and thereby reducing the dropping out from the primary school.

Aims and objectives of Balabadi

The main motto of introducing *Balabadi* is achieving school readiness without compromising on the fun filled childhood. The objectives of *Balabadi* are as follows:

- To make the rural children well equipped to deal with the required primary education with reading, writing and numerical skills
- To create a learning environment where the child is joyful and happy
- To bring out creative talents that are present in children
- To help children lose their shyness and fear, and develop socializing skills
- To fine tune observation and listening skills
- To develop a sense of friendliness and sharing among children
- To develop habits of cleanliness and sanitation
- To unfold a child's leadership qualities and competitive spirit in a positive way
- To encourage the ability to think on their own
- To provide nutritious mid-day meal, and design activities to increase physical strength

Resource Requirements

Physical Infrastructure

Communities contribute land voluntarily for construction of *Balabadi* to *Sodhana* as people of that particular comCommunities contribute land voluntarily for construction of *Balabadi* to *Sodhana* as people of that particular community are convinced by *Sodhana* volunteers regarding pre schooling and its impact on children. Initially, Community helps *Sodhana* in construction of *Balabadi*. In the later stages, the maintenance of thatched roof and other maintenance cost is borne by *Sodhana* only. *Balabadi* runs in a round shaped semi-pucca room made up with sand, cement, bricks, iron rods etc. The natural materials like logs, palm leaves, grass, bamboo and sticks are used for construction of the roof. *Balabadi* hut measured approximately 12 feet long and 12 feet wide and 10 feet high. The three walls are painted black up to 2 feet to enable children to write on them. There is no black board for Teacher as she/he teaches through activities. The hut is normally surrounded by a fence made of shrubs or twigs that define the boundary between the public street and semi-public court yard area in front of the hut. This court yard acts as a prime space for the play activities of children. *Sodhana* installed a slide in every *Balabadi* court yard.

Human Resources

Each *Balabadi* is run by a Teacher and Assistant Teacher/care taker. Since he/she is the base for the success of the scheme, a detailed account of the teacher is present here.

The minimum qualification of *Balabadi* Teacher is 10th class. It recruits young male candidates also as Teachers, apart from young female candidates. She/he should have good relationship with the community and good communication skills, apart from creativity and some knowledge about dance and songs. The candidates should appear for a written test wherein their knowledge skills are tested. Subsequently, there is an interview in which her/his abilities are verified. The selected Teachers have

to undergo a Foundation Training Course for 16 days in play way teaching methodology. In summer, 3-5 days Refresher Course will be conducted for all *Balabadi* Teachers. *Balabadi* Teacher's capacity building program is an important aspect. It is a continuous process hence the *Balabadi* functions effectively. *Sodhana* organization selects the Teacher from in and around the community, so that she/he understands the local dynamics. It also helps the Teacher to attract the children and to take care of children affectionately.

Balabadi Teacher takes up a survey before academic year starts where in she/he identifies 3-6 year age group children in the village and all *Balabadi* Teachers submit the survey details to *Sodhana*. This survey provides information such as children of age group 3-6 years and their parent's educational qualifications, economic position of the family and current status of the child interms of whether enrolled in *Balabadi*/Anganwadi/Convent/Not attending any. Hence, the Teacher can convince the parents to send their children to *Balabadi* if they are not enrolled in preprimary school.

Duties and Responsibilities of Balabadi Teacher

- She/he should be present 15 mins before the scheduled time of the class
- She/he should ensure a clean hygienic environment, both inside and outside the school
- The teaching materials should be made attractive, and the Teacher should teach in a happy and joyful manner
- She/he should ensure up to date maintenance of all the records
- She/he should develop friendly relations with the children
- She/he should have a good rapport with the parents of the children, as well as the village community
- The Teacher should inform the Assistant Teacher and the Coordinator, in advance, in case of taking leave
- She/he should conduct Parent Teacher Interaction (PTI) once in every 3 months
- She/he should submit timely reports to *Sodhana* institute
- She/he should continue as per the schedule even if the Assistant Teacher is absent from the duty
- She/he should ensure his/her presence in every review meeting
- She/he should ensure home visits are undertaken regularly (once in a month) and details of such visits must be maintained in Home Visit Diary

Role of Assistant Teacher/Care taker

It is important to select the Assistant Teacher from the community, who enjoys great regard in the community. The onus of providing nutritional meal lies on Assistant Teacher. She should be equipped with standard measures to ensure cleanliness and maintain hygiene. The duties and responsibilities are mentioned below.

- She should be present 30 min before the scheduled time of the class
- She should ensure a clean and hygienic environment, both inside and outside the school
- She should safely bring the children from their homes and drop them at their homes
- She should be friendly and polite to the Teacher as well as the children
- She should provide the children clean and safe drinking water
- She should ensure the safety of the school equipments
- She should take the responsibility of the school in the absence of the Teacher
- She should prepare the food in a clean environment and ensure that it reaches the children by the scheduled lunch time
- She should help the Teacher in non-teaching activities

Curriculum

Balabadi classifies children into two grades. The age group of above 4 years comes under 'A' grade, and 'B' grade children are below 4 years.

The entire curriculum is designed by using games, fairy tales, action songs as a foundation for their academic skills and development. Folk games and folkloreare a part of the curriculum. Even the language that is used in the class room is vernacular language which makes the child comfortable in *Balabadi* as there is no difference between home language and *Balabadi* language. This brings out the creativity of the children as they can express themselves in mother tongue in a better manner. According to Dr. PDK Rao – "A day to day curriculum, an ever changing curriculum should be followed. Keeping it developmentally appropriate, the curriculum should aim at preparing individuals who can think rationally along with spiritual values". The curriculum makes the understanding easy and joyful and keeps the child both physically and mentally agile. The curriculum comprises different subjects such as Environmental Sciences, English, Telugu, Mathematics, Games, Action Songs, Fairy Tales, "VemanaPadyalu", Creativity/Innovative Education, Cultural Activities are part of curriculum. This curriculum helps in the holistic development of a child.

The curriculum helps children to develop curiosity for school and creative learning. *Balabadi* methodology is designed to improve the fine and gross motor skills. Gross and fine motor skills are crucial to early childhood development. Adults may move regularly without thinking how to walk, bend and move. But, children have to make a conscious effort to plan their gross motor activities. Children with poor gross and fine motor skills have difficulty to do simple tasks. Gross motor skills such as running, jumping, walking, climbing, hopping around, skipping, hopping with one leg, cycling, holding, throwing and kicking a ball are necessary for proper body movements and foundation for fine skills development.

Fine motor skills such as tearing, sticking, cutting, picking, drawing, colouring, painting, stitching, writing, eating, and buttoning his/her shirt, scooping, pouring, mixing, holding etc. help to increase hand movements, finger control and co-ordination. The activities avoid fine and gross motor delays in children. Gross and fine motor skills support growing body and promotes psychological health, which leads to healthy life style of a child.

The learning takes place through different exercises such as pre-reading exercises, pre-writing exercises and group activities and nursery rhymes which in turn develop their skills. The description of each one of these are given below.

- Pre-Math Exercises – Pictorial representation of different shapes, to help the children find out similarities and differences among different shapes. For example, small ball, big ball; short person and tall person; in and out, counting numbers etc.
- Pre-Writing Exercises – To help the preliminary steps to acquire the writing skills such as arranging tamarind seeds or food grains on the form of a letter.
- Pre-Reading Exercises – Reading out stories while showing the colourful diagrams of that story. Showing pictorial flash cards focused on alphabets along with the object/animal/plant that starts with a particular letter. The letters/numbers are introduced by a rhyme (generally, quatrain i.e. a four-line stanza).

- Group Activities – For group activities the Teacher should provide piece of chalk, tamarind seeds, food grains, duster depending on the play. The Teacher should play tambourine to encourage the children while they are engaged in the activity.

Activities for Natural Knowledge

Children love to play and it is their natural instinct. Playing creates the relaxed environment that makes learning easy, interesting and fun. This is the most appropriate method to teach kids. The informal environment gives an opportunity to child to learn pre academic skills and nurtures the creativity. The *Balabadi* activities are designed based on the play way method. The following are the activities pursued in the play school.

1. *Chaduvula Kurchi* (Study Chair)
2. *Kodi Punjulaata* (Cock Fight)
3. *Parugo-Parugu* (Run Run)
4. *Chepala Kolanu* (Fish Pond)
5. *Ankela Chakram* (Wheel of Numbers)
6. *Lekkinpu Krutyam* (Counting Activity)
7. *Chepte-Teestaam* (Say–Show)
8. *Parigetti Raasthaam* (Run and Write)
9. *Chaduvula Bongaram* (Learning with a spinning top)
10. *Thiruguthu Raasthaam* (Rotate and Write) etc.

For details one can see the *Balabadi* report of CIPS.

Link: http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Education/Balabadi/Balabadi.pdf

Teaching – Learning Material (TLM)

Balabadi Teachers are also equipped to create the material for learning activities. The material used for preparing Teaching Learning Material is classified into two categories i.e. material available free of cost, and low cost material. Seeds of tamarind, pebbles, food grains, small sticks, leaves, glass cups, empty thread reels, old text and note books, invitation cards, soil, water, natural objects, card boards come under the material that is available free of cost. And low cost material such as colour charts, sketches, gum, beeds, colours, chalk-pieces or slate pencils, marbles, plastic beeds, colour papers, stapler, stapler pins, scale and pencil are used for preparing TLM.

The Teacher has to prepare the material on his/her own. The basic material such as charts; sketches are provided by the Institute. The free of cost material should be collected by the Teacher on her/his own. The minimum TLM at *Balabadi* are as follows.

- Charts - Telugu alphabet festoon (3 types); English alphabet festoon (3 types); Mathematics festoon (3 types); Story charts – 2; Vehicles chart; Telugu alphabet chart; English alphabet chart; Telugu and English letters chart, along with diagrams; Numbers diagram chart; Tools chart; Measures – Positions chart
- Flash Cards - Telugu pictures - 2 sets; Telugu letters – 2 sets; English pictures – 2 sets; English letters – 2 sets; Number pictures – 2 sets; Numbers – 2 sets

- Clay beads Frame and Pond diagram on a card board to play fish pond game

Financial Sustainability

Initially, philanthropists and likeminded people donated money to some extent. In the beginning Naandi – a not for profit organization provided funding for 10 *Balabadi*s. Indian Students Alumni Federation (INSAF), USA also provides financial assistance in a small scale.GrandhiMallikarjuna Rao (GMR) Foundation is the main funding agency for *Balabadi*. GMR group is an infrastructural company headquartered in Bangalore, Karnataka. GMR provides Rs.11 lakhs annually in two installments under Corporate Social Responsibility (CSR). This fund is used to pay remuneration to co-ordinators, Teachers and Assistant Teachers, TLM and Mid-Day Meal Scheme. *Sodhana* also receives fund from SERP under SRC project for quality training for pre-school Teachers. Apart from annual financial expenses such as salaries of *Balabadi*Teachers and Assistant Teachers and Mid-Day-Meal cost, *Sodhana* is trying to accumulate corpus fund i.e. approximately Rs. 1 crore for long run of *Balabadi*. *Balabadi* is providing education to rural and tribal children free of cost.

Achievements of Balabadi

Over the years, *Sodhana*'s model of pre-school '*Balabadi*' has been appreciated by many organizations. *Sodhana* trained 17 Master Trainers (MTs) of Azim Premji's Foundation. It also trained pre-school Teachers of Dhan Foundation, a not for profit organization.

Sodhana conducts 'Prathibha Test' (Test for Excellence) every year for 5th standard students in Vizianagaram District. The results of last four years reveal that 83% of children who studied at *Balabadi* secured high score in Prathibha test. The top three candidates of Prathibha Test will get an amount of Rs. 500/- as prize money. It illustrates that effective pre-school education yields good results in primary education. The Prathibha –Talent test results are mentioned in Table I below.

Table I: Pratibha Talent test results.

Sl. No.	Year	Name of the student and the name of the *Balabadi* where she/he completed pre-primary education
1.	2010	L. Suresh (Rickshawcolony*Balabadi*), G. Padma (Rickshawcolony*Balabadi*) and R. Ganesh (Chukkalavalasa*Balabadi*)
2.	2011	D. Akhila (Purreyavalasa*Balabadi*), P. Satyvathi (RavivalasaAnganwadi) and P. Bhagyalakshmi (KapusambhamAnganwadi)
3.	2012	A. Satish (Akulapeta*Balabadi*), S. Siva Prathiba (Kumaram*Balabadi*) and A. Somesh (Rickshaw colony *Balabadi*)
4.	2013	G.Ravi (Purreyavalasa*Balabadi*), P. Rushi (Mandiravalasa*Balabadi*), M. HarikaPrathibha (Rickshawcolony*Balabadi*)

Sodhana has been recognized as one of the State Resource Centres for providing quality training for Teachers of Early Childhood Education (ECE) run by Society for Elimination of Rural Poverty (SERP), Govt. of Andhra Pradesh. It signed an MoU with SERP for quality training for Early Childhood Educators. Please sees Annexure (No.). As part of this, *Sodhana* recruits the Teacher, provides training and monitors the performance of ECE Teachers at 11 districts of Andhra Pradesh. Department of Women and Child Welfare, Government of Andhra Pradesh also take assistance of *Sodhana* in redesigning the curriculum for Anganwadis across the state. *Sodhana* gave training for several anganwadi Teachers in play way method. *Sodhana* volunteers are working in ten government primary schools in and around Vizianagarm district of Andhra Pradesh. The primary school Teachers follow the state syllabus but they teach with activites.

Though there are Anganwadicentres in every village parents prefer sending their children to *Balabadi*. This is mainly due to effective pre-school education through play way method. The Table II gives the particulars of the pre-school children in *Balabadi* and Anganwadicentres from 2012 to 2014.

Table II

S. No.	Name of the Village	*Balabadi* Roll			Average Children for one *Balabadi*	No. of Anganwadi Centres	Anganwadi Roll			Average Children for one Angan-wadi
		2012	2013	2014			2012	2013	2014	
1.	Aakulapeta	22	26	26	24.6	1	7	10	10	9
2.	Badam	26	24	23	24.3	Presently Anganwadi centre is closed				-
3.	Baguvalasa	28	25	22	25	2	16	11	15	7
4.	Bathuva I	30	30	30	30	2	16	22	19	9.5
5.	Bathuva II	25	25	30	26.6					
6.	B.G. Palem	30	28	30	29.3	1	9	8	7	8
7.	Bondapalli	24	24	25	24.3	2	30	31	32	15.5
8.	Chukkava-lasa	30	30	30	30	2	21	35	40	16
9.	Devada	30	25	24	26.3	2	25	22	19	11
10.	D.R. Valasa	27	30	31	29.3	2	12	8	10	5
11.	Gopannav-alasa	29	30	30	29.6	2	21	35	43	16.5
12.	Kumaram	29	26	23	26	2	19	12	14	7.5
13.	Mandi rav-alasa	26	28	31	28.3	1	11	9	10	10
14.	Mettapalli	28	28	30	28.6	3	47	41	43	14.5
15.	Pari a	25	20	20	21.6	2	36	29	31	16
16.	Purreyava-lasa	30	30	30	30	1	15	14	13	14
17.	Ramal in-gapuram	26	27	28	27	2	21	23	28	12
18.	Ravivalasa	22	24	21	22.3	2	37	31	34	17
19.	Rickshaw Colony	22	23	24	23	1	9	8	10	9
20.	Sivaram	30	23	26	26.3	3	72	69	75	24
21.	Vangapalli-peta	25	18	26	23	2	26	19	24	11.5
22.	Vedullava-lasa	20	25	28	24.3	4	63	69	66	16.5
23.	Vijayacolo-ny	25	27	27	26.3	1	26	24	25	25
24.	Yadika	27	25	29	27	2	25	23	21	11.5
	Total	**636**	**621**	**644**	**26**	**42**	**564**	**553**	**589**	**13**

Note : In most of the villages more than one Anganwadi exits. The roll of Anganwadi students that are mentioned by *Sodhana* Institution is the roll of all Anganwadis students for given year.
For example in baguvalasa village (S.No. 3) in the year 2012, the total
strength in the 2 anganwadis that exit in baguvalasa is 16, for the year 2013 it is 11, and for the year 2014, it is 15. Last column is number of Anganwadi students I year I centre.
For Baguvalasa it is 16+ 11+ 1513x2 = 4213x2 = 1412 = 7.

Source: From the records of Sodhana Institution

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18. From Disaster to Development – Regullanka

18. From Disaster to Development – Regullanka

18.1 From Disaster to Development – Regullanka - Teaching Notes

1. Case Synopsis

The main objective of this case is to have sustainable sanitay system in village, which has experienced a great havoc like cyclone and floods, by which the sanitary system polluted the water resources of the village leading to health hazards like epidemic diseases.

To solve these problems, a village, whose inhabitants are illetarate, poor and below poverty line and devoid of financial resouces was selected and the inhabitants were motivated by continous process of making them aware and bring them as partners in the execution of the program, thus making the village a 100% Eco - sanitation village.

The villagers were also trained to use the human waste in agricultural practices by converting them to usable manures and make the villagers self sufficient and financially strong.

This program was conducted by a NGO named “ArthikaSamata Mandal” with the financial support of TdH as French NGO voluntary organization.

2. Focal Point

The main aim of this project was to implement Eco-sanitation system in rural village, wherein the economic strata are below poverty line and illiterate inhabitants.

3. Learning objectives

a. Motivation of the people: The case describes in detail how to motivate the illiterate and economically poor inhabitants of a village.
b. Execution of the program: Different steps of execution and how to succeed in implementation.
c. How to generate finances from natural wastes and make the inhabitants self-sufficient.
d. Scientific way of implementation.

4. Possible questions during discussion

1. Convincing rural villagers, who are poor, is not a difficult task. But how to achieve it?
2. How to separate urine and feaces and what are the advantages?
3. How much time does it take for feaces to get converted into manure and what other organisms have to be added?
4. What are the financial benefits and what percentage of the rural population benefitted with this program?

5. Role playing and simulation options

There is a tremendous scope for replication of ECOSAN in the waterfront villages that are prone to frequent cyclones and floods. The measures to take for adopting or replicating this innovation are:

1. Community orientation, prior to the introduction of innovation.
2. Orientation to the households on the functional aspects of the innovation, including on the appropriate use and maintenance of the infrastructure.
3. Regular and intensive hygiene promotion sessions for the households as well as the community institutions.
4. Follow-up and intensive monitoring at end user i.e. at household level.

5. Orientation and motivation to the people on use of human waste in agricultural field, in place of chemical fertilizers.
6. Linking of the community with local government departments, such as RWS and Panchayati Raj.
7. Organize regular visits for researchers and media personnel for outreach of the program.
8. Advocacy efforts for inclusion of ECOSAN in total sanitation program under NBA.

6. Time management Plan

How to achieve the results in a time targeted manner. Prepare the time table of execution of the program. The program can be discussed in a class room within 90 minutes.

The schedule is as follows:

- Introduction and necessity of sanitary systems: 20 minutes.
- Selection of proper system under local conditions: 20 minutes.
- Details of the sanitary systems and economic benefits: 30 minutes.
- Replication and Conclusions: 20 minutes.

18.2 From Disaster to Development – Regullanka

Introduction

River Krishna is considered as the 'life line' because it supplies water to irrigate lakhs of acres of fields and quenches thirst of scores of people but it can also sound the death knell and inflict a catastrophe during floods. Chill runs down the spines of the residents of Divi Seema, the confluence of Krishna river and the Bay of Bengal, when they recollect the horror, disaster and mayhem that engulfed the lives of thousands of people due to the floods in 1977. After 32 years, in the year 2009, the Krishna river flooded Kurnool, Guntur and Krishna districts in Andhra Pradesh, in an unusual way. The cyclone with heavy tides drowned the villages bringing back the worst memories of the 1977 disaster.

The 2009 cyclone created havoc in this area and led to water logging, river erosion, flash floods, frequent tidal waves and eventually declining levels of ground water. This resulted in severe water and sanitation crisis in the area. Rehabilitation became a great challenge for the Administration as well as public during floods.

The primary concern during rehabilitation work is providing houses with good sanitation facilities as the villages suffered major health problems during floods, due to contamination of river water with open defecation and sanitary discharges. The villagers, mostly illiterate, underprivileged, resource poor and from the below poverty line (BPL) families, suffered epidemic diseases like malaria, typhoid and water borne diseases like cholera and diarrhea.

With this background, Arthik Samatha Mandali a Non-Governmental Organization (NGO) plunged into action with the financial support from a voluntary international organization, Terre des hommes Foundation (Tdh), and modified a disaster village, Regullanka of a flood-prone island mandal of Avanigadda in Krishna district, to a model modern village with 100% sanitation facilities.

Mode of action

There are number of steps to implement the plan of action.

1. Convincing illiterate and inhabitants.
2. Make them to work in the direction of plan of work.
3. Providing financial support.
4. Selection of proper system.
5. Execution of the plan.
6. Supervision of the work.
7. Sustainability of the system.
8. Generation of financial capability/stability.
9. Achieving good health practices.
10. Becoming example for others & other villages.

1. Convincing illiterate and ignorant inhabitants:

The first and foremost activity in this action plan was convincing the illiterate inhabitants of the village to implement program. For that they had to be motivated by way of interactive meetings, lectures, demonstrations and visits of the sites.

Consultations and Interactive Community Meetings:

Consultative and interactive meetings with lead community members, Self-Help Group leaders, missionary pastors and school teachers, wherein the proposed interaction and required cooperation and monitoring were explained to them; in response to our interaction, initially they were reluctant for opting a new system of sanitation. At this juncture, ASM repeatedly carried out discussions followed by screening a short documentary on Ecological Sanitation.

Sharing of success stories & end use of Eco-san:

ASM also presented a few success stories from India and abroad, focusing on functional aspects and its end uses of Eco-San, especially in the agriculture sector. All these have contributed in changing the mindset of leaders and the community members in accepting the Eco-San.

Exposure Visit:

While presenting the success stories of Eco-San, few of the members came forward and requests were made to ASM for organizing the exposure visit to an Eco-San site in India for the benefit of Regullanka households. Considering opinion of leading community members, ASM organized exposure visit to one of the upcoming Eco-San sites being developed by a similar organization i.e. SCOPE, based at Thiruchirapally, Tamil Nadu.

In October, 2010 about 20 community members and 10 staff members of WASH project, led by the Secretary and Project Director of ASM, went on an exposure visit to MUSSERI near Trichy. During the exposure visit, both community members and staff had an opportunity to witness the functional aspects of Eco-San toilets besides an interaction with beneficiaries. They learnt about Eco-San maintenance and up keeping, dos and don'ts, while using Eco-San toilet, condition of faeces-deposit chambers and urine collection mechanism etc. Further to the sanitation aspects, group visited urine and manure application site and observed application methods to the Banana plantation (a small plot with banana plantation applying with manure generated from Eco-San toilet and urine application, in place of NPK chemical fertilizer).

2. Make them to work in the plan:

Some young enthusiastic villagers were trained in construction of eco-sanitary systems and they were asked to construct the same in their village. They were taken for training, where already the eco-sanitation systems are constructed. In order to implement the same, two model toilets were constructed in Regullanka village- one is at the school premises and other one is at one of the houses. A series of awareness programs was undertaken on the implications of Eco-San toilets for both the staff and the people of Regullanka village. Further to this for the benefit of staff and community, an exposure visit to Trichy in Tamil Nadu was organized, where similar Eco-San project is in progress with the support of SCOPE organization. After the villagers started using the facility and understood the benefits, a number of eco-sanitation systems were constructed.

3. Providing Financial Support:

Terre des hommes Foundation (Tdh), a voluntary international organization, with its headquarters in Lausanne, Switzerland, operates in more than 30 countries around the world with a mission to protect the rights of the children. Tdh also supports in building a better future for disadvantaged children and their communities, with an approach that is innovative, practical and sustainable. Tdh primarily focuses on issues relating to child health and protection. The core implementation areas of Tdh are Mother and Child Health, WASH and Child Protection.

TdH at present, working in 3 states of India namely Andhra Pradesh, West Bengal and Odisha implementing their programs through local partners. The delegation team comprising of technically sound resource persons supports the implementing partners with technical inputs under their respective themes evaluated the program. Tdh under their WASH program framework extended technical and financial support to ASM for grounding and piloting ecological sanitation – Eco-San at Regullanka.

4. Selection of proper system:

There are two systems for solving the sanitation problems.

1. Conventional sanitation systems
2. Eco- sanitation systems.

Both systems were studied in depth and Eco- sanitation system was selected taking into consideration the following advantages and the problems faced by the people usually with the conventional sanitation systems. They are mentioned here in detail.

Advantages of using Eco-sanitation system: This system is based on an overall view of material flows as part of the ecologically and economically sustainable sanitation system tailored to the needs of the users and to specific local conditions.

ECOSAN is a new paradigm in sanitation as it is based on ecosystem approaches and the closure of material flow cycles rather than on linear, expensive and energy intensive end-of-pipe technologies. ECOSAN systems are part of several cycles, of which the most important cycles are the pathogen, water, nutrient and energy cycle. It recognizes human manure and water from households not as a waste but as a resource that could be made available for reuse, especially considering that human manure plays an essential role in building healthy soils and are providing valuable nutrients for plants.

The problems people normally face from the conventional sanitation system are:

- Not ensuring safe and healthy sanitation but increase health risks from severe water pollution.
- No recycling of water and nutrients leading to loss of valuable nutrients for agriculture.
- Use of largely linear end of pipe technology system where drinking water is misused to transport waste into the water cycle, causing environmental damage and hygiene hazards and contributing to the water crisis.
- Unsatisfactory purification or uncontrolled discharge of more than 90% of waste water worldwide.
- Consumption of precious water for transport of waste.

Over a year, for each person, 400 – 500 litres of urine and 50 liters of faeces are flushed away with 15,000 liters of pure water. Via a pipe system, the bath, kitchen and laundry water from the house

hold is added. This may add up to another 15,000 – 30,000 liters per each person. Further, down the pipe network rain water from streets, roof tops and heavily polluted water from industries are often added. In a flush – and – discharge system a relatively small amount of human faeces, which pollutes the huge amount of water, resulting in sewage and discharged as untreated surface waters. Thus at each step, the problem is magnified. Therefore, Eco – sanitary system, where in urine diverted toilet systems are selected for implementing in the village for solving sanitary problem.

5. Execution of the plan:

The plan of implementing sanitary system was taken up in phase manner. Based on the assurances of all stake holders, ASM, in consultation with the funding agency Tdh, taken up the construction of 107 Eco – toilets in two phases and were handed over to the villagers on 15th October 2011 and 1st August 2012.

Not only handing over the toilets, the villagers, especially the women and adolescent girls were sensitized, convinced and trained on the usage and maintenance of these toilets. The villagers were also trained to separate urine and faecal material which can be further used as manures in place of chemical fertilizers.

6. Supervision of the work:

Initially the ASM team used to supervise the project and once the villagers are able to manage these toilets, the supervision was left to them and they were able to manage successfully.

7. Sustainability of the system:

- Promotes recycling of materials instead of disposal
- Conservation of resources
- Improvement in agricultural production
- Increase in safety and comfort in women and girls
- Turning waste into useful and marketable products

Thus the system makes the villagers self-sustainable for their agricultural practices and income generation.

8. Generation of financial capability/ stability:

Human urine contains very few pathogens, 88% of the Nitrogen, 67% of the Phosphorous and 71% of potassium.

Faeces contain 12% of Nitrogen, 33% of the Phosphorous, 29% of the Potassium and 46% of organic carbon which is highly pathogenic. The urine separated toilet systems converted the faeces into organic manure.

Urine is high quality very clean fertilizer, easy to collect and use. It can be applied pure or diluted. The fertilizing effect of urine is comparable to the application of the same amount of plant nutrients in the form of chemical fertilizers.

The application rate of urine should always be based on the desired Nitrogen application rate and the urine or urine mixture should be quickly incorporated into the soil, to minimize ammonia loss.

The best method of doing this is by applying urine to furrows or holes, which have to be covered over immediately after application.

The plant availability of Nitrogen in urine is the same that of chemical urea or ammonium fertilizer. The nitrogen efficientcy of urine is approximately 90% of that of mineral fertilizer and it is low in heavy metals.

The advantage of using human urine and manure instead of chemical fertilizers or sewage sludge is the very low concentrations of heavy metals found in the former.

Although desiccated, faeces contain fewer nutrients than urine, they are a valuable soil conditioner. They may be applied to the soil to increase the organic matter content, improve water holding capacity and increase the availability of nutrients. Humus from the decomposition process also helps to maintain a healthy population of beneficial soil organisms that actually protect plants from soil borne diseases. The main contribution from the faecal matter is the phosphorous and potassium content and the increase in buffering capacity in areas where soil pH is low.

The quantity of manure produced per household is around 120 kg per year taking into consideration two adults and two children. The percent Nutrient content in manure is 0.88% N, 0.43% P_2O_5 and 0.86% K_2O, consequently the total nutrients produced in manure is 1.056 kg nitrogen, 0.516 kg P_2O_5 and 1.032 kg K_2O. The combined total quantity of nutrients produced per household per year through urine and manure is 1.616 kg N, 0.549 kg P_2O_5 and1.108 kg K_2O which are available to each household to be used for raising various fruit and vegetable crops. A household having two (2) adults and two (2) children collects about 330 liters of urine per year and this contains 0.560 kg N, 0.033 kg P_2O_5 and 0.076 kg K_2O. On an equal N basis, this urine is sufficient to grow 3 banana plants or 2 papaya plants or 28 m^2 of maize or 31 m^2 of Okra or 56 m^2 of eggplant or 47 m^2 of Tomato or 70 m^2 of cucumber.

9. Achieving good health practices:

There is a considerable improvement in the health and nutritional values of the villagers with the adoption of these Eco- sanitary systems. By adopting these toilets, the villagers could control epidemic diseases like cholera etc.

10. Becoming example for other villagers & other villages:

There is tremendous scope for replication of Eco-san especially in the waterfront villages that are prone to frequent cyclones and floods. The following measures are to be taken care of in adopting this sanitary process.

- Community orientation is essential prior to the introduction of system.
- Orientation of the households on the functional aspects of the sanitary system is essential.
- Regular and intensive awareness programs on hygiene and health aspects for the household as well as the community are necessary.
- Monitoring of the system periodically is important.
- Motivation of the peasants in utilization of human waste in agricultural practices than the chemical fertilizers.
- Coordinating different govt. departments for the implementation of Eco-sanitation system is very much essential.

Appendices

1. Cost of Eco – sanitation toilets.

Particulars of each construction material and labour	Material Cost			
	Units	Rate	Quantity	Amount in Rs.
Bricks	1 Nos	4.3	1600	6880
Cement	1 Bag	300	15	4500
6 mm Iron Rods	1 (35')	120	11	1320
Binding Wire	1 kg.	25	2.16	54
Sand	1 Truck	2550	1	2550
Chips 20 mm	1 unit	3300	0.12	396
Chips 40 mm	1 unit	3000	0.16	480
Cuddapah Slab	1 foot	20	8	160
Ventilators	1 Nos	28	1	28
Hinges	1 Nos	50	2	100
Doors	1 Door	850	1	850
Lids	1 Nos	80	2	160
Masonry Work	1 Toilet	6000	1	6000
Visible Tiles	1 tile	130	1	130
Painting Work	1 toilet	650	1	650
Piping & Finishing material (2" PvC pipe 18', 4" PVC pipe 10', 2" door lbows 3, 4" lbow 1, 4" T bend 1, 4" caps 1, Redoxide 1 pac, PVC gum 100 ml)		1080	1	1080
Bucket & Mugs	2 Buckets & 1 Mug	160	1	160
Total cost				25,498

2. Economic values of nutrients in human waste.

Nutrient	Total quantity produced (Kg)	Unit market price Rs.	Value of nutrients Rs.
N	1.616	11.74	18.97
P2O5	0.549	32.50	17.84
K2O	1.108	32.70	36.23
Total			73.04

19. Importance of Design Issues in Rural Water Supply Schemes

19. Importance of Design Issues in Rural Water Supply Schemes

19.1 Importance of Design Issues in Rural Water Supply Schemes - Teaching Note

This case study focuses on the details of designing a scheme which can sustain itself in the long term. We found that with higher capital costs and better equipment used, the operative costs of the scheme came down; however, the operational costs of the scheme are rarely, if ever, considered, during the design phase. Would this be the case in other analogous schemes? Would addressing this lacuna ensure that these schemes become viable in the long term?

During the discussion participants sometimes raise the issue of the economics of the scheme and whether it is possible to recover the capital investment and or maintenance costs through user charges and what level of user charges can be recovered. However, the latter issue requires a separate and detailed consideration. So far as capital investment is concerned our calculations suggested that even when a monetary value is given to the time and labour saved in water collection by the households, the social and monetary benefits [at a discount factor of 10%] of the scheme amount to approximately 0.14 over a period of 15 years. Regarding the maintenance costs there could be a number of ways of looking at the latter. One could be to simply look at the economics and financial viability of the scheme in itself. Another could be to compare the costs with analogous schemes implemented in other settings, say, in urban areas. Yet another could be to take it for granted that the supply of water and sanitation is the duty of the government and therefore it the local community need not be bothered with what the costs are.

Table giving total operating costs per annum and the average cost per household

	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04
Total operating costs p.a.	8533000	9194000	9315000	9600000	10305000	13471000	17416000
No of hh in the scheme during the year	21431	23245	23582	23404	23730	23600	24285
Cost per hh p.a.	398	396	395	410	434	571	717

19.2 Importance of Design Issues in Rural Water Supply Schemes

Case Study developed by- Smt. Meeta Rajiv Lochan, IAS

The Chief Executive Officer, Zillah Parishad Jalgaon was a worried man. He had been given a time frame of two years to execute and commission a water supply scheme funded by the Department of International Development (DFID) of the United Kingdom. But there had been one problem after another and the current problem was such that no one could have envisaged it. The DFID had committed Rs 26 crores towards the capital cost of this scheme. These funds would go towards providing piped drinking water supply to a population of 1,20,643 people in over 80 villages which suffered from acute water scarcity. This amounted to a per capita cost of Rs 2155 (26,00,00,000/1,20,643). So then what was the issue? The issue was that Indian government norms did not allow this money to be spent!

Problem One: Restrictive Cost Norm

A per capita cost of Rs 2155 was practically double the norms prescribed by the Government of Maharashtra for rural drinking water supply schemes which was Rs 1200. Here was a situation in which it was not the donor who had a problem but the donee. This looks like a minute bureaucratic detail, one which should not be allowed to hamper such a serious concern as addressing drinking water scarcity.

The CEO had found out how the same problem had been handled in a parallel water supply project in neighbouring Nashik district. The Nashik engineers had decided fit the scheme to the cost norms by reducing the capital cost. So the Rising Main for this project which was originally designed to be of steel would now be of Asbestos Cement Concrete. They also reduced the capacity of the pumps. In order to supply water to the over 50 villages in the catchment area of the Nashik scheme, the Zillah Parishad needed to pump water for over fifteen hours every day at current pumping capacity. They reduced the pumping capacity so that the scheme would need to pump water for 20 hours daily to supply the same water.

The CEO was not sure that this was the best solution. At the same time, he needed to get his technical estimates sanctioned and the work started within this month if the project was to remain on schedule.

Problem Two: Will People Pay for their Water?

The other problem was far more predictable though this did not make it easier to manage. One of the major stipulations of the DFID while committing money to this project had been that the scheme would need to pay some of its recurring costs and that the users would need to pay for their water. This automatically meant that participating households would need to pay a considerably higher water tax, both for water from the public standpost and for individual house connections than what they currently paid. And each Village Panchayat would have to pass a resolution agreeing to this stipulation in order to be part of the scheme. Currently villagers paid Rs 25 per annum for water from the public standpost and Rs 100 per year for a house connection. The government had calculated that each household availing of water from the stand post should pay Rs 75 per annum and those availing of house connections should pay Rs 360 per annum. This meant that taxes would be trebled.

Currently there were enough trouble mongers spreading propaganda in the villages saying that they should not be part of the scheme because the water would be very costly. One rumour even was that the water charges they would be asked to pay would be of the order of Rs 1000 or so per annum. But without the resolutions of the Village Panchayats, the project could not begin.

Is Drinking Water an Economic Good?

The CEO realized that this second issue went far beyond officialdom and that it had the potential to destroy the scheme before it even began. The reason was not far to seek. There was a vast difference of opinion on this subject between the international funding agencies and the populations of developing countries. The concept of water as an economic good had been clearly enunciated at the international conference on water at Dublin in 1992. Among the seven basic principles enunciated in this conference, a basic principle was that water is an economic good and as such it should be priced. But this was easier stated than accepted.

For the population of a developing country like India where 26.1% of the population is below the poverty line, it remained a fiercely controversial issue. In a poor area, given the option of purchasing costly drinking water and the cheaper option of forcing womenfolk to fetch water from a distance, a poor man might well select the latter as the easier one.

For an economist looking at the fast emptying coffers of government , it was easy to say that however basic a need, water supply has a cost and that some of it must be recovered from the users. But even if water was to be priced, what price was fair and what people were willing to pay was perhaps an even more difficult question than the one of whether water was a basic or an economic good.

There was and is no simple answer to this issue. In India, it is almost a matter of philosophy that people are in general unwilling to pay for public utility services and the poor are even more unwilling to pay. In fact many such schemes conduct “willingness to pay” surveys in the design phase to assess ground reality on this issue. Should he conduct such a survey?

But first let us look at the background and administrative set up for this scheme.

Project Funding

This scheme was being implemented under the auspices of the Government of Maharashtra’s Rural Water Supply and Sanitation Project (MRWSSP), with assistance from the Department for International Development (DFID) of the UK and the International Development Agency (IDA) of the World Bank. DFID had funded activities in 3 districts - Jalgaon, Nasik and Dhule.

Existing Administrative Machinery

The Water Supply and Sanitation department of the Government of Maharashtra at Mantralaya, Mumbai was the nodal agency responsible for planning, co-ordinating and monitoring project implementation. There was a Project Planning and Monitoring Unit at Mantralaya which carried out the monitoring role within the Water Supply department. All these projects, when completed, were to be maintained by the Zillah Parishad.

The Zillah Parishad (ZP) was an elected body and constituted the topmost tier of the Panchayati Raj system in the district. The ZPs in each district provide basic necessities to the rural population such as education, medical, drinking water, roads, Irrigation water, etc. So far as supply of water to rural areas was concerned, the ZPs were the administrative arm of the government at district level. Capital projects in the water supply sector were funded by the state government and executed through the agency of either the Zillah Parishads or the Maharashtra Jeevan Pradhikaran (Water Supply Authori-

ty) which then handed over the scheme to the Zillah Parishads. In the case of regional water supply schemes, ZP was empowered to fix water taxes, collect share of water taxes from the Gram Panchayats and take action against these bodies for non-payment of water taxes by the Gram Panchayats.

The Gram Panchayat constituted the lowest tier in the three tiers Panchayati Raj system in the district. It was an independent Governing Body at the village level constituted under the Bombay Village Panchayat Act 1958. This Act defined various powers available to the Gram Panchayats. The powers include fixation of water tariffs, collection of water tariffs and revenue recovery powers against defaulters. The Gram Panchayats could also themselves plan and implement individual water supply schemes on their own.

Existing Cost Recovery System for Regional Water Supply Schemes in Rural Areas

Water Supply in regional rural water supply schemes came from a surface water source at some distance from the target population. This meant that the scheme necessarily involved pumping and treatment and hence, such schemes became unmanageable in the hands of Village Panchayats. The responsibility of Operation & Maintenance of such schemes involving more than one village fell on the ZP and the village level distribution and Operations & Maintenance (O&M) was handled by the Gram Panchayats through their Village Water Committees (VWCs).

Also, to make each water supply scheme self-sustainable, there was a need to make the scheme financially viable supported by an efficient Cost Recovery System. This in turn provided adequate funds for O&M of system. For this purpose Water Management Units were created specially in Jalgaon and Nasik districts.

The ZP had the responsibility for fixation of water tariffs within the minimum and maximum limit set by the GoM. Water tariff was shared between the ZP and the GP due to the fact that both these agencies were involved in the O&M of water supply schemes and incurred costs. ZP prepared annual O&M Water Supply Budget but it was not required to be approved by the GoM.

The Bombay Village Panchayat Act or the Zillah Parishad Act or various GRs issued by the GoM from time to time did not give any guidelines or basis for computation of water tariffs.

The water tariff recommended by the ZP was adopted by the concerned Gram Panchayats in their General Body meeting. The Gram Panchayats then levied and collected water taxes along with other taxes from the villagers. For this purpose, GP sent a consumers demand bill including water tax and mostly payments were received in the months of October/November and February each year. GP took action such as disconnections and sending Zapti Warrants on the defaulters. The recovery rate at GP level was good being in the region of roughly 85% to 90%. A certain percentage of the total collection was being transferred by each GP to the ZP. The collection at village level was shared between Zillah Parishad and Gram Panchayat in 80:20 ratio, the Zila Parishad using their share for overall maintenance of the pumping stations, treatment plants, inter village pipeline networks etc and the Village Panchayat using it's share to maintain the intra village distribution system and internal repairs. The percentage transferred to the Zillah Parishad was very low mainly because of lack of follow up by the Zillah Parishad administration.

With the above background, we now proceed to look at the physical details of the 80 village water supply scheme (as it was called) in Jalgaon.

Participating Villages and Geographical Spread

At the inception of the scheme, 80 villages in Bhusaval and Edlabad talukas of Jalgaon district were selected for coverage under the scheme. These included one geographical group of 38 villages known after one of the largest villages in the group, namely, Bodwad and a second group of 42 villages known after the village Talwel. Subsequently in the year 2002, the village of Bodwad was declared the headquarters of an independent taluka in the same district. The scheme covers an approximate area of 60-70 sq. km and has about 220 km of pipelines. The population to be serviced by the scheme was 1,20,643 people in 23,200 households in the first year of the scheme, i.e. 1997-98. The population and thereby the number of households were expected to increase, as per census estimates, at a rate of 1.13 % every year.

The most important criterion for selection of villages for inclusion in the 80 village scheme was the level of drinking water scarcity felt in these villages. At least half of these 80 villages were already covered by small water supply schemes but all fell short of the minimum government norm of 40 litres per capita per day (lpd) in the summer months. Availability of water less than this norm constituted scarcity as understood by the state government in Maharashtra.

Considerations Before the CEO

The CEO felt that the design issue had serious long term implications for the scheme. He knew that the norms followed by rural drinking water supply schemes were considerably inferior to those followed in urban water supply. Urban schemes used cast iron pipes for the gravity main distribution network while rural schemes were forced to use pipes of Asbestos Cement Concrete (ACC) which were way inferior and needed much more repair and maintenance. Besides these districts had large swathes of black cotton soil and ACC degraded much faster in such strata. That was not something the CEO could do anything about. Even after providing ACC pipes for the gravity main distribution network, their water supply scheme was almost double the cost norm so he could hardly increase costs. So what should he do then? He looked in some detail at the technical design of the scheme.

Technical Design and Installed Capacity of Scheme

Each of the two groups of villages were to have a separate pumping setup and a separate water filtration plant. However they had a common headworks in the backwaters of Hatnur dam where the pumping machinery for both groups of villages was to be located in one common building. Both water filtration and treatment plants were to be located close to the main village in each of the two groups, namely Bodwad and Talwel.

There were three pumps proposed for each for the 38 village and 42 village groups at the head-works of the scheme. The 38 village group was to get three pumps of 150 HP each and the 42 village group would get three pumps of 175 HP each. Two pumps per group would run continuously, the third being kept idle for standby in cases of any emergency. This meant that the scheme had a total pumping capacity of 8,36,000 litres per hour, the 38 village group having a capacity of 4,04,000 litres/hour and the 42 village group having a capacity of 4,32,000 litres/hour.

Pumping Capacity: The discharge possible considering the total rating of the pumps was 20.064 Million Litres Daily (MLD) but the capacity of the pumps decreases over the years hence the actual pumping capcity of the scheme would be lesser. In practice, the scheme was designed to supply 19.36 million litres per day (MLD) of drinking water assuming that the pumps ran for 24 hours daily. The engineers had worked out that in order to supply water to the villages for the current target population, they would need to supply 12 Million Litres of water and to pump water for 15 hours daily.

Ratio of private household connections to standposts: It was assumed that in 1997-98, the first year of supply, 80% of households would opt for water supply through public standposts and that 20% of all households would opt for private connections. It was noted that the ratio of useage of standpost to connection might vary in the years to come depending upon the level of service provided. In case there was an increase in the demand for individual pipe connections, it was assumed that a maximum of 65% of households could be supplied water through private connections and 35% through public stand posts. Beyond this limitation, scheme augmentation to provide increased water storage would be required at village level as also increase in the installed capacity of the pumps and the diameter of the pipeline in order to pump more water.

The CEO needed an immediate decision which would enable him to execute the project on time without getting into hot water over rules.

How the CEO Proceeded: Design Vs. Cost Norm

He identified the following three factors as being crucial for his decision:

1. ***Electricity Supply:***

   The Nashik engineers had assumed that electricity would be available for 24 hours to the pump house. But on that date continuous electricity supply was available only in Mumbai city throughout the state of Maharashtra. This was no unimportant detail. Common sense said that they could not depend on more than 15 hours of power supply in a day and even this was doubtful. In fact the irregularity of electricity supply made any pumping of water for over 17-18 hours an infeasible proposition. As matters stood, the scheme in it's very first year was designed to pump water for a minimum of 15 hours daily. This meant that the scheme would be running close to 85% of it's full capacity right in the beginning and that any increase in water requirement due either to an increase in population or to an increase in the number of private connections would be difficult to service simply by increasing hours of pumping.

2. ***Durability of Steel vs ACC:***

   All the information he had gathered showed that a Rising Main of cement concrete would not take the pressure required even if this was not immediately visible.

3. ***Water leakage and pilferage:***

   Asbestos Cement pipes are far more vulnerable to both leakage and pilferage than cast iron pipes. This would mean

   3.1 Costs of Maintenance and repair would be far higher

   3.2 Water supplied would be far in excess to that prescribed by the water supply norms of 40 liter per capita per day.

He felt that the design issue was linked with the taxation issue. If the materials used were not of high quality to being with, this would negatively affect the capacity of the scheme to deliver water on time to the people which in turn would affect their willingness to pay user charges.

He also thought that provided that good supply services were maintained, there was a good chance of increase in demand for water and that such increase needed to be factored into his decision. As it was, in supplying water to the current population, the scheme would need to pump water for 15 hours daily in the very first year. They could only hope to increase pumping by 3 hours. It made sense to minimally maintain present pumping capacity, if increasing it was not an option.

But convincing the authorities might take time. So he simply went ahead and floated tenders for the material procurement as per the original estimates. It was not for him to take objection to the cost norm. Let the government do that job; he only needed to ensure that the material was procured before any objections could be raised. This is precisely what he did. By the time the authorities woke up to the fact that this scheme far exceeded the norm, the procurement was complete.

The Problem of Levying Water Taxes

The CEO did not think that a willingness to pay survey would achieve much. His common sense told him that people dependent on government benefits for decades, if asked such a question, would almost invariably refuse. If he himself were asked, he might well express reluctance to pay let alone a householder living below the poverty line.

He decided that since this was not a purely bureaucratic issue, it could not be handled bureaucratically. So the CEO decided that he would not even try. The scheme had been brought for the district by the local MLA who was also a Cabinet Minister in the state government. So the CEO briefed him about the problem and requested him to use his good offices with the people of the 80 villages to pass the resolutions accepting the water tax prescribed by the government. The Minister needed badly to make a success of the scheme and the DFID was unwilling to relent on the issue of water tax. He then put his full weight behind the scheme, recruited the local Zillah Parishad members to his cause and systematically convinced people to pass the necessary resolutions in their Gram Panchayats. The work was accomplished: all Gram Panchayats passed a resolution in favour of the scheme and the project was underway.

What happened to the project

Once the government were presented with a fait accompli, there was not much they could do and the decision had been taken in a good cause. The CEO's decision meant that the scheme was able to maintain excellent service levels to the people. The Nashik scheme was never able to function as a result of the downgrading of material requirements. In fact in Jalgaon, people who had been unwilling to opt for the scheme on account of high potential taxes, actually petitioned to be included in the project once the scheme started functioning!

Regarding taxes, people paid up willingly even though the taxes had been trebled. Tax collection remained at the level of roughly 85% for the next ten years.

Water demand far outstrips scheme capacity

Soon demand far outstripped supply especially with the conversion of Bodwad village into block headquarters. Today one fourth of the entire water supplied goes to Bodwad alone.

There was a substantial increase in the demand for household connections. The ratio of standpost users to household connections in the first year of the scheme was 3.37. By the ninth year this had fallen to 1.37. So today the number of households using the house connections is only slightly lower than the number of households using the public standpost. Obviously the benefits of getting more water far outweigh the costs of paying a three times rate for it.

One reason for the steep rise in water demand could also be lack of control on water useage. No water meters were ever installed in the scheme.

No water meters and low tariffs lead to immense wastage

The fact that water supply was not metered had important consequences for the scheme. There are natural limits to water drawn by households using the public standpost since water has to be drawn in a limited amount of time with a queue of users waiting in the line. There is no such limitation on water use by households with tap connections and this far outstrips water use by households using the standpost. It is commonly observed that many households do not even care to keep a tap in place to turn off the supply when not required. This treated water is even used for drinking by the domestic animals even though parallel sources such as the water tanks and bore wells are available in many locations. Some villagers when asked why they do not feed bore well water to their buffaloes replied that the buffalo prefers the taste of tap water. Also tariffs have not kept pace with inflation so a household connection in this day is much cheaper than ten years ago. While the tariff for the individual house connection has increased by 30% over nine years, the tariff for the standpost users has increased by 65%. It is easier to tax the majority than the richer few. Nor are free riders penalized so illegal connections flourish. Here it was the Village Water Committee which was supposed to play a role but they could not do so.

Decay in administrative set up over time

The project had adopted an integrated approach, linking community development, health education and village level training programmes with the supply of clean treated drinking water.

The scheme was supposed to be monitored at two levels: namely, the Water Management Unit at the Zillah Parishad level and by the Village Water Committee at the Gram Panchayat Level. However the Water Management Unit was subsequently wound up on the grounds that there were no resources to pay for it's existence and the Village Water Committees after some time, simply went into suspended animation. When we visited the project area in 2005, nine years after the implementation of the scheme, no one could give any information about these committees or what they were supposed to do. Only one village elder volunteered the information that there had been some ODA committee set up by the ODA (as the DFID was then known) many years ago but it was non functional now.

But the scheme still functions

Even with all these problems, the scheme continues to function today so much so that the men in the area complain that when water supply is interrupted for as long as three days on occasion, their womenfolk refuse to walk any distance to get water, so sure are they that eventually the Zillah Parishad scheme would supply them the precious liquid!

Did the government improve it's design norms?

The operating costs of the scheme, especially in terms of repair and maintenance were considerable. The ACC pipeline did not survive well in the black cotton soil of the district and needed constant repair. These repair costs form some 10% of the operating costs of the scheme. Later the Government of Maharashtra in view of the experiences of this and other schemes did issue a directive to the effect that asbestos cement pipes were not to be used in black cotton soil strata. However regarding planning for greater supply capacity and for the long term, that continues to be done on an ad hoc basis. Perhaps it is for the users to insist that better norms be applied for designing their water supply services. We can only hope that they do so.

Issues for discussion

1. Would it be correct to say that consumers of water supply services are reluctant to pay for these services, especially in the rural areas?
2. What is the relationship between the design of the scheme and the quality of service provided?
3. Should the per capita capital cost norm be different for water supply schemes in urban and rural areas?

20. Tamed Bombs

20. Tamed Bombs

20.1 Tamed Bombs - Teaching Notes

Case Synopsis

A very serious Explosion occurred on 1st May 2015 in a Sweet manufacturing factory at Nagpur, the day being celebrated world Over as World Labour Day. The Explosion occurred in a Boiler, which was operated unauthorizedly. The Accident killed two persons, one of whom was the owner himself & seriously injured 5 workers seriously.

The case revolves around not the explosion itself but the various reasons that cause such Accidents.

Focal Point

1. Monitoring of Hazardous Equipment in Industry.
   Who shall be responsible for Safe & Efficient operation of Equipment's?
   The Government Agencies, The Private Agencies, Safety Consultants, Insurance Companies or the Owner himself?

2. Involvement of various stake Holders.
   - Owner, Employees, Society, Government, Insurance Companies.

3. Fallout of Disaster.
   - Damage to Life.
   - Damage to the Economy.
   - Loss of Employment.
   - Damage to morale.
   - Costs Involved.
   - Business Values & Ethics

Learning objectives & Case Uses

- Strict adherence to safety Rules & Regulations is must.
- Cost of Hazard.
- Individual Losses, Familial Losses, Social Implications, Economical Losses, Handicapped Life.
- A lame Equipment can cause many to Perish.
- Negligence causes Disasters.
- Building Awareness about apparently Less Significant but Potentially Hazardous Activities.
- Skilled operators for skilled jobs are of utmost importance-
- Prevention better than cure.

White Board Plan

Incidence	Causes	Effects	Prevention/ Remedies
Boiler Explosion	Owner Negligence	Accident	Awareness regarding Safety.
	Untrained Operators	Accident	Training of Personnel.
	Unauthorized Equipment	Risk of Accident	Strict Vigil Required & Authorization. No Insurance Cover to be extended.
	Breach of Law.	Imprisonment, Financial Penalties.	Strict follow-up of Laws & Procedures. Heavy Penalties.
	Human Tendency	Repent.	Awareness regarding gravity of Casual approach.
	Reluctant approach towards Safety	Loss of Life, Property & Handicapped Life	Motivating & educating the Stake Holders.
	Process Related causes, Faulty equipment's downstream.	May damage, cause accident In main equipment.	Monitoring through Improved Instrumentation.

Stake Holder Analysis

Stake Holders Role	Owner	Employee	Safety Inspector	Government	Public/Society
What they did?					
What should they do?					

Take Away Points:

- Negligence of Standard Operating Procedures may lead to Disasters.
- Skilled Operators necessary for Hazardous Equipment.
- Regular & Timely inspection of Industries is mandatory.
- Life & Assets should be duly Insured.
- Both the Owner as well as the Authorities must ensure strict adherence to All the Statutory Requirements.
- Proper Housekeeping and provision of basic Facilities must not be neglected.
- Preparedness for Disaster Management.

Time Management of Teaching Plan: 50 min.

Briefing	5 min
Discussion of focal points	15 min
Major stake holder issue	10 min
Causes & remedies	10 min
Take away points	10 min

20.2 Tamed Bombs - Part A

On 1st May 2015 when labours, the entire world over, were celebrating World Labour Day, workers of a sweet manufacturing factory in a Residential Area at Wardhaman nagar, Nagpur met with a horrific disaster.

A severe explosion of a boiler the factory killed the owner, a worker and injured 6 other persons seriously. The explosion caused immense damage to the factory. Other people nearby felt as if some earthquake had occurred. Windowpanes of nearby buildings were shattered & debris flew in the vicinity.

One wonders how such a small boiler could cause so much damage. The most surprising fact is that the boiler was allegedly in use without and authorization.

World Labour Day, by law, is a holiday for all workers but in this case it is reported that the workers had been called on duty with a promise of extra payment.

As per "The Boiler Act" 1 all boilers in operation are expected to be operated by skilled and certified boiler operators. Uncertified and unskilled operators were operating the boiler in this case. The horrifying fact is that some repairs of the boiler were attempted while the boiler was in operation.

Details of the Accident & the Site

The Sweet Manufacturing Factory is situated in a Residential area at Wardhaman Nagar of Nagpur, Maharashtra. The factory covers an Area of @ 20000Sq. feet. The Building is two storey Building with @ 20feet alley on front & Rear, alley of 15 Feet on sides. The steam was being used in kettles for production of "Mithai". A boiler and a Thermic fluid heater met the heat requirement in the factory.

The boiler was installed on right hand side at a distance of 40 feet from front side behind the thermic fluid heater. The water softener plant and feed water tank were also installed besides the boiler leaving a very constricted space in and around the boiler

The boiler was a three-compartment boiler having the following mountings and fittings and auxiliaries

1. Safety valve
2. An air vent valve.
3. A main steam stop valve
4. A gauge glass assembly
5. A blow down valve
6. A feed water pump.

Did the Explosion occur due to over pressurization?

The safety valve will prevent the steam pressure from raising much above the working pressure, but if the steam gauge shows rapid increase of pressure as to indicate danger of exceeding the highest limit, water should be immediately fed into the boiler, and the dampers partially closed in order to diminish the effect of the fire.

If however, the water has fallen so low that there is danger of an accident, fires should be withdrawn before feeding in water, the safety valves eased and if the engine is at rest it should be started so as to reduce the pressure.

The safety valves are provided to guard against over-pressure. They should be moved by hand every day so as to prevent them from sticking. If moved only occasionally, they are liable to leak.

The valve can be tested by slowly raising it a little and when let down, it should closed perfectly tight. It should never be opened by a sudden knock or pull. On no account must the valve be screwed down further or loaded more than what has been allowed by the Inspector.

Safety valves must never be over-loaded and spring valve should have ferrules or other provisions against the valves being screwed down too far. In case of an accident resulting from willful overloading culprit might be held criminally responsible at the official inquiry or inquest.

The generated steam was being feed to 4 numbers of kettles, which had independent isolating valves. Coal and firewood were used as fuel in the boiler.

Before the blast around 20 workers are reported to be working in the Factory. 7 to 8 workers were working in the “Mithai” department on the Ground Floor.

A sudden Blast occurred at 1615hrs on Date 1615hrs. The Boiler had exploded with devastating effects.

The Owner of the factory was killed on the spot & six Workers were seriously injured. All the injured were admitted to a nearby Hospital. One of the worker who sustained serious 75-80% burn injuries died the next day.

Due to the Explosion the Three compartments of Boiler got totally detached from each other with all stand pipes sheared & separated from the Shell.

The Top most Compartment of the Boiler flew away to a distance of 8 feet with the safety valve attached to it. The Middle compartment was the most damaged one, the shell of the compartment got totally separated (10mm steel plate) from the Tube Sheets. The compartment after breaking the Compound wall flew to distance of 10feet in the other compound. The bottom compartment was in position on the furnace. The impact was so severe that the walls of the Factory collapsed, the compound wall collapsed & one of the concrete pillar totally ripped apart & collapsed, the Chimney was lying in other compound.

The primary investigations by the Boiler Authorities & the Statements of the Injured persons raveled that,

1. The Boiler at the time of Explosion was in operation & generating Steam.
2. The Feed pump of the Boiler was reported to have become inoperative & a new feed pump was procured. The new feed pump was fitted or the explosion occurred before it was installed could not be ascertained.
3. The Smoke tubes of the middle compartment of Boiler appear to be severely overheated indicating Starvation of Boiler.

4. From the Dimensions of the boiler the Boiler appears to be above 25Ltrs. of Capacity & was usually operating at Pressure of 4.0 kg/cm2 to 5.0 kg/cm2.

The incident was immediately reported to the Kalamna Police Station, The Fire Department, The Industrial Health & Safety Department & The Boilers Department. The fire brigade on reaching the spot doused the Fire in furnace of Boiler. All the injured were shifted to Radhkrishna Hospital in Wardhman Nagar. Police force dispersed the mob gathered at site & Sealed the company.
At the outset the investigations revealed following facts.

1. The company was not registered with the “Industrial Health & safety Department”.
2. The Boiler was not registered with “The Directorate of Boilers”.
3. No record of operation of the Factory was maintained.
4. No log sheets pertaining to operation of Boiler was maintained.

The main reason of accidents in Boilers is due to Low Water.

In this case the apparent reason of the accident is Low Water resulting in Overheating, Followed by instant Pressurization due to Feeding of water at a stage when the Boiler was severely over Heated. The real rot is not the Explosion itself but the way in which such unauthorized companies operate. What makes any owner of Industrial unit run his industry in cover remains a grey area. How should the erstwhile system of Governance be modified to embrace new changes to cope up with such Problems?

Who is at fault remains a big question????

20.3 Tamed Bombs - Part B

The safe and efficient operation of boilers and domestic water heaters is essential for the smooth operation of most institutional and commercial facilities. Improvements in designs and control systems have made today's units safer and more efficient than ever.

But good design practices alone do not ensure safety and efficiency. In addition to good system designs, an ongoing inspection and testing program carried out by a well-trained staff of technicians results in safe and efficient operations. Maintenance and engineering managers who ignore any one of these elements run the risk of compromising not only safety and efficiency but also the operation of the equipment.

The Present Scenario in the State of Maharashtra is depicted below3-

EXHIBIT 1

Information of Boilers from 01/04/13 to 31/03/14								
Division	**Mumbai**	**Pune**	**Nagpur**	**A'nagar**	**Nashik**	**Kolhapur**	**Solapur**	**Total**
No. of New Boilers Registered	97	62	45	41	29	39	21	**334**
No. of Boilers Certified	1328	369	378	274	346	592	181	**3468**
Co-gen Boilers	0	1	96	3	49	0	19	**168**
No. of Idle Boilers	269	107	456	96	264	160	129	**1481**
Boilers Scrapped	70	0	0	0	0	0	0	**70**
Boilers Transferred from Maharashtra to other state	38	0	0	0	0	0	0	**38**
Boilers transferred from other state to Maharashtra	16	0	0	0	0	0	0	**16**
Baby Boilers (NOC Issued)	40	14	2	2	2	3	3	**66**

Source _ office of Joint Director of Maharashtra, Nagpur.

In Vidarbha region where this Factory is situated almost 959 boilers2 are registered and almost 534 boilers2 are in operation and rest of the boilers are idle. The number of unauthorized boilers in use remains undetected. If operation of unauthorized boilers continues similar calamities may continue to happen.

At present steam generators, which have water holding above 25 litres capacity, are defined as boilers in "The Boilers Act" and are required to be registered with Inspectorate of Boilers. These boilers are annually inspected and certified by the directorate of steam Boilers.

The Boiler with water holding capacity less than 25 litre, are exempted from operation of Provision of this law & are awarded an NOC. Thus exempting them from Registration, Annual Inspections & from the requirement of Boiler Attendants to operate the Boiler.

The Boiler owners of such type of Boilers have to offer these Boilers for Volumetric test on payment of prescribed Fees & after confirming the actual measured Volumetric capacity to be less than 25 litres, an NOC is issued from the Directorate of Boiler with certain specified conditions viz: No alteration in Pressure Parts is carried out, The Boiler is not Shifted/ sold.

Background

The first practical use of steam boilers was made by James Watt with his improved steam engine in the year 1769 this resulted in great improvement in steam plants. Many small capacity boilers eventually came into existence in India also.

In 1863 a very serious boiler explosion rocked Calcutta killing 13 people. A urgent need was felt for inspection of boilers and a bill was passed in the than Bengal council for inspection of boilers .In 1864bengal act VI was passed which provided for inspection of boilers and prime movers in the town of Calcutta and suburbs.

Following the Bengal act other provinces also framed legislations. Almost 7 different acts and 7 different sets of rules and regulations came into existence. These were in consistent with each other leading to difficulties for industrialization.

The central government then formed the “The Central Boiler Committee”. Sorting out all the differences in provincial acts the boiler committee prepared a draft act based on which the “All India Act” was passed in 1923. A set of technical regulations and a model set of rules were also framed.

The boilers in India are governed by the following Acts and rules-

1. The Boilers Act -1923
2. The Indian Boiler Regulation-1950.
3. The State Rules (The Maharashtra Boiler Rules -1962)

(3 -Source-Directorate of Boilers, Government of Maharashtra)

All State Governments in India have an Inspectorate of Boiler that checks design calculations and carries out inspection with regard to the safety aspect.

In India the boilers are categorized in three broad categories

1. Boiler-as defined in the act
2. Small Industrial Boiler
3. Steam Generator having water holding capacity less than 25 liters generally called as baby boilers.

The boilers that are under use, under manufacture or erection are all governed by these sets of rules. All the boilers are required to be registered with the inspectorate of respective states and are to be annually inspected and certified before being put to use. The boiler that exploded was neither Registered nor being inspected by any Authority.

Prevailing Rules & Proposed Amendments

The main objective of any safety legislation is to ensure safety of Life, Property & public at and around any Hazardous Equipment. The necessity of Boiler legislation is due to the fact that the Steam Boiler is a Extremely dangerous Pressure Vessel which is liable to explode with disastrous consequences on account of fault in design & construction, the effect of wear, tear & usage as the result of careless handling & management at the time of working. The object of Boiler Legislation has been to Protect Life & property from the dangers of such explosions. With a view of rapid Industrialization, Increase Export opportunities for Boilers, reduce number of Licenses required for establishment of an Industry and to cope with the requirement of increase in Number of Boilers to be inspected, the Government has introduced following measures.

1. Introduction of Third Party inspection Agencies as parallel Inspection Agency.
2. Introduction of Competent Persons along with the current set up of Inspection of Boiler & in use.
3. In one of the states in India the DIC has been roped in for Registration of Boilers, which until now was a State Governments.

At this stage it is Pertinent to know what an accident is meant as defined in prevailing act.

What are boiler accidents?

Section 2(a) of The Boilers Act, 1923 defines accidents as follows:- “accident” means an explosion of a boiler or boiler component, which is calculated to weaken the strength or an uncontrolled release of water or steam there from, liable to cause death or injury to any person or damage to any property. When we look towards definition of accident, it is clear that not only explosion of boiler is accident, but any damage to boiler is also accident under the definition of Act.

Boiler has enormous explosive power. It will not be an exaggeration to state that the power liberated by the explosion of a Lancashire Boiler 7.5‟ dia X 30‟ length, working at 7 Kg/cm2 is sufficient to project it to a height of 3.29 Kms. As a thumb rule, it could be stated that the destruction hazard of 28.3 litres of water at 4.2 Kg/cm2 & sat. tempt. in a steam boiler is equivalent to 0.45 Kg of gun powder. Therefore, hazards of boiler explosion can be well imagined.

In Maharashtra there are 3468 certified Boilers, the Number of Boilers that are awarded NOC i.e. are Exempted from the provision of the Act owing to their Water holding capacity being less than 25litre is 66. The number of Boilers that met with accident in the previous three Years are as below’

EXHIBIT 2-

Year	No. Of accidents	Fatalities	Injured
2011-2012	6	2	2
2012-2013	3	1	1
2013-2014	5	0	4
Total	14	3	7

(Source- directorate of boilers Maharashtra, annual reports.)

Considering the fact that most of the accidents occur to unauthorized Boilers, the Explosiveness of Boilers vis-à-vis urgency of Industrialization & flaws of present system, an evaluation on the requirement of Reforms in Prevailing system of Governance is necessary.
The government now has proposed a parallel inspection authority, which will operate autonomously.

In view of the self-certification schemes of Govt. of Gujarat & Govt. of Madhya Pradesh and persuasion from boiler manufacturer / boiler users / industry association, the Ministry of Commerce and Industry, Government of India introduced parallel private inspecting authorities / competent agencies by amending the act in year 2007.

In addition to the Directorate of Steam Boilers, Maharashtra State following four more private agencies have been approved by Central Boiler Board, Ministry of Commerce and Industry, Government of India as a Inspecting Authority / Competent Authority under the Act to carry out inspections / certifications in parallel to the Government Authority for implementation of the Act vide letter no. 20/29/2009-Boilers Dt. 08.10.2014 & the Indian Boiler Act, 1923 amended in 2007

1. Lloyd's Register Asia, Mumbai
2. M/s Bureau Veritas (India) Pvt. Ltd., Mumbai
3. M/s ABS Industrial Verification (India) Pvt. Ltd., Navi Mumbai
4. M/s TUV India Pvt. Ltd., Mumbai

Further government now proposes self-certification of boilers. Whether this will help in reducing these incidents or augment these incidences is a matter of debate.

Boiler Safety precautions

Owners existing company safety operating procedures and instructions plat a very crucial role in boiler safety. All normal safety precautions should be followed when operating boilers, burners, and fuel systems. The owners' plant operating and safety authorities need to be consulted for complete details. There are general precautions that need to be taken, which need emphasis:

Manufacturer's Instructions

Equipment manufacturer's instructions should be followed.

Training

Employees must be trained in safety prior to operation of the equipment. The training in safety should be a continuous process for the purpose of educating employees to recognize and to keep safety in their minds throughout their careers. A training program should be established and maintained.

Housekeeping

Good housekeeping is essential for safety and good plant operation. Poor housekeeping results in increased safety hazards. A clean and orderly environment will foster safety.

Clothing and Protective Equipment

Proper clothing should be worn at all times. Avoid loose clothing and jewelry. Protective equipment must be worn when necessary (i.e.: hard hats, respirators, ear plugs, goggles, gloves, safety shoes, etc.). Never operate rotating equipment, mechanically automated devices, or electrically and pneumatically operated control components unless guides, shields, or covers are in place.

Hot Surfaces

Many hot surfaces exist in a boiler area and even non-heated surfaces can become uncomfortably warm, therefore, employees, especially new employees, must be made aware of these conditions. Refractory and insulation are typically provided to encounter elevated surface temperatures in some installations. Care must be exercised to prevent burns and other thermal hazards when near the boiler. Never enter the boiler until an adequate cool-off period has been observed and the Owner's entry procedures have been completed.

Lockout and Tagout Procedures

Every plant should have a formalized lockout and tagout procedure that is strictly enforced.

Remote Starting of Equipment

Much of the equipment in plants are started remotely and/or automatically without warning; therefore, employees must be alert to avoiding that equipment which can be started remotely. If work is to be done on any equipment, lockout and tagout procedures must be followed. Attach signs to equipment such as "DO NOT START - MEN AT WORK". Attach a similar sign on the equipment control panel.

Unexpected Noise

A sudden and/or unexpected noise may cause employees to move involuntary. Such reaction may result in injury. Precautions against this are hard to take out but experience probably is the best teacher to prevent such inadvertent responses.

Unconventional Fuels

Sometimes unconventional fuels need to be burned in boilers. When this is done, particular attention should be paid to the hazards that can result. Theses may from characteristics in the fuels, toxic chemicals in the fuel, and toxic chemicals produced through combustion. Persons knowledgeable in the use of such unconventional fuels should be consulted concerning the problems that may be encountered. Because of the wide variety and limited use, such fuels are not addressed in this manual.

Fire and Explosion Hazards

A fired boiler utilizes fuels which are flammable and potentially explosive. Extreme care should be exercised when making fuel-piping connections. Use the correct gasket, bolts, thread lubricants, and tightening torque to prevent leaks. It is recommended that drain valve and/or vent piping be channeled to safe locations. Valve packing should be periodically tightened and a rigorous leak check program be implemented as part of the Owner's preventative maintenance program.

Electrical Hazards

Potentially hazardous voltages exist in control cabinets and electrically actuated control components. These components should only be serviced when system power is removed and only by qualified electrical or instrumentation servicemen.

(Source - http://www.banksengineering.com/blrsafety.htm)

Glossary

Boiler Safety valve	A Boiler Mounting for quick release of pressure above the Approved Working Pressure of Boiler
Air vent valve:	A valve fitted on top most portion of Boiler to release the entrapped air.
Steam Stop Valve:	Valve for supplying Steam to the Utility.
Gauge Glass assembly	A set of glasses mounted on Boiler to show the level of water in Boiler.
Blow down valve:	A valve mounted at bottom of Boiler to drive out the accumulated scale & sludge in Boiler.
Feed Pump:	Pump supplying water to Boiler.

THE BOILERS ACT, 1923

(5 of 1923)[1]

[23rd February, 1923]

An Act to consolidate and amend the law relating to steam boilers.

WHEREAS it is expedient to consolidate and amend the law relating to steam boilers; it is hereby enacted as follows:—

1. Short title, extent and commencement

1. This Act may be called the [2][***] Boilers Act, 1923.
2. [3][It extends to the whole of India [4][except the State of Jammu and Kashmir].]
3. It shall come into force on such date[5] as the Central Government may, by notification in the Official Gazette, appoint, and different dates may be appointed for different provisions of the Act.

2. Definitions

In this Act, unless there is anything repugnant in the subject or context,—

- [6][(a) "accident" means an explosion of boiler, or boiler component, which is calculated to weaken the strength or an uncontrolled release of water or steam therefrom, liable to cause death or injury to any person or damage to any property;]
- [7][(aa) "Board" means the Central Boilers Board constituted under section 27A;]
- [8][(b) "boiler" means a pressure vessel in which steam is generated for use external to itself by application of heat which is wholly or partly under pressure when steam is shut off but does not include a pressure vessel,—
    i. with capacity less than 25 litres (such capacity being measured from the feed check valve to the main steam stop valve);
    ii. with less than one kilogram per centimetre square design gauge pressure and working gauge pressure; or
    iii. in which water is heated below one hundred degrees centigrade;

  (ba) "boiler component" means steam piping, feed piping, economiser, superheater, any mounting or other fitting and any other external or internal part of a boiler which is subject to pressure exceeding one kilogram per centimetre square gauge;]

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1 *For statement of Objects and Reasons, see Gazette of India, 1923, Pt. V, p. 249 an for Report of Joint Committee, see ibid., p. 15. This Act has been extended to Berar by Act 4 of 1941; to Goa, Daman and Diu by Reg. 12 of 1962, S. 3 and Sch.; to Dadra and Nagar Haveli by Reg. 6 of 1963, S. 2 and Sch. I; to Loccadive, Minicoy and Amindivi Islands by Reg. 8 of 1965, S. 3 and Sch. and to Pondicherry by Act 26 of 1968, S. 3 and Sch.*

2 *The word "Indian" omitted by Act 49 of 2007, S. 2.*

3 *Subs. by the A.O. 1950, for sub-section (2).*

4 *Subs. by the Act 3 of 1951, S. 3 and Sch., for "except Part B States", w.e.f. 27.5.2008.*

5 *Came into force on 1.1.1924, vide Notification No. A-61, dated 4th December, 1923, see Gazette of India, 1923, Pt. I, p. 1695.*

6 *Subs. by Act 49 of 2007, S. 3(1) for*

"(a) "accident" means an explosion of a boiler or steam-pipe or any damage to a boiler or steam-pipe which is calculated to weaken the strength thereof so as to render it liable to explode;", w.e.f. 27.5.2008.

7 *Ins. by Act 11 of 1937, S. 3.*

8 *Subs. by Act 49 of 2007, S. 3(2) for:*

"(b) "boiler" means any closed vessel exceeding 22.75 litres in capacity which is used expressly for generating steam under pressure and includes any mounting or other fitting attached to such vessel, which is wholly or partly under pressure when steam is shut off;", w.e.f. 27.5.2008.

[9][(c) "Chief Inspector", "Deputy Chief Inspector", and "Inspector" mean, respectively, a person appointed to be a Chief Inspector, a Deputy Chief Inspector and an Inspector under this Act;]

- [10][(ca) "Competent Authority" means an institution recognised in such manner as may be prescribed by regulations for issue of certificate to the welders for welding of boiler and boiler components;]
- [11][(cb) "Competent Person" means a person recognised in such manner as may be prescribed by regulations for inspection and certification of boilers and boiler components during manufacture, erection and use. All Inspectors shall be ipso facto competent persons;]
- [12][(cc) "economiser" means any part of a feed-pipe that is wholly or partially exposed to the action of flue gases for the purpose of recovery of waste heat;
- (ccc) "feed-pipe" means any pipe or connected fitting wholly or partly under pressure through which feed water passes directly to a boiler and which does not form an integral part thereof;]
- [13][(ccd) "Inspecting Authority" means an institution recognised in such manner as may be prescribed by regulations for the inspection and certification of boilers and boiler components during manufacture. All Chief Inspectors of Boilers shall be ipso facto Inspecting Authorities;
- (cce) "manufacture" means manufacture, construction and fabrication of boiler or boiler component, or both;
- (ccf) "manufacturer" means a person engaged in the manufacture;]

(d) "owner" [14][includes any person possessing or] using a boiler as agent of the owner thereof and any person using a boiler which he has hired or obtained on loan from the owner thereof;

(e) "prescribed" means prescribed by regulations or rules made under this Act;

[15][(f) "Steam-pipe" means any pipe through which steam passes, if—

- the pressure at which steam passes through such pipe exceeds 3.5 kilogram per square centimetres above atmospheric pressure; or
- such pipe exceeds 254 millimetres in internal diameter and the pressure of steam exceeds 1 kilogram per square centimetres above the atmospheric pressure, and includes in either case any connected fitting of a steam-pipe;]

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9 Subs. by Act 18 of 1960, S. 2(b), for cl. (c) w.e.f. 6.5.1960.
10 Ins. by Act 49 of 2007, S. 3(3).
11 Ins. by Act 49 of 2007, S. 3(3).
12 Subs. by Act 34 of 1947, S. 2, as amended by Act 40 of 1949, S. 3 and Sch. II, for clause (cc).
13 Ins. by Act 49 of 2007, S. 3(4), clauses (cce) & (ccf) effective from 27.5.2008.
14 Subs. by Act 49 of 2007, S. 3(5), for "includes any person", w.e.f. 27.5.2008.
15 Subs. by Act 49 of 2007, S. 3(6), for:

"(f) "steam-pipe" means any pipe through which steam passes from a boiler to a prime-mover or other user or both, if—

(i) the pressure at which steam passes through such pipe exceeds 3.5 kilograms per square centimetre above atmospheric pressure; or

(ii) such pipe exceeds 254 millimetres in internal diameter;

and includes in either case any connected fitting of a steam-pipe;", w.e.f. 27.5.2008.

[16][(g) "Structural alteration, addition or renewal" means,—

- any change in the design of a boiler or boiler component;
- replacement of any part of boiler or boiler component by a part which does not conform to the same specification; or
- any addition to any part of a boiler or boiler component;

(h) "superheater" means any equipment which is partly or wholly exposed to flue gases for the purpose of raising the temperature of steam beyond the saturation temperature at that pressure and includes a re-heater;

- "Technical Adviser" means the Technical Adviser appointed under sub-section (1) of section 4A.]

[17][2A. Application of Act to feed pipes

Every reference in this Act [except where the word "steam-pipe" is used in clause (f) of section 2], to a steam-pipe or steam-pipes shall be deemed to include also a reference to a feed-pipe or feed-pipes, respectively.]

[18][2B. Application of Act to economisers

Every reference in this Act to a boiler or boilers [except in clause (ccc) of section 2, [19][***] [20][***] shall be deemed to include also a reference to an economiser or economisers, respectively.]

[21][3. Limitation of application

Nothing in this Act shall apply to—

(a) locomotive boilers belonging to or under the control of the railways;

(b) any boiler or boiler component,—

iv. in any vessel propelled wholly or in part by the agency of steam;

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16 Subs. by Act 49 of 2007, S. 3(7), for:

"(g) "Structural alteration, addition or renewal" shall not be deemed to include any renewal or replacement of a petty nature when the part or fitting used for replacement is not inferior in strength, efficiency or otherwise to the replaced part or fitting", w.e.f. 27.5.2008.

17 Ins. by Act 17 of 1943, S. 3.

18 Ins. by Act 34 of 1947, S. 3.

19 The words "clause (e) of section 6, clauses (c) and (d) of section 11, clause (d) of section 29" omitted by Act 25 of 1952, S. 2, w.e.f. 6.3.1952.

20 The words and figures "and section 34" omitted by Act 18 of 1960, S. 3, w.e.f. 6.5.1960.

21 Subs. by Act 49 of 2007, S. 4, for:

"3. Limitation of application.—(1) Nothing in this Act shall apply in the case of any boiler or steam-pipe—

(a) in any steam-pipe as defined in section 3 of the Indian Steam-ships Act, 1884 (7 of 1884), or in any steam-vessel as defined in section 2 of the Inland Steam-vessels Act, 1917 (1 of 1917); or

(b) belonging to, or under the control of, the Army, Navy or Air Force; or

(c) appertaining to a sterilizer or disinfector of a type such as is commonly used in hospitals, if the boiler does not exceed ninety-one litres in capacity.

(2) The Central Government may, by notification in the Official Gazette, declare that the provisions of this Act shall not apply in the case of boilers or steam-pipes, or any specified class of boilers or steam-pipes, belonging to or under the control of any railway administered by the Central Government or by any State Government or by any railway company as defined in clause (5) of section 3 of the Indian Railways Act, 1890 (9 of 1890)", w.e.f. 27.5.2008.

v. belonging to, or under the control of, the Army, Navy or Air Force; or
vi. appertaining to a sterilizer disinfector used in hospitals or nursing homes, if the boiler does not exceed one hundred litres in capacity.]

4. Power to limit extent

The [22][State Government] may, by notification in the Official Gazette, exclude any specified area from the operation of all or any specified provisions of this Act.

[23][**4A. Technical Adviser**

vii. The Central Government shall appoint a Technical Adviser from amongst the persons having such qualifications and experience as may be prescribed by rules.
viii. The terms and conditions of service of the Technical Adviser shall be such as may be prescribed by the Central Government.
ix. The Technical Adviser shall, in addition to exercising the powers and discharging the functions assigned to him under this Act or rules or regulations made thereunder, exercise such other powers and discharge such functions as the Central Government and the Board may delegate to him.

4B. Welders certificate

1. Any person who proposes to undertake any welding work connected with or related to a boiler, or a boiler component or both shall apply to a Competent Authority for issue of a Welders certificate.
2. On receipt of an application under sub-section (1), the Competent Authority shall follow such procedure for examination and grant of Welders certificate as may be prescribed by regulations.
3. The Competent Authority may, if satisfied that the person applying for Welders certificate under sub-section (2) has compiled with the conditions precedent for issue of the Welders certificate, issue such certificate, to such person subject to the payment of such fee and such other conditions as may be prescribed by regulations:

Provided that the Competent Authority shall not refuse Welders certificate to any person unless such person is given an opportunity of being heard.

4C. Conditions precedent for manufacture of boiler and boiler component

1. No person shall manufacture or cause to be manufactured any boiler or boiler component, or both unless—
   i. he has provided in the premises or precincts wherein such boiler or boiler component, or both are manufactured, such facilities for design and construction as may be prescribed by regulations;
   ii. the design and drawings of the boiler and boiler component have been approved by the Inspecting Authority under clause (a) of sub-section (2) of section 4D;
   iii. the materials, mounting and fittings used in the construction of such boiler or boiler component, or both conform to the specifications prescribed by regulations; and

22 The words "Governor-General in Council" have been successively amended by the A.O. 1937 and the A.O. 1950 to read the above.
23 Sec. 4A to 4F ins. by Act 49 of 2007, S. 5, w.e.f. 27.5.2008, so far it relates to Section 4A.

iv. the persons engaged for welding boiler or boiler component hold Welders certificate issued by a Competent Authority.

4D. Inspection during manufacture

1. Every manufacturer, before commencing manufacture of a boiler or boiler component, shall engage an Inspecting Authority for carrying out inspection at such stages of manufacture as may be prescribed by regulations.
2. The Inspecting Authority engaged under sub-section (1) shall follow such procedure for inspection and certification of boiler or boiler component as may be prescribed by regulations and after inspection, if it is—
   a. satisfied that the boiler or the boiler component conforms to the standards prescribed by regulations, it shall issue a certificate of inspection and stamp the boiler, or boiler component, or both; or
   b. of the opinion that the boiler, or boiler component, or both does not conform to the standards prescribed by regulations, it may for reasons to be recorded in writing refuse to issue such certificate:

   Provided that no certificate shall be refused unless the Inspecting Authority had directed the manufacturer of the boiler or boiler component, or both in writing to carry out such modifications or rectifications as it deems necessary and the Inspecting Authority is of the opinion that inspite of such direction the manufacturer of the boiler or boiler component, or both did not carry out the direction.

3. The Inspecting Authority may, for the purposes of inspection under this section, charge such fee as may be prescribed by regulations.

4E. Inspection during erection

1. The owner who proposes to register a boiler under section 7, shall engage an Inspecting Authority for carrying out inspection at the stage of erection of the boiler.
2. The Inspecting Authority shall follow such procedure for inspection and certification of a boiler or boiler component, or both as may be prescribed by regulations and after inspection if it is—
   a. satisfied that the erection of the boiler is in accordance with the regulations, it shall issue a certificate of inspection in such form as may be prescribed by regulations; or
   b. of the opinion that the boiler has not been erected in accordance with the regulations, it may for reasons to be recorded in writing, refuse to grant the certificate and shall communicate such refusal to the manufacturer of the boiler or boiler component forthwith:

   Provided that no such certificate shall be refused unless the Inspecting Authority had directed the owner in writing to carry out such modifications or rectifications as it deems necessary and the Inspecting Authority is of the opinion that in spite of such direction the owner did not carry out the direction.
3. The Inspecting Authority may, for the purposes of inspection under this section, charge such fee as may be prescribed by regulations.

4F. Conditions precedent for repairing boiler and boiler component

No person shall repair or cause to be repaired any boiler or boiler component or both, unless—

a. he has provided in the premises or precincts, where in such boiler or boiler component or both are being used, such facilities for repairs as may be prescribed by regulations;
b. the design and drawings of the boiler or boiler component, as the case may be, and the materials, mountings and fittings used in the repair of such boiler or boiler component conform to the regulations;
c. persons engaged in welding, holds a Welders certificate issued by a Competent Authority;
d. every user who does not have the in-house facilities for repair of boiler or boiler component shall engage a Boiler Repairer possessing a Boiler Repairer certificate for repair of a boiler or boiler component or both, as the case may be;
e. every user shall engage a Competent Person for approval of repairs to be carried out in-house or by the repairers.]

[24][5. Chief Inspector, Deputy Chief Inspectors and Inspectors

1. The State Government may appoint such persons as it thinks fit to be Inspectors for the State for the purposes of this Act, and may define the local limits within which each Inspector shall exercise the powers and perform the duties conferred and imposed on Inspectors by or under this Act.

2. The State Government may appoint such persons as it thinks fit to be Deputy Chief Inspectors for the State and may define the local limits within which each Deputy Chief Inspector shall exercise his powers and perform his duties under this Act.

3. Every Deputy Chief Inspector may exercise the powers and perform the duties conferred and imposed on Inspectors by or under this Act and, in addition thereto, may exercise such powers or perform such duties conferred or imposed on the Chief Inspector by or under this Act, as the State Government may assign to him.

4. The State Government shall appoint a person to be Chief Inspector for the State who may, in addition to the powers and duties conferred and imposed on the Chief Inspector by or under this Act, exercise any power or perform any duty so conferred or imposed on Deputy Chief Inspectors or Inspectors.

[25][(4A) No person shall be appointed as the Chief Inspector, Deputy Chief Inspector or Inspector unless he possesses such qualifications and experience as may be prescribed by the Central Government.]

5. Subject to the provisions of this Act, the Deputy Chief Inspectors and Inspectors shall exercise the powers and perform the duties conferred and imposed on them by or under this Act under the general superintendence and control of the Chief Inspector.

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24 Subs. by Act 18 of 1960, S. 5, for S. 5, w.e.f. 6.5.1960.
25 Ins. by Act 49 of 2007, S. 6.

6. The Chief Inspector, Deputy Chief Inspectors and Inspectors may offer such advice as they think fit to owners regarding the proper maintenance and safe working of boilers.

7. The Chief Inspector and all Deputy Chief Inspectors and Inspectors shall be deemed to be public servants within the meaning of section 21 of the Indian Penal Code (45 of 1860).]

6. Prohibition of use of unregistered or uncertified boiler

Save as otherwise expressly provided in this Act, no owner of a boiler shall use the boiler or permit it to be used—

a. unless it has been registered in accordance with the provisions of this Act;
b. in the case of any boiler which has been transferred from one State to another, until the transfer has been reported in the prescribed manner;
c. unless a certificate or provisional order authorising the use of the boiler is for the time being in force under this Act;
d. at a pressure higher than the maximum pressure recorded in such certificate or provisional order;
e. where the [26][Central Government] has made rules requiring that boilers shall be in charge of persons holding [27][certificates of proficiency or competency], unless the boiler is in charge of a person holding the certificate required by such rules:

Provided that any boiler registered, or any boiler certified or licensed, under any Act hereby repealed shall be deemed to have been registered or certified, as the case may be, under this Act. [28][***]

7. Registration

1. The owner of any boiler which is not registered under the provisions of this Act [29][may apply to the Inspector along with such other documents as may be prescribed by regulations to have the boiler registered]. Every such application shall be accompanied by the prescribed fee.

2. On receipt of an application under sub-section (1), the Inspector shall fix a date, within thirty days or such shorter period as may be prescribed from the date of the receipt, for the examination of the boiler and shall give the owner thereof not less than ten days' notice of the date so fixed.

3. [30][On the said date the Inspector shall inspect the boiler with a view to satisfying himself that the boiler has not suffered any damage during its transit from the place or manufacture to the site of erection and forward a report of the inspection along with the documents to the Chief Inspector within seven days.]

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26 Subs. by Act 49 of 2007, S. 7, for "State Government".
27 Subs. by Act 18 of 1960, S. 6, for "certificate of competency", w.e.f. 6.5.1960.
28 Proviso omitted by Act 34 of 1939, S. 3 and Sch. II.
29 Subs. by Act 49 of 2007, S. 8(a), for "may apply to the Inspector to have the boiler registered".
30 Subs. by Act 49 of 2007, S. 8(b), for:

"(3) On the said date the Inspector shall proceed to measure and examine the boiler and to determine in the prescribed manner the maximum pressure, if any, at which such boiler may be used, and shall report the result of the examination to the Chief Inspector in the prescribed form", w.e.f. 27.5.2008.

4. The Chief Inspector, on receipt of the report, may—
   a. register the boiler and assign a register number thereto either forthwith or after satisfying himself that any structural alteration, addition or renewal which he may deem necessary has been made in or to the boiler or any steam-pipe attached thereto, or
   b. refuse to register the boiler:

   Provided that where the Chief Inspector refuses to register a boiler, he shall forthwith communicate his refusal to the owner of the boiler together with the reasons therefor.

3. The Chief Inspector shall, on registering the boiler, order the issue to the owner of a certificate in the prescribed form authorising the use of the boiler for a period not exceeding twelve months at a pressure not exceeding such maximum pressure as he thinks fit and as is in accordance with the regulations made under this Act:

[31][Provided that a certificate issued under this sub-section in respect of an economiser [32][or of an unfired boiler which forms an integral part of a processing plant in which steam is generated solely by the use of oil, asphalt or bitumen as a heating medium] may authorise its use for a period not exceeding twenty-four months.]

4. The Inspector shall forthwith convey to the owner of the boiler the orders of the Chief Inspector and shall in accordance therewith issue to the owner any certificate of which the issue has been ordered, and, where the boiler has been registered, the owner shall within the prescribed period cause the register number to be permanently marked thereon in the prescribed manner.

8. Renewal of certificate

1. A certificate authorising the use of a boiler shall cease to be in force—
   ii. on the expiry of the period for which it was granted; or
   iii. when any accident occurs to the boiler; or
   iv. when the boiler is moved, the boiler not being a vertical boiler the heating surface of which is less than [33][[34][20] square metres], or a portable or vehicular boiler; or
   v. [35][save as provided in section 12, when any structural alteration, addition or renewal is made in or to the boiler; or]
   vi. if the Chief Inspector in any particular case so directs, when any structural alteration, addition or renewal is made in or to any steam-pipe attached to the boiler; or
   vii. on the communication to the owner of the boiler of an order of the Chief Inspector or Inspector prohibiting its use on the ground that [36][it or any boiler component] attached thereto is in a dangerous condition.
2. Where an order is made under clause (f) of sub-section (1), the grounds on which the order is made shall be communicated to the owner with the order.

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31 Added by Act 34 of 1947, S. 4.
32 Ins. by Act 18 of 1960, S. 7, w.e.f. 6.5.1960.
33 Subs. by Act 18 of 1960, S. 8(a), for "two hundred square feet" (w.e.f. 6.5.1960).
34 Subs. by Act 49 of 2007, S. 9(a)(i), for "18.58", w.e.f. 27.5.2008.
35 Subs. by Act 49 of 2007, S. 9(a)(ii), for:

"(d) when any structural alteration, addition or renewal is made in or to the boiler; or", w.e.f. 27.5.2008.
36 Subs. by Act 49 of 2007, S. 9(a)(iii), for "it or any steam-pipe", w.e.f. 27.5.2008.

3. [37][When a certificate ceases to be in force, the owner of the boiler may apply to the Competent Person for renewal thereof for such period as may be prescribed by regulations.]
4. [38][On receipt of an application under sub-section (3), the Competent Person shall, within fifteen days from the date of such receipt, inspect the boiler in such manner as may be prescribed by regulations.]
5. [39][If the Competent Person is—
   a. satisfied that the boiler and the boiler components attached thereto are in good condition he shall issue a certificate for such period as may be prescribed by regulations,
   b. of the opinion that the boiler or boiler component, or both does not conform to the standards prescribed by regulations, it may, for reasons to be recorded in writing, refuse to issue such certificate:

   Provided that no certificate shall be refused unless the Inspecting Authority had directed the owner of the boiler or the boiler component, or both in writing to carry out such modifica-

37 *Subs. by Act 49 of 2007, S. 9(b), for:*

"(3) When a certificate ceases to be in force, the owner of the boiler may apply to the Inspector for a renewal thereof for such period not exceeding twelve months as he may specify in the application:

Provided that where the certificate relates to an economiser or of an unfired boiler which forms an integral part of a processing plant in which steam is generated solely by the use of oil, asphalt or bitumen as a heating medium, the application for its renewal may be for a period not exceeding twenty-four months.".

38 *Subs. by Act 49 of 2007, S. 9(c), for:*

"(4) An application under sub-section (3) shall be accompanied by the prescribed fee and, on receipt thereof, the Inspector shall fix a date, within thirty days or such shorter period as may be prescribed from the date of the receipt, for the examination of the boiler and shall give the owner thereof not less than ten days' notice of the date so fixed:

Provided that, where the certificate has ceased to be in force owing to the making of any structural alteration, addition or renewal, the Chief Inspector may dispense with the payment of any fee:

Provided further that in the case of an economiser or of an unfired boiler which forms an integral part of a processing plant in which steam is generated solely by the use of oil, asphalt or bitumen as a heating medium, the date fixed for its examination shall be within sixty days from the date of receipt of the application and the owner shall be given not less than thirty days' notice of the date so fixed.".

39 *Subs. by Act 49 of 2007, S. 9(c), for:*

"(5) On the said date the Inspector shall examine the boiler in the prescribed manner, and if he is satisfied that the boiler and the steam-pipe or steam-pipes attached thereto are in good condition shall issue a renewed certificate authorising the use of the boiler for such period not exceeding twelve months and at a pressure not exceeding such maximum pressure as he thinks fit and as is in accordance with the regulations made under this Act:

Provided that renewed certificate issued under this sub-section in respect of an economiser or of an unfired boiler which forms an integral part of a processing plant in which steam is generated solely by the use of oil, asphalt or bitumen as heating medium may authorise its use for a period not exceeding twenty-four months:

Provided further that if the Inspector—

(a) proposes to issue any certificate—

(i) having validity for a less period than the period entered in the application, or

(ii) increasing or reducing the maximum pressure at which the boiler may be used, or

(b) proposes to order any structural alteration, addition or renewal to be made in or to the boiler or any steam-pipe attached thereto, or

(c) is of opinion that the boiler is not fit for use, the Inspector shall, within forty-eight hours of making the examination, inform the owner of the boiler in writing of his opinion and the reasons therefor, and shall forthwith report the case for orders to the Chief Inspector.".

tions or rectifications as it deems necessary and the Competent Person is of the opinion that inspite of such direction the owner of the boiler or boiler component, or both did not carry out the direction:

Provided further that the Competent Person shall, within forty-eight hours of making the examination, inform the owner of the boiler or boiler component any defect in his opinion and the reasons therefor and shall forthwith report the case to the Chief Inspector.]

[40][(5A) The Competent Person may for the purpose of inspection under this section charge such fee as may be prescribed by regulations.]

6. The Chief Inspector, on receipt of a report under sub-section (5), may, subject to the provisions of this Act and of the regulations made hereunder, order the renewal of the certificate in such terms and on such conditions, if any, as he thinks fit, or may refuse to renew it:
Provided that where the Chief Inspector refuses to renew a certificate, he shall forthwith communicate his refusal to the owner of the boiler, together with the reasons therefor.

7. Nothing in this section shall be deemed to prevent an owner of a boiler from applying for a renewed certificate therefor at any time during the currency of a certificate.

9. Provisional orders

Where the Inspector reports the case of any boiler to the Chief Inspector under sub-section (3) of section 7 [41][***], he may, if the boiler is not a boiler the use of which has been prohibited under clause (f) of sub-section (1) of section 8, grant to the owner thereof a provisional order in writing permitting the boiler to be used at a pressure not exceeding such maximum pressure as he thinks fit and as is in accordance with the regulations made under this Act pending the receipt of the orders of the Chief Inspector. Such provisional order shall cease to be in force —

a. on the expiry of six months from the date on which it is granted, or
b. on receipt of the orders of the Chief Inspector, or
c. in any of the cases referred to in clauses (b), (c), (d), (e) and (f) of sub-section (1) of section 8, and on so ceasing to be in force shall be surrendered to the Inspector.

10. Use of boiler pending grant of certificate

1. Notwithstanding anything hereinbefore contained, when the period of a certificate relating to a boiler has expired, the owner shall, provided that he has applied before the expiry of that period for a renewal of the certificate, be entitled to use the boiler at the maximum pressure entered in the former certificate pending the issue of orders on the application.
2. Nothing in sub-section (1) shall be deemed to authorise the use of a boiler in any of the cases referred to in clauses (b), (c), (d), (e) and (f) of sub-section (1) of section 8 occurring after the expiry of the period of the certificate.

40 *Ins. by Act 49 of 2007, S. 9(c) and Sl. No. corrected by corrigendum for "(6)".*
41 *The words "or sub-section (5) of section 8" omitted by Act 49 of 2007, S. 10. w.e.f. 27.5.2008.*

11. Revocation of certificate or provisional order

The Chief Inspector may at any time withdraw or revoke any certificate or provisional order on the report of an Inspector or otherwise—

a. if there is reason to believe that the certificate or provisional order has been fraudulently obtained or has been granted erroneously or without sufficient examination; or
b. if the boiler in respect of which it has been granted has sustained injury or has ceased to be in good condition; or
c. where the [42][Central Government] has made rules requiring that boilers shall be in charge of persons holding[43][certificates of proficiency or competency], if the boiler is in charge of a person not holding the certificate required by such rules; or [44][***]

12. Alterations and renewals to boilers

No structural alteration, addition or renewal shall be made in or to any boiler registered under this Act unless such alteration, addition or renewal has been sanctioned in writing by the Chief Inspector:

[45][Provided that no such sanction is required where the structural alteration, addition or renewal is made under the supervision of a Competent Person.]

[46][13. Alteration and renewal to steam- pipes

1. Before the owner of any boiler registered under this Act makes any structural alteration, addition or renewal in or to any boiler component attached to the boiler, he shall transmit to the Chief Inspector a report in writing of his intention and send therewith such particulars of proposed alteration, addition or renewal as may be prescribed by regulations.
2. Any structural alteration, addition or renewal referred to in sub-section (1) shall be made by a person possessing a Boiler Repairer certificate under the supervision of the Competent Person.]

14. Duty of owner at examination

1. On any date fixed under this Act for the examination of a boiler, the owner thereof shall be bound—
   a. to afford to the [47][Competent Person] all reasonable facilities for the examination and all such information as may reasonably be required of him;

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42 Subs. by Act 49 of 2007, S. 11(a), for "State Government".
43 Subs. by Act 18 of 1960, S. 9, for "certificates of competency", w.e.f. 6.5.1960.
44 Clause (d) and the proviso omitted by Act 49 of 2007, S. 11(b). Clause (d) and the proviso, before omission, stood as under:

"(d) where no such rules have been made, if the boiler is in charge of a person who is not, having regard to the condition of the boiler in the opinion of the Chief Inspector competent to have charge thereof:

Provided that where the Chief Inspector withdraws or revokes a certificate or provisional order on the ground specified in clause (d), he shall communicate to the owner of the boiler his reasons in writing for the withdrawal or revocation and the order shall not take effect until the expiry of thirty days from the receipt of such communication."
45 Ins. by Act 49 of 2007, S. 12.
46 Subs. by Act 49 of 2007, S. 13, for section 13. Section 13, before substitution, stood as under:

"13. Alterations and renewals to steam-pipes.—Before the owner of any boiler registered under this Act makes any structural alteration, addition or renewal in or to any steam-pipe attached to the boiler, he shall transmit to the Chief Inspector a report in writing of his intention and shall send therewith such particulars of the purposed alteration, addition or renewal as may be prescribed.".
47 Subs. by Act 49 of 2007, S. 14(a)(i), for "Inspector".

b. to have the boiler properly prepared and ready for examination in the [48][manner prescribed by regulations]; and
c. in the case of an application for the registration of a boiler, to provide such drawings, specifications, certificates and other particulars as may [49][be prescribed by regulations].

2. If the owner fails, without reasonable cause to comply with the provisions of sub-section (1), the [50][Competent Person] shall refuse to make the examination and shall report the case to the Chief Inspector who shall, unless sufficient cause to the contrary is shown, require the owner to file a fresh application under section 7 or section 8, as the case may be, and may forbid him to use the boiler notwithstanding anything contained in section 10.

15. Production of certificates, etc.

The owner of any boiler who holds a certificate or provisional order relating thereto shall, at all reasonable times during the period for which the certificate or order is in force be bound to produce the same when called upon to do so by a District Magistrate, Commissioner of Police or Magistrate of the first class having jurisdiction in the area in which the boiler is for the time being, or by the Chief Inspector or by an Inspector or by any Inspector appointed under [51][the Factories Act, 1948 (63 of 1948)], or by any person specially authorised in writing by a District Magistrate or Commissioner of Police.

16. Transfer of certificates, etc.

If any person becomes the owner of a boiler during the period for which a certificate or provisional order relating thereto is in force, the preceding owner shall be bound to make over to him the certificate or provisional order.

17. Powers of entry

An Inspector may, for the purpose of inspecting or examining a boiler or any steam-pipe attached thereto or of seeing that any provision of this Act or of any regulation or rule made hereunder has been or is being observed, at all reasonable times enter any place or building within the limits of the area for which he has been appointed in which he has reason to believe that a boiler is in use.

18. Report of accidents

1. If any accident occurs to a boiler or [52][boiler component], the owner or person in charge thereof shall within twenty-four hours of the accident, report the same in writing to the Inspector. Every such report shall contain a true description of the nature of the accident and of the injury, if any, caused thereby to the boiler or to the [3][boiler component] or to any person, and shall be in sufficient detail to enable the Inspector to judge of the gravity of the accident.
2. Every person shall be bound to answer truly to the best of his knowledge and ability every question put to him in writing by the Inspector as to the cause, nature or extent of the accident.
3. [53][Without prejudice to the provisions of sub-section (1), where any death has resulted due to any accident, an inquiry may be conducted by such person and in such manner as may be prescribed by the Central Government.]

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48 *Subs. by Act 49 of 2007, S. 14(a)(ii), for "prescribed manner".*
49 *Subs. by Act 49 of 2007, S. 14(a)(iii), for "be prescribed".*
50 *Subs. by Act 49 of 2007, S. 14(b), for "Inspector".*
51 *Subs. by Act 49 of 2007, S. 15, for "the Indian Factories Act, 1911 (12 of 1911), w.e.f. 27.5.2008.*
52 *Subs. by Act 49 of 2007, S. 16(a), for "steam-pipe", w.e.f. 27.5.2008.*
53 *Ins. by Act 49 of 2007, S. 16(b).*

19. Appeals to Chief Inspector

1. [54]Any person considering himself aggrieved by,—
   a. an order made or purporting to be made by an Inspector in the exercise of any power conferred by or under this Act, or
   b. a refusal of an Inspector to make any order or to issue any certificate which he is required or enabled by or under this Act to make or issue, may, within thirty days from the date on which such order or refusal is communicated to him, appeal against the order or refusal to the Chief Inspector.
2. [55][Every appeal under sub-section (1) shall be made in such manner as may be prescribed by the State Government.
3. The procedure for disposing of an appeal shall be such as may be prescribed by the State Government.]

20. Appeals to appellate authority

1. [56]Any person considering himself aggrieved by an original or appellate order of the Chief Inspector—
   a. refusing to register a boiler or to grant or renew a certificate in respect of a boiler; or
   b. refusing to grant a certificate having validity for the full period applied for; or
   c. refusing to grant a certificate authorising the use of a boiler at the maximum pressure desired; or
   d. withdrawing or revoking a certificate or provisional order; or
   e. reducing the amount of pressure specified in any certificate or the period for which such certificate has been granted; or
   f. ordering any structural alteration, addition or renewal to be made in or to a boiler or steam-pipe, or refusing sanction to the making of any structural alteration, addition or renewal in or to a boiler,

   may, within thirty days of the communication to him of such order, [57][prefer an appeal to the Central Government].
2. [58][Any person considering himself aggrieved by the refusal of an Inspecting Authority to grant a certificate of inspection of manufacture or erection, as the case may be, may within thirty days from the date of communication of such refusal, prefer an appeal to the Central Government.
3. Every appeal under sub-section (1) shall be made in such manner as may be prescribed by the Central Government.
4. the procedure for disposing of an appeal shall be such as may be prescribed by the Central Government.

[59][20A. Power of Central Government to revise order of appellate authority

Any person considering himself aggrieved by an order of the appellate authority refusing under section 20 to interfere with an order not to register a boiler or not to grant or renew a certificate in

54 Section 19 renumbered as sub-section (1) by Act 49 of 2007, S. 17, w.e.f. 27.5.2008.
55 Ins. by Act 49 of 2007, S. 17, w.e.f. 27.5.2008.
56 Section 20 renumbered as sub-section (1) thereof by Act 49 of 2007, S. 18.
57 Subs. by Act 49 of 2007, S. 18(a), for "lodge with the Chief Inspector an appeal to an appellate authority to be constituted by the State Government under this Act".
58 Sub-sec. (2) to (4) ins. by Act 49 of 2007, S. 18(b).
59 Ins. by Act 18 of 1960, S. 10 (w.e.f. 6.5.1960).

respect thereof on the ground that the boiler does not conform to the regulations made under this Act may, within two months of the communication to him of such order, make an application to the Central Government for a revision of that order on the ground that such boilers are in use in other countries.

Upon the receipt of such an application, the Central Government may, after calling for relevant records and other information from the appellate authority and considering the observations, if any, of that authority on the application and after obtaining such technical advice as the Central Government may consider necessary, pass such order in relation to the application, as the Central Government thinks fit; and, where the revision is allowed, the order shall specify the terms and conditions on which any variations from the regulations made under this Act are to be dealt with during the examination of the boiler.]

[60][21. Finality of orders

[61][An order of the Central Government under sections 20 and 20A], or of the Chief Inspector, or of a Deputy Chief Inspector, or of an Inspector, shall be final and shall not be called in question in any court.]

22. Minor penalties

Any owner of a boiler who refuses or without reasonable excuse neglects—

i. to surrender a provisional order as required by section 9, or
ii. to produce a certificate or provisional order when duly called upon to do so under section 15, or
iii. to make over to the new owner of a boiler a certificate or provisional order as required by section 16, shall be punished with fine which may extend to [62][five thousand rupees].

23. Penalties for illegal use of boiler

Any owner of a boiler who, in any case in which a certificate or provisional order is required for the use of the boiler under this Act, uses the boiler either without any such certificate or order being in force or at a higher pressure than that allowed thereby, shall be punishable with fine which may extend to [63][one lakh rupees], and, in the case of a continuing offence, with an additional fine which may extend to [64][one thousand rupees] for each day after the first day in regard to which he is convicted of having persisted in the offence.

24. Other penalties

Any person who—

a. uses or permits to be used a boiler of which he is the owner and which has been transferred from one [65][State] to another without such transfer having been reported as required by section 6, or
b. being the owner of a boiler fails to cause the register number allotted to the boiler under this Act to be marked on the boiler as required by sub-section (6) of section 7, or

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60 Subs. by Act 18 of 1960, sec, 11, for section 21 (w.e.f. 6.5.1960).
61 Subs. by Act 49 of 2007, S. 19, for "An order of the Central Government under section 20A and, save as otherwise provided in sections 19, 20 and 20A, an order of an appellate authority".
62 Subs. by Act 49 of 2007, S. 20, for "one hundred rupees", w.e.f. 27.5.2008.
63 Subs. by Act 49 of 2007, S. 21(a), for "five hundred rupees", w.e.f. 27.5.2008.
64 Subs. by Act 49 of 2007, S. 21(b), for "one hundred rupees", w.e.f. 27.5.2008.
65 Subs. by the A.O. 1950, for "Province".

c. makes any structural alteration, addition or renewal in or to a boiler without first obtaining the sanction of the Chief Inspector when so required by section 12, or to a steam-pipe without first informing the Chief Inspector, when so required by section 13, or
d. fails to report an accident to a boiler or steam-pipe when so required by section 18, or
e. tempers with a safety valve of a boiler so as to render it inoperative at the maximum pressure at which the use of the boiler is authorised under this Act, [66][or]
f. [67][allows another person to go inside a boiler without effectively disconnecting the same in the prescribed manner from any steam or hot water connection with any other boiler or from fuel mains,] shall be [68][punishable with imprisonment which may extend to two years or with fine which may extend to one lakh rupees, or with both].

25. Penalty for tampering with register mark

1. Whoever removes, alters, defaces, renders invisible or otherwise tampers with the register number marked on a boiler in accordance with the provisions of this Act or any Act repealed hereby, shall be punishable with fine which may extend to [69][one lakh rupees].
2. Whoever fraudulently marks upon a boiler a register number which has not been allotted to it under this Act or any Act repealed hereby, shall be punishable with imprisonment which may extend to two years, or with [70][fine which may extend to one lakh rupees, or with both].

26. Limitation and previous sanction for prosecutions

No prosecution for an offence made punishable by or under this Act shall be instituted except within [71][twenty-four months] from the date of the commission of the offence, and no such prosecution shall be instituted without the previous sanction of the Chief Inspector.

27. Trial of offences

No offence made punishable by or under this Act shall be tried by a Court inferior to that of a Presidency Magistrate or a Magistrate of the first class.

[72][27A. Central Boilers Board

1. A Board to be called the Central Boilers Board shall be constituted to exercise the powers conferred by section 28.

66 *Ins. by Act 18 of 1960, S. 12(a) (w.e.f. 6.5.1960).*
67 *Ins. by Act 18 of 1960, S. 12(b) (w.e.f. 6.5.1960).*
68 *Subs. by Act 49 of 2007, S. 22, for "punishable with fine which may extend to five hundred rupees", w.e.f. 27.5.2008.*
69 *Subs. by Act 49 of 2007, S. 23(a), for "five hundred rupees", w.e.f. 27.5.2008.*
70 *Subs. by Act 49 of 2007, S. 23(b), for "fine, or with both", w.e.f. 27.5.2008.*
71 *Subs. by Act 18 of 1960, S. 13, for "six months" (w.e.f. 6.5.1960).*
72 *Ins. by Act 11 of 1937, S. 4.*

2. [73]The Board shall consist of the following members, namely:—
   a. the Secretary to the Government of India incharge of the Department of the Central Government having administrative control of the Board who shall be the Chairperson ex officio;
   b. a senior technical officer conversant with the inspection and examination of boilers, to be nominated by the Government of each State (other than a Union territory);
   c. equal number of other persons as in sub-section (b) above to represent —
      i. Central Government,
      ii. the Bureau of Indian Standards,
      iii. boiler and boiler component manufactures,
      iv. National laboratories,
      v. engineering consultancy agencies,
      vi. users of boilers, and
      vii. such other interests which in the opinion of the Central Government ought to be represented on the Board, to be nominated by the Central Government;
   d. Technical Adviser, Member-Secretary ex officio.]

3. [74][The term of office of the members nominated under clauses (b) and (c) of sub-section (2) shall be such as may be prescribed by the Central Government.]

4. [75][The Board shall have full power to regulate by means of bye-laws or otherwise its own procedure and the conduct of all business to be transacted by it, the constitution of committees and sub-committees of members and the delegation to them of any of the powers and duties of the Board.]
5. The powers of the Board may be exercised notwithstanding any vacancy in the Board.]

28. Power to make regulations

1. [76]The [77][Board] may, by notification in the Gazette of India, make regulations consistent with this Act for all or any of the following purposes, namely:—
   a. [78][for laying down the standard conditions in respect of material, design, construc-

73 Subs. by Act 49 of 2007, S. 24, for

"(2) The Board shall consist of the following members, namely:—

(a) such number of members, including the Chairman, not exceeding fifteen, as the Central Government may nominate in the prescribed manner to represent that Government, the Union territories, the railways, the coal industry, the Indian Standards Institution, the boiler manufacturing industry, the users of boilers and, any other interests which, in the opinion of the Central Government, ought to be represented on the Board;

(b) a senior technical officer conversant with the inspection and examination of boilers, to be nominated by the Government of each State (other than a Union territory)", w.e.f. 27.5.2008.

74 Subs. by Act 49 of 2007, S. 24, for

"(3) Any vacancy occurring in the Board shall be filled as soon as may be by a nomination made by the authority by whom the member vacating office was nominated", w.e.f. 27.5.2008.

75 Subs. by Act 18 of 1960, S. 14(c), for sub-section (4) (w.e.f. 6.5.1960).

76 Section 28 renumbered as sub-section (1) thereof by Act 40 of 1986, S. 2 and Sch. (w.e.f. 15.5.1986).

77 Subs. by Act 11 of 1937, S. 5. for "Governor-General in Council".

78 Subs. by Act 49 of 2007, S. 25(i), for

"(a) for laying down the standard conditions in respect of material design and construction which shall be required for the purpose of enabling registration and certification of a boiler under this Act;", w.e.f. 27.5.2008.

tion, erection, operation and maintenance which shall be required for the purposes of enabling the registration and certification of boilers, boiler components, boiler mountings and fittings under this Act;]

[79][(aa) for prescribing the circumstances in which, the extent to which, and the conditions subject to which variation from the standard conditions laid down under clause (a) may be permitted;]

b. for prescribing the method of determining the maximum pressure at which a boiler may be used;

c. for regulating the registration of boilers, prescribing the fees payable therefor [80][and for the inspection and examination of boilers or parts thereof], the drawings, specifications, certificates and particulars to be produced by the owner, the method of preparing a boiler for examination, the form of the Inspector's report thereon, the method of marking the register number, and the period within which such number is to be marked on the boiler;

d. for regulating the inspection and examination of boilers and [81][boiler components, boiler mountings and fittings], and prescribing forms of certificates therefor;

e. for ensuring the safety of persons working inside a boiler;

[82][(ea) for prescribing the qualifications and experience subject to which the Inspecting Authorities, Competent Authorities and Competent Persons shall be recognised under this Act;

(eb) the conditions subject to which and the manner in which manufacturer of boiler components or material may be recognised;

(ec) facilities for design and construction which are required to be provided in the premises in which the manufacturing of any boiler or boiler component is carried out;

(ed) fee for the purposes of inspection or grant of recognition or any certificate under this Act;

(ef) procedure for examination and grant of Welders certificate;

(eg) powers and functions which the Board may delegate to the Technical Adviser;

(eh) documents to be enclosed alongwith the application for registration of boilers or renewal of a certificate authorising the use of boilers;

(ei) the manner of inspection of boilers;

(ej) the period for which a certificate authorising the use of a boiler may be renewed;

(ek) the conditions subject to which and the form in which Competent Person shall renew a certificate authorising the use of boilers;

(el) the manner and the form in which a Repairer's certificate shall be issued;

79 *Ins. by Act 11 of 1937, S. 5.*
80 *Ins. by Act 18 of 1960, S. 15 (w.e.f. 6.5.1960).*
81 *Subs. by Act 49 of 2007, S. 25(ii), for "steam pipes", w.e.f. 27.5.2008.*
82 *Cl. (ea) to (ep) ins. by Act 49 of 2007, S. 25(iii), w.e.f. 27.5.2008. Note: After clause (ed), instead of (ee), (ef) is published in Gazette.*

(em) the manner in which the boiler shall be prepared for examination;

(en) drawings specification, documents and other particulars which owner of a boiler is required to make available to the Competent Person;

(eo) the manner in which a person may be authorised to conduct energy audit and the manner in which such audit shall be conducted;

(ep) the manner in which disputes between the States with respect to registration of boilers shall be resolved;] and

f. for providing for any other matter which is not, in the opinion of the [83][Board], a matter of merely local or State importance.

2. [84][Every regulation made under this Act shall be laid, as soon as may be after it is made before each House of Parliament, while it is in session for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid both Houses agree in making any modification in the regulation or both Houses agree that the regulation should not be made, the regulation shall thereafter have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that regulation.]

[85][28A. Power of Central Government to make rules

1. [86][The Central Government may, by notification in the Official Gazette, make rules to carry out the provisions of this Act.

(1A) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely:—

a. In procedure to be followed in making applications under section 20A and the fees payable in respect of such application;
b. the qualifications and experience of persons to be appointed as Chief Inspectors, Deputy Chief Inspectors and Inspectors;
c. the manner in which appeals may be preferred to the Board, the fees payable in respect of appeals and the procedure to be followed of disposing such appeals;
d. the term of office of the members and the manner in which they shall be nominated under clauses (b) and (c) of sub-section (2) of section 27A;
e. the qualifications and experience of the Technical Adviser;
f. for requiring boilers to be under the charge of persons holding certificate of proficiency or competency and for prescribing the conditions on which such certificate may be granted;

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83 Subs. by Act 11 of 1937, S. 5, for "Governor-General in Council".
84 Ins. by Act 4 of 1986, S. 2 and Sch. (w.e.f. 15.5.1986).
85 Ins. by Act 18 of 1960, S. 16 (w.e.f. 6.5.1960).
86 Subs. by Act 49 of 2007, S. 26, for

"(1) The Central Government may, by notification in the Official Gazette, make rules to provide for—

(a) the procedure to be followed in making applications under section 20A and the fees payable in respect of such applications; and

(b) any matter relating to the nomination of members under clause (a) of sub-section (2) of section 27A", w.e.f. 27.5.2008.

g. the manner in which and the person who shall conduct inquiry into the accident.]

2. Every rule made under sub-section (1) shall be laid as soon as may be after it is made before each House of Parliament while it is in session for a total period of thirty days which may be comprised in one session or [87][in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid] both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form or be of no effect, as the case may be; so however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.]

29. Power to make rules

1. [88]The State Government may, by notification in the Official Gazette, make rules consistent with this Act and the regulations made thereunder for all or any of the following purposes, namely:—
   a. [89][the powers and duties of the Chief Inspector, Deputy Chief Inspectors and Inspectors;]
   b. for regulating the transfer of boilers;
   c. for providing for the registration and certification of boilers in accordance with the regulations made under this Act;
   [90][***]
   e. for prescribing the times within which Inspectors shall be required to examine boiler under section 7 or section 8;
   f. [91][fee payable for registration of boilers;]
   g. for regulating inquiries into accidents;
   h. [92][the manner in which appeals shall be preferred to the Chief Inspector and the procedure to be followed for hearing such appeals;] and
   i. for determining the mode of disposal of fees, costs and penalties levied under this Act.
   [93][***]
   [94][***]

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87 Subs. by Act 4 of 1986, S. 2 and Sch., for certain words (w.e.f. 15.5.1986).
88 Section 29 renumbered as sub-section (1) thereof by Act 4 of 1986, S. 2 and Sch. (w.e.f. 15.5.1986).
89 Subs. by Act 49 of 2007, S. 27(i), for

"(a) for prescribing the qualifications and duties of the Chief Inspector, of Deputy Chief Inspectors and of Inspectors for prescribing or constituting authorities to which they shall respectively be subordinate, and the limits of the administrative control to be exercised by such authorities;".

90 Clause "(d) for requiring boilers to be in charge of persons holding certificates of proficiency or competency, and for prescribing the conditions on which such certificates may be granted;" omitted by Act 49 of 2007, S. 27(ii), w.e.f. 27.5.2008.
91 Subs. by Act 49 of 2007, S. 27(iii), for

"(f) for prescribing the fees payable for the issue of renewed certificates, for the inspection and examination of boilers or parts thereof or drawings for steam-pipes, for the testing of welders or for any other matter which, in the opinion of the State Government, would involve time and labour and prescribing the method of determining the amount of such fees in each case;", w.e.f. 27.5.2008.

92 Subs. by Act 49 of 2007, S. 27(iv), for

"(h) for constituting the appellate authority referred to in section 20, and for determining its powers and procedure;", w.e.f. 27.5.2008.

93 Clause "(j) generally to provide for any matter which is, in the opinion of the State Government, a matter of merely local importance in the State;" omitted by Act 49 of 2007, S. 27(v), w.e.f. 27.5.2008.
94 Proviso omitted by the A.O. 1937.

2. [95][Every rule made by the State Government under this Act shall be laid, as soon as may be after it is made, before the State Legislature.]

30. Penalty for breach of rules

Any regulation or rule made under section 28 or section 29 [96][may direct that a person contravening such regulation or rule shall be punishable, in the case of a first offence, with fine which may extend to [97][one thousand rupees], and in the case of any subsequent offence, with fine which may extend to [98][one lakh rupees]].

31. Publication of regulations and rules

1. The power to make regulations and rules conferred by sections 28 and 29 shall be subject to the condition of the regulations and rules being made after previous publication.
2. [99]Regulations and rules so made shall be published in the Gazette of India and the local Official Gazette, respectively, and, on such publication shall have effect as if enacted in this Act.

[100][31A. Power of Central Government to give directions

The Central Government may give such directions as it may deem necessary to a State Government regarding the carrying into execution of the provisions to this Act, and the State Government shall comply with such directions.]

32. Recovery of fees etc.

All fees, costs and penalties levied under this Act shall be recoverable as arrears of land-revenue.

33. Applicability to the Government

Save as otherwise expressly provided, this Act shall apply to boilers and [101][boiler components] belonging to Government.

34. Exemptions

1. [102][The State Government may, by notification in the Official Gazette, exempt from the operation of this Act, subject to such conditions and restrictions as it thinks fit, any boilers or classes or types of boilers used exclusively for the heating of buildings or the supply of hot water.]
2. [103][[104]In case of any emergency, the State Government may, by general or special order in writing exempt any boilers or steam-pipes or any class of boilers or steam-pipes or any boiler or steam-pipe from the operation of all or any of the provisions of this Act.]
3. [105][If the State Government is satisfied that having regard to the material design or construction

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95 *Ins. by Act 4 of 1986, S. 2 and Sch. (w.e.f. 15.5.1986).*
96 *Subs. by Act 18 of 1960, S. 18, for certain words (w.e.f. 6.5.1960).*
97 *Subs. by Act 49 of 2007, S. 28(a), for "one hundred rupees", w.e.f. 27.5.2008.*
98 *Subs. by Act 49 of 2007, S. 28(b), for "one thousand rupees", w.e.f. 27.5.2008.*
99 *Sub-section (2) stands unmodified by the A.O. 1937.*
100 *Ins. by Act 18 of 1960, S. 19 (w.e.f. 6.5.1960).*
101 *Subs. by Act 49 of 2007, S. 29, for "steam-pipes", w.e.f. 27.5.2008.*
102 *Ins. by Act 9 of 1929, S. 3.*
103 *Section 34 re-numbered as sub-section (2) of that section by Act 9 of 1929, S. 3.*
104 *Subs. by Act 18 of 1960, S. 20, for sub-section (2) (w.e.f. 6.5.1960).*
105 *Subs. by Act 49 of 2007, S. 30, for*

"(3) If the State Government is satisfied that, having regard to the material design or construction of boilers and to the need for the rapid industrialisation of the country, it is necessary so to do, it may, by notification in the Official Gazette and subject to such conditions and restrictions as may be specified in the notification, exclude any specified class of boilers or steam-pipes in the whole or any part of the State, from the operation of all or any of the provisions of this Act.".h^b

of boilers and to the need for the rapid industrialisation of the country, it is necessary so to do, it may, by notification in the Official Gazette and subject to such conditions as may be prescribed by regulations, exempt any boiler or boiler components in the whole or any part of the State from the operation of all or any of the provisions of this Act.]

35. Repeal of enactments

[Rep. by the Repealing Act, 1927 (12 of 1927), sec. 2 and Sch.]

THE SCHEDULE

Enactments repealed

[Rep. by the Repealing Act, 1927 (12 of 1927), sec. 2 and Sch.].

21. Whither Leadership: Overcoming Mayhem and Restoring Normalcy

21. Whither Leadership: Overcoming Mayhem and Restoring Normalcy

21.1 Whither Leadership: Overcoming Mayhem and Restoring Normalcy - Teaching Notes

Nawada Communal Riots: Overcoming Mayhem and Restoring Normalcy

Case Synopsis

The case study describes the helpless situation of the district administration and the police as they were caught unaware of the simmering discontent which exploded suddenly with a small provocation – not serving non-vegetarian food. As the district officials and the police were not prepared to handle the crisis at such a scale, they remained helpless till the additional police forces arrived from state head quarters. The DM and the SP of the district handled the situation with a truncated and weary police force. Numerous odds were staked against them. As the police were not prepared and most of the police personnel were on leave post Eid, there was mayhem initially which even resulted in firing resulting in the loss of two lives. With the reinforcements from the state headquarters and other measures, normalcy could be restored in three to four days.

Focal Point

The focal point of the case study was how the truncated police force under the direction of the DM and the SP of the District handled the communal clashes without further loss of lives and destruction to the property. Given the odds staked against them, the manner in which the district leadership handled the crisis in Nawada by mobilizing the resources from different sources, is the focal point of the case.

Learning Objectives and Case Usage

The overall learning objectives of the case center on how to overcome the challenges – limited, weary and uncoordinated police force – within a limited time span with miscreants running rampage in the city. The case study can be used for the courses on leadership, communication, coordination and also resource management, crisis management, maintenance of Public order etc.

Discussion Options, Board Plans and Time Management Plans

The discussion options of the case study hinge on the manner in which case study will be discussed in the classroom. The discussion options for the faculty in this case may include the following questions.

1. If you were to handle the crisis, what leadership style would you adopt?
2. If you were to restore normalcy, what would be your communication style?
3. How would you coordinate with different stakeholders?

Board Plan for Discussion: Leadership

Leadership style*	Reasons for adopting the leadership style	Reaction of stakeholders to the leadership style	Probable outcome of the leadership style
Coercive			
Authoritative			
Affiliative			
Democratic			
Pacesetting			
Coaching			

* The leadership styles are taken from the “Leadership That Gets Results” by Daniel Goleman, Harvard Business Review, March – April 2000

Board Plan for Discussion: Communication

Communication style	Receptivity of stakeholders	Impact on stakeholders	Probable outcome of communication
Affable			
Accommodative			
Assertive			
Aggressive			

Board Plan for Discussion: Coordination

Stakeholders	Help from stakeholders	Constraints	Overcoming constraints
Police headquarters			
District Administration			
Local police leadership			
Local police personnel			
Religious leaders			
Political leaders			
Media			

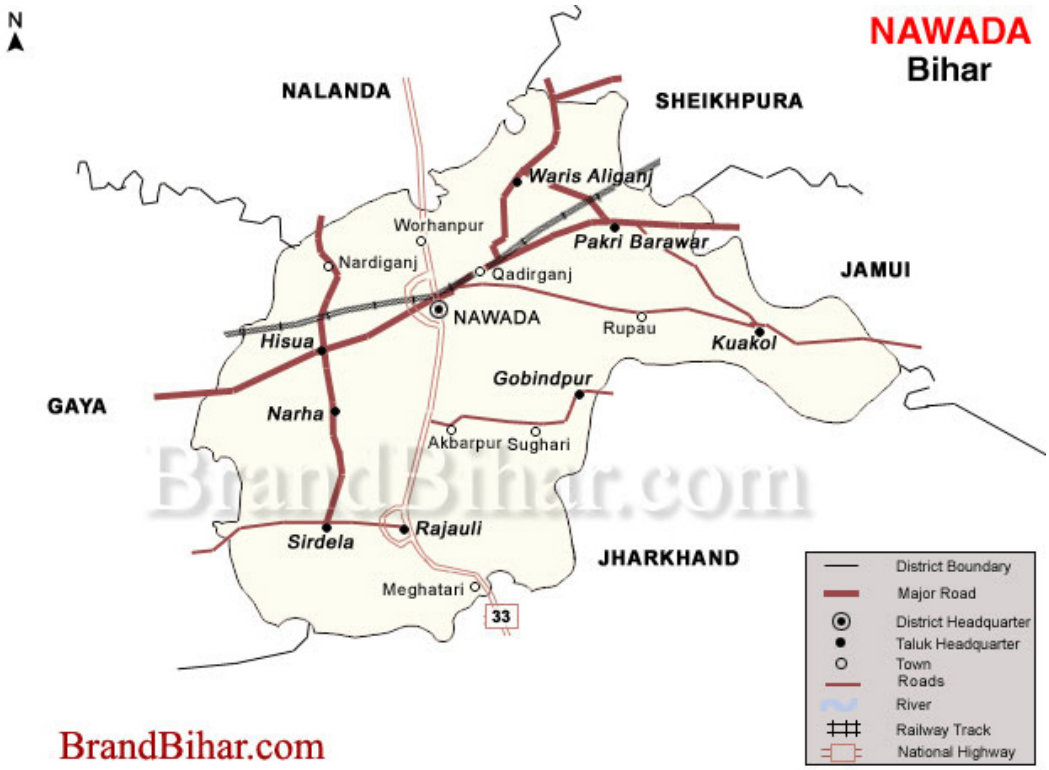
Time Management Plan for the case study (75 minutes)

Topic	Time (Minutes)
Review of background information and communal sensitivity in Nawada	05
Reaction of police immediately after the communal clashes – chaos, confusion, leader-less, panic, etc, and the role of leadership in regrouping the police force. (Leadership)	20
The role and methods of communication in overcoming the problem – internally (within the police department) and externally (outside the police department). (Communication)	20
If the participant is in charge of Nawada as the DM or as the SP, how would he or she coordinate with different stakeholders to restore normalcy? (Coordination)	20
Wrap Up and Take Away's	5
	80

** Depending upon the use, the questions for discussion can be changed. For e.g. If this case study is to be used for Public Order Management class, the questions would centre on handling and containing the situation. Accordingly, the Teaching note and the board plan will also change.

EXHIBIT NO. 1: THE RESTAURANT WHERE THE COMMUNAL CLASHES WERE ALLEGEDLY STARTED

Source: http://www.livemint.com



Source: BrandBihar.com

21.2 Whither Leadership: Overcoming Mayhem and Restoring Normalcy

Introduction

Mr. Sajjan sat for late lunch as he was busy reviewing the monthly reports of various departments of the district. Ever since he took over the charge of the DM of Nawada, he was keen to enhance the overall effectiveness of the district administration. When he was posted here 6 months back, he was very happy because the District Superintendent of Police Mr. Jha was his batch mate and they had good time together. Not only that, he was his best friend since the college days. Ever since he joined as the DM, both of them have worked in close coordination with each other and everyone talked about their excellent rapport and understanding.

Sitting at the dining table, he switched on the TV. At the same time, he heard his mobile ringing and Mr. Jha was on the other side. Jha and his team did a fairly good job during the recently concluded Eid festival in the district. Sajjan while looking at the TV took the call on his mobile. Sajjan expected the soft voice of Jha. But Sajjan found his voice to be a bit shaky.

“Sajjan! Communal clashes have started in Nawada town and some goons have started pelting stones and burning shops.” Jha said in a panicky tone.

Sajjan “Oh!”

“There is not much police force in the town now. After the Eid, most of the police officers have gone on leave.”

“Hmm.” Sajjan hinted anxiously at Jha to continue.

“Situation is turning bad to worse Sajjan.”

Sajjan was taken aback as he did not expect such a situation immediately after the peaceful completion of Eid, which was celebrated with great religious fervor by Muslims. Nothing untoward happened during the festive season. In fact, he wanted to organize a dinner for Jha and other officers of various departments who worked hard for ensuring peace and security of the Nawada district.

Sajjan was convinced that the situation in Nawada would get out of control and unless the same is contained, the clashes may also spread to other places, which were already in the grip of communal tensions. The problem was further complicated due to the fact that some Kawariyas were travelling through Nawada by using the National Highway (NH) 31. Every year in the months of Sawan and Bhado (July and August) devotees in large numbers come to Sultanganj to have a dip in the Ganges River. After a few puja celebrations the devotees collect Ganges water in two small pots and carry the same on their shoulders. After 3-4 days journey by foot or 1-2 days by vehicles they reach Bidyanath Dham. The entire route between Sultanganj to Baidyanath Dham shrine which stretches for around 100 kilometers is a highly sensitive area as the cases of looting happen and the police bandobast is arranged in the entire route from Sultanganj to Baidynath Dham.

Sajjan was apprehensive about the worst that could happen if the communal clashes were not contained and he decided to act fast. From his experience in the past he had realized that his personal

presence makes a huge difference in terms of help from his own and other departments in handling any such situation. That apart, Nawada town had never witnessed communal clashes of this magnitude before and there was complete panic and lack of co-ordination in the officials, as he understood after the telephone call from Jha. Further, there was no intelligence report related either to the occurrence of communal clashes or to the simmering discontentment in the local population in the city of Nawada. The sudden eruption of communal clashes shook the police and took everyone by surprise and it was a daunting task for the police and district administration as no one was prepared.

Background of Nawada

Nawada is a district situated on the southern end of Bihar, 150 km from Patna, bordering Jharkhand state. It was once a part of the erstwhile united Gaya district of Bihar. The district is surrounded by other districts – Gaya, Nalanda, Sheikhpura and Jamui. (Exhibit No. 2) Basically the economy is agrarian with a substantive forest area on the borders of Jharkhand. Nawada had seen feudalism in its heydays and later came under some sort of naxal influence. Due to its proximity with Jharkhand and South Central Bihar during the later part of twentieth century, many ill famous massacres and serious law and order problems by caste based private armed groups happened in Nawada.

Therefore, Nawada, which witnessed feudal dominance once upon time gradually started experiencing caste based politics, patronage to criminal elements, rise of vested interest groups and LWEs, etc, with the passage of time. The rise of communal forces was a new phenomenon which threw a new challenge to the district police of Nawada.

The NH 29 passes through one end of the Nawada town and the Kawariyas take this road for their regular movement and most of the Kawariyas are offered food by the roadside hotels. Adjacent to this national highway and parallel to the town was situated a locality which was predominantly Muslim dominated. Just next to the said locality was a village which had an overwhelming Yadav population. Amongst the Muslims, majority of the residents were from Ansari group.

Both the Yadavs and Ansaris were not the original inhabitants of this area but had settled a few years back after purchasing the land, which around 20 years ago was almost barren. The price of this land had increased many folds in the last 2-3 years owing to development in the nearby urban areas which were proximate to the national highway. There were disputes pertaining to property and land among different social groups and such disputes were getting communal color.

Communal Sensitivity of Nawada

Communal disturbances are the worst form of Law and Order problem in any area and particularly in areas like Nawada, the impact and scars of such disturbances are borne by the people for a long time. Nawada district of late had seen sporadic incidents of communal nature, particularly in the rural areas. The main reasons for these minor incidents are listed below.

a. *Disputes relating to Land:* Purchase of land by persons belonging to different socio-religious groups in a densely populated area belonging to another antagonistic group often resulted in problems. It was observed that many neo rich sections of the rural areas started purchasing lands in disputed areas by virtue of their clout at lower level. Often such lands were sublet for farming or other economic activities like opening liquor shops etc, which was objected to by the others.
b. *Fencing of Graveyards:* Problems started during the fencing of graveyards, during removing encroachments and also while not allowing the traditional religious customs.

c. *Issues of Holika Dhahan, Chath Puja and Muharram:* Age old and traditional customs of having community celebrations on private land was not liked by new owners of the land. They protested the community celebration rights on their lands which led to hatred and at times violent incidents.

d. *Issue of migrant labour:* Seasonal exodus of rural population to various other parts of the country in search of employment also strained the traditional bonding between various groups. The arrival of these migrant labourers to their villages during festivals in large numbers with the exposure of urbanized areas and its worldview also created problems. They, at times, started new practices which are normal in urban areas which often disturbed the age old sense of sharing and brotherhood.

e. *Rise in crime:* The steady rise of property related offences also created social chaos and unrest within the society and the people with criminal bent of mind were ready to do any unlawful activity.

f. *Lawlessness:* There was a growing a tendency among the local leaders to resort to violent agitation and breaking law for all types for the redressal of their grievances – road blockade, attacking the government property, etc, as a part of protest.

g. *Less effective lower level administrative and police functionaries:* Last but not the least, the faulty posting and placement of subordinate police personnel with alleged ulterior motives also created unrest and lack of respect for authority and law in Nawada.

Narrative of the Event

Sajjan and Jha were a bit relieved after the end of Eid in a peaceful manner. Earlier, they were apprehensive about the month of August as the month of Ramzan and the month of Sawan coincided and maintaining order during these months was bit difficult task. Each communal group practices its own religious rituals which, on certain occasions overlapped with the other leading to tense situations in the city. Immediately after the Eid festival, the simmering tensions turned into communal flare when a small instance blew out of proportion in Nawada in August 2013.

The immediate cause of the communal riot was the beating up of one of the road side hotel owner and his staff by some Muslim youth.

The time was around 1.00 pm. A few Muslim youth gathered at "Baba ka Dhaba" restaurant (Exhibit No. 2) and demanded the hotel owner to serve non-vegetarian food to them. The request was promptly rejected by the hotel owner.

"Mai Sawan mahine may mansahar nahi rakhtha."
("I don't serve non-vegetarian in the month of Sawan.")

The response enraged the youth who started abusing him and the hotel staff. The verbal abuse led to scuffle between the hotel owner and the youth. The hotel owner shouted for help.

"Are koi mujhe bachao, yeh log mujhe peet rahe hai."
("Somebody help me, these people are beating me")

Hearing the cries of the hotel owner, a large number of Hindu boys gathered and chased the Muslim youth and some Muslim youth were injured during the chase. The news spread like wildfire in the Muslim locality which was adjacent to the National Highway (NH). Many Muslims came on to the road and started blocking the NH. When a vehicle owner who was carrying Kawariyas tried to object, they were allegedly beaten up by the protesting Muslims. With the timely arrival of Police the situation was handled at NH and the road blockade was cleared. However on way back, when this vehicle entered the main town carrying a few injured Kawariyas it infuriated the members of the majority community who violently reacted and that started arson and attacks.

The owners of the shops were screaming for help and tried to put off the fire, but in vain. As the shops were adjacent to each other, one shop after the other was engulfed in the flames. The shops and other establishments were burnt down by the rioting mob. Some miscreants even tried to attack the police station which resulted in firing. The roads were blocked by the miscreants and some even resorted to firing.

Analyzing the problem

Sajjan after assessing the gravity of the situation in Nawada immediately rushed to take stock of the situation. There were reports that at least 02 persons were killed in firing. Sajjan immediately proceeded to kotwali police station area of the town. He along with Jha swung into action to restore normalcy. He discussed with Jha about the next action steps for resolving the issue at the earliest.

"Sajjan, we are ill prepared." Jha said.

"What does it mean?" Sajjan asked.

Jha explained the situation in Nawada to Sajjan.

a. Most of the Law and Order deployments in the town were discontinued after the Eid festival as such the extra forces which were sent to Nawada had been withdrawn by the Head Quarters. (No police deployments at sensitive areas)

b. Many police and administrative officials had taken leave after the peaceful culmination of the Eid festival. (Paucity of police force to restore normalcy)

c. Nawada town had never seen a situation of this magnitude before and there was complete panic and lack of co-ordination in the district and police officials. (Officials in Nawada never faced such a situation, hence did not know how to hand le it.)

d. There was no intelligence report which specifically indicated towards the communal clashes between the Hindus and Muslims. (Failure of intelligence)

e. At many places, the police vehicles were not allowed to rush as the agitated public had erected road blocks and burnt tyres on all the link roads. (Miscreants erected blockades to scuttle the efforts of the police to restore normalcy.)

f. Rumors spread like wildfire and nobody knew the truth which further worsened the situation in Nawada. (Rumor mongers were in full swing.)

g. The second rung leadership of the District Administration and the Police could not rise to the situation and appeared totally ineffective and helpless. (Not much help could be expect-

ed from the second level as police personnel at that level were in disarray.)

A constable came running and told Jha.

"Sir, Daire Mohalle mein kuch aur dukanein jala diye gaye hain"

(Sir, some more shops been burnt in Daire Mohalla)

Even before, the constable could complete the sentence, the mobile phone of Sajjan started ringing and it was the Home Minister who was calling from his mobile.

Jha looked at Sajjan. Sajjan, inadvertently took the call from the Home Minister.

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22. Annexures

22. Annexures

22.1 Use of Case Studies in the Classroom

Ashwini Chhatre

In this note, I outline the use of case studies in achieving specific learning objectives in the classroom. I illustrate the process through a few case studies used in my course "Government, Society, and Business" that I teach at the Indian School of Business.

The course is taken as an elective by the MBA cohort. It is designed to acquaint the students with the role of government, the need for effective government, and the different mechanisms through which government interventions are envisioned, designed, and implemented. The principal justification for government interventions is to reduce the gap between private and public interest, where private interests comprise the full spectrum from individual citizens and households, through social groups, to private corporations. The job of the government is to protect and enhance the public interest. The course does not discuss how the public interest is defined and determined – it is assumed that the law of the land represents the public interest.

Property Rights

One part of the course deals with the contradictions inherent in reconciling secure property rights and the needs of economic development. Property rights are the cornerstone of economic growth, but existing property rights often prevent the possibility of development activities in specific cases. In order to examine the role of government in addressing this contradiction, the course uses three cases from the Harvard Business School case study collection:

1. ***Special Economic Zones: Public Purpose and Private Property***

   The case discusses the problems in implementing the SEZ Act 2005, especially with respect to land acquisition. The case is excellent for students to understand the concept of 'eminent domain' and the social and political nuances of acquisition of private property through non-market mechanisms. It allows students to discuss the need to balance public purpose and private property, and that there are no easy or clear solutions to the problem.

2. ***TATA Motors in Singur: Public Purpose and Private Property***

   This case describes the farmer protests that led to withdrawal of Tata Motors from Singur after considerable investments had already been made. The case is useful for illustrating the shortcomings of the present law (in 2008) in providing fair and just compensation to farmers through a transparent process, which increased mistrust of the government and allowed people's fears to be manipulated for political gain. In particular, the case brings to light the contentious nature of interpretations and debates about what is fair and just in specific cases.

3. ***Dharavi, Developing Asia's Largest Slum***

   The case chronicles the ill-fated plans to re-develop Dharavi over a 10-year period. The case covers several political and social processes, including debates about why the slum should be redeveloped at all, the economic logic of redevelopment, how should the benefits from redevelopment be distributed, and whether it should be redeveloped by government or by the private sector. The case also presents the contradictory perspectives of several actors – administrators, real-estate developers, elected representatives, small enterprise owners, and slum residents.

Beyond property rights

The cases together allow the debate to move beyond a narrow focus on property rights to the larger goals of economic development and the role of government in facilitating fair and just transactions.

The SEZ case sets up the problem as between society and business, with government in the role of arbitrator. The Singur case complicates this simple formulation by presenting society as fractured along lines of interest and affiliation, and presenting the government as part of the problem. Both of these cases bring to light the shortcomings of the process of land acquisition in India without falling into simplistic analyses or apportioning the blame.

The Dharavi case is particularly illustrative for two reasons. One, it demonstrates the paucity of imagination when it comes to property rights. While there is consensus that slum dwellers should benefit from the redevelopment process (or at least should not be worse-off), the benefit sharing is seen through an extremely narrow lens of providing freehold ownership of residential apartments. The process largely breaks down at multiple stages due to this failure to move beyond ownership of residential property. Two, the Dharavi case offers the students opportunity to learn about the challenges of a participatory process where a large number of actors and interests are involved in a very public debate.

Since the cases do not offer a solution, it is possible for the students and the instructor to discuss potential alternatives, explore opportunities for doing things differently, bring in their own experience to dwell on the case, or use other examples in the class. For instance, during classroom discussion of the Singur case, I brought up the ongoing 'Land Pooling' experiment going in Andhra Pradesh in order to acquire land for Amravathi, the new capital of the state. Similarly, discussion on the equally challenging process of slum redevelopment at the Mumbai International Airport (with slightly different and a bit more successful outcomes) provides an easy counterpoint to the Dharavi case discussion.

Conclusion

The use of case studies improves learning outcomes in three ways. One, case studies force students to think about situations where there may not be a simple resolution acceptable to all parties. Two, the cases allow students to bring their own research and experience into the classroom, and enhance peer learning through moderated class discussion. Three, the cases allow students to step into the shoes of administrators and internalize the challenges (and the often unreasonable expectations) they face in the course of their duty. The learning outcomes, however, depend on how well the instructor is prepared for discussion of the case, his/her ability in moderating and channeling class discussion, and the choice of case study for specific learning objectives.

Case Teaching and Participant-Centered Learning (PCL): An Introduction

Kent Weaver

McCourt School of Public Policy

Georgetown University

The Case Method and Participant-Centered Learning

http://www.youtube.com/watch?v=JJ7aVrtTbg0

Some Jan Rivkin strategies:

- Focusing immediately on the central strategic question addressed by the case in a compelling way ("How will Nutrasweet respond?")
- Forcing participants to take a position and defend it analytically by calling on them
- Using role-plays to increase engagement
- Preventing a narrowing of the debate ("Who sees things very differently?")
- Move away from a wrong analytical path
  - Using participants to point out problems
  - With humor ("Oops")
- Use humor to underline a central point ("Never enter a price war without credible low cost position")
- Linking central analytical points to overall themes from past classes and future ones

The Case Method

What is a "case"

- A written (or sometimes multi-media) description of a particular empirical situation and/or decision
- Requires reader to analyze information and:
  - make a strategic decision or
  - draw a conclusion about why a particular action was taken and whether it was optimal

What does a good case do? :

- Tells a compelling story
- Forces participants to:
  - Think about constraints acting on decision makers
  - Think about the options available to decision makers
  - Sort through information and decide what is relevant
  - Take a stand
- Has no obvious "right" answer
- Provides a vehicle for collaborative learning and interaction

What is case teaching?

- Faculty-led but participant discussion driven
- Uses “multilogue” to compel participants to collectively think through analytical problems
- Is difficult but exciting for the trainer and participants

Why use case method?

- Engage and excite participants
- Understand the complications, constraints and interactive effects in the real world
- Apply analytical skills to decision making
- Develop skills in public speaking, negotiation, collaborative learning

- **Allow participants to "test-drive" their emerging skills in an environment with low stakes**

Lecturing versus "active learning"

- **Participantsare less likely to forget information that they have been engaged in acquiring and apply imediately**
- **Active learning is better suited to development of professional judgment and critical skills**

See: Christensen, Garvin and Sweet, *Education for Leadership: The Artistry of Discussion Leadership*

You must simultaneously:

- Make sure that the major themes and analytical points in the class get across to the class
- Monitor overall level and swings in class engagement
- Choose speakers in a way that:
  - Advances the class discussion
  - Is equitable
- Remember the order of speakers if you have promised people they can talk
- Write legibly on the whiteboard

Types of Cases and Ways of Using Them

Formal written cases generally:

- Are short-- 5-20 pages, plus exhibits
- Are "objective" in tone, avoiding value judgments on protagonists and decisions
- Avoid explicit discussion of theory
- Are write in the past tense
- Avoid extraneous information not relevant to key issues in the case, but convey complexity of constraints and debates where appropriate

Types of cases

1. Decision-forcing cases—feature a protagonist(s) who has to make a decision
2. Retrospective cases—
   - Try to understand why a particular set of actions occurred
   - May or may not try to second-guess those actions
3. Technical cases: Offer practice in using specific analytical techniques
4. Simulation exercises—involve multiple roles played by participants

What does a good decision-forcing case do?

- Sets up a compelling problem or dilemma
- Forces students to:
  - Think about constraints acting on decisionmakers
  - Think about the options available to decision makers
  - Sort through information and decide what is relevant
- Has no obvious correct answer
- Provides a vehicle for collaborative learning and interaction

Some key questions to ask in decision-forcing case discussions

- "What options are available to the protagonist(s)? What are the major advantages and disadvantages of each option?"
- "What constraints do they face, including ethical and legal ones?"
- "How are other key parties likely to react?"
- "Does anyone see the key issues/options in this case differently?"

Alternative Ways of Using Cases in the Classroom

1. "Case dominant" Method

- Begins with the facts of the case and uses them to draw out general analytical principles
- Supplements case analysis with "mini-lectures" before and/or after the case analysis to:
  - Set the stage for the case
  - Introduce analytical principles
  - Emphasize key takeaway points

2. Reality check method: Introduces theoretical material in the first part of a class followed by case discussion in second part of class

TOPIC: JUDICIAL ACTIVISM IN POLICYMAKING

Phillips Shively, "Law and the Courts," in Phillips Shively, *Comparative Public Policy*

Pratap Bhanu Mehta, "The Rise of Judicial Sovereignty," *Journal of Democracy*

Ruth Greenspan Bell et al, "Clearing the Air: How Delhi Broke the Logjam on Air Quality Reforms," *Environment*, vol. 46, No 3 (April 2004), pages 22-39.

Course: Kent Weaver, Comparative Policy Process, McCourt School of Public Policy

3. Alternating class sessions: theory and case discussions rotate

TOPIC: THE CONSUMER

SESSION A: Pindyck and Rubinfeld, *Microeconomics*, chapter 3 or Mankiw, *Principles of Microeconomics*, chapter 21

SESSION B:

"Assisting the Poor: Liconsa and the Program of Social Assistance for Milk, Kennedy School Cases

Course: Jose Gomez-Ibañez, Markets and Market Failure with Cases, Harvard Kennedy School

4. Comparative Cases

HOW DO POLITICAL ACTORS BALANCE MULTIPLE OBJECTIVES?

Ward Berenschot, "Everyday Mediation: The Politics of Public Service Delivery in Gujarat, India," *Development and Change*, 41 (2010), pp. 883–905.

Wendy Hunter, "The Normalization of an Anomaly: The Workers' Party in Brazil," *World Politics*, 59,3 (April 2007): pp. 440-475.

"Confronting HIV/AIDS in Pingxiang, China, Parts A and B," Kennedy School Cases

Course: Kent Weaver, Comparative Policy Process, McCourt School of Public Policy

Variations in case materials

1. Multi-part cases, e.g., Choice (A) and implementation dilemmas (B) examine:
   - Multiple decisions that had to be make within a given organization
   - Evolution of a situation over time
2. Disguised or composite cases: prepared cases with identities disguised or changed to protect identity and privacy of participants

3. "Curated" or "Quasi" cases bundle together separately materials prepared separately by others

Leading a Participant-Oriented Discussion, Part 1

Kent Weaver
McCourt School of Public Policy
Georgetown University

Issues in Discussion Management:

- The physical environment of the classroom
- Time Management
- Using the Whiteboard
- Limiting distractions
- Starting questions
- Promoting engagement
- "Cold-calling" versus volunteers
- Take-Away Points
- Placing yourself in the classroom

Physical Environment Matters

Participants must be able to see, hear and engage with each other as well as the trainer, so:

- **Lobby to get classrooms that facilitate discussion**
- **Move around the classroom to facilitate discussion**

…and make sure that you have the equipment that you need

It's very difficult to do a case-based class without an adequate whiteboard for:

- **Collecting ideas from the class**
- **Presenting them in a structured way that links ideas together in a way that advances class understanding**

Time Management:

Have an explicit written plan of how you will use blocks of time in your class-for example:

- **Introductory lecture material (if any)**
- **Set-up of case; relate it to core issues of course**
- **Time allocation for each key issue you want to address**
- **Summary and take-aways**

A model Time allocation plan

TIME MANAGEMENT PLANS FOR A 75 MINUTE CLASS SESSION

Introduction; logistics; take-aways	Lecture/question (instructor focused)	Theoretical reading discussion	Case Analysis or Simulation Activity	Action-Focused discussion	Take-away points
5 min	15 min	15 min	30 min	27 min	3 min

A sample Time allocation plan

Topic	Time allotted	End time
Jan Rivkin video	5	10:20
Discussion of Rivkin video	15	10:35
Introductory Powerpoint and discussion	25	11:00
HMWSSB case Introduction—discussion of tasks, goals and performance	15	11:20
HMWSSB—discussion of constraints and how they affect performance	15	11:35
Identify major options and take a class vote	5	11:40
Break	5	11:45
Discussion of privatization and other strategic options	20	12:05
Take-Aways on HMWSSB Case	10	12:15
What Would an epilogue to this case look like?; Review Discussion	5	12:20
Issues in Public Management-What are the Key Challenges (group discussion)	10	12:30
Breakout groups—Discussion of individual challenges	15	12:45
Report back from groups	15	13:00

Time Management, continued:

1. **If you can see that you have too much material, cut the material to fit the time!**
2. **Consider holding in reserve some extensions of the case if you fear you will finish early**

Whiteboard Plans:

- **Allow you to highlight the main analytical points that you want to make**
- **Allow you to draw connections across course sessions (if you use consistent categories)**
- **Allow you to filter and reframe participants' comments in a more felicitous way than presented**

Board plans can organize lots of information in a systematic way ….

OBAMA AND HEALTH CARE REFORM: THE STRATEGIC SITUATION

MACRO-SOCIETAL CONDITIONS AND CONSTRAINTS:	INSTITUTIONS
IDEAS (POLITICAL CULTURE, NEW PARADIGMS, IDEOLOGICAL COMPETITION: • Suspicion of government facilitates negative issue-framing by opponents of reform **INTEREST GROUP PRESSURES:** • Business—especially small business-- largely opposed due to fear of increased costs • Insurers initially opposed because of fear of increased controls and potential competition from public option • Pharmaceutical companies and doctors/hospitals switch to neutrality because of increased market and guarantees on reimbursement **POLICY FEEDBACKS:** *Positive:* • *High costs of system give insurers & providers big stake in the status quo* • Elderly have Medicare coverage with gaps—they are well-organized, attentive and will have to be protected from cuts and perhaps rewarded with improved benefits. *Elder Medicare coverage makes it difficult to cut benefits.* • Budget and economic crises make new spending initiatives more difficult *Negative: Urgency of problems severe [P430]* • *High costs create pressure for cost-saving reforms* • *Coverage: 15% of population uninsured, with increased fears of losing coverage* **GLOBAL CONSTRAINTS AND OPPORTUNITIES (COMPETITION, INTERNATIONAL REGIMES, ETC.)** : • Global financial crisis	**INSTITIONAL CONSTRAINTS:** • Multiple veto points in Congress, including 60 vote super-majority required for passage in Senate unless budget reconciliation provisions are used • But *United Democratic control of presidency and Congress, including (temporary) Senate super-majority* • Both: Weak Party cohesion among Democrats, • stronger cohesion among congressional Republicans; Republicans are able to unite in opposition [J620] • *Weak party discipline increases bargaining leverage of individual Senators [Jacobs 620]* • CBO scoring mechanism critical to holding moderate and

…that facilitates mental linkages across seemingly disparate cases

Strategic Options	PRESIDENT AND CONGRESSIONAL DEMOCRATS:	CONGRESSIONAL REPUBLICANS AND OTHER OPPONENTS:
Manipulating Perceptions	• Frame health care reform as necessary to control budget deficits in the medium and long term [63] • Attack health insurance companies • Portray the public option as "like Medicare" • **Blame Generate:** Publicize Republican opposition to popular measures [75]	• ***Obfuscate:*** Argue that they are opposed to this particular reform, not reform in general [366] • **Blame Generating *Reframe*--**Frighten voters with information about potential losses, drawing on widespread mistrust of government and good existing coverage that many people have • ***Blame Generating Reframe:*** Attack public option as "big government" • ***Reframe:*** Use divisive issues like abortion to "peel off" a few Democrats • ***Increase salience:*** Tea Party protests increased perceptions of opposition [69]
Manipulating Procedures	• *Venue-shopping is not an option—must go through legislative process* • **Pass already passed Senate bill in the House of Representatives accompanied by"sidecar" bill passed by House and enacted by the Senate under budget reconciliation procedures [74]**	• Use procedural roadblocks (e.g., filibuster threat) to **delay and block** reform and retain status quo, hoping that splits among Democrats or death or incapacitation of Democratic legislator would allow them to block it [61] • Turn to courts to try to block implementation once it has been enacted
Manipulating Participants and Alliances	• JS say that it is harder to mobilize the grassroots for a long legislative battle in Congress than for electing a president on a certain date [28], plus President's failure to take lead made it harder to mobilize supporters [69]	

Limiting distractions to increase participant engagement

Starting Questions should:

- Reveal something about the central issues and stakes of the case
- Immediately engage a large number of participants—and minimize disengagement
- Be absolutely clear—and not too long (if you have to repeat it, people are already confused)
- Be signaled in study questions (if you use them)

Promoting Participant Engagement

General strategies for promoting participant engagement:

- Use powerful visual images
- Use role-plays
- Take a poll of the class and ask those on different sides to explain their views
- Ask "does anyone see this situation very differently?" (to encourage participants who may be afraid to break with an emerging class consensus)

Strategies for Non-participating participants:

- Break the class into small group discussions and have them report back to the class
- Offer alternatives that don't involve speaking in front of the class (e.g. discussion boards)
- Offer the opportunity to lead off a discussion with a question provided in advance
- Provide reminders that participation is an important component of the grade

Cold-calling versus Volunteers:

1. "Cold-calling":
   - Dramatically increases the incentives to come to class prepared
   - Encourages the formation of study groups to work on cases outside of class
   - Risks embarrassing participants and making them resentful and withdrawn
   - Risks getting analysis off to a poor start from poorly prepared participants
2. Ask for volunteers
3. Tell participants before class that they may be called on to start case analysis ("warm call")

Alternative Ways to Close a Class:

1. Summarize what <u>you</u> think are some key take-away points either orally or in writing/handout form
2. Ask one or two participants at the beginning of class to provide some take-away points ("warm-call")
3. Ask for volunteers: "What did we learn from this case?"
4. Relate analysis to something immediate (in the news) or local

   …and don't always do it the same way!

Your "Take-Away" Points Should:

1. Not be too numerous, or they will be forgotten by the time the particpants hit the door
2. Link to the overall workshop objective and analysis to show progression

Placing Yourself in the Classroom:

- Always being "center-stage" reinforces the psychological barrier of "teacher-centered learning"
- Move around classroom so that participants who are focused on you are also speaking toward the bulk of the class (especially if they have soft voices)

Leading a Participant-Oriented Discussion, Part 2

Kent Weaver
McCourt School of Public Policy
Georgetown University

Case Teaching in Varying Environments and in Diverse Classrooms

Participants may vary in (1):

Language ability

- Reading speed and competence in language of instruction
- Ability and confidence in expressing themselves orally and in writing in the language of instruction

Participants may vary in (2):

Substantive knowledge

- Region knowledge
- Policy sector knowledge
- Knowledge of relevant theories and analytical techniques

Participants may vary in (3):

Culture and beliefs:

- Experience, expectations and comfort level in expressing their opinions
- Belief that there is a "right answer" and that the trainer has it and should share it
- Willingness to challenge the opinions of others (especially the trainer)
- Emphasis on "not losing face" in public setting

Participants may vary in (4):

Political sensitivities:

- Acceptance and acceptability of criticizing their own government

There is no single approach to take, but trainer can vary:

1. How much set-up lecture to provide
2. How much direction to provide in case study questions
3. Whether to engage in "cold-calling" of participants
4. How much to "grill" participants on their analyses to reveal assumptions and flaws in their arguments
5. "Take-away" points at the end of class
   - How much details provided
   - Written or oral

Final takeaways on case method teaching:

1. You probably are doing it already to some extent
2. There is no single right way to do it—adapt it to your subject, personality, style, and participant entry behaviour
3. Thinking about it strategically can help you do it better

22.5 Elements of Effective Class Preparation

C. Roland Christensen Center for Teaching and Learning, Harvard Business School

Learning Objectives

1. What are the two or three principal learning objectives for this class?
2. What role does this class play within the course module?
3. What impact do you expect the class to have on students' depth of knowledge, development of judgment and analytical skills, and leadership capabilities?

Teaching Opportunities and Challenges

1. What compelling topics, points of tension, or potentially surprising or counterintuitive insights stand out in the case? How will you leverage these to engage your students in high- quality discussion and debate?
2. What in the case might this audience find difficult or confusing? How will you manage the discussion of these issues?
3. At what points in the discussion is the class at greatest risk of going off-track? How will you manage such contingencies should they arise?
4. How might you draw upon relevant connections between this class session and your own research or business experience?

Class Design

Structure

1. What issues or pieces of analysis should be covered during the discussion?
2. How will you sequence the discussion pastures and how much time should be devoted to each? What is the logic underlying each transition from one pasture to another?
3. How will your board plan support the class design and facilitate student learning?

Opening

1. What comments, if any, will you make to introduce the discussion? Why?
2. What is the rationale behind your opening question?
3. Which student will you select as the opener? Why?
4. How do you expect the discussion to emerge following the opener's initial response?

Discussion Leadership

1. What follow-up questions within each pasture will motivate students to think beyond their initial contributions?
2. How will you phrase the transition between each pasture?
3. What question will you use to introduce each pasture following the opening discussion?
4. How will you incorporate student backgrounds into the discussion? Are there specific students who should/should not be encouraged to contribute during particular pastures?
5. How might you stimulate students to think beyond this class and develop insights through linkages across classes, modules, and courses?

Closing

1. How do you plan to close the class discussion? Why?
2. What are the risks of providing too much closure at the end of this class? Too little?

22.6 Questions for Class Discussions

C. Roland Christensen Center for Teaching and Learning, Harvard Business School

Proficiency in questioning is one of the hallmarks of case method teaching. Harvard Business School professor and preeminent teacher C. Roland Christensen considered the art of questioning so important that he once described case method teaching as "the art of asking the right question, of the right student, at the right time—and in the right way." The "right" questions promote learning and discovery, pique student interest, and yield dynamic discussions.

Questions themselves cannot exist in isolation, but instead form part of the basic triad of questioning, listening, and responding. Asking a question entails active listening and a thoughtful response—often in the form of another question or follow-up probe. Good questions take into account the specific audience (What are the students' needs, interests, and abilities?), the pedagogical goals of the class (What are the key learning objectives? Why should students care?), and the content and class plan (Which case features are relevant, surprising, confusing, etc.? How is the material sequenced?). Whether it calls for analysis, encourages debate, or solicits recommendations for action, a question is most effective when it fits the needs of a specific class context and helps guide students individually and collectively towards discovery and learning.

This resource document provides sample questions that have been found to be particularly effective in various scenarios that commonly occur during a case method discussion. It is organized into four main categories, which mirror the four major ways in which a discussion leader uses questions:

1. **Starting a discussion pasture:** Framing students' approach to the case by asking for an assessment, diagnosis, or recommendation of a course of action.
2. **Following up:** Responding to student comments by probing for more depth (drilling down), opening up the discussion to more participants (moving laterally), or asking for generalization/reflection/synthesis (linking up).
3. **Transitioning:** Bridging the current pasture with the next discussion block, which may include checking for student comprehension before moving on.
4. **Handling special challenges:** Responding to student contributions that have the potential to derail the discussion, as when a comment is tangential, long-winded, incorrect, confusing, inappropriate, or offensive.

1. Starting a Discussion Pasture

At the beginning of a discussion pasture or sub-block, questions involving assessment, diagnosis, or recommendation/action tend to be more effective for stimulating learning than purely descriptive questions such as "what is the situation?"or "what are the issues?"

Assessment
"How serious is the situation?
"How successful is this [firm/protagonist]?"

"How attractive is the business opportunity under consideration?" "What's at stake here?"

Diagnosis
"What is the most significant problem/challenge faced by the [firm/protagonist]?" "Who or what is [responsible/to blame] for the crisis faced by the [firm/protagonist]?" "Why has the [firm/protagonist] performed so well/poorly?
"As [the case protagonist], what keeps you up at night? What are you most worried about?"

Recommendation/Action
"Which of the [three] options presented in the case would you pursue? "What would you recommend to the [firm/protagonist]?
"What is your plan of action?

2. Following Up

Follow-ups to student comments include probing for more depth, opening up the discussion to more participants, or asking for generalization/reflection/synthesis. Instructors should consider that while follow-ups are necessary to guide the discussion and challenge students, excessive interventions can lead to instructor-focused, hub-and-spoke exchanges.

To encourage greater depth of analysis
Greater depth of analysis can be achieved through general probes and questions exploring underlying assumptions and boundary conditions.

General probes "Why?"
"Could you say a little more about that?"
"Could you walk us through your logic/thought process?" "What leads you to that conclusion?"
"How did you come up with that number/estimate? "Do we have any evidence to support that?"
"How did you interpret that exhibit/quote/data/information?" "Why is that important?"
"What are the implications?"

Underlying assumptions and boundary conditions
"What indicators/measures/criteria are you using to support your analysis? "What are you assuming with respect to [x,y,z]?
"Do you have any concerns? How might they be addressed?"
"If we assume [x] instead of [y], does that change your conclusion/recommendation?" "What would it take for you to change your conclusion/recommendation?"
"Was the outcome inevitable?" "Could it have been prevented?" "To what extent was the [firm/protagonist] just lucky?"

"Is that consistent with [another student's earlier point]?"
"How does this compare with what we discussed/concluded in yesterday's class?"

To open the discussion to other students

Although the instructor may call on another student without responding at all to the previous comment, it is often helpful to provide some guidance for the subsequent contributor. It is particularly useful to indicate whether the next student should respond directly to the previous comment or not.

Responding to previous comment
The questions may be prefaced by framing statements such as: "Let's stick with this," "on this point," or "[Student X] is arguing [y]."

"Any reactions?" "What about that?" "What do you think?" "Is that right?" "Any concerns?" "Do you buy that?"
"Any questions for [previous student]?"
"Who would like to build on [previous student]'s point?" "Does everyone agree?" "Does anyone see it differently?"
"Can someone help us [work through this analysis, resolve this confusion]?" "Can anyone address [student x]'s concern?"

Broadening the discussion "Other perspectives?"
"Are we missing anything?"
"Are there other issues we should consider?"
"Who can reconcile these different interpretations/conclusions/points of view?"

To encourage generalization, reflection, or synthesis
Instructors can help students integrate new concepts and internalize takeaways by challenging them to link key learnings to broader managerial issues or experiences from their own lives.

"What do you take away from today's discussion/case?" "What's the moral of this story?"
"Why should managers care about these issues?"
"In what other industries/countries would the lessons/principles of today's case apply?" "Has anyone confronted a similar challenge in their own work experience?"

3. Transitioning

Transitions are often preceded by two types of questions: (i) comprehension-checking questions that invite questions or final thoughts, and (ii) framing questions that link the current pasture to the new one.

"Have we missed anything important?" "Any final comments before we move on?"
"Before we get into [x], are there any questions?" "Is everyone comfortable moving on to […]?"

"Now that we've established [x], what about [y]?
"In light of our discussion of [x], what should we do about [y]?" "What are the implications of [x]?
"So we're clear on [x]—shall we move on to [y]?
"Before getting into the numbers/details, how do we think about how we should approach the analysis?"

4. Handling Special Challenges

There are a variety of student contributions that can create challenges for discussion leadership. Examples include tangential, non-sequitur, long, complex, and/or confusing comments. Instructors also may find it difficult to know how best to respond to incorrect answers or the use of offensive or inappropriate language by a student. In many of these instances, it may be difficult to redirect or re-focus the comment without interrupting the student. To capture the student's attention and reduce the likelihood of causing offense or embarrassment, it is helpful to begin the response by making eye contact, saying the student's name, and offering a neutral-to-complimentary observation such as "that's an interesting perspective," "you're raising some important issues," or "I hear you saying that [. . .]."

Tangential or non-sequitur comments
"How does that relate to what [previous student] was saying?"
"Let's hold off on that for the moment. Can we first resolve the [issue/debate] on the table?" "We'll get to that a little later in the discussion. Let's stay with [previous student]'s question." "Let's park that [on the side board], and I'll look for you when we get to [later discussion topic]" For esoteric contributions: "Why don't we take that off-line."

Long, rambling comments
"You're raising a number of issues. Let's focus on [x]."
"It sounds like you're concerned about [x]. Let's explore that."
"So you basically disagree with [the previous student] because [x, y]. [To previous student]: would you like to respond?"
"I hear you saying [x]. Does everyone agree?" "What's the headline?"

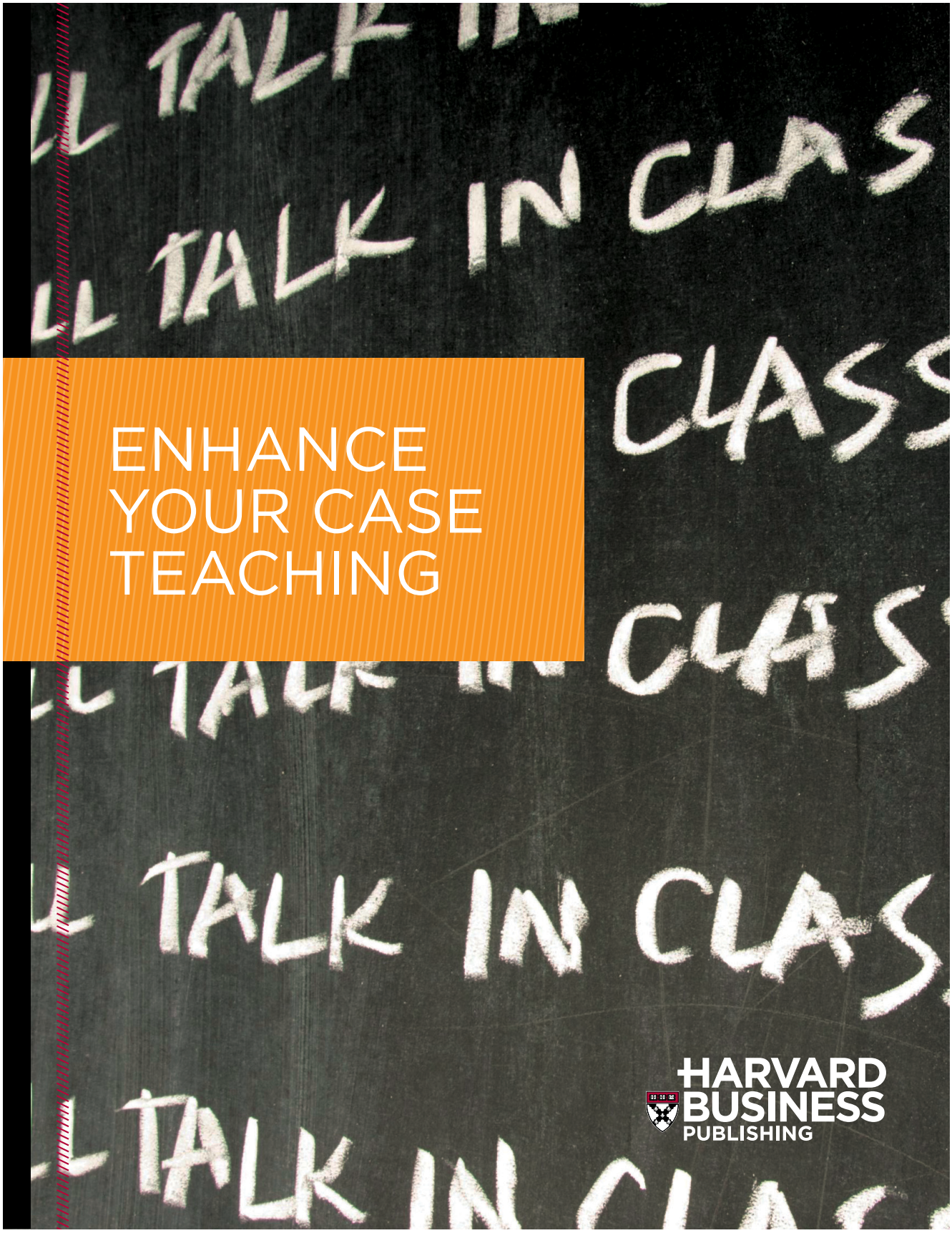
Complex or confusing comments
"Let's slow this down for a minute." "Let's take it one step at a time."
"How would you explain that to someone unfamiliar with technical language?" "Let's keep it simple."
"Before digging into the numbers/details, let's make sure we understand the basic intuition." "You mention [x]. I'm not sure everyone is familiar with that concept. Could you clarify?" "I just want to make sure I understand your argument. You're saying [. . .]?"

Incorrect answers
Incorrect answers might stem from a lack of preparation, legitimate confusion, or other causes, such as ambiguous questions or lack of clear direction. For factually incorrect comments containing minor inaccuracies not central to the discussion, it is often appropriate for the instructor to respond with a gentle correction. Faulty or incomplete analysis can serve as a learning opportunity for the student and the class. Ideally, the instructor will (i) not abandon the student, (ii) not confuse other students by letting incorrect answers pass unchallenged, and (iii) address the reason for the misperception, not just the misperception itself. When possible, the instructor should guide the student or his/her classmates to correct the error.

"Where in the case did you find that?"

"Could you walk us through how you came up with that?"
"Did anyone come up with a different answer?" "Let's see if we can reconcile these different results." "This is a particularly complex analysis. Let's make sure the basic assumptions are clear."

Offensive or inappropriate language
["It sounds like you got a reaction."] "Would you like to take another shot at/rephrase that?" "Hold on just a second. Do you want to try that again?"
"In less colorful language?"


ENHANCE
YOUR CASE
TEACHING
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IN THIS GUIDE:

- Why case method teaching?
- An instructor's guide to planning and leading a successful case-based course
- Case method resources for instructors and students

"In discussion classes, students and teachers alike must give of themselves ... Involvement transforms passive, received knowledge into the active ability to apply that knowledge effectively."

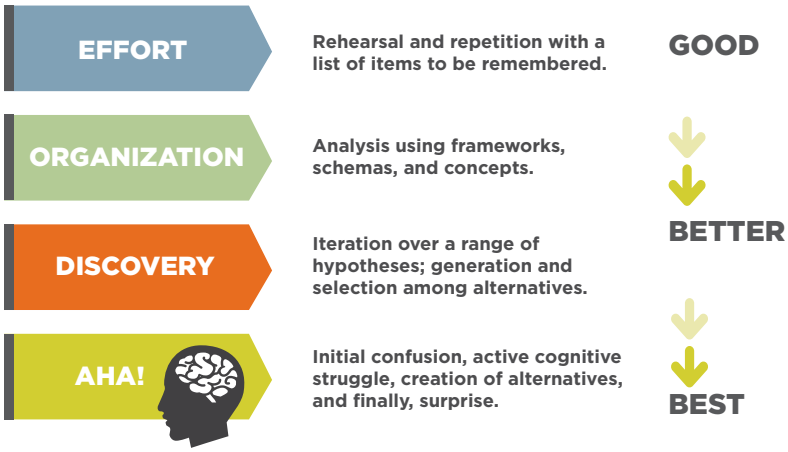
C. Roland Christensen,
Education for Judgment, chapter 6, page 117

IT STARTS WITH A QUESTION:

WHY CASE METHOD TEACHING?

The "Aha" Moment. In case discussions, students experience the realities of decision making—including incomplete information, time constraints, and conflicting goals—giving them firsthand experience in analyzing business situations. It's this process of self-directed cognitive struggle that makes the learning stick.

What processes help memories stick?



Source: Dorothy A. Leonard and Brian DeLancey, 2002

Perhaps you have been teaching with cases, but your students don't seem to arrive at that "aha" moment during class discussions. You might have questions about creating your board plan or general questions about preparing a case.

If you are ready to take the next step in developing your classroom experience, Harvard Business Publishing has many resources designed to help you improve your discussion leadership skills.

PLAN FOR SUCCESS IN THE CLASSROOM

STEP 1 **Apply for Educator Premium Access**

Register as a Premium Educator at hbsp.harvard.edu and plan your next participant-centered course. Benefits of this free service include:

- Educator Copies of full-text cases, notes, articles, and chapters
- Teaching Notes
- Previews and Free Trials of online courses and simulations
- Course planning tools and special student pricing

→ **educatoraccess.hbsp.harvard.edu**

STEP 2 **Use Online Resources for Case Method Instructors**

Our web site offers a number of resources, including the Teaching Post online forum for educators as well as the Case Method Teaching resources page that provides hints and best practices on case teaching, a library of video clips from inside the Harvard Business School classroom, and more.

→ **casemethod.hbsp.harvard.edu**

STEP 3 **Attend a Seminar**

For more than 15 years, Harvard Business Publishing has offered Case Method Teaching seminars designed to bring instructors together to learn from and inspire one another. Choose from a 1-day or 1½-day in-person seminar, or attend our web-based seminar *Teaching with Cases Online*.

WHY ATTEND A CASE METHOD TEACHING SEMINAR?

- Learn ways to improve and increase class participation.
- Boost your confidence in the classroom with formal training.
- A seminar is accessible for an instructor with a heavy teaching load and a minimal professional development budget.

FACE-TO-FACE SEMINARS

Face-to-face seminars are offered as an introductory and an advanced seminar. Workshops are conducted twice per semester on the Harvard Business School campus, and regional seminars are offered throughout the year at host schools in the U.S. and abroad.

PART I

The **Case Method Teaching Seminar Part I** is intended for all instructors, regardless of their level of experience with participant-centered learning. The seminar covers a broad range of topics, including:

- Establishing and reshaping the learning contract
- Questioning, listening, and responding
- The teacher/student relationship
- Designing the discussion plan
- Practicing the skill

PART II

The **Case Method Teaching Seminar Part II** is intended for instructors who have at least 3-5 years of experience teaching with cases and who have attended Part I. In the advanced seminar, participants spend more hands-on time devising teaching plans and strategizing how to handle common classroom challenges. Teaching practicum sessions allow attendees the opportunity to lead short case discussions and receive immediate, actionable feedback from fellow participants and from expert case facilitators. Topics also include:

- Instructor preparation, including board plans and discussion blocks
- Grading participation, case assessments, etc.

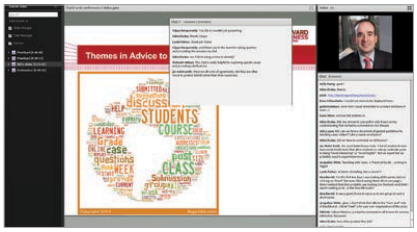
"Everything seemed to support an event of quality—the facilitators were top-notch."

–Review from seminar attendee

TEACHING WITH CASES ONLINE: A WEB-BASED SEMINAR

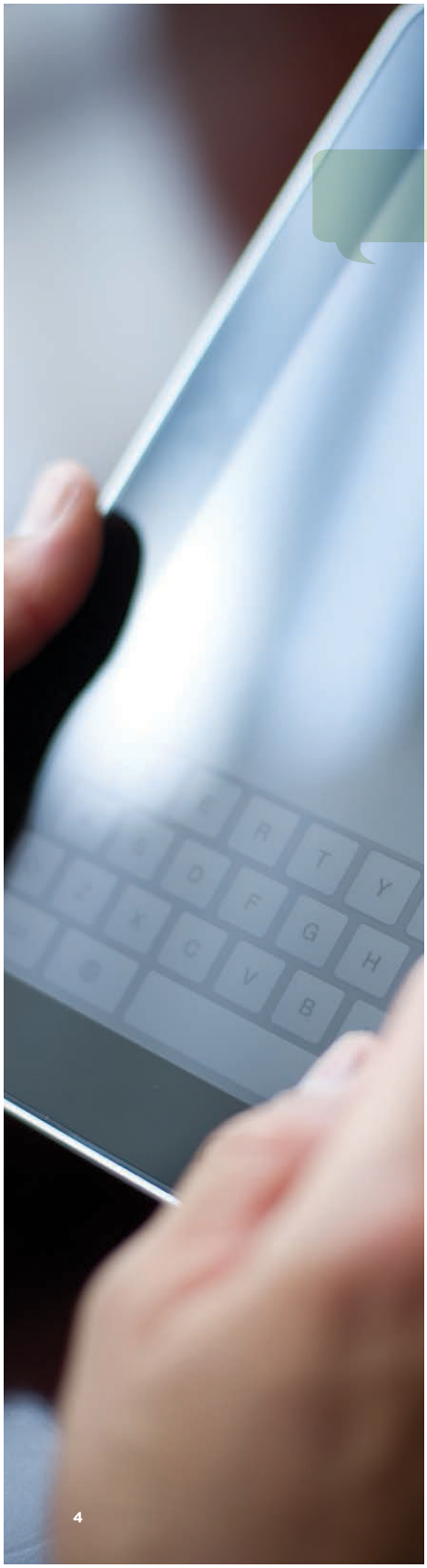
Much like our face-to-face seminars on case teaching, *Teaching with Cases Online* is an immersion experience. Participants read cases and prepare to discuss them as if they were students. The cases are used to model online discussion facilitation techniques and cover common issues that online case instructors face in the virtual classroom. The goal is to help online instructors better understand how to devise a teaching plan for delivering a participant-centered course online. Topics include:

- Modeling case question strategies geared to an online environment
- Facilitating and debriefing case discussions within an LMS
- Using a mix of asynchronous and synchronous activities
- Sharing testimonials and examples of successful strategies



"My expectations were exceeded. I got a tremendous amount of learning from the course."

–Review from seminar attendee



STEP 4

CONNECT WITH OUR TEACHING COMMUNITY

Teaching Post

AN ONLINE FORUM TO EXCHANGE IDEAS AND INSIGHTS ON PARTICIPANT-CENTERED LEARNING

Interact with renowned case teaching experts and other instructors who face similar challenges in the classroom. Ask questions, share tips, follow your favorite topics, search previous discussions, and learn from the community's experience.

→ **teachingpost.hbsp.harvard.edu**

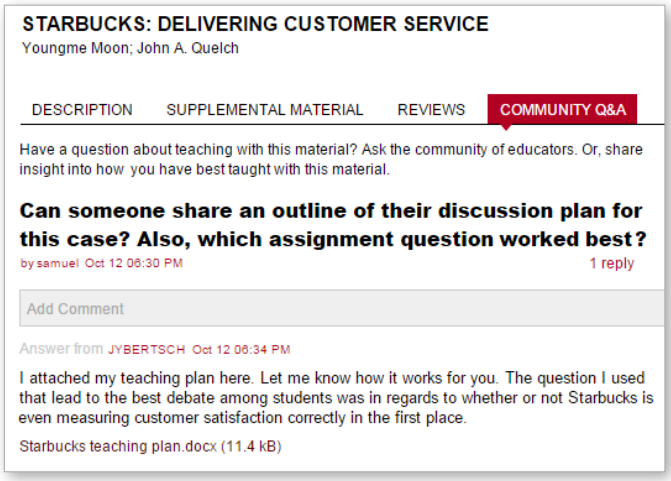
Recent topics include:

- **How do you motivate students to prepare?**
- **What are effective ways to lead case discussions online?**
- **Evaluating student participation: A grading rubric**
- **How do you deal with students using the Internet to solve a case?**

Community Q&A

ASK A QUESTION, SHARE INSIGHT—ABOUT SPECIFIC CASES

Ask our community how to best teach with a specific case, share insight into how you've taught it, and upload a teaching plan. Look for the Community Q&A tab on case web pages.



Screen view of Community Q&A

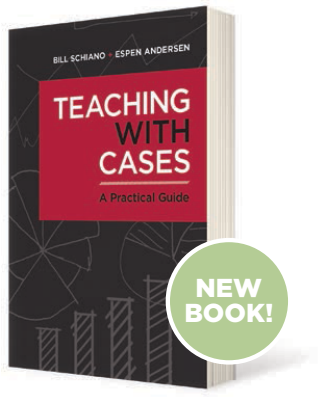
FOR INSTRUCTORS

TEACHING WITH CASES: A PRACTICAL GUIDE

Teaching with Cases focuses on practical advice that can be easily implemented. It covers how to plan a course, how to teach it, and how to evaluate it and provide feedback to students.

CHAPTERS INCLUDE:

- Foundations: Preparing for the Course
- Flow During the Class Session
- Feedback: Assignments, Grading, and Guidance
- Managing Classroom Issues
- Quantitative and Technical Material
- Adjusting for Language and Culture
- Preparing for the Next Time
- Fostering Case Teaching at the School Level
- Technologies for Case Teaching



By Bill Schiano and Espen Andersen

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CASES ABOUT CASE METHOD TEACHING

Because Wisdom Can't Be Told

Suggests the proper role of the instructor as a leader of the group, and points out pitfalls to be avoided. **#451005**

Case Method Teaching

Prepared originally for new instructors in a first-year marketing course, but provides insight into case method teaching generally. **#581058**

Choreographing a Case Class

Argues the advantages of choreographing a case class, and provides tips on how to do so. **#595074**

Hints for Case Teaching

This classic note for new case method teachers provides guidance on the case discussion process from both the instructor's and student's points of view. **#585012**

Why I Use the Case Method to Teach Accounting

Thoughts on choosing teaching methods and the advantages of the case method for achieving the objectives of a survey course in accounting. **#193177**

FOR STUDENTS

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THE CASE STUDY HANDBOOK: HOW TO READ, DISCUSS, AND WRITE PERSUASIVELY ABOUT CASES

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Bestselling chapters include:

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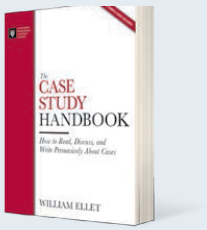
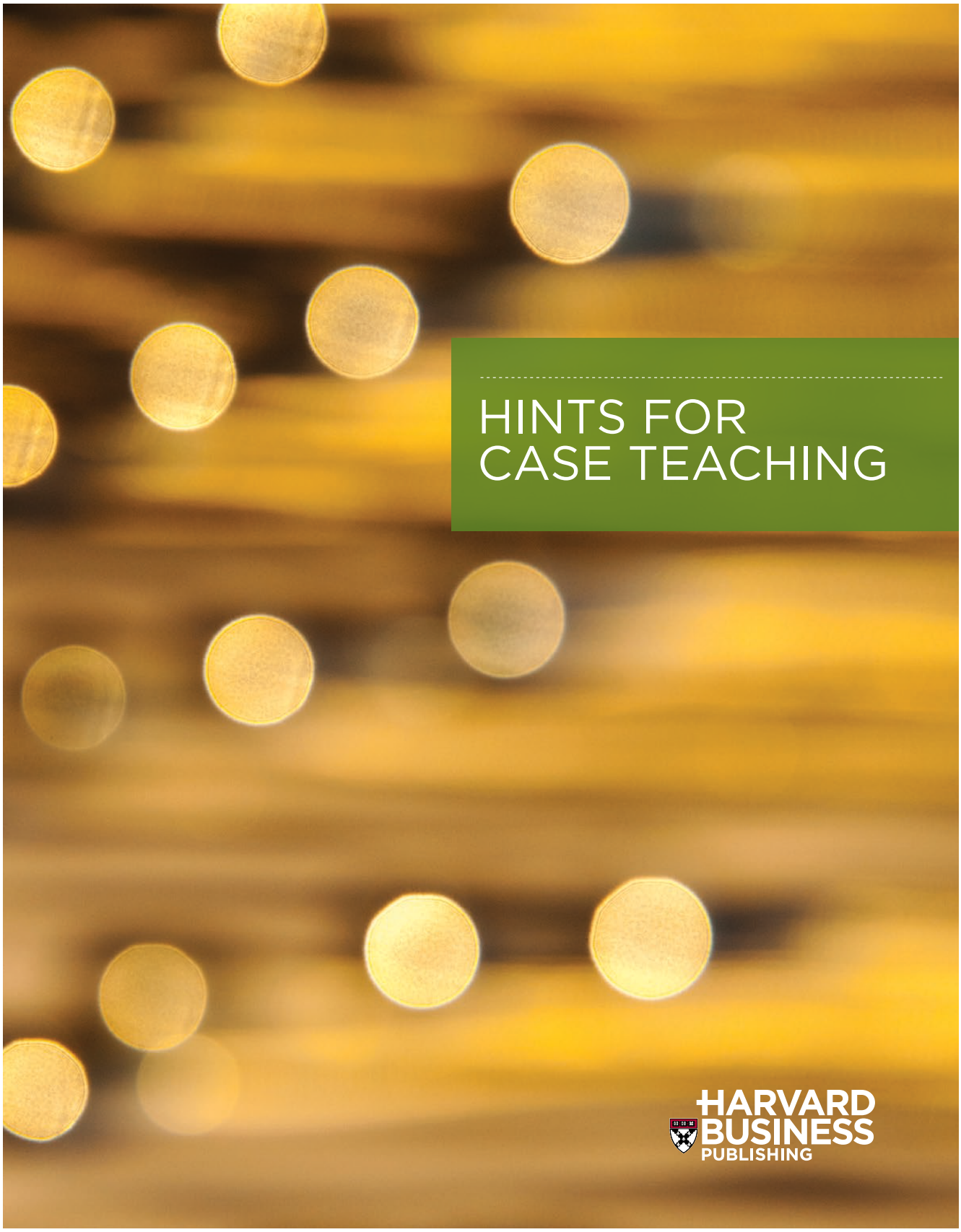
- How to Analyze a Case
- How to Discuss a Case
- How to Write a Case-Based Essay

#1584

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HINTS FOR CASE TEACHING

A HARVARD BUSINESS SCHOOL CASE STUDY | BY PROFESSOR BENSON P. SHAPIRO

Because case teaching is very much a mixture of art and skill, much of the case teacher's development is through trial and error, experience, and a realistic review of past experience. This self-learning, however, can be effectively supplemented by observing other teachers, by being coached, and by discussing approaches and techniques with other devoted instructors. This note has been written as a complement to all of these approaches and to encourage thought and discussion about case teaching.

The core of case teaching is the facilitation of student learning. Thus, this note will look at the case discussion process from both the instructor's and student's points of view. But we begin by setting reasonable expectations for classroom performance and setting a general group of objectives for student development.

EXPECTATIONS AND OBJECTIVES

There is no single approach to case teaching. Instead, there are a wide variety of approaches that work for different people in different situations. Later we will explore some of the similarities, but first we must emphasize the differences, as well as the importance of developing your own style—the one that fits your character, personality, teaching situation, and setting. Thus, the first hint is: **Do not strive or expect to simulate another teacher's style or approach.** You should, instead, develop a style that is comfortable for you. If it is not, you will not be effective. A facade does not work in the discussion classroom and has no place there. With enough devotion, concentration, and hard work, almost anyone can become an effective case teacher. Not everyone, however, can become a "star quality" case teacher. And of course, there is no reason for every teacher to strive to be a star. More important, perhaps, is another factor: Even star-quality teachers do not always have star-quality classes. Some classes are inevitably better than others because of the material, the teacher, the fit of the material and teacher, or external events such as an examination in another course, or very good or bad news in the broader world. Also, it is not easy to judge the quality of a class. Certainly a lively class is not necessarily a good one, although it is hard to believe that a boring class could hold the attention of the students and encourage them to prepare with vigor for the next one. That leads us to the second hint: **Have reasonable expectations for each class, and understand that some will be better than others.** This in no way should detract from the constant striving to improve your performance in each class and to contribute more effectively to the students' achievement of their objectives.

The teacher's objectives should reflect and amplify the students' objectives. It is important in this regard to understand what case teaching can and cannot accomplish. It is not a panacea and certainly cannot accomplish every objective. If we look at the teacher's task as providing the students with:

- **Knowledge**
- **Techniques**
- **Skills**
- **Approaches**
- **Philosophies**

we can help identify those tasks for which the case method is most useful. While cases provide some knowledge, they are inefficient transmitters of knowledge. They can help show the application and limitations of techniques, but they are limited in their ability to describe or provide experience with techniques. Problem sets and exercises are much better at doing that. Cases, however, are very useful in the development of skills, approaches, and a philosophy of management.

The philosophy is that people are important and can "make things happen." The very art of listening to the ideas of others and of having your ideas listened to in the case classroom highlights the importance of the individual and emphasizes team effort to support the discussion. Because other techniques do other jobs well, **the best advice is to use case discussions to accomplish what they can do better than other pedagogical methods.** Use lectures, readings, exercises, and so forth to supplement cases and do the other tasks.

We now move to the actual student/teacher relationship.

THE RELATIONSHIP AND THE CONTRACT

Case discussions depend upon the active, effective participation of the students. The student must get involved and take a great deal of—in fact, the primary—responsibility for his or her learning. Thus, the relationship between the student and the teacher is vital to the operation of the case class. The more explicit the contract is, the more clearly each party can understand his or her responsibilities and rights. Probably the most important descriptor of the contract is that it be professional—that is, that each party behave and expect the other to behave with dedication, responsibility, integrity, and a commitment to excellence. Thus: **Establish an explicit contract with the students by showing your expectations about their performance and yours early in the course.** (If this is the students' first case course, it is useful to make the contract explicit in the second session, after they have participated in one class discussion. If not, the first class session is the ideal time to begin.) On the students' side, it is necessary that each be committed to the "**4 Ps**" of student involvement in case discussions:

1 **Preparation.** If the student does not read and analyze the case, and then formulate an action plan, the case discussion will mean little.

2 **Presence.** If the student is not present, she or he cannot learn and, more important, cannot add her or his unique thoughts and insight to the group discussion.

3 **Promptness.** Students who enter the classroom late disrupt the discussion and deprecate the decorum of the process.

4 **Participation.** Each student's learning is best facilitated by regular participation. More important, the case student has the responsibility to share his or her understanding and judgment with the class to advance the group's collective skills and knowledge.

2

The students will, over time, grow to understand the importance of these four elements, but it is the teacher's responsibility to **stress very early in the course the importance of student preparation, presence, promptness, and participation.** The instructor should clearly set the example in these areas.

The contract is a two-way street, and the teacher must be willing to more than meet the students' commitment. On the instructor's side, the professional nature of the contract and its surrounding relationship will be shown by (1) careful and complete preparation for the classroom experience, (2) concern for and devotion to the students in all dealings, including those in the classroom and in the office, and (3) striving to make the course a satisfying development experience. By and large, the more the teacher does, the more the students will do. **So, show your commitment to the case discussion process by complete preparation of material and concern for student development.** Nothing creates student commitment to preparation as well as having the instructor quote from memory case facts such as numbers in the first class. Students will generally prepare up to, but not beyond, the standards of preparation shown by the instructor.

Have students accept and maintain ownership of the discussion.

Preparation to teach must include much more than just reading the case and the Teaching Note. The instructor must go beyond "preparing the case" to preparing to teach the case. Most new case instructors spend a great deal of time analyzing the case and calculating reams of numbers. That work is important and should not be discouraged. But, it is not enough. The instructor must develop a set of specific teaching objectives that reflect the case, class situation, course, and so forth. He or she must also have a clear idea of the general topics and diagrams that might end up on the chalkboard, and of the questions that might be asked to encourage greater depth and focus in the discussion. The instructor must always have more than enough chalkboard ideas and questions so that she or he can fit their use to the classroom situation. **Have a complete set of teaching objectives and a copious collection of likely board structures and questions.** This brings us to the classroom experience.

IN CLASS

The most important single rule of case teaching is this: **Have the students accept and maintain ownership of the discussion.** The discussion must be student driven. If the teacher takes the responsibility for ownership of the class, the students can collectively and individually avoid their responsibility for maintaining the quality of the discussion, and the process will degenerate to the instructor's lecturing about the case.

There are several approaches to encouraging the students to take ownership of the class. One is the contract described earlier. Another is: **Avoid making a choice about the case decision, but force each student to do so.** It is useful to state in the course introduction that "the only person who doesn't

need to make a decision about the case is me, the instructor." **All students should be expected to have a plan of action for the protagonist in the case** to ensure that they maximize their learning and can participate actively and effectively in class.

The instructor should **understand that in the discussion process, action drives analysis.** That is, if a student has made a decision about what to do, the instructor can always focus on the supporting analysis with a question like "Why would you do that?" or "What evidence supports that approach?" The action orientation ensures that the analysis that is done will be relevant to a decision, not just analysis for its own sake.

If the instructor does not have an answer to the case or a choice of an alternative, how can she or he manage the discussion? **Use themes to manage the discussion. Themes include topics, areas of analysis, and decisions.** The instructor who has a set of themes can manage the class in subtle fashion to ensure that decisions are aired and topics covered. He or she does not have to show the answer. In fact, doing so is counterproductive because it encourages students to develop answers that meet the teacher's views, rather than approaches that fit the case situation or the student's skills and abilities. Because implementation is so important, each student must develop approaches and answers that fit her or his talents and judgments.

It is important to nurture the discussion process even if that means trading off some coverage of a case.

Use questions to manage the trade-off between depth and breadth, and to heighten conflict. Most cases have too much material to cover in one class session, so the teacher must make choices between depth and breadth. Questions, or perhaps a statement or two, can be used to provide the necessary focus. A question like "How does that relate to the company's distribution policy?" during a pricing discussion will encourage lateral movement to distribution as a topic; a second or third question about pricing or about the student's thought process will encourage greater depth of focus on pricing. Because these situations are so delicate and numerous, the instructor needs the copious list of questions described above.

The essence of case discussion is the airing of conflict between two or more opposing views. The best discussions include opposing views that are supportable and reasonable. One of the instructor's tasks is to **clarify and heighten conflicts.** The clarification and heightening provide a richness and excitement to the discussion. Students should be encouraged to openly and honestly consider differences of opinion. Comments like "Bill and Betty have differing views, and both can't be right; will someone clear this up?" are most useful.

Use questions of various types for various purposes. Since questions are so useful in the classroom, the instructor should be able to use a wide variety. Some might be posed to a particular student to

encourage development of a particular point or to clarify an opinion or statement. Others might be "to the wall, floor, or ceiling." That is, they are gentle nudges to the discussion and are addressed to no one in particular. "I wonder how the competition would react" is an example of this type of comment or question.

Use the board to clarify conflicts and issues. Do not use the board merely as a passive recording device. The board is a very useful device because it is so passive, and also because it is under the general control of the instructor. It can be used to list topics and then prioritize their coverage, or to do "compare and contrast" exercises. Flow diagrams and pro/con lists are examples of other important uses for the board. It is important, however, to understand that students view the chalkboard recording of their comments as important feedback. There is no easy solution to the conflicts this raises, but it should be noted.

Listen. If student ownership of the discussion is important, the role of the instructor as listener is perhaps the most critical element in establishing that ownership. The instructor should limit his or her own comments during the discussion and be sure to listen hard and carefully to each comment. This encourages the students to listen to each other and to view participation as serious. Most important, the instructor's listening establishes the primacy of students' comments in the classroom.

Listening is a part of another important role: **Provide respect and protection to students and their comments.** Respect and protection are an important part of encouraging students to participate and test ideas. Protection, however, does not mean that standards are low and any off-the-wall idea, even one carefully thought out, is accepted and embraced. It does mean that such a comment is not ridiculed but is gently shown to be "full of holes," preferably by other students' comments. Part of the development of standards is to manage conflict so that well-considered, carefully conceived comments gain their rightful merit in the discussion.

Use humor carefully and constructively. Humor should never be used to ridicule or to punish. It can be used to heighten the conflicts and make relevant points, to help manage the pace of the class, and to increase enjoyment. But the humor should not be forced. If you can't tell a joke or make a funny quip, don't try. This is part of a more general thought: **Only do that which is personally comfortable in class.** Humor also can detract from classroom decorum and concentration, and it can take up valuable classroom time. It must be used with good judgment.

A reasonably fast pace makes the class more enjoyable and gives the opportunity for greater coverage. **Body language can be used to help pace the class and manage the discussion.** In large classrooms, the teacher's degree and pace of movement will be reflected to some extent by the pace of the class. It helps to move around the classroom and to stand at different points. Nonverbal gestures can also help manage the discussion. They can, for example, encourage the shy, hesitant student or discourage the student who shouts out comments without being recognized to speak. The teacher's physical position can also help the students talk to one another. Standing at the side or back of the classroom so that other students are between the speaker and the teacher **helps students talk to one another.** A stronger message, which must be used very selectively, is delivered by standing behind the student

who is speaking. When the students consistently talk to one another rather than to the teacher, they truly take ownership of the class.

Because learning is such hard work, it is important to **make the class an enjoyable experience.** The more the students enjoy the class, the more, within limits, they will devote themselves to the class and the less they will resent the hard work of learning. While learning is hard work, it can also be fun!

Finally: **Use summary and "offline" lectures to deliver general comments or important related material.** Most case discussions end with the instructor delivering a few (2 to 20) minutes' worth of general comments that review and highlight the discussion (with attribution to students' comments), structure the issues, and generalize to other situations. There is no reason for a case discussion not to include some lecture. But the instructor should not turn it into a lecture about a case. "Offline" lectures during the discussion can be used to clarify related issues (a legal or regulatory subject, for example) or to cover adjunct material.

The instructor should make it clear that the class is briefly leaving the discussion so that she or he can give a brief "lecturette" and that they will return to the discussion soon. Such diversions should last no more than a few minutes at most.

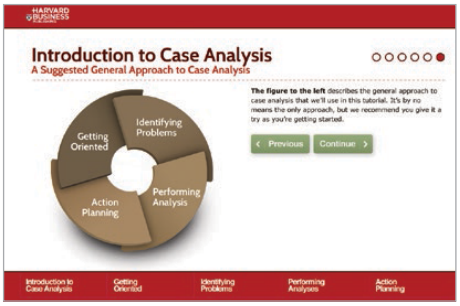
CLOSING THOUGHTS

The case discussion process depends on a delicate set of relationships: teacher-to-student, student-to-student, and class-to-material. Once the process becomes established, it can accomplish a great deal. Because of the delicacy and power, it is important to **nurture the discussion process even if that means trading off some coverage of a case.** The process is so important that nurturing it is more important than covering any specific topic in any specific case. The teacher should not suddenly take control of the discussion to cover "one last but important part" in a case discussion and risk hurting the process for future discussions. This is particularly true in early discussions, because they set the tone for the process throughout the course. Because these sessions are so important to the overall experience in the course, **put particular emphasis on the development of a good discussion process in early classes, especially the first two.**

The instructor, in all that he or she does and particularly with respect to the relationship between the student and teacher, sets the example for the class.

Finally, because the students' development is so serious and important, and the teacher and classroom experience has such a strong impact, the outstanding instructor must **strive for excellence.**

PREPARE STUDENTS FOR CASE LEARNING



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"This is a great learning tool for starting case analysis."
— Review from the HBP for Educators web site*

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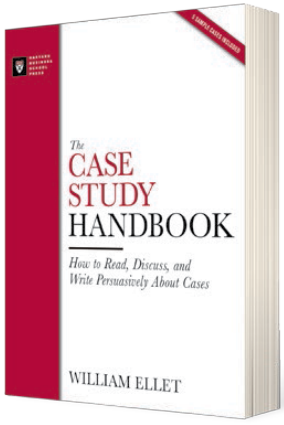
Ideal for Students New to Learning with Cases

Bestselling chapters include:

- What Is a Case? **#2448BC**
- Analyzing a Case **#2449BC**
- How to Discuss a Case **#2450BC**
- How to Write a Case-Based Essay **#2451BC**

Individual chapters are available for inclusion in a coursepack. **#1584**



By William Ellet

*Reviews available to registered Premium Educators

RESOURCES FOR INSTRUCTORS

CASE METHOD TEACHING SEMINARS

PART I

Intended for all instructors, regardless of their level of experience with participant-centered learning. The seminar covers a broad range of topics, including:

- Establishing and reshaping the learning contract
- Questioning, listening, and responding
- The teacher/student relationship
- Designing the discussion plan
- Practicing the skill

PART II*

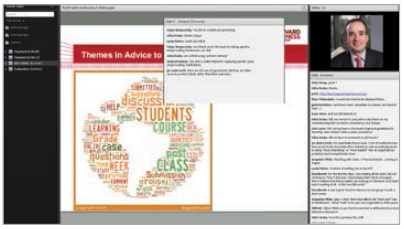
The Case Method Teaching Seminar Part II is **intended for instructors who have at least 3-5 years of experience teaching with cases and who have attended Part I.** In the advanced seminar, participants spend hands-on time devising teaching plans and strategizing responses to common classroom challenges. Teaching practicum sessions allow attendees to lead short case discussions and receive immediate, actionable feedback from fellow participants and from expert case facilitators. Topics also include:

- Instructor preparation, including board plans and discussion blocks
- Grading participation, case assessments, etc.

TEACHING WITH CASES ONLINE: A WEB-BASED SEMINAR

Teaching with Cases Online is a 4-week, **web-based seminar that covers common issues that case instructors face in an online environment.** Participants read cases and prepare to discuss them as if they were students. The goal is to help online instructors better understand how to devise a teaching plan for delivering a participant-centered course online. Topics include:

- Modeling case question strategies geared to an online environment
- Facilitating and debriefing case discussions within an LMS
- Using a mix of asynchronous and synchronous activities
- Sharing testimonials and examples of successful strategies



*Advanced seminar prerequisite: Part I seminar attendance

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- What Are Effective Ways to Wrap Up a Case Discussion?
- Evaluating Student Participation: A Grading Rubric
- What Are Effective Ways to Lead Case Discussions Online?

→ **teachingpost.hbsp.harvard.edu**

VIDEO ADVICE FOR CASE TEACHING

The Case Method Teaching page on the Harvard Business Publishing for Educators web site is the source for hints and videos on case teaching issues. Over 3 hours of video clips from inside the Harvard Business School classroom cover:

- Advice for new case teachers
- Questioning, listening, and responding
- Elements of effective class preparation

→ **casemethod.hbsp.harvard.edu**

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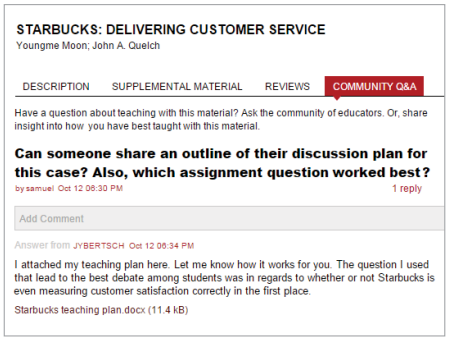
ASK A QUESTION, SHARE INSIGHT ABOUT SPECIFIC CASES

Ask our community how to best teach with a specific case, share insight into how you've taught it, and upload a teaching plan. Look for the Community Q&A tab on case web pages.



Databases on Innovative Practices/Detailed Process Documents of CIPS

Sl. No.	Name of the Project	Category	Links
1	Databases on Innovative/Best practices	Health, Education, e-Governance & Urban Governance	http://www.cips.org.in/database-of-innovative-practices
2	Village Health & Nutrition Day, Tripura	Health	http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Health/VHND/VHND_Tripura.pdf
3	Maharashtra Medical Council		http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Health/MMC/Maharashtra-MedicalCouncil.pdf
4	Aravind Eye Care System, Madurai, Tamil Nadu		http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Health/Aravind-Eye-Care/Aravind-Eye-Care.pdf
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6	Access to Low Cost Generic Medicine, Chittorgarh, Rajasthan		http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Health/Generic-Medicines/access-to-low-cost-generic-medicines-rajasthan.pdf
7	Bridging the Divide – 3 Year Rural Medical Practitioners Course in Assam		http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Health/Bridging-the-Divide/3-year-rural-medical-practitioners-course-in-assam.pdf
8	Use of IV Iron Sucrose Injection for Severe Gestational Anemia Management		http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Health/IV-Sucrose/IV-Iron-Sucrose-Case-study-for-Gestational-Anaemia-Management.pdf
9	Balabadi: The school for kids Vizianagaram, Andhra Pradesh	Education	http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Education/Balabadi/Balabadi.pdf
10	IT@School, Kerala		http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Education/IT@School/IT-school-kerala-case-study.pdf
11	Madhya Pradesh Education Portal		http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Education/MP-Edu/madhya-pradesh-education-portal-case-study.pdf

Sl. No.	Name of the Project	Category	Links
12	Ecological Sanitation: A Case Study of Regullanka Village, Andhra Pradesh	Urban Governance	http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Urban-Governance/ECOSAN/ECOSAN.pdf
13	Use of Plastics in Road Construction		http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Urban-Governance/Use-of-Plastics/Use-of_Plastics.pdf
14	Janmitra Scheme of Madhya Pradesh	e-Governance	http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Education/Janmitra/Janmitra.pdf
15	APPSC – Online Processing of Applications, Andhra Pradesh		http://www.cips.org.in/documents/Published_Documents/e-Books/2015/e-Governance/APPSC/APPSC.pdf
16	Implementing e-Office at the District Level – The Case of North 24 Parganas District, West Bengal		http://www.cips.org.in/documents/Published_Documents/e-Books/2015/e-Governance/e-Office/eOffice.pdf
17	ePASS – Online Scholarship Disbursement Scheme, Andhra Pradesh		http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Education/e-PASS/ePass.pdf
18	MeeSeva – Common Service Centre of Govt. of Andhra Pradesh		http://www.cips.org.in/documents/Published_Documents/e-Books/2015/e-Governance/MeeSeva/meeseva-andhra-pradesh.pdf
19	8-Hours Duty System in Police Stations, Kerala		http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Others/8Hrs-Duty/8-hr-duty-system-in-kerala-police-station-casestudy.pdf
20	Innovative Initiatives by Karimnagar Dist. Administration, Andhra Pradesh		http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Others/Karimnagar-Initiatives/initiatives-by-karimnagar-district-administration-andhra-pradesh.pdf
21	SCORE: e-Registration in Bihar (Land Revenue/ Administration)		http://www.cips.org.in/documents/Published_Documents/e-Books/2015/e-Governance/SCORE/score-bihar.pdf

Sl. No.	Name of the Project	Category	Links
22	Karnataka Jnana Aayoga (Karnataka Knowledge Commission)	e-Governance	http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Education/KKC/karnataka-knowledge-commission.pdf
23	Dreams to Reality – Education, Training and Service Centre for Persons with Different Abilities, Navi Mumbai Corporation		http://www.cips.org.in/documents/Published_Documents/e-Books/2015/Others/Dreams-to-reality/case-study-on-dreams-to-reality-different-abilities.pdf

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DoPT VISION

"To create an enabling environment for the development and management of human resources of the Government for efficient, effective, accountable, responsive, transparent & ethical governance."

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