

Name of lead institution/organisation: The TRD Group	
Project Title: <i>Total Rural Development (TRD)</i>—A New Paradigm for Sustainability for a Target Population of about 350,000 People in a Global Village-Based Community	
Location: The Global Village	Date of project preparation: 25 th May, 2009
Project partners: <i>Lead Partner:</i> Sankalpa Trust, Kolkata, India. <i>Global Partner:</i> Development Alternatives, New Delhi, India. <i>Technology Partner:</i> Society for Appropriate Rural Technology for Sustainability, Kolkata, India. <i>Academic Partner:</i> Village Earth—Colorado State University, Fort Collins, Colorado, USA.	
Full contact details of Chairman: Name: Dr. Ashok Khosla Position: Chairman Email: <akhosla@devalt.org> Address: Development Alternatives, 111/9-Z, Kishangarh, Vasant Kunj, New Delhi – 110070, India. Tel: +91 (11) 2613 4103 FAX: +91 (11) 2613 0817	Full contact details of Principal Investigator: Name: Dr. Subhrankar Mukherjee Position: Principal Investigator Email: <subra@engr.colostate.edu> Address: P6:Cluster 2, Purbachal, Salt Lake Kolkata 700097, India. Tel: +91 (33) 2335 9812 Mobile: +91 94330 19821
Themes addressed in the TRD Project Implementation Proposal: <p>The <i>primary goal</i> of this project is to develop a ‘TRD’ model for the ‘global’ villager (see Footnote #3), primarily to obtain sustainable livelihoods, while preserving Mother Nature for future generations. A <i>secondary goal</i> is to conduct a series of seminars in the first year, which will help to clarify the issues, whilst strengthening the ‘Public-Private Partnerships’ during implementation of the project. The <i>objectives</i> of the project will be to develop a participatory approach for empowering the target beneficiaries in the target community, in order to: (a) overcome local barriers to socio-economic development through Public-Private Partnerships (PPP), using knowledge-based products and services as tools for empowerment; (b) use process oriented and scientific approaches for community building; (c) adopt a reusable and modular structure for a software driven approach for realizing the change processes and (d) promote the growth of ethics and morality throughout the program.</p>	
Priority areas addressed by the TRD Project Implementation Proposal: <ul style="list-style-type: none"> • Through Public-Private Partnerships (PPP), provide knowledge-based and IT-enabled services to villages for promoting sustainable livelihoods and education, using an asset-based and market creation approach that will focus in six areas comprising (a) Education and Livelihoods; (b) Health; (c) Agriculture and Environment; (d) Energy; (e) Shelter and (f) Advanced Technologies; • Adopt ‘process oriented’ and ‘object oriented’ approaches for the delivery mechanism of the change management processes, which are humanistic, grounded in scientific management processes, are reusable and more stable over time; • Transformation in morality and human values of the target rural community. 	
Estimated Project Cost: Rs. 112 Crore (Rs. 1,120 million) [<i>circa US\$ 25 million @ Rs 45 to \$1</i>]	
Outline of the ‘Rural Convergence Program’ (RCP) in the Proposal: Build and operate an RCP Secretariat at Kolkata, which will coordinate the asset-based and market creation activities of the RCP program in the targeted rural community, through the agency of a series of ICT and knowledge-based facilities and resources that can deliver sustainable livelihoods and total rural development to the targeted 350,000 beneficiaries, in order to address the priority areas that have been summarised above and thereby achieve the project outcomes.	

CONTENTS

1	BACKGROUND	3
2	GOALS AND OBJECTIVES	4
3	EXTRINSIC PROBLEM DEFINITION	4
4	INTRINSIC PROBLEM DEFINITION	5
4.1	Problems in rural areas	6
4.2	Education—the central problem	6
4.3	Lack of sustainable livelihoods	6
4.4	Analogy with TQM and OOP	6
4.4.1	Correlating TRD with TQM	8
4.4.2	Correlating TRD with OOP	8
4.5	Awareness of environmental protection	8
4.6	Transformation of morality and values	9
4.6.1	Impact on beneficiary community	9
4.6.2	Impact on stakeholders	9
5	‘TRD’ PROJECT APPROACH	10
5.1	Public-Private Partnerships	10
5.2	Seminars	11
5.3	Asset-based and market creation approach	12
5.4	Process oriented, scientific approach	13
5.5	Object oriented reusable approach	13
5.6	The Value-Oriented Development Model	14
5.6.1	Impact on stakeholders	14
6	RCP STRUCTURE AND FRAMEWORK	15
6.1	Relationship with the Sankalpa Pyramidal Model	15
6.2	Modular ‘holistic’ structure of the new paradigm	17
6.3	The Rural Convergence Program	18
6.4	Exit Policy	22
7	‘TRD’ PROJECT IMPLEMENTATION METHODOLOGY	23
7.1	Phase 1 (One Year): Community building and testing the RCP model	23
7.2	Phase 2 (Three Years): Interim RCP implementation	24
7.2.1	ABCD: ‘Asset-based’ approach for community development.....	24
7.3	Phase 3 (Three years): Final RCP implementation	26
7.3.1	Assumptions of a process oriented, scientific approach	26
7.3.2	Rural resource planning and reusability	27
7.3.3	The power of transformation	28
7.4	RCP Sustainability	28
8	MANAGEMENT PLAN	29
8.1	Management organization	29
8.1.1	Core Group	29
8.1.2	Project Management Structure.....	30
8.1.3	Private Partnerships	30
8.2	Plan of Work	30
8.3	Asset planning	32
9	EXPECTED OUTCOMES OF THE PROJECT	32
10	BUDGET	34
11	MONITORING AND EVALUATION	37
11.1	The M&E program in Phase 1	37
11.2	Financial accountability	37
12	PROJECT TIMELINE	38
12.1	Time line for Phase 1	38
13	CONCLUSIONS	39

References, Annexures and Glossary

1 BACKGROUND

Several trillions of dollars have been spent globally to reduce poverty, but governments and change agents everywhere—with the exception of a few model examples—have by and large failed to empower the rural, indigent people and to attack the root cause of poverty: absence of livelihoods opportunities, education and access to resources.

We believe that this situation can be addressed, in part, by **adopting a holistic, asset-based and market creation approach for establishing ‘Public-Private Partnerships’ (PPP)**. These platforms for PPP will provide (a) rural communities with opportunities for sustainable livelihoods and education with an emphasis on health, shelter and energy security; and (b) enable different stakeholders in society to contribute their might towards accelerated rural development. Knowledge-based IT-enabled products and services will be the vehicles for achieving these results.

Another part of the solution is analogous to the paradigm shifts that have already taken place in industry and commerce on the one hand, and the knowledge industry on the other. In both instances, the essentially ‘hierarchical’ and ‘procedural’ approaches in traditional systems have been displaced by more **‘process oriented’ and ‘object oriented’ approaches** that are humanistic, grounded in scientific management processes, reusable and more stable over time. When applied to the delivery mechanism for change management in the present project, these modular approaches lead to optimal solutions that require less repetitious work. They improve our ability not only to model and control complexity, but also to make complicated systems more understandable and maintainable.

Finally, we address the ‘soft’ issue of transformation of morality and human values for all stakeholders in the project, which will reduce greed and self-interest on the one hand and promote the growth of an ethics and morality of self-development, on the other. In this project, we shall affirm a core empirical belief, that **‘the essence of sustainability is morality’** ^[2].

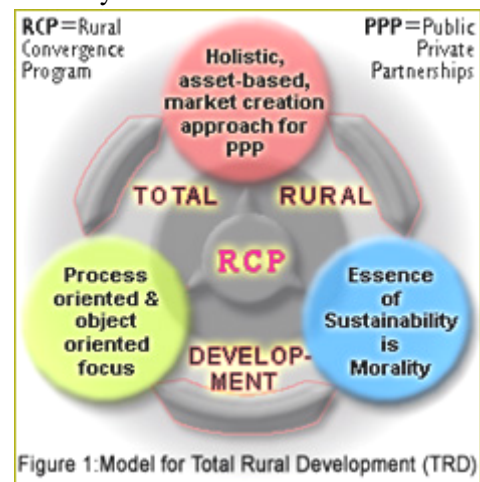


Figure 1: Model for Total Rural Development (TRD)

We believe that a **judicious conjunction of the three preceding highlighted elements** in our target community—using Mother Nature’s ‘hexagonal’ diamond lattice for developing the structure of a reusable model for the convergence of a number of rural development paradigms ^[1]—will result in an economically strong rural community that is respectful of its environment and is also morally engaged. The vehicle for achieving this total transformation is the **‘Rural Convergence Program’ (RCP)**, which leverages (a) PPP as a means for rural communities to maximize their creativity and productivity, while minimizing their negative environmental impact; (b) process oriented and object oriented approaches for scientific change management, and (c) transformation of morality and values of the stakeholders.

The RCP is therefore both a model and a tool that will be necessary to crystallize the entirely new paradigm for **Total Rural Development (TRD)**, which is the goal of this project.

The project shall run for **seven years** and impact a population of about **350,000 beneficiaries** in the target community. The ‘present value’ budgetary cost estimate of the project is **Rs. 112 Crore (Rs. 1,120 million) [circa US\$ 25 million @ Rs 45 to \$1]**. This translates to an allocation of about **Rs. 3,202 (~US\$71.15)** per beneficiary over the seven year period, or **Rs. 457 (~US\$ 10.16) per year per beneficiary...a small price to pay for the end of rural poverty as we have known it.**

At the end of the seven year period, it is believed that the **TRD Group** would be empowered by the assets that have been generated and the steady stream of revenues from the various asset-based and market creation approaches—from the present TRD Project—to launch the next TRD Project (see Figure A3.1; Page 49), without any further grants or external financial inputs—*giving rise to the vision of TRD in perpetuity.*

2 GOALS AND OBJECTIVES

The attainment of sustainable livelihoods for all rural people, while preserving Mother Nature for future generations are important twin objectives of the RCP.

The *primary goal* of this project is to develop a model for ‘Total Rural Development’ that will provide for the (a) socio-economic empowerment; (b) environmental safety and (c) transformation of values of the ‘global’ villager, which can be replicated anywhere.

A *secondary goal* is to conduct a series of seminars in the first year, which will help to clarify the issues for TRD, whilst strengthening the ‘Public-Private Partnerships’ of the ongoing project.

The *objectives* of the project will be to develop a participatory approach for the rural people in the target community, in order to empower the target beneficiaries to:

- (a) Overcome local barriers to socio-economic development using an asset-based and market creation approach through PPP, with the help of knowledge-based products and services as tools for social empowerment;
- (b) Use these assets to provide for the sustainability of the RCP at the end of the seven-year program duration;
- (c) Use process oriented and scientific approaches for community building;
- (d) Adopt a reusable and modular structure for a software driven approach for realizing the change processes—which is also object oriented, in the sense that development modules may be replicated across state and national boundaries—as the development paradigm is based on universal human needs for prosperity and the pursuit of happiness; and
- (e) Promote the growth of ethics and morality throughout the program, which is inclusive, in the sense that everyone can participate—community members (children, women and men), local administration, education and academia, commercial and business interests, media, NGOs, governmental organizations and the change-agents themselves.

3 EXTRINSIC PROBLEM DEFINITION

It is well known that it is the lack of resources in village-based communities that mainly impedes sustainable development. The RCP attempts to mitigate this problem by developing a ‘global’ solution for this conundrum.

Experience over the past sixty years indicates that generally in India today—and in almost all village-based communities in developing economies all over the world—we already have most of the concepts, technologies, products and processes to transform the situation. Thus we see ‘small oases of development’ created by government, non-governmental (NGO) or industry initiatives in the ‘vast desert of underdevelopment’. Simultaneously, there are large governmental efforts that are spread too thinly because of political compulsions. There is both a mental block and a lack of facilitating mechanisms to enable different stakeholders in rural societies to work together effectively and efficiently. Government, academia, NGOs, industry and others tend to take up independent initiatives with marginal interactions among them. As a result, each one is caught in a trap of its institutional constraints.

With very few exceptions, **Industry** finds that it cannot really build the local institutions that are essential to carry on rural development initiatives in the long term. *Consequently, their efforts tend to become philanthropic and often patronizing.* At the same time, they recognize the latent markets in rural India and would like to do business and provide their products and services at a competitive and affordable price. **Financial institutions** find it especially difficult to locate ‘bankable’ rural development projects and move into rural India only due to pressure from regulatory institutions even though aware of untapped potentials.

The **Government of India**, on the other hand, spends over Rs.20,000 Crores on various rural development activities each year, and yet it is grappling to find the desirable impacts. *A major*

problem that has persisted with successive government formations in India to eliminate rural poverty is that the focus has been on the largely successful formulation of government policy and the subsequent publicity to popularize these policies, with perhaps less effective and efficient programs for measurement and evaluation to ensure proper control during the implementation of those policies at the grassroots level—which really translates to the age-old problem of failure to eliminate corruption and the lack of accountability in government programs. Even with all the decentralization and participation efforts through *Panchayati Raj* institutions, rural community management and self-help initiatives, the Government is still seen as a grant and infrastructure provider, rather than as a facilitator. Most rural communities still expect government to provide for all their needs and aspirations.

The **Non-Governmental Organizations (NGOs)** are slightly better off at mobilizing and building up community ownership and responsibility for processes through participatory practices. However, they are often unable to find the investments and other technological and management resources that are required to take any village-based initiative to a meaningful scale and to its logical conclusion. Also, rural communities—such as vegetable producers and fisher folk, who have to make distress sales all the time at a fraction of the fair, market price, as they do not have access to refrigeration to prolong the life of their produce and catch—are generally exploited by middlemen, who capitalize on their vulnerability, as many are unable to find ready markets for their diverse range of products and services. Scientific and academic institutions find it difficult to experiment with their innovative concepts in rural India due to lack of an institutional base. Some NGOs are plagued by accusations of being more self-serving than addressing the higher principles on which they were formed.

A careful analysis of the current situation indicates that the constraints or bottlenecks of one type of institutional stakeholder are, in reality, the strengths of another. While the government has the reach and ability to make initial public investments; industry has the products, services and ability to garner private entrepreneurship and investments. NGOs have the capability to mobilize local communities and also to adapt products and services such that they meaningfully reach the ‘last mile’. Finally, the innovation capacity of the scientific and academic community is essential to foresee and design for current and future needs^[2].

The **crux of the extrinsic problems for sustainable rural development** may therefore be summarized as follows:

- a) The inability to access resources, to locate and utilize appropriate technologies and to access regenerative sources of information hinders the village-based community’s capacity for mobilizing crucial resources and rising out of poverty;
- b) The institutional mechanisms for meaningful cooperation are nonexistent;
- c) There is an urgent need to establish platforms for Public-Private Partnerships¹ (PPP) where different stakeholders in society are able to come together and collaborate with their rural development partners, for economic and sustainable development.

4 INTRINSIC PROBLEM DEFINITION

We must also analyze the intrinsic problems faced by the ‘global villager’², to completely map the factors that impede sustainable development in the villages.

¹ A variation of privatization in which elements of a service previously run solely by the public sector are provided through a partnership between the government and one or more social/NGO or private sector organizations. Unlike a full privatization scheme, in which the new venture is expected to function as a private business, the government continues to participate in some way.

² The term ‘global villager’ is not limited or provincial in scope; it has attributes that can be applied to all villagers on this Earth, in general. It is at variance with Marshall McLuhan’s characterization of the ‘Global Village’, which describes how electronic mass media collapses space and time barriers in human communication, enabling people to interact and live on a global scale.

4.1 Problems in rural areas

The ten most frequently quoted intrinsic problem areas for the ‘global villager’ are illustrated in Figure 2. This pictorial depiction—graphically identified in a gear train—emphasizes the inter-relatedness and the problems of meshing, in each problem area. It also suggests the reason(s) why many rural development programs are not sustainable, as the gear train inevitably grinds to a halt when this intricate web of meshes becomes dislocated. In order for the whole to be moving forward, every ‘gear’ has to mesh properly and contribute to sustainable rural development.

The figure also underscores the need for a holistic³, multi-sector approach, and why single-sector development programs have failed in the past; it also suggests that (a) ‘Education’—and more specifically ‘primary education’—or the lack of it, is the central problem; and (b) The socio-economic status of villagers—stemming from the lack of ‘Sustainable Livelihoods’—is universal: a super ordinate problem in any rural development program.

4.2 Education—the central problem

‘Education’—and more specifically ‘primary education’—or the lack of it, is the central problem. Illiteracy is an indicator of human insecurity. According to Professor Amartya Sen⁴, primary education advances human security by enhancing political participation, economic opportunity and human capabilities. Education also generates self-confidence, reduces fear, enables risk-taking and supports an orientation towards the future.

Professor Sen believes that no economic development is possible without compulsory universal education. He writes: “*The remarkable neglect of elementary education in India is all the more striking given the widespread recognition, in the contemporary world, of the importance of basic education for economic development. Somehow the educational aspects of economic development have continued to be out of the main focus in our country*”.^[10]

Good education endows people with better coping capabilities to grapple with crises. There are multiple linkages between education and human security: (a) education provides greater employment security; (b) education enables people to exercise their rights; (c) education empowers the underdog, especially women; and finally, (d) education can socialize children towards tolerance and respect among diverse communities of people.

4.3 Lack of sustainable livelihoods

The endemic causes of rural poverty—such as poor nutrition, lack of energy security and shelter security as well as the general inability of rural communities to build knowledgeable and productive small-scale rural households—primarily stem from a lack of sustainable livelihoods. As a corollary, the absence of these societal necessities also impinges directly on the creation of sustainable livelihoods^[11].

Rural communities therefore need a new sense of direction that could lead towards meaningful “revitalisation” of rural households.

4.4 Analogy with TQM and OOP

There is a close analogy between the proposed paradigm shift in this pilot project for ‘Total Rural Development’ (TRD) with (a) ‘Total Quality Management’ (TQM) for industry and commerce; and (b) Object Oriented Programming (OOP) in Information Technology for software development.

³ Holistic (from *holon*, a Greek word meaning entity)—sometimes spelt ‘wholistic’—relates to or is concerned with wholes or with complete systems rather than with the analysis of, treatment of, or dissection into parts. According to the Oxford English Dictionary, Jan Smuts who coined the term in the early 1920s defined holism as ‘The tendency in nature to form wholes that are greater than the sum of the parts through creative evolution,’ because the ‘system’ adds something in addition. Another term is ‘systems thinking’, which emphasizes the organic or functional relation between parts and the whole.

⁴ ‘You cannot evaluate what’s happening without looking at the people who are on the downside’

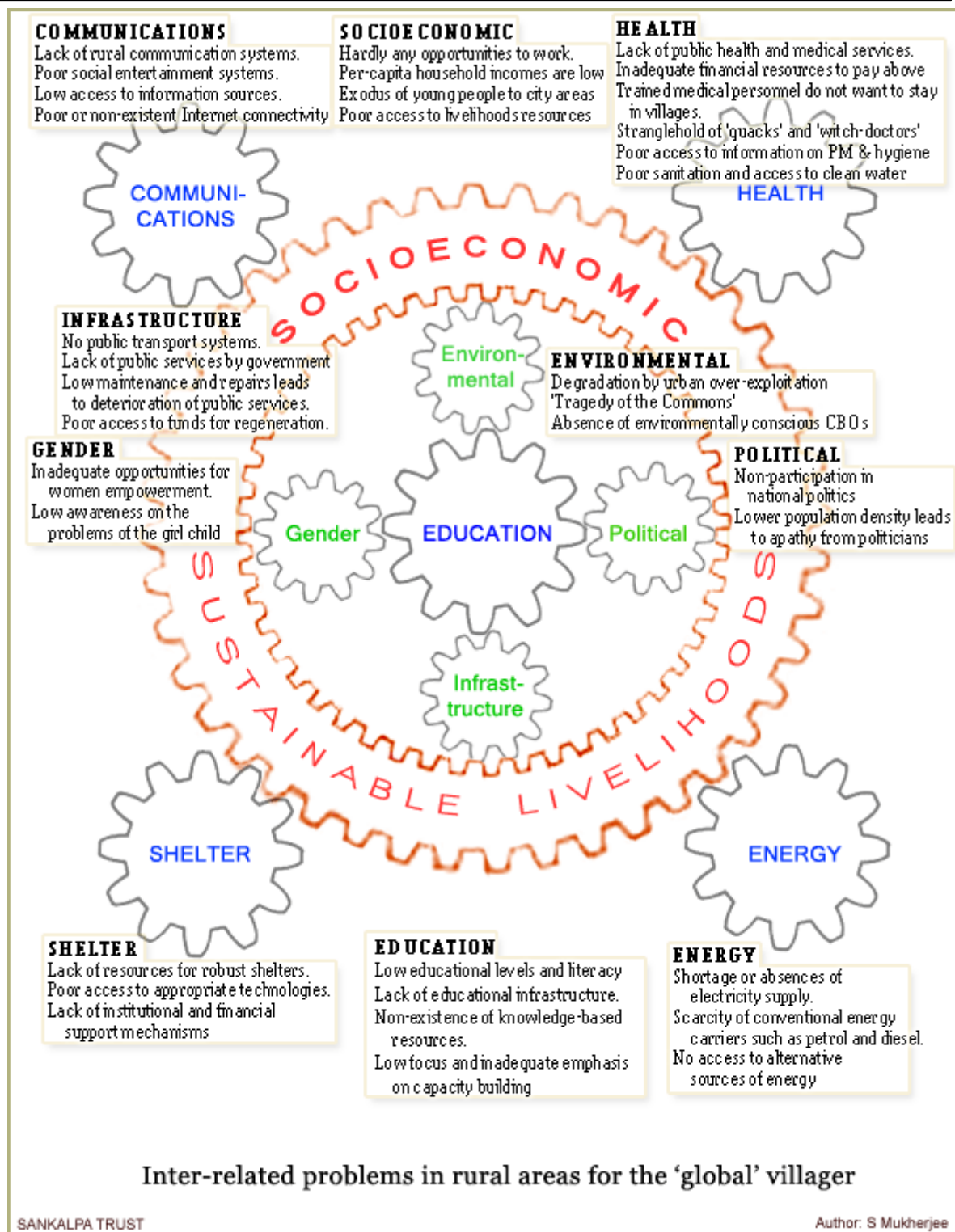


Figure 2: **Problems in rural areas:** The figure dramatizes the impact of 'Sustainable Livelihoods' (SL) on the inter-related problems in rural areas for the 'global villager'. The internal and external gear teeth on the SL contraption exemplify its impact on the major problem areas of 'Communications', 'Shelter' and 'Energy' – with its concomitant impact on 'Health'. On the other hand, 'Education'—more specifically 'primary education'—or the lack of it, is at the center of all problems for the global villager. The attributes comprising 'Environmental', 'Gender Issues', 'Political' and 'Infrastructure' problems result from the inability of the rural people to sue for change, as a result of poor education and knowledge.

4.4.1 Correlating TRD with TQM

TQM has been a global paradigm shift in the consciousness of industry and commerce that started in the 1990s. It replaced hierarchical, top-down management processes with more humanistic, 'horizontal', process oriented and bottom-up management systems, that were also focused in delivering 'quality' to the 'Customer'. Led by the Japanese, companies worldwide realized that the customer was the most important link in the chain! This paradigm shift has brought enormous and visible benefits to consumers and the society in urban areas of India. However, this TQM revolution has completely bypassed the rural areas in India, as its fruits are available only in industry and commerce in the urban centers of the country. Institutional rural development processes are still largely hierarchical, top-down and often treat the 'Villager' as an obstacle or impediment to his or her own progress, however paradoxical that may sound.

In the first and second phases of this project, we intend to test various assumptions and hypotheses on the kind of processes that will be needed for the realization of TRD and its positive impact on 'Villagers', and to do what TQM did for industry and commerce in the cities. We propose to make the 'Villagers' the most important entity in the RCP, around which our rural development processes will be developed; that they are indeed our most important link in the chain; that we need to replace our old hierarchical attitudes towards rural development, with horizontal, 'process oriented' ones. And just as ISO 9000 Standards were a standard bearer for TQM—a global standard by which anyone could measure the ability of an organization to deliver 'quality' to its customer—we believe that our TRD model and RCP will result in the development of a global standard, by which the ability of a rural intervention strategy to deliver holistic benefits to the village community can be measured.

4.4.2 Correlating TRD with OOP

Object Oriented Programming⁵ (OOP) is a natural outgrowth of the human mind's tendency to think in visual metaphors and is therefore a natural way to view and construct models of the world. It results in less repetitious work and has the ability to be strongly modular or structured. Object oriented methods are also more stable over time than other representations and improve our ability not only to control complexity, but also to make complicated systems understandable and maintainable.

In a well-designed object oriented system, it should be possible to (a) implement a systemic change without having to make alterations at other unrelated points in the system; and (b) reduce the overall amount of maintenance required since many problems can be detected and corrected in the design phase.

Just as there has been a paradigm shift in software development from procedural programming to object oriented programming, we therefore propose to initiate a paradigm shift from the *traditional* 'procedural' and 'top-down' rural development regimes to the modern, *object oriented* and 'bottom-up' technique exemplified by the preceding discussion on object orientation. Once 'domain experts' have determined the patterns and objects for the implementation of the RCP model—one that can bring entire communities of indigent people out of poverty—then we may reuse this pattern, globally, without having to reinvent the RCP model and its components every time we visit a new, rural place that needs 'Total Rural Development'.

4.5 Awareness of environmental protection

This project shall promote an awareness of environmental protection, particularly the global villagers' impact on global warming and reduction of 'Green House Gas' (GHG) emissions, as climate change is projected to impact tropical countries more negatively than temperate zones^[25].

⁵ Object Oriented Programming (OOP) is a pattern which enables applications to be developed economically and delivered easily. It permits delegation of specializations, which makes application development more manageable.

For the more than 700 million people in rural India who are dependant on the most climate-sensitive sectors for their livelihoods—agriculture, forests and fisheries—global warming brings declining crop yields, degraded lands, water shortage and ill health ^[25], and all of these factors are of central importance in our proposed ‘New Paradigm’. Unless massive corrective actions are taken immediately—as proposed in our ecological and environment-friendly asset-based and market creation approaches—the people of not only India, *but the whole world*, have strong reasons to be concerned. **And we hope that by creating an environment-friendly and reusable model as proposed in the present project, we would take practical steps that demonstrate viable ways to meet the global need for a fair and effective system of participatory governance—local, national and international—to manage this global problem.**

4.6 Transformation of morality and values

The philosophy of human unity is based on a realization of the necessity for maximum diversity among peoples and nations and leads to a mobilization of human energies and talents towards the development of the full potentials of all individuals, groups and levels of society.

4.6.1 Impact on beneficiary community

The practical result of this philosophical orientation, for the beneficiary community and surrounding villages during forty years of development, has been national and international participation in the development of innovative and exemplary environmental, educational, social and economic structures.

The transformation in the moral stance and values requires a higher approach to development that includes physical structures, life values, mental development, and the realization of the underlying unity of all aspects of life, as expressed throughout the many schools of thought for which Indian culture is best known. Such a moral and educational approach to development constitutes an awareness and respect for life that has been the ideal of all the wisdom traditions of the world. The aim of this project is to give these ideals a practical, material form. By bringing together a wide range of human and material resources in the service of human development, this project of *Total Rural Development* hopes to extend the dynamics of human development outward to the bio-region and eventually to demonstrate a viable model for sustainable development that can be replicated nationally, and indeed globally.

4.6.2 Impact on stakeholders

This project will apply holistic thinking in all facets of its administration and implementation. Training for all project staff members—from the village field workers, to supervisors, to administrators and project holders—will draw out through their educational experiences the insights that are fundamental to scientific, process- and object-oriented methods: that each participant and structure is a part of the several *holons* that are all interlinked within a greater whole. Local knowledge will be recognized and reinforced, so as to emphasize the natural honesty, sharing and cooperation that is innate to the village community.

At the same time, a code of conduct based on global values for inner development will be formulated at the beginning and progressively refined as it is enforced in the first phase of the project. Specifically, importance and time will be given to refining the communication patterns between the stakeholders of this pilot project—including the external partners—so that everyone perceives the *whole* project and appreciates the problems faced by the rest of the participants in this process oriented and non-hierarchical organizational structure.

Monitoring and evaluation programs will address not only target achievements, but also group processes and the personal self-growth of all participants. The progressive improvements in all spheres—physical, organizational, conceptual—will be recorded, tested and developed into a working manual for the project.

5 'TRD' PROJECT APPROACH

A review of the underlying principles, goals and objectives of TRD and the extrinsic and intrinsic problems of development in rural areas result in the following approaches for designing and developing the present 'TRD' project:

- Through Public-Private Partnerships (PPP), provide knowledge-based and IT-enabled services to villages for promoting sustainable livelihoods and education, using an asset-based and market creation approach that will focus in six areas comprising (a) Education and Livelihoods; (b) Health; (c) Agriculture and Environment; (d) Energy; (e) Shelter and (f) Advanced Technologies—to meet the villagers' needs for holistic development;
- Adopt 'process oriented' and 'object oriented' approaches for the delivery mechanism of the change management processes, which are humanistic, grounded in scientific management processes, reusable and more stable over time;
- Promote transformation in the moral stance and values of the target rural community.

5.1 Public-Private Partnerships

Table 1 provides information on some of the institutions with whom PPPs may be immediately initiated, for carrying forward the objectives of the RCP.

Table 1: 'Private-Public Partnership' arrangements for 'TRD'

#	Development Partner	Type A	Type B	Type C	Type D	Type E	Type F
		Education & Livelihoods	Agriculture & Environment	Health	Energy	Shelter	Advanced Technologies
1	Aravind - TeleMedicine			Medium			
2	Auroville units	High	High		High	High	
3	BP Energy Systems		Medium	Low	High		
4	CGCRI, Calcutta	Low	Medium	Low	Medium		High
5	DESI Power	Medium			High		
6	Development Alternatives	High	High		High	High	Medium
7	Grain Processing Indust.				High		
8	IISc - Bangalore	Medium	High		High	Medium	High
9	Krishi Vidyalyaya - WB	High	High	High			
10	OMG - USA						High
11	ARTS	High	High	Medium	High	High	Medium
12	United Village						High
13	Vivekananda Kendra, KK	High	High	High	High	High	

Notes:

1. The above tabulation provides a listing of institutions who have been identified as potential partners who can be expected to join the 'Coalition of Public-Private Partners' of the 'New Paradigm' Project.
3. The tags 'High', 'Medium' and 'Low' indicate the level of involvement of each entity in the 'Pilot Project'.

Notes:

1. The above tabulation provides a listing of institutions that have been identified as potential partners who can be expected to join the 'Coalition of Public-Private Partners' of this project.
2. The tags 'High', 'Medium' and 'Low' indicate the level of involvement of each entity in the project.
3. The Types 'A' to 'F' and the labels in blue that define each type are detailed in Section 6
4. The cost implications of these PPPs are reviewed in the budget in Table 2.

To address the extrinsic problems in particular, there is a need to establish such platforms for 'Public-Private Partnerships' where different stakeholders in society are able to collaborate for creating economic and environmental benefits, for themselves as well as the rural community that they serve.

The success of the new paradigm is therefore dependant on continuously actualizing several such partnerships and platforms, in order to set up facilities for continuous innovation of effective village-based development strategies. The unique features of this approach are its:

- Aim to develop cutting edge technologies appropriate to solve the problems of low-income communities;
- Commitment to providing the information and other support services essential for achieving the goals of sustainable development; and
- Reliance on active participation by all stakeholders.

These partnerships will be selectively started in Phase 1 and fully implemented through Phase 2. However, new partners will be continuously sought, for which provisions have been made in the budget, beyond which external budgetary supports may be sought as part of the partnership development initiative, or co-opted by the existing partners and supported on a ‘case-by-case’ basis.

5.2 Seminars

A year-long series of seminars will be conducted in Phase 1, which will help to clarify the concepts and issues regarding the development and implementation of the project proposal, bringing all stakeholders into a common understanding and strengthening the ‘Public-Private Partnership’ initiative.

Working groups composed of internal and external experts will be formed through the seminar process to develop exploratory and strategic planning activities and act as a ‘Think Tank’ for the project. These groups will also develop a strategy for integrating the inputs of all stakeholders and approaches in the first phase of the project for the development and refinement of the second and third phases of the ‘TRD’ project.

A project website will be developed as a ‘mother’ portal⁶ within the seminar media budget, as an online approach to: (a) develop a consensus formulation strategy; (b) compile a database of stakeholder inputs to determine priorities; and (c) foster continuity throughout the seven-year program.

There will be a total of seven seminars and conferences organized within the first six months of the project, to discuss the ‘Rural Convergence Program’ threadbare. The topics will be based on:

- Seminar 1: Rural Convergence Program
- Seminar 2: Education and Livelihoods
- Seminar 3: Agriculture and Environment
- Seminar 4: Health
- Seminar 5: Energy
- Seminar 6: Shelter
- Seminar 7: Advanced Technologies

Additional internal seminars will be held to discuss and understand (a) ‘transformation of values’, (b) the ‘new paradigm’, and (c) team-building methods and goals. At the conclusion of the seminar series, the results of these conferences and seminars will be published in a monograph, and the full proceedings will be disseminated freely on the project website and in hard copy publications. Thereafter, the seminar committee will be responsible for:

- Maintaining the dialog between the RCP team and the ‘Public Private Partners’ for the remaining six months of its tenure;

⁶ A horizontal as well as a vertical portal—hence a ‘Mother’ portal, or ‘Mortal’, according to TARA-haat.com (see Annexure 3)

- Over the next five months, the seminar committee will be responsible for collating the information collected during the entire year, and generating position papers that will explain the general direction towards the development of the project.

The budget for conducting these seminars is reviewed in Section 10, and details will be made available on request.

5.3 Asset-based and market creation approach

Community and household assets are drivers of sustainable growth and poverty reduction in rural areas ^[1]. An asset-based model for sustainability is shown in the figure below:

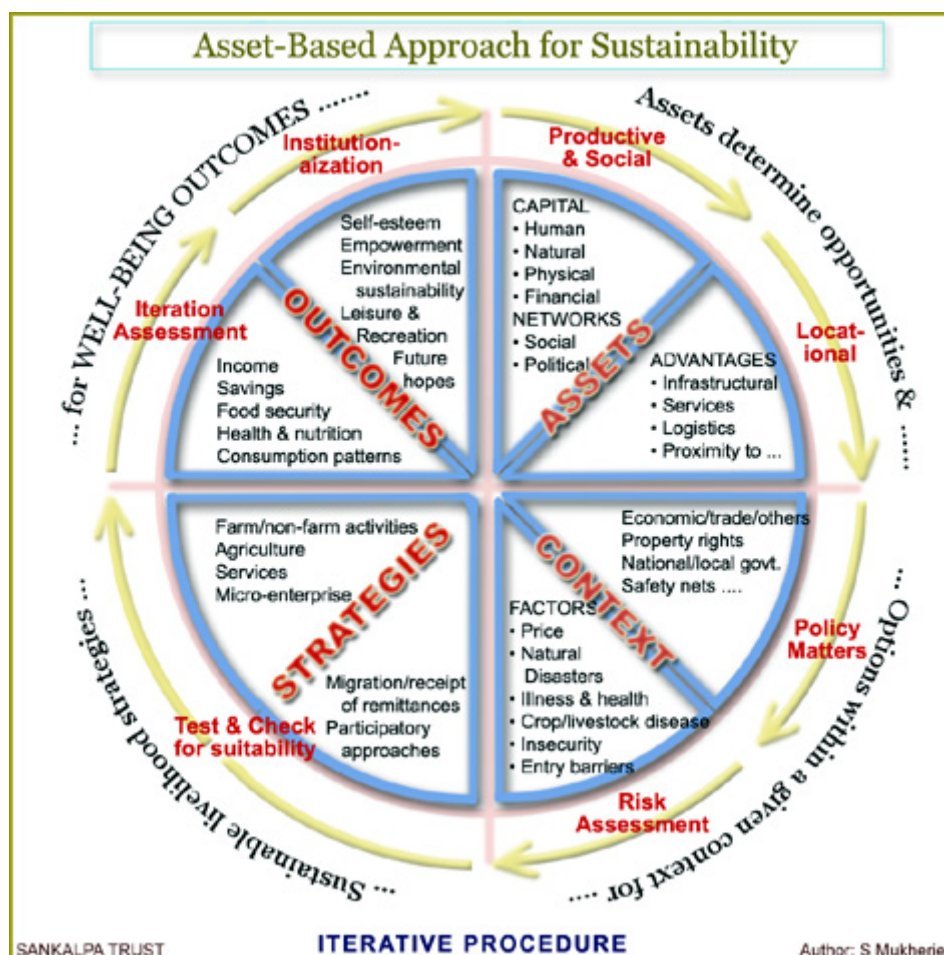


Figure 3: Asset-based and market creation approach for sustainability

In conjunction with asset-based approaches that create opportunities for social development, it is known that the market creation approach (MCA) is also a profitable delivery channel—preferably run by micro-enterprises—to develop products that have a high poverty alleviation impact or have ecological advantages, or both, thereby reducing rural poverty, sustainably. The objective of MCA is to promote market development, and it combines two aims: (a) to supply useful and affordable products with a high poverty alleviation impact to indigent people, and (b) to create a viable business as a private delivery channel, run by the primary stakeholders. ^[15]

It should be emphasized that:

- Asset-based investments for the target community by themselves have limited growth and poverty reduction impact unless they are also based on participatory practices. Education, roads and other market-related infrastructure amplify the positive impact of asset-based investment interventions on household assets. The structure and framework of the program to develop the asset-based and market creation approach are reviewed in Section 6.
- The ‘global villager’ needs access not only to educational resources for appropriate technologies, environmental programs and capacity building programs, but also access to

physical models and infrastructural support that will enable individuals, families and communities to seize on opportunities for sustainable livelihoods.

5.4 Process oriented, scientific approach

The objective of the ‘process oriented’ approach in rural development is to promote ‘interactive participation’⁷ between the change agents and the villagers, as the rural poor are considered to be the key actors in improving their own living conditions, as well as in sustainably managing their natural resources. Thus, their participation is essential to the success of the project activities.

Accordingly, the villagers will be trained to carry out specific categories of village-based development activities that are defined by the villagers themselves, which will eventually lead to locally formulated action plans. This will empower the villagers to carry out by themselves various rural development programs and activities—such as Participatory Rural Appraisals (PRAs), transects, joint analysis and other relevant community building activities.

A key consideration in this community-driven rural development project is the propagation and institutionalization of the scientific enquiry, method and processes. An example is shown in Annexure 1 for a cyclical procedure and continuous improvement in the design and dissemination of educational and training programs. The scientific action here consists of the typical ‘Plan-Do-Check-Act’ (PDCA) cycle of four linked phases or feedback loops:

1. **Plan:** Participatory design and development of outreach programs;
2. **Do:** Outreach networking and priority setting through village organisations; co-ordination of village-based and IT-enabled community centers, training centre offering training and education, access to a wide range of interconnected activities grouped under the general categories of: vocational training, life skills training, teacher training, asset building programs and access to markets;
3. **Check:** Monitor progress with village organisations and training centres, learn and adjust activities as necessary; and
4. **Act:** Institutionalisation of gains through transfer of educational, environmental, and enterprise development skills and opportunities through trainees and expertise to village centred actions and institutions.

5.5 Object oriented reusable approach

A unique feature of the new paradigm is the introduction of object orientation concepts for the development of reusable and modular knowledge-based applications for implementing the ‘Rural Convergence Program’ model, discussed in greater detail in Section 6. Modeling the RCP will be considerably simplified by using OMG’s Unified Modeling Language™, or UML⁸ as it is more well known in the industry, especially for modeling a system that is as complicated as TRD.

One of the biggest challenges in the development of TRD is that of building the right system—one that meets the beneficiary community’s needs at a reasonable cost. Various categories of ‘Domain Experts’ will interact with all stakeholders (see Sections 5.1 through 5.4), to determine what needs to be done to get the indigent people out of poverty, globally. However, the communication imbroglio makes this difficult, if our beneficiaries, especially, and domain experts talk in a different ‘language’. Achieving good communication, along with good understanding of the beneficiary’s world, is the key to developing a good solution system. With UML, individual ‘use case’⁹ diagrams, for example, will help us to overcome the language barrier in understanding the bene-

⁷ Participation implies that the villagers themselves assume ownership and accountability for the rural development programs and activities, which they have identified and developed with the facilitation and support from the project staff.

⁸ OMG™ is an international, open membership, not-for-profit computer industry consortium. The Unified Modeling Language™ - UML - is OMG's most-used specification, and the way organizations model not only application structure, behavior and architecture, but also business processes and data structures.

⁹ A ‘use case’ is a set of scenarios tied together by a common user goal.

fiary needs. The sum of all use cases provides us with a ‘dynamic’ model of the system, and what it will do.

Further, we shall use patterns to explain why our project design is the way it is, and describe the important ideas in the system that appear in multiple places. It is also useful to describe the designs and concepts that have been rejected, and why they were rejected. Usually, in large projects, this kind of crucial information is forgotten, and we end up repeating avoidable past mistakes. UML helps to keep a control on the communication process, make it brief and document it for posterity. An important part of an effective communication strategy is in highlighting the important things, while leaving out the unnecessary or unimportant things.

The goal of any modeling effort is to try to identify a vision that has a good chance of working. The UML-based model is a good starting point to obtain a mature understanding of our problems and the solutions that we may need, especially to develop a software approach for management and control of the project.

The essence of object orientation, however, is the power of reusability. Once ‘Domain Experts’ have determined the patterns and objects for the implementation of the RCP model—one that can bring entire communities of indigent people out of poverty—then we may reuse this pattern, globally, without having to reinvent the RCP model every time we visit a new, rural place that needs ‘Total Rural Development’. These concepts are elaborated in Annexure 3.

5.6 The Value-Oriented Development Model

It is essential that the communications networks and participatory models that are created by this project communicate and exemplify relevant and meaningful values as well as technologies. The patterns that are communicated must also achieve real developmental results that are both sustainable and representative of a high level of morality and human value. The state of national and global society today is full of promise, but its fulfilment is also constrained by unprecedented social and environmental problems due primarily to overpopulation combined with destructive patterns of resource consumption. This project must offer a viable and sustainable alternative to the world-threatening scenarios of unrestrained growth, resource depletion, environmental pollution and habitat destruction that are increasing hand-in-hand with exponential economic development.

This project aims to create a replicable model of sustainable, value-oriented development through consistent, long-term, multi-level cooperation and the creation of a knowledge society and economy that can erode the boundaries between the public and private, the regional and national, and the global and local that threaten human society today. A new unification of potentials must be facilitated on practical levels of society if a sustainable future is to be realized. Our models should demonstrate the viability and practicality of such a comprehensive and moral paradigm shift.

5.6.1 Impact on stakeholders

A major factor in this project is that many of the participants are learners themselves, as this project will be groundbreaking from the point of view of innovation and originality. The initial intellectual imbalance of apparently better educated and urban trained professionals coming to help the villagers will, in time, be corrected by a reverse flow of energy from the ‘local knowledge’ that the implementing team will learn from the villagers, and at the conclusion of this project, it is expected that there will be a general union and fusion of minds and moral thought.

The M&E process will extend for the entire duration of the project, with participants creating for themselves the systems and codes by which they will regulate their collective work programs. Project staff members, especially, will be monitored on their learning trajectories from both the village development as well as the structured organizational process points of view.

Already, most progressive and successful NGOs employ ‘participatory’ methods which involve the beneficiary community in programming their goals and organizing themselves towards achieving them. In the present pilot project, not only the villagers but the staff members themselves will participate in devising an administrative and organizational program, especially with reference to upholding the code of conduct on ethics and moral behaviour.

And always ... we learn from Mother Nature.

6 RCP STRUCTURE AND FRAMEWORK

From the preceding discussions, it is clear that the new paradigm that we seek for ‘Total Rural Development’ must be holistic. The ‘global villager’ needs access not only to educational resources for appropriate technologies, environmental programs and capacity building programs, but also access to physical, asset-based models and infrastructural support that will enable her to seize on opportunities for sustainable livelihoods and thereby improve the quality of her own life, that of her family members and extending to her immediate community, at the least—finally extending to the ‘global’ village.

6.1 Relationship with the Sankalpa Pyramidal Model

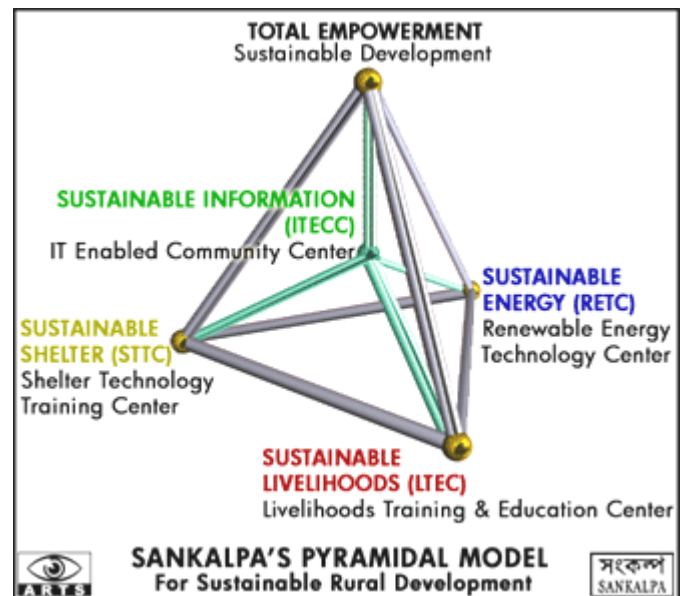
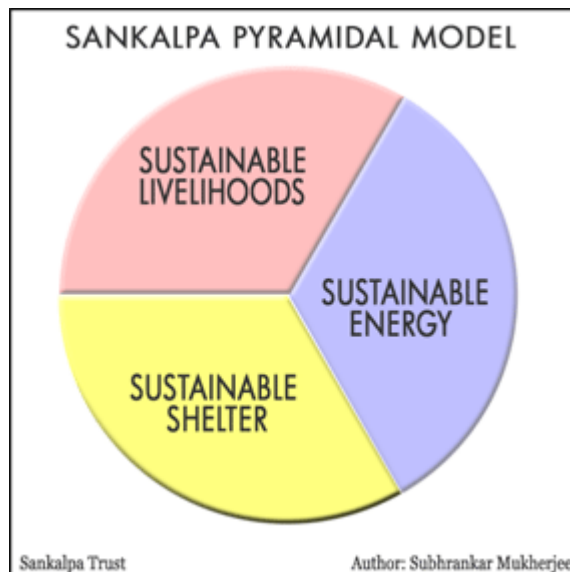
The **Sankalpa Pyramidal Model** for village-based development shown on the right is based on the Pareto Principle that 80% of the ‘global’ villagers’ needs can be met if we comprehensively address the following three core issues (which are assumed to constitute 20% of the ‘total’ number of issues):

- a) ‘Sustainable Livelihoods’;
- b) ‘Sustainable Energy’ and
- c) ‘Sustainable Shelter’.

According to our research of village-based systems, these three approaches—held together by ‘Sustainable Information’—as shown in the pyramidal model on the right, are sufficient to promote ‘Total Empowerment’ or ‘Sustainable Development’ of the rural masses.

And always, we learn from Nature:

The primary colors are ‘Red’, ‘Blue’ and ‘Yellow’. That analogy provides a major motivation for proposing in the **Sankalpa Pyramidal Model** for village-based development, that ‘Sustainable Livelihoods’ (red), ‘Sustainable Energy’ (blue) and ‘Sustainable Shelter’ (yellow) constitute the ‘primary colors’ or the elemental building blocks of sustainable rural development.



To reiterate the principle of the pyramidal model, we believe that in accordance with the Pareto Principle, 80% of the ‘global’ villagers’ needs can be met if we provide these three ‘primary colors’ or sustainable elements of rural development, namely (a) Livelihoods; (b) Energy and (c) Shelter.

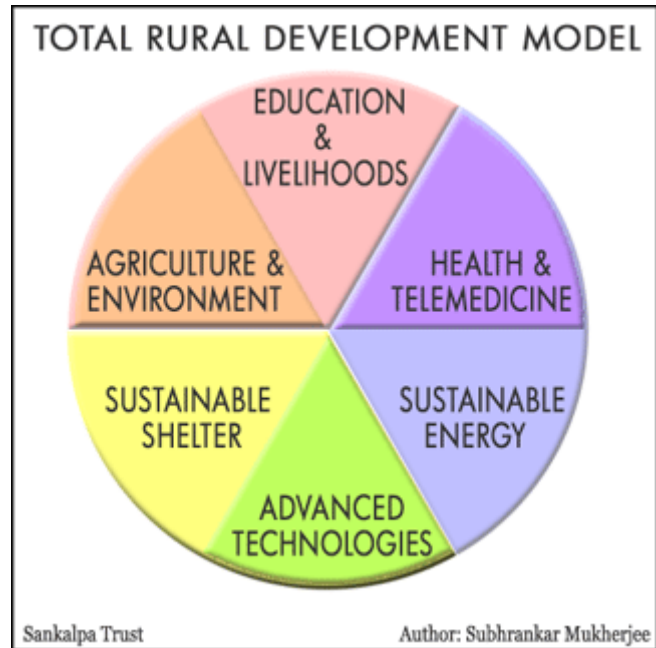
But when we talk of ‘Total’ in the **TRD paradigm shift**, we are dealing with close to three-sigma (99.7%) levels of problem solving. To approach this degree of sustainable development, we may have to mix the three primary entities (or colors) of rural development, to derive three more basic components for the ‘Total Rural Development’ Paradigm, as developed below.

For instance, we believe that the provision of:

- ‘Sustainable Livelihoods’ and ‘Sustainable Shelter’ may promote the self-evident and participatory development of solutions to the rural problems and needs for ‘Agriculture and Environment’.
- Similarly, provision of ‘Sustainable Livelihoods’ and ‘Sustainable Energy’ may promote the self-evident and participatory development of solutions to the rural problems and needs for ‘Health and Telemedicine’.
- And finally, provision of ‘Sustainable Shelter’ and ‘Sustainable Energy’ may promote the self-evident and participatory development of solutions to the rural problems and needs for ‘Advanced Technologies’.

This mix of primary entities shall provide for a holistic solution for total rural development, as illustrated in the figure below for the colors of Total Rural Development:

In other words, from a holistic point of view, the ‘global villager’ needs access to the following ‘focus areas’ for TRD and social empowerment:^[1]

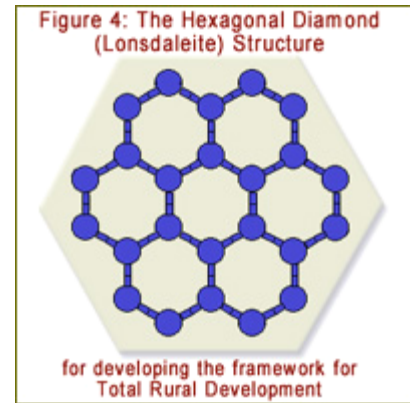


- **Livelihoods & Education:** Provide knowledge and information that will (a) bring education—especially ‘primary’ education—to the masses; (b) promote awareness of socio-cultural issues and the need for political involvement; and (c) empower indigent people to choose their own preferred livelihood options;
- **Agriculture and Environment:** Provide food security through ecological farming technologies, soil health care, water harvesting and management, conservation of forests and biodiversity; promote awareness of environmental protection and global warming;
- **Health & Telemedicine:** Promote preventive health programs, provide primary health care facilities and revive local and traditional health practices;
- **Sustainable Energy:** Provide energy security with the development of eco-friendly, renewable energy technologies and expansion of the economic viability of biomass-based projects;
- **Sustainable Shelter:** Provide for shelter security and create public infrastructure through appropriate building technologies and innovative financing arrangements;
- **Advanced Technologies¹⁰:** Create a range of economic activities and processes from agricultural, ICT, education, health, energy, shelter, advanced materials and others that increase security, productivity and enhance the quality of life of the indigent people.

For the design, dissemination, effective control and monitoring of the TRD program, a nodal ‘hub’ or ‘Resource Access Center’ (RAC), which will eventually be operated by representatives of the indigent community—at the notional ‘center of gravity’ of the community—is needed to ensure that these holistic programs are implemented and operated in an acceptable manner.

¹⁰ ‘Advanced Technologies’ in this context relates to advanced rural development technologies, from biotechnology to nanotechnology, medical electronics, satellite imagery, hydrogen economy, computing & advanced communication networks, video-conferencing & virtual reality networking, amongst others.

We shall use the analogy of the ‘Lonsdaleite’ hexagonal structure^[17], which has 24 ‘cells’ in its lattice structure¹¹—shown in Figure 4 as the starting point to conceive the structure and framework of this new paradigm for ‘Total Rural Development’. Each cell in this figure corresponds to a ‘Community Center’ that is IT-enabled^[16], which will disseminate knowledge-based products and services, with emphasis on a particular ‘focus area’ that has already been described at the beginning of this section. The 24 ‘cells’ divided by the six foci areas therefore yield four numbers of community centers of each pattern within this overall hexagonal structure. As we shall see later, it will be possible to develop a strategy for equitably distributing these four ‘cells’ for each type of focus area, such that the indigent people at any location within this hexagonal area, will not have to travel very far to access any one of these ‘focused’ services of their choice.



6.2 Modular ‘holistic’ structure of the new paradigm

The ‘Lonsdaleite’ hexagonal structure permits the construction of an innovative, modular and repeatable¹² homogeneous arrangement of primary and secondary ‘community centers’ that are ‘IT-enabled’, as shown in Figure 5, below.

As mentioned at the end of the last section, there will be four numbers of village-based ‘Community Centers’—called ‘Village Information Centers’ (VICs), shown in blue tablets with letters ranging from ‘A’ to ‘F’—for each of the primary community centers—called ‘IT Enabled Community Centers’ (ITECCs), also labelled from Type ‘A’ to Type ‘F’—for each of the six foci areas, distributed within this larger hexagonal area, as follows:

Type ‘A’: Education and Livelihoods	Type ‘B’: Agriculture and Environment
Type ‘C’: Health	Type ‘D’: Energy
Type ‘E’: Shelter	Type ‘F’: Advanced Technologies

The 24 VICs are distributed in such a way that the six types are represented within each of the seven hexagonal areas, including the ‘Central Ring’. The spatial distribution of the ICs and VICs is such that beneficiaries may have *easy* access to knowledge products and IT-enabled services from all six focus areas, from Type ‘A’ to Type ‘F’.

The physical scale and size of the TRD Model is determined as follows: If the ‘hexagonal’ RCP structure is superimposed over the target area, the average spatial distance between each VIC should not exceed four kilometres. Hence, the maximum distance that a beneficiary has to travel to access any particular type of knowledge center is about two kilometres, which is considered to be within easy ‘bicycle’ reach, or even within ‘walking distance’.

Combining the empirical data at Village Earth and our own experience in working at the grass-roots, we may infer that each ‘ITECC’—shown in Figure 5 as hosting six different types of VICs and its complement of ICS—will cater to about 50,000 people, within each hexagon. This number will obviously be influenced by the particular intervention strategy, and is not rigid. The model is therefore scalable. In other words, the number of beneficiaries from the TRD model shown in Figure 5 is elastic, and is dependant on the scale of services and complexity in the design and dissemination of the TRD components. ***The nominal size of a typical ‘Target Community’ with six ITECCs will therefore be about 350,000 people, as there are seven hexagons in each module.***

¹¹ This carbon allotrope diamond is formed when meteoric graphite falls to Earth. The great heat and stress of the impact transforms the graphite into diamond, but retains graphite’s hexagonal crystal lattice.

¹² This ‘repeatability’ feature is one of the main innovations in this new paradigm for TRD, and will be discussed in greater detail in Section 5: ‘Reusability of the ‘New Paradigm’

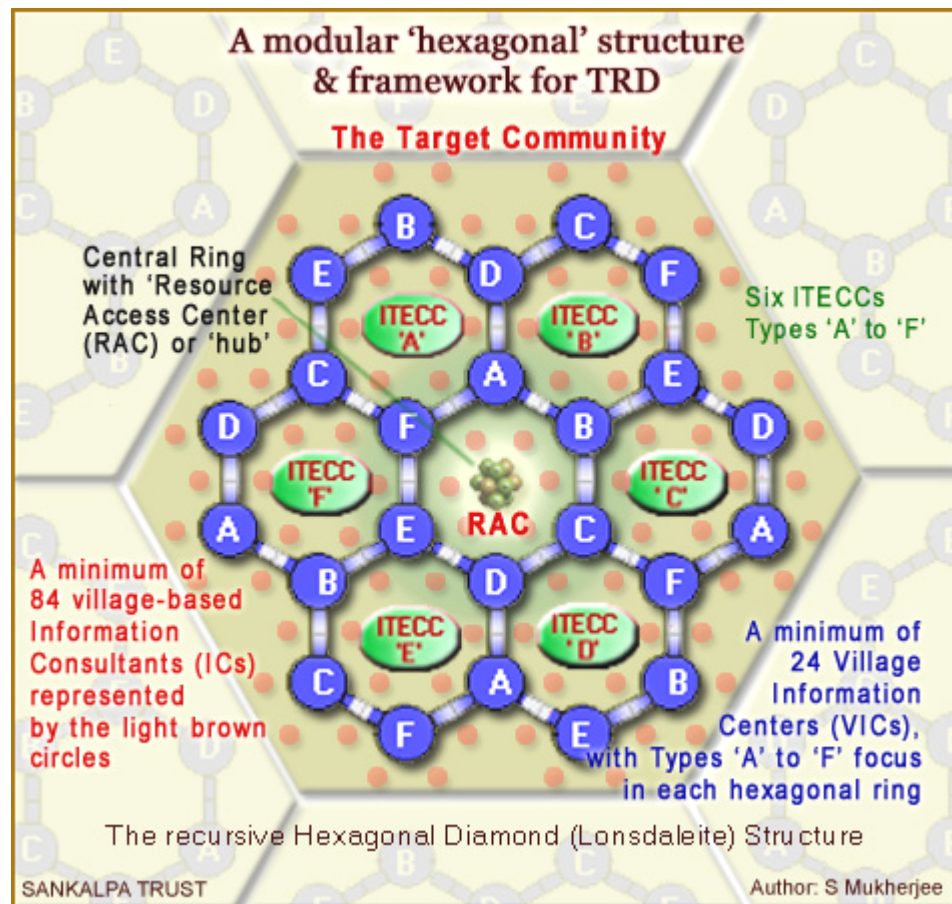


Figure 5: **Modular**¹³ **'hexagonal' structure and framework for TRD**. Shows how the 'Lonsdaleite' hexagonal structure^[17] can be **recursively** adapted to develop a framework for equitably distributing (a) one **'Resource Access Center' (RAC)**; (b) six **'IT-Enabled Community Centers' (ITECCs)**, from Type 'A' to Type 'F'; (c) a minimum of 24 **'Village Information Centers' (VICs)** and (d) a minimum of 84 **'Information Consultants' (ICs)**, represented by the light brown circles, to disseminate IT-enabled products and services to the 'Target Community'. *It should be observed that the 24 VICs (tablets in blue with letters ranging from 'A' to 'F') in the target community are distributed in such a way that the six types are represented within each of the seven hexagonal areas, including the 'Central Ring'.* The spatial distribution of the VICs and ICs is such that all indigent people may have access to knowledge products and IT-enabled services from all six focus areas, from Type 'A' to Type 'F'.

6.3 The Rural Convergence Program

It is believed that the concept of using a hexagonal structure for the framework of a rural development service delivery program is a new innovation. In conjunction with the ideas presented in Annexures 2 and 3, we put forward the view that this structure provides the basis for a global model for total rural development. Hence, we have attached the 'new paradigm' tag to it.

However, the internal components of the implementation model for this 'new paradigm'—defined in Annexure 2—are based on tried and tested methodologies for rural development, and the culmination of lessons learned and taught by some of the foremost thinkers and grassroots rural development organizations, in India and abroad. Hence, we refer to this process as the **'Rural Convergence Program' (RCP)**, which brings together a convergence in the knowledge and experi-

¹³ Modularity relates to the grouping together of related entities into recognized modules, and the partitioning of a system into modules (which may be composed of other modules)

ence of several experts from a growing list of organizations¹⁴ that have a track record of doing things successfully in their own domains, and putting them on a common platform to integrate various rural development paradigms into a coherent strategy for implementation—keeping the beneficiaries’ interest first.

The design and implementation of the unified ‘Rural Convergence Program’ (RCP) shown in Figure 5 is the result of several iterations for developing the structure of the RCP model.

The most important element of the RCP is the beneficiaries of the TRD project, without whom this project could not be conceived. They are present everywhere within the scope of the program. The characteristics of the elements of the ‘Rural Convergence Program’ shown in Figure 6: ‘*The Rural Convergence Program Structure*’, are as follows:

1. The ‘**RCP Secretariat**’ at the core functions as the headquarters of the **TRD Group**, and is strategically located at Kolkata, for administrative and operational reasons, not the least being its ability to provide convenient access to and for national and global interactions, for planning and control. This strategy will eliminate the need to provide for multiple RCPSs, when new TRD Projects are taken up by the TRD Group, saving money and time. The RCPS interfaces with the external program elements and facilitates transparent ‘Program Governance’; ‘Program Planning and Development’; ‘Network Mobilization and Management’; ‘Funds Mobilization and Management’; ‘Information Management and Communications’ and ‘Policy Analysis and Advocacy’. The RCP Secretariat is responsible for developing all ‘Capacity Building’ and ‘Livelihoods Skills Development’ programs. These will focus on programs to: (a) alleviate poverty, unemployment, socio-economic inequity, disaffection and disenfranchisement among youth and families in the target area; (b) to mitigate against rural and coastal environmental degradation; (c) reduce migration from the village to urban centers by enhancing capacity-building mechanisms to strengthen civil society structures; (d) promote community building programs and networking in and between village organizations; (e) provide vocational, leadership and life skills training, environmental awareness programs, teacher training and ‘Training for Trainers’ programs and support for new economically and environmentally sustainable enterprise development; and (f) microfinance assistance programs.
2. The second ring is comprised of the ‘**IT-Enabled Community Centers**’ (ITECCs)^{15, [16]}. It is the first level at which a differentiation in program delivery takes place, and has to be located in the beneficiary areas. As shown in Figure 5, there are six types of ITECCs, marked in green ovals, from ‘A’ to ‘F’, and each focus area has already been defined as ‘Education and Livelihoods’, ‘Agriculture and Environment’, ‘Health’, ‘Energy’, ‘Shelter’ and ‘Advanced Technologies’, respectively. Each ITECC will spread over an area of between three to five acres, and will be (a) constructed on the asset-based and market creation approaches that have been described in Section 3; (b) specifically equipped to handle the knowledge and information requirements of the target rural community, (c) lead the ‘process’ oriented change management practices, and (d) in general responsible for the design and dissemination of programs that are focused on:
 - i. One of the six foci areas, from Types ‘A’ to ‘F’ (see Figure 5 for their distribution);
 - ii. The four foundation-level sustainable programs defined under the ‘Sankalpa Pyramid’: Information, Livelihoods, Energy and Shelter.

¹⁴ The original strategic partners for this ‘Rural Convergence Project’ were (a) Development Alternatives, New Delhi; (b) Village Earth, Colorado State University, Fort Collins and (c) Sankalpa Trust, Calcutta. To this coalition, ARTS is added in the capacity of an implementing partner.

¹⁵ Each ITECC will have for their respective communities many examples of demonstration projects in sustainable livelihoods, renewable energy technologies and shelter technologies, with an adequately resourced IT Center to promote knowledge-based services and education & training for continuous improvement and regeneration (see Appendix 2 in Reference #1 for a representative list of sustainable livelihoods projects), and a robust market creation approach for poverty alleviation.

3. The third ring comprises the **‘Village Information Center’ (VIC)**, which is a microcosm of an ITECC, complete with the capability to deliver basic IT-enabled services for knowledge and information and for the dissemination of ideas, products and services that are most relevant to the immediate village community. The distributed structure is again based on the ‘Lonsdaleite’ hexagonal structure for ITECCs—the diamond lattice structure in the reference model—with six VICs recursively built around each ITECC, to maximize the dissemination of knowledge services and change management practices. They shall have scaled down classrooms for education and training and dissemination of appropriate technologies to community members in the village, and liaise between the rural community members and its host ITECC.
4. The fourth ring, the **‘Information Consultant’ (IC)** functions as the ‘last meter’ linkage between the RCP program and the beneficiaries: the indigent people. Provisions will be made to empower at least six ‘Information Consultants’ in each VIC (shown in Figure 5), who will champion the cause of total empowerment through the participatory approach, which will be to vigorously pursue the dissemination of rural ICT in a structured way *but* with a human face—the application of ‘soft technologies’.
5. The fifth and last ring is the **‘Beneficiary Community Members’**, the indigent people and the rural poor, for whom this project has been conceived, and without whom the RCP would not be possible. It is their socioeconomic and spiritual upliftment at the end of the program—after seven years—that will bear testimony to the success of this new paradigm for ‘Total Rural Development’.

To reiterate, these five annular rings shown in concentric circles in Figure 6, around the RCP Secretariat at the core, interfaces with the ITECCs—the circular segment just outside the RCP Secretariat, which have been divided into six segments, to reflect the hexagonal structure, with each segment reflecting a particular focus area. The VICs lie in the next ring; there are four of each type, making a total of 24 within the RCP. The next ring is comprised of the ICs—at least six for each VIC, making a total of at least 84 within the RCP, as shown in Figure 5. And that brings us to the most important, all-pervasive outer ring—the most important part of the TRD Program—the village-based target community

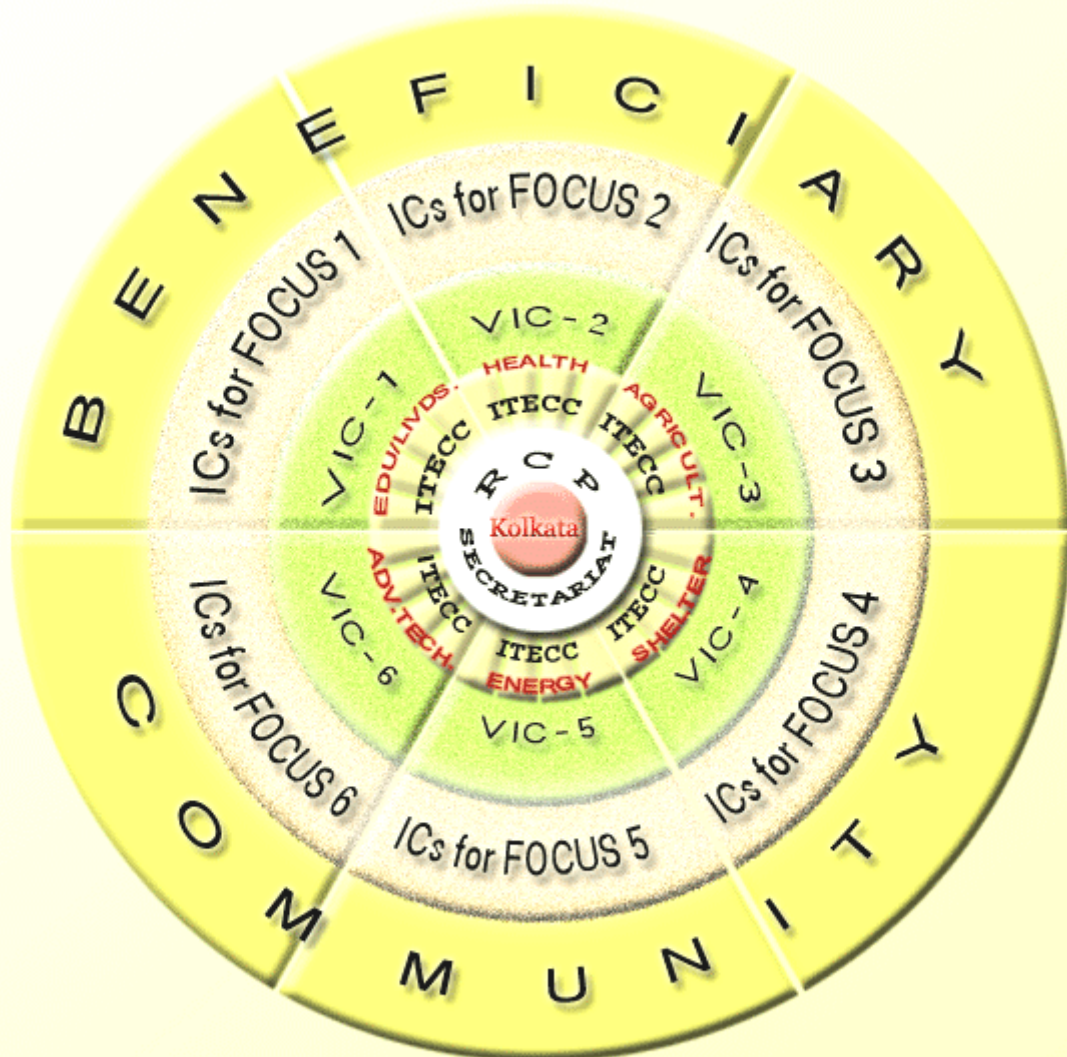
NOTE:

For brevity and clarity in the presentation of this proposal, the functional descriptions of the above elements of the RCP are relegated to Annexure 2. Please therefore refer to Annexure 2, should the reader require a detailed description of the functionalities of each element of the RCP.

The subject of ‘Rural resource planning’ and the reusable paradigm are discussed in greater detail in Section 7.2.2. It is worth noting at this time that a major innovation in the RCP is its ability to construct detailed knowledge-based models of each program element, using ‘Model Driven Architecture’ (MDA) and ‘Unified Modeling Language’ (UML). See Annexure 3: ‘Reusability of the New Paradigm’ for a detailed discussion on the paradigm shift from procedural to object oriented methods for controlling the design and development of the RCP.

RCP = Rural Convergence Program
 RCPS = RCP Secretariat
 (The RCP Secretariat is based at Kolkata)

ITECC = IT Enabled Community Center
 VICs = Village Information Centers
 ICs = (Village) Information Consultants



The 'Rural Convergence Program' Structure

SANKALPA TRUST

Author: S Mukherjee

Figure 6: **The 'Rural Convergence Program' Structure.** The figure highlights the 'flat' and radial structure of the RCP, devoid of hierarchical levels. The most visible and important entity within the RCP is the 'Beneficiary Community', who will determine the shape and contents of the RCP. The 'RCP Secretariat' (RCPS) at Kolkata is at the conceptual core of the 'Rural Convergence Program' (RCP), and oversees the design and implementation of the RCP in the target community. The six focus areas of the ITECC comprise the second ring. The third ring, shown in green, represents the 'Village Information Centers' (VICs); six to each ITECC, making a total of 24 in each 'Target Community', as shown in Figure 5. The VICs liaise between the indigent people and the host ITECC. The fourth ring (pink) represents the village-based 'Information Consultants' (ICs); again six for each VIC, making a total of 24 ICs in each 'Target Community', as shown in Figure 5. The ICs function as the 'last meter' linkage between the RCP program and the indigent people, and are an important determinant of program sustainability. Finally, the outer ring comprises the target beneficiary community, without whom the RCP would not be possible.

6.4 Exit Policy

At the start of the RCP Program, the RCP Secretariat-appointed project staff will control the operations of all facilities in the village-based target communities, including the ITECCs and VICs. The local beneficiaries, who will also be inducted into the project team as assistants, will probably not be ready initially to assume a leadership role and manage the program by themselves. However, they are the final beneficiaries of the RCP Program. Therefore, the assets that are created—especially the ‘ITECCs’, ‘Village Information Centers’ and equipping the ICs will ultimately devolve to the indigent people of the target community.

However, that can happen only if the indigent people become sufficiently trained as a result of the capacity building programs, over a reasonable period of time, to be able to incrementally take charge of these physical assets. These training and capacity building programs shall be controlled and administered by the RAC.

At the beginning of the project, the physical assets will be run by ‘indigenous’ human resources—either volunteers from the host institutions or contracted from nearby urban areas—or both. These human resources could also come from national or even international sources, as is convenient. The brief of these ‘indigenous’¹⁶ resources would be to operate these physical assets in terms of the project guidelines and their terms of reference, while promoting capacity building and selecting leaders within the ‘indigent’ community and empowering them, **and incrementally to transfer the ownership and control of these physical assets to the local beneficiary population.**

On the assumption that the ‘new paradigm’ project will run for seven years, this transfer of control may be graphically depicted as follows:

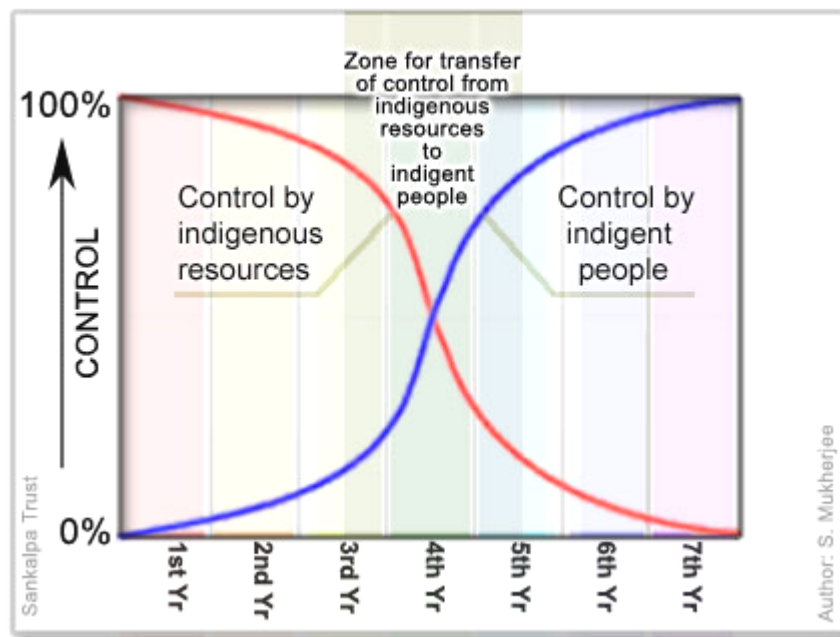


Figure 7: Transfer of ‘control’—‘Exit Policy’

It is possible that the actual trajectory of the graphs may vary. However, a symmetrical transfer of control appears to be the most elegant approach at this point—which suggests that the zone of transfer of effective control from indigenous resources to the indigent peoples begins around the middle of the third year and matures in the middle of the fifth year. This timeline may vary from place to place.

¹⁶ The word ‘indigenous’ includes all people of the region, including at the national level. However, in this project, we may need to stretch the definition to cover even international sources, if already present in the area.

7 'TRD' PROJECT IMPLEMENTATION METHODOLOGY

The implementation methodology of this seven-year TRD Project is based on the discussions on (a) the community building approaches in Section 5, and (b) the structure and framework for TRD in Section 6. We believe that the project may be optimally implemented in three phases, as described below.

7.1 Phase 1 (One Year): Community building and testing the RCP model

The duration of Phase 1 is one year and relates primarily to (a) the mobilization of the target village community and building the socio-economic and resource infrastructure, in order to eventually ensure the community's acceptance and ownership of the project; and (b) establishing platforms for 'Public-Private Partnerships' (PPP) where different stakeholders in society are able to collaborate in creating economic and environmental benefits, for themselves as well as the rural community that they serve.

The *primary goal* of Phase 1 is therefore to validate the assumptions that have been made for the realization of the new paradigm for 'Total Rural Development'.

The *secondary goal* is to start building the 'Public-Private Partnerships' for this project and hence to fine-tune the design and implementation plans of the second phase of this project (Section 7.2).

A *tertiary goal* is to conduct a year-long series of seminars, which will help to clarify the issues, whilst strengthening the 'Public-Private Partnerships' for this project.

The community building exercises defined in (a) above are vital for the success of this project and this work will essentially comprise:

- i. First, the collection of community and village baseline data of demography and physical resources;
- ii. Review of state and local regulatory requirements for the proposed RCP design;
- iii. Subsequently, carrying out a participatory planning exercise in a controlled and iteratively refined model, including (1) ownership issues; (2) methods and processes for transparent cost accounting and money transactions; (3) tariffs for services based on 'willingness-to-pay' and contingent valuation exercises, and finally
- iv. Developing mechanisms that will support the long-term sustainability of the TRD project constructs, well after the completion of this seven-year project.

The structural developments defined in (b) above are detailed in Section 6 of this proposal. In Phase 1, only a skeletal implementation of the PPP components of the RCP Model shown in Figure 5 will be taken up, starting with the six locations chosen within the target community. The RCP model will be incrementally built up in Phases 1 and 2 around these six locations, ensuring that there is sufficient time to start implementing the 'exit policy' (Section 6.3) at the end of Phase 2.

The budgetary cost estimates of developing the Public-Private Partnerships and development of the asset-based model in Phase 1 are shown below, in Table 2.

The seven seminars (Section 5.1) that will be held within the first six months will lay the groundwork of the 'Public-Private Partnerships' for the remainder of this project. These processes will be followed up with a closing set of seminars at the end of the first year, which will lay the foundations of the 'Master Plan' for Phase 2, in which the asset-based and market creation approaches will be fully implemented, by way of building on the 'Public-Private Partnerships' initiated in Phase 1.

Table 2: Nominal cost of developing Private-Public Partnerships

#	Development Partner	Type A	Type B	Type C	Type D	Type E	Type F	Total (Rs)
		Education & Livelihoods	Agriculture & Environment	Health	Energy	Shelter	Advanced Technologies	
1	Aravind - Telemed.			1,395,000				1,395,000
2	Auroville Units	359,000						359,000
3	BP Energy Sys.				621,000			621,000
4	CGCRI, Calcutta						1,186,000	1,186,000
5	DESI Power				5,211,000			5,211,000
6	Development Alt.	810,000	1,180,000			5,810,000		7,800,000
7	Grain Processing I.				3,111,000			3,111,000
8	IISc - Bangalore						785,000	785,000
9	Krishi Vidyalaya	590,000	920,000	645,000				2,155,000
10	OMG - USA						2,300,000	2,300,000
11	ARTS	1,405,000	1,865,000	1,335,000	1,036,000	2,205,000	1,460,000	9,306,000
12	United Village						1,081,000	1,081,000
13	Vivekananda Kend.	795,000	740,000	645,000	661,000	1,060,000		3,901,000
14	Special emerging projects provision							2,000,000
15	Contingency (~5% of Total 'A')							1,500,000
	Total (Rs)	3,959,000	4,705,000	4,020,000	10,640,000	9,075,000	6,812,000	42,711,000

7.2 Phase 2 (Three Years): Interim RCP implementation

In Phase 2, which has a duration of three years, the assets of the 'TRD' model shown in Tables 1 & 2 will be fully developed and put in place, partly from the experience gained in Phase 1, and also from the intellectual processes that are promoted by holding the seminars.

The primary goal of Phase 2 is to fully implement the asset-based and market creation approaches, embodied by the principle of Public Private Partnerships (PPP), so that sustainable livelihoods can begin to be created *en masse* and the extrinsic problems of the target beneficiaries that have been discussed in Section 3 can be largely addressed. This would be the first step in the RCP for ending the endemic causes of rural poverty—poor nutrition, lack of energy security and shelter security, the general inability of rural communities to build knowledgeable and productive small-scale rural households. We believe that no real improvements in the condition of the rural poor can be initiated until the **crux of the extrinsic problems for sustainable rural development**, reviewed at the end of Section 3, have been fully addressed.

The secondary goal of Phase 2 is to initiate work on the remaining RCP elements that constitute holistic rural development, which include (a) process oriented and scientific approaches for community building; (b) object-oriented, reusable and modular structures for realizing the change processes; and (c) promotion of the growth of ethics and morality throughout the program.

Finally, the 'exit policy' needs to be initiated at the end of Phase 2.

A more detailed study of the implementation characteristics of the asset-based approach—the most important subject in Phase 2—is made in the following sub-section:

7.2.1 ABCD: 'Asset-based' approach for community development

Asset-based community development (ABCD) approaches recognize the capacities of local people and their associations. The key to ABCD is to unleash the power of local associations to (a) drive the community development process (b) leverage additional support systems and entitlements and (c) build powerful communities. These processes encourage the target communities to

assemble their strengths into new combinations, new structures of opportunity, new sources of income and control, and new possibilities for production¹⁷.

By adopting the posture of ‘*leading by stepping back*’, the RCP team—as the facilitators for change—may help to encourage the target community to (a) shift from being “consumers” of services to “designers” of community programs, and finally to “producers” of community programs, and (b) to build an inventory of their assets and encourage them to see the value in resources that would otherwise have been ignored, unrealized, or dismissed as unimportant for their economic development. Such unrealized resources include not only personal attributes and skills, but also the relationships among people through social, kinship, or relational networks. Formal institutional resources—such as local government, formal community-based organizations (CBOs) and private enterprises—can be activated by mobilizing these informal networks, through which all the community’s assets can be identified and then connected to one another in ways that multiply their power and effectiveness.

We propose to adopt Asset-Based Community Development:

- **As an approach to community-based development**, ABCD recognises that the strengths, gifts, talents and assets of individuals and communities are more likely to inspire positive action for change than an exclusive focus on needs and problems. Seeing the glass as half-full *as well as* half empty helps each community member to focus on how they have contributed, and can continue to contribute, in meaningful ways to community development, while not denying that real problems exist. Uncovering the merits of all members encourages a spirit of *esprit de corps*, even in societies that are hierarchical in structure and differentiated by cultural factors such as caste, educational background and gender. At its core are formal and informal associations of community members, which are assets of the community and a source of power and leadership that can promote ethical and moral community action.
- **As a methodology for inspiring a community to mobilize** themselves around a common vision or plan, which may be described as follows:
 - Collect stories about community successes and identify the capacities of the communities that contributed to its success;
 - Organize a core group to carry the process forward;
 - Map the capacities and assets of individuals, associations and local institutions;
 - Build relationships among local assets for mutually beneficial problem-solving within the community;
 - Mobilize the community’s assets fully for economic development and information sharing purposes;
 - Convene as broadly representative as possible a group of community members to build a community vision and plan;
 - *And last, but not the least, leveraging activities, investments and resources from outside the community to support asset-based, locally defined development.*
- **As a strategy for sustainable community-driven development**, beyond the mobilization of the target community, PPP links the community’s micro-assets to the macro environment. Attention is paid to the boundaries of community and how the community may position itself in relation to local institutions and the external economic environment on which its continued prosperity depends.

The nominal costs of establishing a PPP program, shown in Table 2, is estimated to be Rs. 3.23 Crores. As in all innovative processes, there will be a learning curve, where the cost of performing an activity will progressively reduce, as the project team gains implementation experience.

Hence, it is felt that there would be about a 10% cost escalation in the first attempt at establishing the PPPs in the first phase, in the first year, due to ‘teething’ problems. However, when the exercise is repeated at the next ITECC in the second year, we can expect the cost to be equal to the

¹⁷ *Building Communities from the Inside Out*, Kretzmann and McKnight (1993)

nominal value of Rs. 3.23 Crores. For the subsequent four PPP program implementations in years # 3 and 4, we may assume the following linear regression in costs, for simplicity:

Table 3: Regression of costs for implementing PPPs

	1st Year	2nd Year	3rd Year	4th Year
Weight for costing (learning curve)	1.10	1.00	0.90	0.80

From the sustainability perspective discussed at the end of this section, the ‘Present Value of Returns’ from the implementation of the PPPs in the six ITECCs is projected to be at least Rs 7.68 Crores, over the seven-year RCP program, at a hurdle rate of 12%.

7.3 Phase 3 (Three years): Final RCP implementation

As we begin Phase 3 in the fifth year of the project, we note that the asset-based and market creation approaches are fully implemented and the ‘exit policy’ (see Section 6.4) has been activated. The duration of Phase 3 is for the remaining three years. At the end of Phase 3, the TRD/RCP and the exit policy are fully implemented.

The goals of the third phase are therefore to conclusively demonstrate the following:

- a) Process-centric, scientific approach
- b) Object oriented reusable approach
- c) Develop a value-oriented development model

7.3.1 Assumptions of a process oriented, scientific approach

In Section 5.4, we have said that the objective of the scientific, ‘process oriented’ approach is to promote ‘interactive participation’ between the change agents and the villagers, as their participation is essential to the success of the project activities.

In this respect, the key assumptions that have to be tested in Phase 3 are as follows:

First assumption: That the transfer of control from ‘indigenous resources’ to the ‘indigent people’ may take place as shown in Figure 7, Section 6.4 on the ‘Exit Policy’. Essentially, we would like to see that the control by the indigenous resources will taper down, and in an ‘identically reverse’ manner, the local beneficiaries will gradually at first, and then rapidly take control of not only the assets that have been created but also management control in every aspect, as a measure of the sustainability of the project.

Second assumption: That participatory processes do indeed facilitate social empowerment by creating opportunities for disadvantaged groups in the villages--such as women and children or the landless labourers—to have access to external resources, such as training and capacity building, or the ability to mobilize their own resources by self-organization, acquiring knowledge and skills development. If true, this will enhance their capacity to take action to defend their own interests.

Third assumption: That the use of participatory approaches will promote the integration of local knowledge-based systems into local project planning and implementation. The outcomes of Phase 1 will then complement these local knowledge systems with technical support for the development of appropriate asset-based technologies that leverage the market creation approach. Therefore, particularly during the planning processes, emphasis will be laid on the mutual assessment and mobilization of local knowledge and new management and technological systems.

Fourth assumption: The participatory planning process facilitates a two-way learning process between the target community and the project staff members. This two-way learning process should facilitate the timely adjustment of project support services to changing local realities. Similarly, it should strengthen local capacity to identify and mobilize local as well as external resources needed to undertake sustained actions.

Fifth assumption: That participatory planning will enhance the local political commitment and institutional support for the project, by collaborating with the planning processes of the local Panchayat institutions and by building a common understanding between local institutions and public-private partners.

7.3.2 Rural resource planning and reusability

Modeling and reusability techniques have many uses in this new paradigm (see Annexure 3). For instance, they can create a knowledge-based approach for enabling micro-industries and even small, village-based enterprises to leverage information technology for scientific management: *for example*, to access resource planning tools that are appropriate to small businesses, in much the same way that established, big corporate entities use Enterprise Resource Planning¹⁸ (ERP) software to plan and manage their business, for material planning and purchasing, customer services, human resources, and be environmental friendly.

We should add that corporate ERP technology has become revolutionized with the development of Model Driven Architecture® (MDA®), which is an approach to system development that increases the power of models¹⁹. It is model-driven because it provides a means for using models to direct the course of understanding, design, construction, deployment, operation, maintenance and modification of applications²⁰.

However, it is inconceivable in the present context, that a village-based bicycle repair shop owner or the owner of a corner grocery shop can use resource planning tools to manage their supply chain or maximise their productivity and profitability or even be eco-friendly, and thereby ensure their own survivability and sustainability. We do not deny that it is relevant for small village-based businesses to employ scientific management processes to optimize their production and delivery processes, eliminate wastage and save the environment, but conventional wisdom dictates that the village business-person simply cannot have access to such modern technologies. Yet, we take it for granted that a corporate enterprise will use ERP to attain its corporate goals and discharge its corporate social responsibility, because it can afford to pay for integrated ERP software. *This is the type of conundrum that we intend to address in this new paradigm.*

It is believed that—over the seven year life of the project—we may leverage object oriented technologies and MDA through the ‘Public-Private Partnership’ process, by involving IT industry majors in this country and abroad, to develop appropriate **Rural Resource Planning (RRP)** tools that are sufficiently inexpensive, simple and modular to the point that even the hypothetical village-based bicycle repair shop or the owner of a corner grocery shop can rent the ‘business’ module of their choice—such as a ‘customer’ or ‘purchase’ module, at a reasonable cost at their nearby VIC, and ably supported by their friendly IC—in order to enhance the efficiency and effectiveness of their business operations.

Village-based business entities in the target community will then be able to access these RRP and other IT-enabled products and services at the ITECCs, VICs and also through their interaction with ICs. They will thus be able to meet their daily needs for cost control, productivity enhancement, improved quality, eco-friendliness and perhaps the most important aspect in today’s competitive environment—the ability to stay profitable and thereby ensure their economic sustainability.

There are other advantages to reuse when we consider the internal patterns and objects of the ‘RCP Module’. For instance, there are a total of 24 VICS in this project, as explained in Section 6.2 of this present proposal. Each of these 24 VICS will have the same pattern of organizational functions: program management, training and capacity building programs, accounting, M&E, maintenance and so on. Application of object oriented techniques to the design, resource planning

¹⁸ Enterprise resource planning (ERP): A business management system that integrates all facets of the business, including planning, manufacturing, sales, and marketing, through a common enterprise database. As ERP methodology has become more popular, software applications have emerged to help businesses implement ERP.

¹⁹ The essence of Model Driven Architecture (MDA) is that the creation of an executable software architecture should be driven by the formulation of models rather than by manually writing source code. Source code is generated from the models by a compilation step, much as machine code is generated from source code. The MDA initiative aims to move software development to a higher level of abstraction.

²⁰ Modeling ensures that the software systems deliver the functionality that the enterprise requires, is comprehensive and stable, and yet able to evolve in a controlled manner as the environment changes over time.

and implementation of these 24 VICs will not only yield significant cost benefits; it will also contribute to the building of a robust system, that is also better maintainable, which is the principle advantage of modeling techniques. These topics are discussed in greater detail in Annexure 3.

7.3.3 The power of transformation

NGOs such as the Ramakrishna-Vivekananda Mission, BAIF and AVAG have successfully demonstrated that the infusion of ethics and morality into the implementation of development projects yields better results. This adds an Indian dimension to a globally recognized development principle, “peoples’ participation”.

In this project, ICs will be recruited in consultation with village elders and SHGs. They will then be trained not only in the technical aspects of the job, but also in communication and ethics. These are self developmental and their positive impact will be evident in the domestic situation as well. The essential qualities of good communication—listening, empathy, clarity of thought, fluency of speech, memory, openness to new ideas for change and collaboration—are clearly akin to the values and qualities which make for transparent organizations.

ICs will encourage local SHGs to take advantage of existing government and banking schemes, as well as NGO offerings, for self and community development, using normative group process techniques that have been enumerated in the Village Earth model^[1], which also include regular classes in village schools.

Regular staff meetings and seminars will be held between the (a) **84 ICs**, (b) **24 VIC staff members**, (c) **48 ITECC staff members** and (d) **51 RCPS staff members**—making a total of **207 staff members** for the full-fledged, running project.

‘Exchange visits’ will bring RCP staff to the villages, and vice-versa, to see and appreciate the conditions of each other’s work areas. ‘Exchange seminars’ will allow each group to inform the others specifically about the nature and characteristics of their part in the project, and to highlight the challenges being faced, and to encourage empathy and compassion.

At the start, middle and end of Phase 1, internal seminars will be held to involve all members in training to meet their responsibilities, including communications and group process techniques, by setting out group achievement goals, and then evaluating their individual achievements on the one hand, and informal picnic time and games, to encourage familiarity and joyful interactions, on the other. The effect of these internal seminars will significantly impact HRD in Phase 2 over the next three-year period.

The Measurement and Evaluation²¹ (M&E) program will assess ‘soft’ as well as ‘hard’ accomplishments, but mainly focus on validating the assumptions made in the construction and fine-tuning of the RCP model.

7.4 RCP Sustainability

The assets that are created in Phases 1 and 2, coupled with the activities of the market creation approach, we believe, will generate significant revenues that will enable the RCP to sustain itself at the end of the seven year program. The ‘Present Value of Returns’ from the implementation of the PPPs in the six ITECCs—at a hurdle rate of 12%—is conservatively estimated to be about Rs 7.7 Crores, over the seven-year RCP program.

For any social organization, the payment of salaries to its staff members constitutes one of the heaviest burdens. An important measure of success of the RCP, from the point of view of self-sustainability, therefore, is its ability to meet the cost of maintaining its staff—estimated to be about Rs 7 Crores, at present value computations, which indicates a nominal surplus of about Rs.0.7 Crores. It may therefore be possible for the present RCP team to generate sufficient surpluses from its control of the assets built in this project, to finance an ongoing RCP program, from

²¹ A management tool that is built around a formal process for evaluating performance and impact using indicators that help measure progress toward achieving intermediate targets or ultimate goals. Monitoring systems comprise procedural arrangements for data collection, analysis and reporting.

scratch and without any further grant supports, in the rural community contiguous to it—say, ‘Community 2’ in Fig A3.1 of Annexure 3—at the end of its seven year project life. *This would indeed be a true measure of the sustainability of RCP methodology and TRD principles.*

8 MANAGEMENT PLAN

The TRD Group²² is the Lead Organization for implementing this TRD Project. Sankalpa Trust is the Lead Partner.

The management structure for implementing the project is non-hierarchical, but radial, as shown in Figure 8:

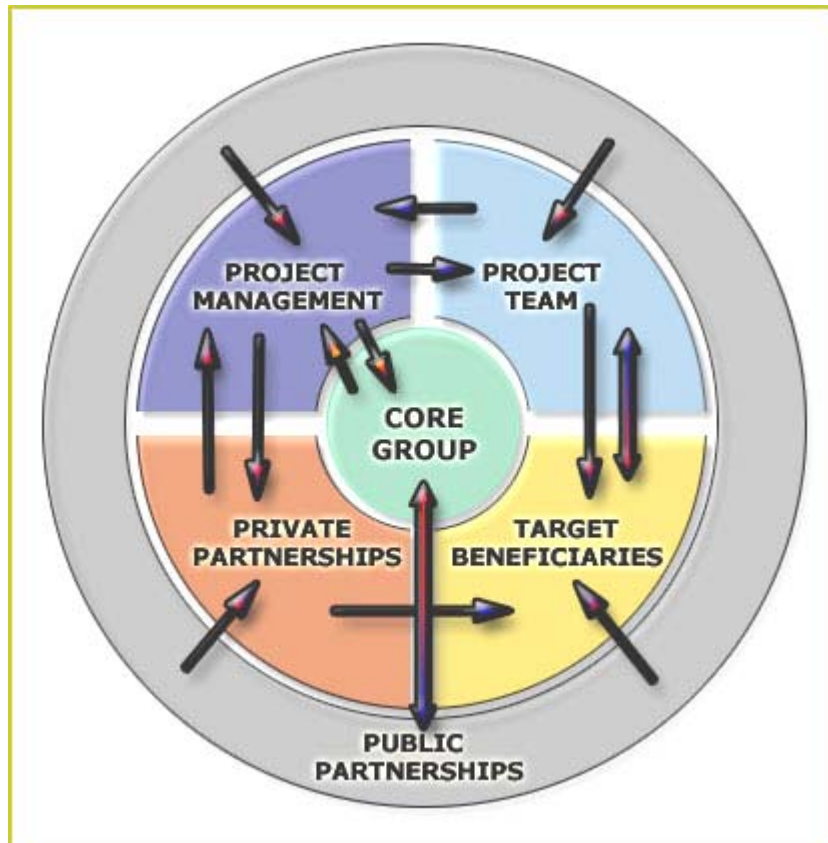


Figure 8: Management structure for TRD program implementation

The arrows are indicative of information flows.

8.1 Management organization

As shown in Figure 8, the Core Group is at the focal point of the management organization for the TRD Project. It interacts primarily with the Project Management group, in order to set the fiscal and operational policies, project scope and management guidelines and finally to approve the ‘Plan of Work’ (see Figures 9 and 10).

8.1.1 Core Group

The Core Group Members for the TRD Project shall be nominated by the TRD Group, giving emphasis to representation from within the target village-based community.

²² The TRD Group is a member of Sankalpa’s coalition of Moral Forces for Sustainability, and manages the RCP Secretariat at Kolkata, India.

8.1.2 Project Management Structure

The Project Management group and the Project Team will be organized as follows:

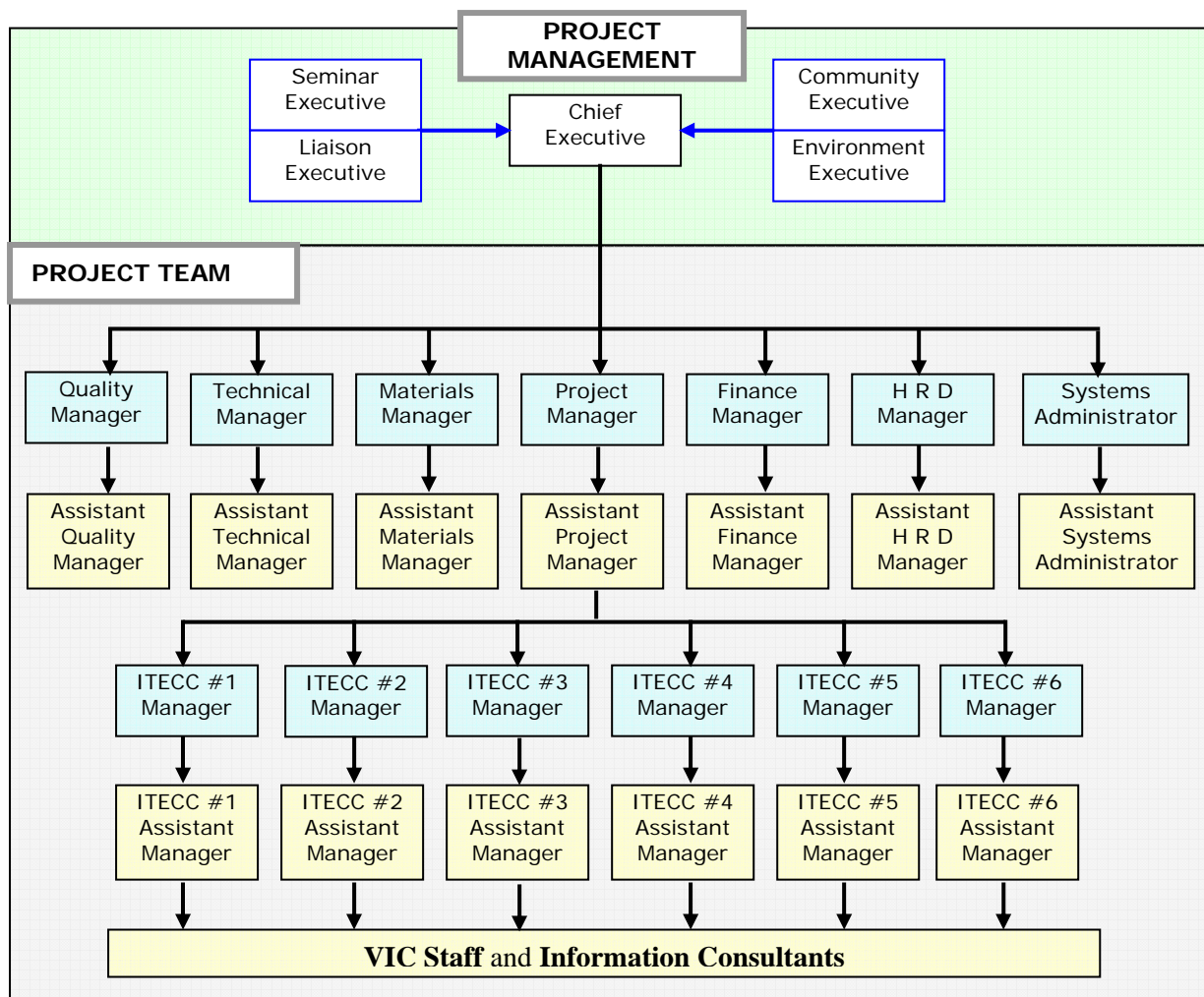


Figure 9: Project management structure

Notes:

1. The project team members shown in the light blue boxes are qualified professionals who will be recruited nationally; they will be expected to work for the first few years only, essentially to train their assistants, who will be recruited locally, from the indigent population.
2. The project team members shown in the light yellow boxes are qualified and semi-qualified professionals—to begin with—who will be recruited from the local beneficiaries; they will work in close contact with their counterpart ‘blue-box’ mentors, train continuously, and progressively take over the management of each function, as part of the exit policy for the TRD program.

8.1.3 Private Partnerships

The private partnerships for implementing the asset-based and market creation approach will be managed and guided by the Project Management team. Operationally, the partners will be treated as ‘RCP members’, and the partnerships will be an integral part of the RCP family.

8.2 Plan of Work

On the basis of preliminary discussions within the coalition, private and public partners, and with contacts within the target rural community, we propose a participatory model for developing, implementing and continually updating the workplan, as new information becomes available. This model—which is built around the management structure shown in Figure 9, with the six main entities shown in white boxes with red borders—is shown below:

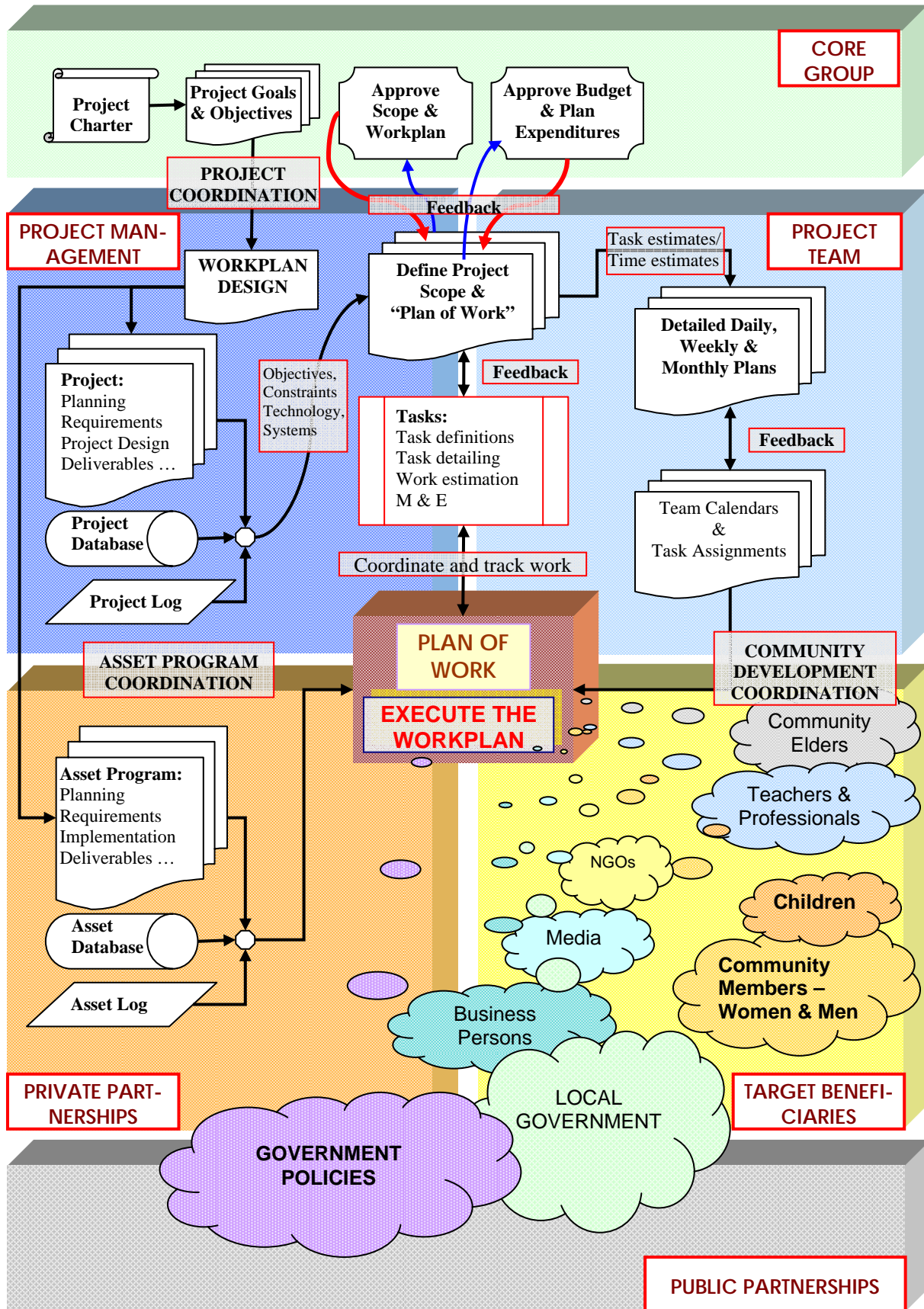


Figure 10: Participatory 'Plan of Work' for the TRD Project

8.3 Asset planning

The assets that are created in the TRD program have a vital role to play in providing service delivery that fulfils the socio-economic and environmental needs of the beneficiaries of the TRD.

Good asset management requires that the planning and acquisition of the most appropriate assets will meet the current and future demands of the community. This requires informed decisions about which assets are needed, where and in what numbers.

Asset planning is made with careful consideration of the needs and costs of maintaining and operating the assets over their life cycles, including ultimate retirement of assets. This approach recognises that the effects of decisions made during any phase of an asset's life cycle will affect performance and costs in another phase.

Good asset management will always result in achieving best value from the total asset costs over their life cycles, including the cost of delivering services using these assets. Sustainable asset investments requires accountability in maintaining and wisely using the assets.

Optimal asset management is achieved by:

- Defining desired levels of services in consultation with the community, and matching these with assets that enable the services to be delivered;
- Adopting a life cycle approach to planning asset investment and management decisions;
- Balancing competing needs across community needs and selecting options which best meet desired outcomes;
- Monitoring, evaluating and improving the performance of the assets;
- Managing the risks of asset ownership and operation to ensure continuity of service;
- Providing for present needs while sustaining resources for future generations;
- Adopting a continuous improvement approach to asset management policies and practices.

The Project Management team will frame the asset development policies and generate the necessary PPPs for implementing the policies, which will be approved for adoption by the Core Group.

9 EXPECTED OUTCOMES OF THE PROJECT

The expected **short term outcome**—within the first two to three years of this project—is poverty reduction in the target beneficiary population, which can be classified broadly into ‘Dalit’ and ‘non-Dalit’ groups, and further classified as follows: (a) landlord; (b) farmers; (c) landless labor; (d) artisans; (e) women; and (f) youth and children.

On the basis of the implementation model shown in Figure 5 *and* the six need-based focus areas that logically emerge in Section 6, we can map (i) the information flows and data gathering activities for M&E in the RCPS and (ii) the action plans that emerge from an analysis of the data in part ‘i’—into the expected outcomes of the project shown below in Figure 11²³.

The figure is based on (a) the trajectory of the first-year Phase 1 as well as its extension into the ongoing TRD project; and (b) the stratification of the village-based community along the lines of the classifications defined in the first paragraph, above.

²³ We gratefully acknowledge the contributions and insightful comments made by Mr. G. Dattatri, the eminent town and country planner, not only for helping to develop this section on the outcomes, but also in translating policies and strategies into action plans throughout this RCP project proposal.

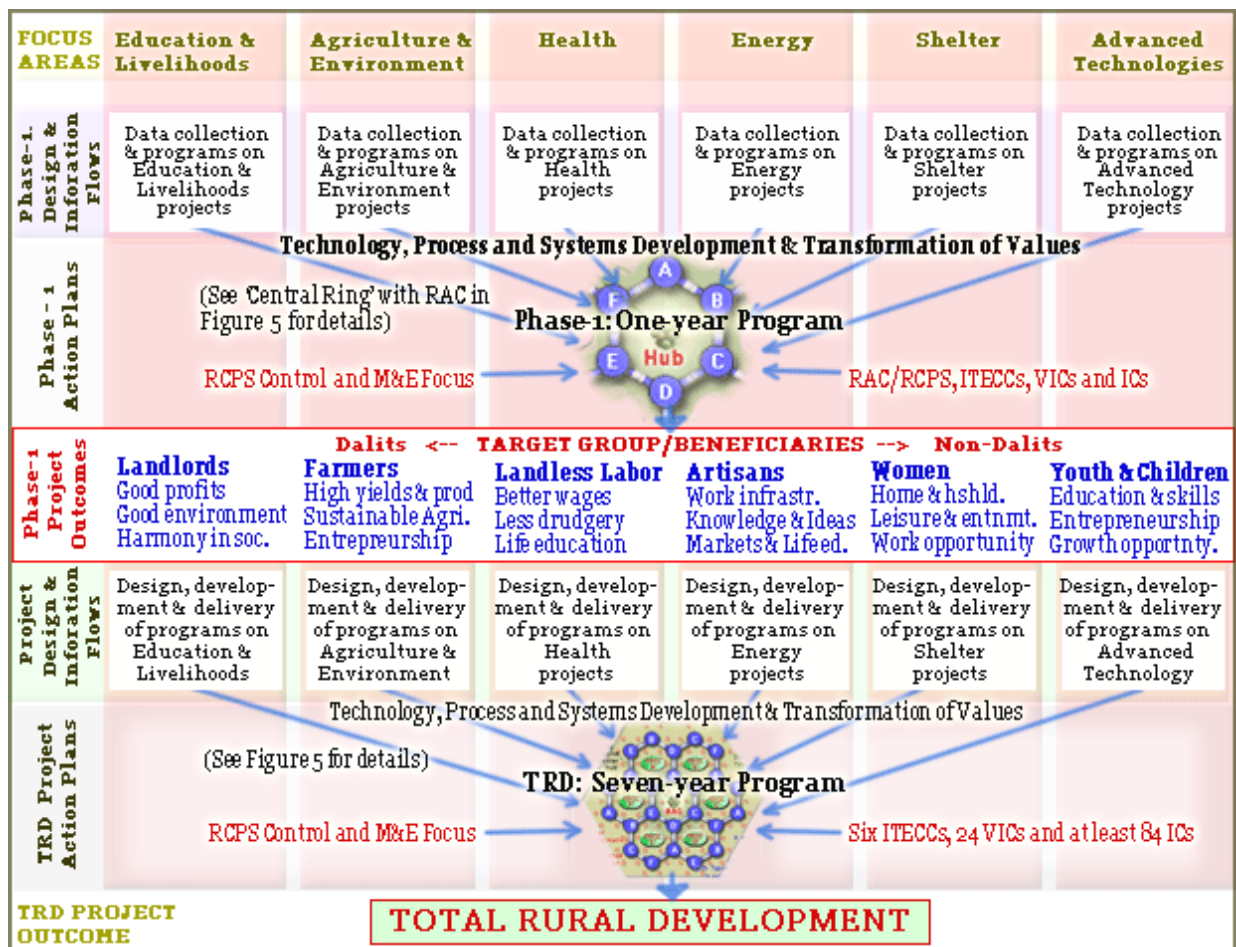


Figure 11: Comparative outcomes of Phase 1 and the ongoing TRD Project

These outcomes will be continually mapped against the hypotheses for TRD ^[1] and the results obtained from the ongoing monitoring and evaluation effort in the RCPS. After the first phase of the project, we will then be able to recursively clarify how these ‘bottom-line’ outcomes will be achieved for the target beneficiaries, including project-related parameters such as:

- a.) What are the types of data to be collected in Phases 1 and 2?
- b.) What kinds of analysis will be done to glean information from the data collected in ‘a’?
- c.) What are the actions to be taken to achieve ‘Total Rural Development’ in Phases 2 and 3?

The feedback from this constant flow of information will also fuel the debates in the seminar series in Phase 1 and help us to develop a clearer picture and define in greater detail the nature of the paradigm shift that we seek in this project, as shown in the figure above.

The expected **longer term outcomes** from the project will therefore be related to raising the moral stance of the target beneficiaries, with reference to (a) the process-centric, scientific approach; (b) the object oriented, reusable approach; and (c) the value-oriented development model.

It should also be stressed that, apart from the short-term and long-term outcomes discussed above, a major outcome of this project revolves around the establishment of a **modular and reusable TRD paradigm**, which will further lead to the development of a **global standard for rural development**.

10 BUDGET

The total budgetary cost estimate for this seven-year Project for the ‘Rural Convergence Program’ (RCP) is estimated to be **Rs. 112 Crore (Rs. 1,120 million)** (~US\$ 25 million), as summarized below:

Table 4: Budget Summary—present value cost estimates at a hurdle/discount rate of 12%

#	ITEMS	RCP Sec	ITECC	VIC	IC	Total	Total	% of 'J'
		(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(US\$)	
A	Human resources	127,689,638	78,853,324	153,141,624	117,812,064	477,496,650	10,611,037	42.6%
B	Travel	12,583,499	42,916,353	14,305,451	1,668,969	71,474,272	1,588,317	6.4%
C	Equipment/supplies	64,108,797	179,166,646	45,805,531	13,373,798	302,454,771	6,721,217	27.0%
D	Office Expenses	11,662,916	16,936,065	13,590,179	11,348,991	53,538,151	1,189,737	4.8%
E	Other costs & services	14,054,214	11,543,870	9,165,574	1,412,982	36,176,639	803,925	3.2%
F	Special Programs	48,365,948	37,442,397	14,277,954	1,161,511	101,247,810	2,249,951	9.0%
G	Total (A to F)	278,465,011	366,858,654	250,286,312	146,778,315	1,042,388,293	23,164,184	93.0%
H	Contingency @ ~2.5%					26,059,707	579,105	2.3%
I	Institutional Overhead @ ~5%					52,119,415	1,158,209	4.7%
J	Total Project Cost					1,120,567,415	24,901,498	100.0%
TRD Project Cost per Beneficiary for: (K)		350,000		Beneficiaries		(Rs.)	(US\$)	
L	TRD Budget per beneficiary for seven years = (J/K) =					3,202	71.15	
M	Budget per beneficiary per year = (L/7) =					457	10.16	

Notes:

1. The ‘present values’ have been computed at a hurdle/discount rate of 8%.
2. The US\$/INR conversion rate is assumed to be 45.
3. Details of budgetary cost estimates for the RCP Secretariat, the six ITECCs, 24# VICs and 84# ICs is shown in Annexures 5A through 5D.

The salient features of this budget are as follows:

- About two-fifths of budgetary support is proposed to be spent on human resources, over the seven year period;
- About one-third of the total budget is proposed to be spent on building assets on the ground, mainly for empowering the indigent people, and for capital cost towards project implementation;
- About one-tenth of the budget is earmarked for capacity building and training programs;
- Less than 5% is retained as ‘Institutional Overhead’ costs, with an additional 2% towards ‘Contingency’ costs

Details of the budgetary cost estimates for the RCP Secretariat, the six ITECCs, the 24# VICs and 84# ICs—expressed in terms of the attributes listed under ‘Items’ in Table 4—are shown in Annexures 5A through 5D.

In order to determine the financial outlay and the appropriate strategy for disbursement of funds in each year of this seven year project, the projected annual budget distribution under the different heads for the estimated Rs.112 Crore (~US\$ 25 million) budget is tabulated in Annexure 6. It is estimated that about Rs. 30.1 Crores would be needed in the first year.

The data in Annexure 6 is graphically illustrated below in two different ways; in (a) Figure 12: the projected RCP-element-wise distribution between the RCP Secretariat, ITECC, VICs and ICs and other project expenses and (b) Figure 13: the projected annual distribution:

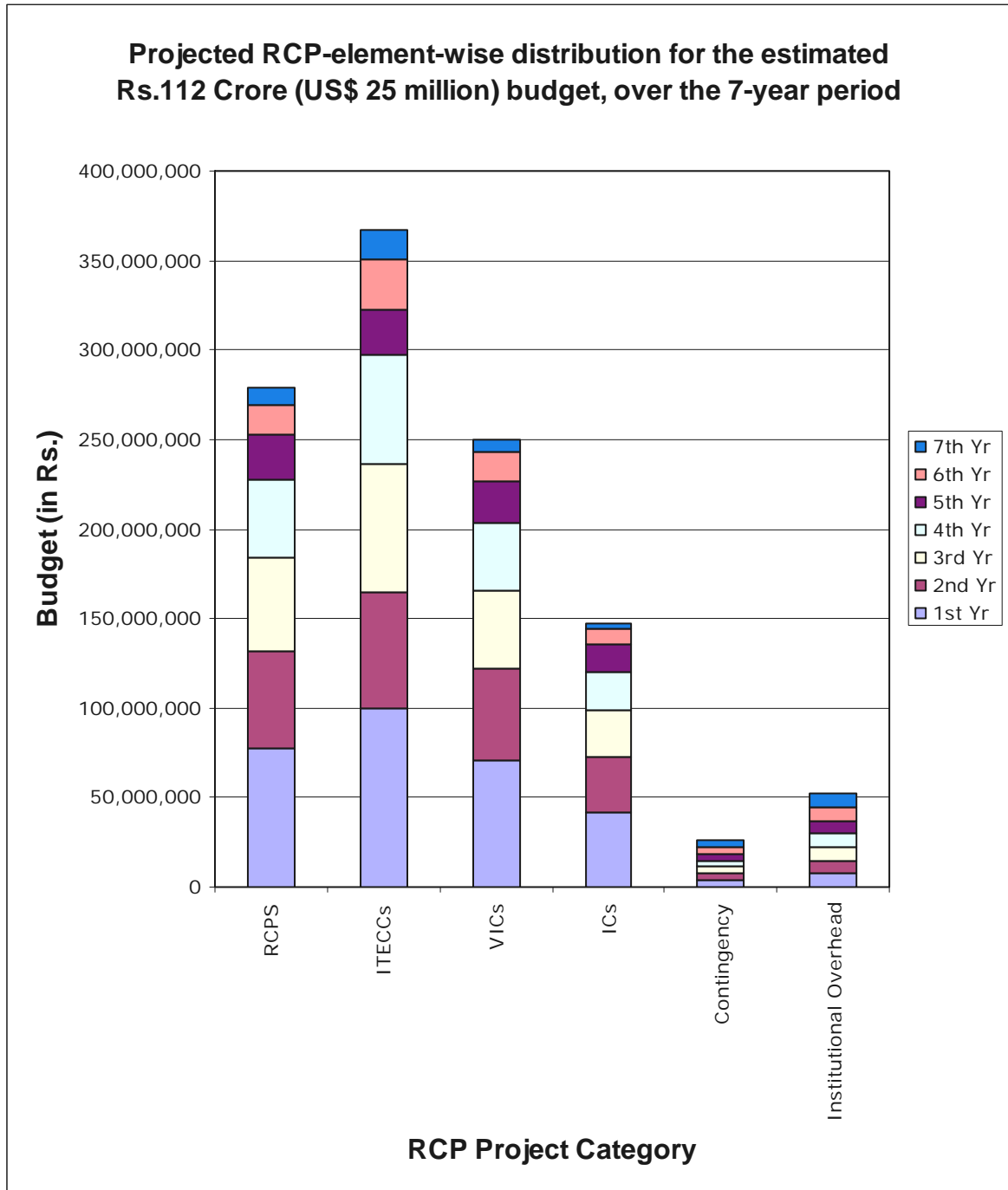


Figure 12: Projected annual distribution for the estimated Rs.112 Crore (~US\$ 25 million) budget

The information in Figure 12, with the RCP elements along the X-axis, with the sectional height of the bars representing the year in which this activity is done, is shown in a different format in the figure below:

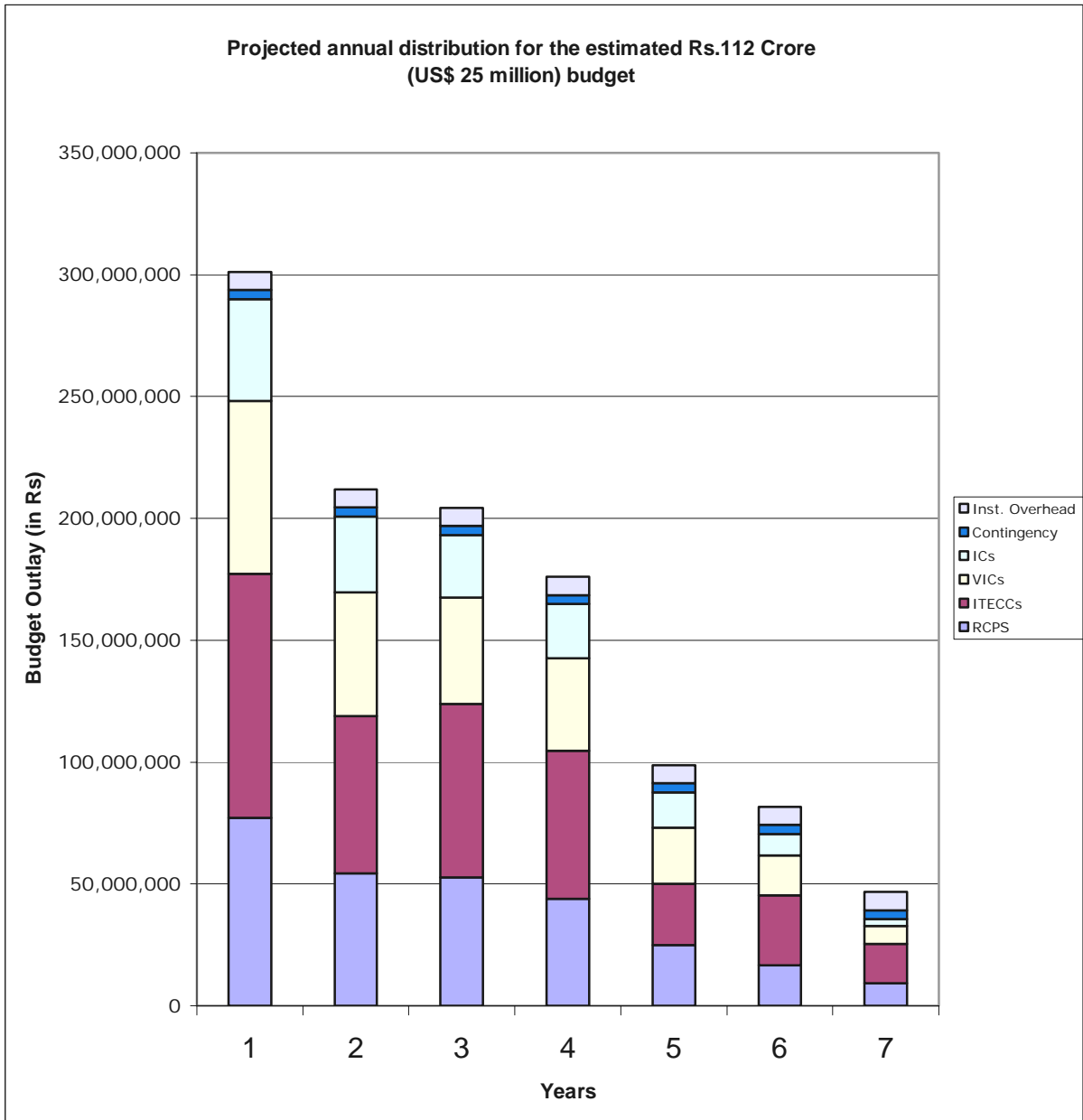


Figure 13: Projected RCP-element-wise distribution for the estimated Rs.112 Crore budget, over the seven-year period

11 MONITORING AND EVALUATION

The goal of the Monitoring and Evaluation (M&E) program in this project is to provide a framework and structure to (a) validate the assumptions that have been made in the ongoing project; (b) fine-tune the design and implementation plans of the ongoing project and (c) develop strategies for M&E for the ongoing project. The M&E Program will also provide a continuous feedback loop of information to project managers, staff, funding agencies, public-private and village-based partners and other stakeholders.

11.1 The M&E program in Phase 1

The M&E program begins with a detailed compilation and inventorying of all major resources, activities, outputs, outcomes and objectives. In keeping with the stated goal, the strategy is to focus on the outcomes or changes that the first phase of the project intends to create in (a) the stakeholders, (b) the partner institutions, (c) the resulting village-based organizations and institutions and finally, (d) the villagers, in particular—rather than measuring the performance of the activities.

Each outcome will be distilled in the evaluation plan with reference to indicators, methods and time frames for collecting data. The processes will be analysed to relate whether the chain of activities in Phase 1 translates to the desired outcomes for the target groups and beneficiaries shown in Figure 11. This will indicate and identify the parameters for the inputs and information flows needed for designing the ongoing project.

The evaluation process will necessarily track and document the project's progress in Phase 1 and ensure that it adheres to the planned program. It will also develop a methodology for collecting data on the implementation process, so that project staff and other stakeholders can be assured, for instance, that the (a) asset-based programs are indeed useful models for demonstrating sustainable technologies; (b) the market-creation approach is indeed promoting market and livelihood development; (c) the participatory processes are giving 'Voice to the Villager'; (d) the process oriented, scientific approach is empowering local communities to organize themselves and institutionalise continuous improvement methodologies and systems; (e) the object oriented approach is reusable, and (f) the TRD Project is able to create a replicable model of sustainable, value-oriented development.

Starting at the beginning in Phase 1, staff members at each operational level of the RCP will be trained in the use and analysis of appropriate data collection methods. Emphasis will be laid on simple graphical tools, which are universal. Training-for-trainers programs will be developed to build the capacity in evaluation methodologies for partners, which will promote and institutionalize a culture of scientific inquiry and embed the principles of monitoring and evaluation, especially for recruitments from the local, indigent communities. A central repository for data on the project and a computer database that can be accessed on the Internet will be developed.

11.2 Financial accountability

Checks and balances will be put in place to ensure full fiscal accountability of all project personnel. There will be an independent and standard internal accounting procedure, with the provision of standard external auditing procedures to ensure that all monies are spent according to predetermined and approved budgeting patterns and norms.

12 PROJECT TIMELINE

12.1 Time line for Phase 1

The tasks and schedules for implementing Phase 1 for TRD described in Section 10.2: ‘Plan of Work’ is defined in the following timeline of activities:

Table 5: Timeline for implementing Phase 1

	TASKS	MONTH											
		1	2	3	4	5	6	7	8	9	10	11	12
A	Phase 1.1: Project initiation	[Gantt chart for Phase 1.1: Project initiation]											
1.1.1	Recruit project staff	[Gantt chart for 1.1.1: Recruit project staff]											
1.1.2	Systems development/ 'Master Plan'	[Gantt chart for 1.1.2: Systems development/ 'Master Plan']											
1.1.3	First round of seminars	[Gantt chart for 1.1.3: First round of seminars]											
1.1.4	Initiate QA and M&E programs	[Gantt chart for 1.1.4: Initiate QA and M&E programs]											
1.1.5	Plan PPP, object modeling & transformations	[Gantt chart for 1.1.5: Plan PPP, object modeling & transformations]											
1.1.6	Start asset-based constructions	[Gantt chart for 1.1.6: Start asset-based constructions]											
1.1.7	Outreach, policy analysis and advocacy	[Gantt chart for 1.1.7: Outreach, policy analysis and advocacy]											
B	Phase 1.2: Consolidation	[Gantt chart for Phase 1.2: Consolidation]											
1.2.1	Build the RCPS	[Gantt chart for 1.2.1: Build the RCPS]											
1.2.2	Build one ITECC	[Gantt chart for 1.2.2: Build one ITECC]											
1.2.3	Build at least six VICs around the ITECC	[Gantt chart for 1.2.3: Build at least six VICs around the ITECC]											
1.2.4	Hire and train a dozen ICs	[Gantt chart for 1.2.4: Hire and train a dozen ICs]											
1.2.5	Complete seminars and analyze data	[Gantt chart for 1.2.5: Complete seminars and analyze data]											
1.2.6	Initiate PPP, object mod. & transformatns.	[Gantt chart for 1.2.6: Initiate PPP, object mod. & transformatns.]											
C	Phase 1.3: Evaluation and control	[Gantt chart for Phase 1.3: Evaluation and control]											
1.3.1	Audit impact of work in 'Phase 1.2'	[Gantt chart for 1.3.1: Audit impact of work in 'Phase 1.2']											
1.3.2	Develop corrective action plan	[Gantt chart for 1.3.2: Develop corrective action plan]											
1.3.3	Implement corrective actions & recalibrate	[Gantt chart for 1.3.3: Implement corrective actions & recalibrate]											
1.3.4	Assess PPP, object mod. & transformatns.	[Gantt chart for 1.3.4: Assess PPP, object mod. & transformatns.]											
D	Phase 1.4: Phase 1 closure	[Gantt chart for Phase 1.4: Phase 1 closure]											
1.4.1	Initiate final round of conferences/seminars	[Gantt chart for 1.4.1: Initiate final round of conferences/seminars]											
1.4.2	Assess sustainability model	[Gantt chart for 1.4.2: Assess sustainability model]											
1.4.3	Assess PPP, object mod. & transformatns.	[Gantt chart for 1.4.3: Assess PPP, object mod. & transformatns.]											
1.4.4	Develop Phase 2 implementation plan	[Gantt chart for 1.4.4: Develop Phase 2 implementation plan]											
1.4.5	Phase 1 report and closure	[Gantt chart for 1.4.5: Phase 1 report and closure]											

The following are the milestones of Phase 1:

1. End of 3rd month: Completion of planning processes and initiation of seminars.
2. End of 6th month: Continue with asset building programs and seminars; initiation of PPP, object orientation and transformations.
3. End of 9th month: Maturity of PPP, object orientation and transformations processes.
4. End of 12th month: Completion of design of Phase 2.

The detailed tasks and schedules for implementing Phases 2 and 3 will be developed in the second half of Phase 1, as our understanding of the project formulation and the ground reality matures.

13 CONCLUSIONS

We believe that a **new paradigm for sustainable rural development** can be replicated **globally**, because it provides a unique infusion of all three attributes in the new paradigm that is being tested in the present project:

- (a) An advanced technology base for meeting the challenges for establishing ‘Public-Private Partnerships’ (PPP) and a convergence of pre-existing rural development paradigms;
- (b) An advanced intellectual community that is ready and able to tackle the need for handling ‘Advanced Technologies’ and concepts, such as process-centric methods, object orientation for modelling and design of a stable, global and reusable ‘new paradigm’ for rural development;
- (c) A highly evolved community with the consciousness to embed the core empirical belief, that *‘the essence of sustainability is morality’*, into the new paradigm.

The proposed ‘Rural Convergence Program’ (RCP) leverages PPP as a means for rural communities to maximize their creativity and productivity, while minimizing their negative environmental impact. This is the essence of sustainable development. The attainment of sustainable livelihoods for all rural people, while preserving Mother Nature for future generations are important twin objectives of the project. Another objective is the transformation in the moral stance and values that will promote the growth of ‘socially engaged morality’ in the community. An economically strong rural community that is respectful of its environment and is also morally engaged in society reflects its values as responsible ‘global’ citizens. This in turn will attract visitors—from students and tourists to investors and pioneers that all communities want in their midst.

This project also relates to an entirely new paradigm for holistic rural development, taking the analogy of the paradigm shifts that have taken place in industry and commerce on the one hand, and the knowledge industry, on the other, over the last two decades. In both instances, the essentially ‘hierarchical’ and ‘procedural’ approaches in traditional systems are proposed to be displaced by ‘process oriented’ and ‘object oriented’ approaches that are both humanistic as well as grounded in scientific management processes—leading to improved quality in the end results and less repetitious work with strongly modular or ‘object oriented’ systems that are more stable over time. They improve our ability not only to model and control complexity, but also to make complicated systems—such as the RCP—more understandable and maintainable.

The cost of the seven-year ‘TRD Project’ is estimated to be **Rs. 112 Crore (Rs. 1,120 million)** (~US\$ 25 million). It will impact a target population of about **350,000 beneficiaries**, within the target community. This translates to spending a total of about **Rs. 3,202 (~US\$71)** on every child, woman and man in the target area, over the seven year period, or about **Rs. 457 (~US\$10)** per year on each community member.

This new paradigm for rural development when fully developed can be replicated anywhere in India, and indeed globally. At the end of the seven year period, the **TRD Group** would be empowered by the assets that have been generated and the steady stream of revenues from the various asset-based and market creation approaches—from the present TRD Project—to launch the next TRD Project, without any further grants or external financial inputs—*giving rise to the vision of TRD in perpetuity.*

References:

- [1] S. Mukherjee, ‘Total Rural Development—A New Paradigm for Sustainability—Introducing object orientation for the development of reusable models for rural development’, Sankalpa Research Center, Ref # SRC/SLD/TRD07, Revision 3.5, 25th September 2007.
- [2] S. Mukherjee, ‘The Essence of Sustainability is Morality’, Sankalpa Publications, August 2005.
- [3] Ashok Khosla, ‘Innovation and Poverty Eradication’, Editorial, DA Newsletter, Vol 10 No 9 September 2000.

-
- [4] Mission 2007: 'Every Village a Knowledge Centre', M S Swaminathan Research Foundation
- [5] B.G.Banerjee and A.K. Sinha, 'Chapter 17: Anthropology and Development: In Search of a Paradigm', Anthropologist Special Issue No. 1: 201-212, 2002.
- [6] Susanne D. Mueller, 'Rural Development, Environmental Sustainability, and Poverty Alleviation: A Critique of Current Paradigms', DESA Working Paper No. 11, ST/ESA/2006/DWP/11, January 2006.
- [7] Mehta, Shiv R, 'Rural Development Policies and Programmes', Sage Publications India Pvt. Ltd., New Delhi, 1984.
- [8] Ashok Khosla, 'The Internet Portal Connecting Rural India to the Global Village - TARA-haat.com', DA Newsletter, Vol 10 No 9 September 2000.
- [9] Ashok Khosla, 'Need for a Commission on Sustainable Livelihoods', DA Newsletter, Vol 10, No 2 February 2000.
- [10] Lincoln C. Chen, 'Education, Equity and Security', Kolkata, 2002.
- [11] Ashok Khosla, 'Capacity Building for Innovation', DA Newsletter, Vol 10 No 9 September 2000.
- [12] Maurice L. Albertson, 'The Missing Link For Sustainable Village Development', Village Earth publication.
- [13] Sri Aurobindo, 'The ideal of Human Unity', Birth centenary edition, Vol. 15, page 263.
- [14] 'Using an Asset Base Approach to Identify Drivers of Sustainable Rural Growth and Poverty Reduction in Central America', World Bank LAC Rural Strategy Learning Event, March 25, 2004.
- [15] Dr. Urs Heierli, 'The Market Creation Approach to Development - poverty alleviation as a business for the poor', DA Newsletter, Vol 10 No 10; October 2000.
- [16] S. Mukherjee, 'Why do we need an IT-Enabled Community Center in every Village in India?', Powerpoint presentation, <ITECC-070517.ppt>, May 2007.
- [17] 'The Hexagonal Diamond (Lonsdaleite) Structure'; <<http://cst-www.nrl.navy.mil/lattice/struk/hexdia.html>>
- [18] Martin Fowler, Kendall Scott, 'UML Distilled: A Brief Guide to the Standard Object Modeling Language', Publisher: Addison Wesley, Second Edition, August 18, 1999.
- [19] 'MDA Guide Version 1.0.1', Object Management Group, Document Number: omg/2003-06-01, 12th June 2003
- [20] Oto J. Okwu, C. P. O. Obinne and O. N. Agbulu, 'A Paradigm for Evaluation of Use and Effect of Communication Channels in Agricultural Extension Services', J. Soc. Sci., 13(1): 31-36, 2006.
- [21] Amartya Sen, 'Education and economic growth: The three Rs as levers of change'; First appeared in The Statesman on Wednesday, 26 August 1964, and reprinted in 'Perspective' dated October 19, 1998; page 9.
- [22] Amartya Sen, 'Education is the cradle of economic success'; Excerpts from an interview during a visit to Calcutta, published in The Telegraph on 15th October, 1998; front page.
- [23] Amartya Sen, 'Undue sacrifice of primary education'; First appeared in The Statesman on Wednesday, 19 April 1967, and reprinted in 'Perspective' dated October 21, 1998; page 9.
- [24] Suan-Pheng Kam, 'The changing paradigm of rural governance for sustainable development: Defining the niche and role of GIS', International Rice Research Institute, <http://www.gisdevelopment.net/proceedings/gisdeco/sessions/key_suan.htm>
- [25] Malini Mehra, 'Climate Change- Why India needs to take leadership', Center for Social Markets, August 2007.

Cyclical Procedure for Continuous Improvement in Design and Dissemination of Sankalpa/ARTS Educational and Training Programs

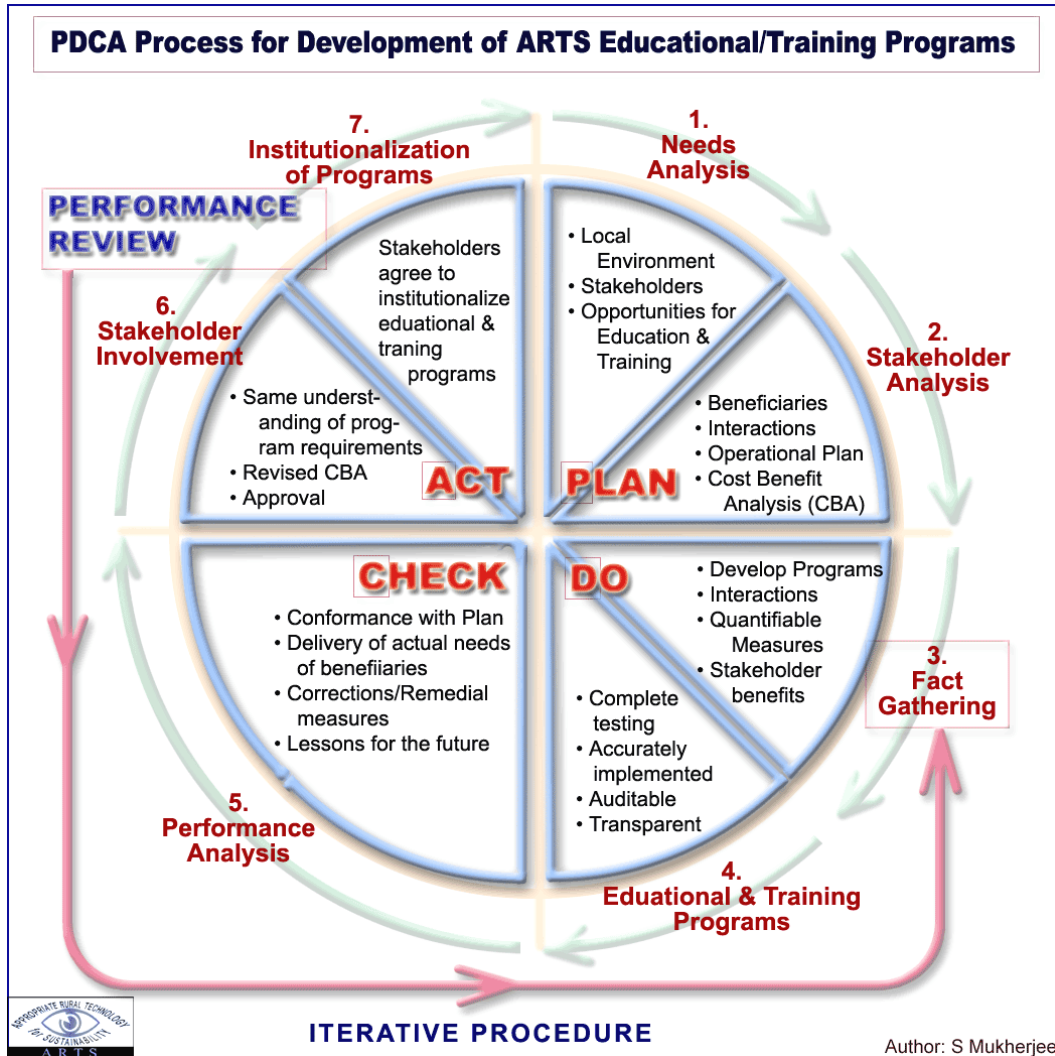


Figure A1.1: PDCA cycle for Continuous Improvement

Note: Details of the above procedures will be made available on request

Excerpt of quotation from Professor Amartya Sen: ^{[21][22][23]}

“ ... Our industrial productivity is still low, but there is no doubt that the essential process of learning to grow into an industrial civilization has already begun in the Indian economy. But in agriculture we are still far behind even the first stage of learning. Agricultural productivity per acre remains dismally low, much lower than even in other Asian countries, not to mention countries further away from us.

PROJECT FUNCTIONAL SYSTEMS

The framework of the project is based on the ‘Lonsdaleite’ hexagonal structure (see Figures 4 and 5). This ‘hexagonal’ structure is used in a recursive manner for the distribution of the principal components of the RCP, namely ITECCs, VICs and ICs (see Figure 5). It permits the construction of an innovative, modular and repeatable²⁴ homogeneous arrangement. This innovative arrangement economizes on the number of nodes that are needed to serve a particular community, be they ITECCS, VICs or ICs.

The constituent functional systems of the RCP are described in the following sub-sections:

RCP Secretariat (RCPS)²⁵

The RCPS will (a) *interface with the external and internal public-private partners* in order to implement the asset-based programs and evolve the market creation approach; (b) *lead the process improvement and object orientation programs* in a participatory manner; (c) *monitor and evaluate the activities of its public-private partners*, primarily to continuously validate the assumptions and fine-tune the design and implementation plans for the ongoing project (see Section 8); and (d) *develop strategies for the ongoing project* in the areas of Monitoring and Evaluation (M&E), Program Governance; Program Planning and Development, Network Mobilization and Management, Funds Mobilization and Management, Information Management and Communications and Policy Analysis and Advocacy.

In collaboration with internal and external partners who are responsible for ‘**Training and Education**’, the RCPS will coordinate the programs for transformation of values through the ‘Capacity Building’ and ‘Livelihoods Skills Development’ programs for all stakeholders, including staff members and the target village community. These activities will focus on programs to: (a) alleviate poverty, unemployment, socio-economic inequity, disaffection and disenfranchisement among youth and families in the target area; (b) mitigate against rural and coastal environmental degradation; (c) reduce migration from the village to urban centers by enhancing capacity-building mechanisms to strengthen civil society structures; (d) promote community building programs and networking in and between village organizations; (e) provide vocational, leadership and life skills training, environmental awareness programs, teacher training and ‘Training for Trainers’ programs and support for new economically and environmentally sustainable enterprise development; (f) microfinance assistance programs and (g) extend participatory practices to include not only the target village community members but also the project staff members.

The RCPS will also provide management and secretarial support for conducting the seminars.

Resource Access Center (RAC)

The Resource Access Center (RAC) serves as the hub in the target community. Its function is to coordinate the dissemination of information and the application and implementation of various ‘soft’ and ‘hard’ technologies between the RCPS and its complementary system of IT Enabled Community Centers (ITECCs), ‘Village Information Centers’ (VICs) and ‘Information Consultants’. It will be developed on the lines of the participatory approach for total empowerment as described in Appendices 1 and 2, respectively, in Reference # 1. The RAC needs to spread over a sufficient area of land, so that all manner of socio-technical experiments can be conducted and documented for posterity. At its core is the ‘RCP Secretariat’.

²⁴ This ‘repeatability’ feature is one of the main innovations in this new paradigm for TRD, and is discussed in greater detail in Section 5: ‘Reusability of the ‘New Paradigm’ in Reference # 1

²⁵ The officials or office entrusted with administrative duties, planning and disseminating programs, maintaining records, and overseeing or performing M&E duties of the ‘Rural Convergence Program’.

IT-Enabled Community Center (ITECC) [16]

The ‘IT-Enabled Community Center’²⁶ (ITECC)—shown in Figure 5 within the hexagonal constructs as a green, oval-shaped entity—is the first level at which a differentiation in program delivery mechanism and participatory development takes place, with the indigent community taking a more active role in staffing and progressively managing the Center, as discussed in Section 6.3: ‘Exit Policy’. Each ITECC focuses on one of the six focus areas defined in Section 4.

The ITECC is intended to service the requirements of the target beneficiary village community in general (see map in Section 5.5: ‘Work Plan’). Each ITECC will be specifically equipped and resourced to not only disseminate the knowledge and information requirements in its focus area to its target rural community, but it will also be responsible for the participatory design and dissemination of the community building and continuously testing the implementation approach of the RCP model, which has been described in Section 6.

Additionally, ITECCs will be equipped to provide (a) telemedicine services; (b) state-of-the-art in educational and training programs for the beneficiary village community members; (c) a ‘Building Center’ for live models in the field of shelter products and services, (d) an ‘Renewable Energy Center’ for live models in the field for renewable energy products and services; (e) in general, handle all knowledge, information and program design requests for all the six focus types from ‘A’ to ‘F’ (see description at the beginning of Section 6, for details); and (f) more specifically, to design, implement and disseminate information for the four foundation-level sustainable programs: Information, Livelihoods, Energy and Shelter defined under the ‘Sankalpa Pyramid Model’²⁷.

The operating roles of the ITECC are to:

- Implement the goals and objectives of the RCP—as defined in Section 2—based on a mainly four-way communications pattern between the RCPS, the ITECC, the VIC and the ICs, including:
 - Receive RCP program instructions and guidelines issued by the RCPS
 - Provide continuous feedback to the RCPS, based on their interaction with the ICs and the village community members.
 - Receive feedback from the VIC about the performance of the ICs and grassroots activity at the VIC premises;
- Continuously provide the VIC with new information and educational materials that are received from the RCPS, as well as those that are generated by the ITECC staff, and authorized for circulation to the target community by the RCPS;
- Interact regularly with village community elders and children, Self-Help Groups (SHGs), *Panchayat* leaders and teachers, business persons, academia, other local NGOs, media, and in general everyone who can have an impact on the RCP;
- Provide educational and training opportunities for ICs, village community members, especially to empower women and children, but also to provide greater livelihoods and networking opportunities for the men, women and children of the community—the major objectives being to enhance livelihoods opportunities and environmental awareness.
- Initiate and implement scientific management techniques—such as ‘Quality Function Deployment’ (QFD) methodologies to measure program deployment strengths and weaknesses, and to implement corrective actions and enhance the quality of services provided to the villagers, and other such scientific problem solving and management programs.

²⁶ They integrate traditional knowledge with modern communication science—principally the Internet—and ‘Appropriate Technology’ for social empowerment and sustainable development.

²⁷ See Reference #1: Appendix 2: Sankalpa’s ‘Pyramidal Model’ for more details.

- Implement the programs for transformation in moral stance and values for all stakeholders, including the target rural community.
- The Lead IC will be stationed at the ITECC in order to design the IC programs and facilitate communication between the RCP and the ICs.

Village Information Center (VIC)

The ‘Village Information Center’²⁸ (VIC)—shown as numbered blue tablets in Figure 5—will be suitably located in the village for village community members to approach and interact with the RCP, as well as have direct opportunities for staffing and managing the VIC. A representative sketch of a ‘Community Center’ that has an asset-based approach for the demonstration of candidate technologies for an IT-enabled service center, sustainable livelihoods, shelter products and renewable energy technologies is shown in the figure below:

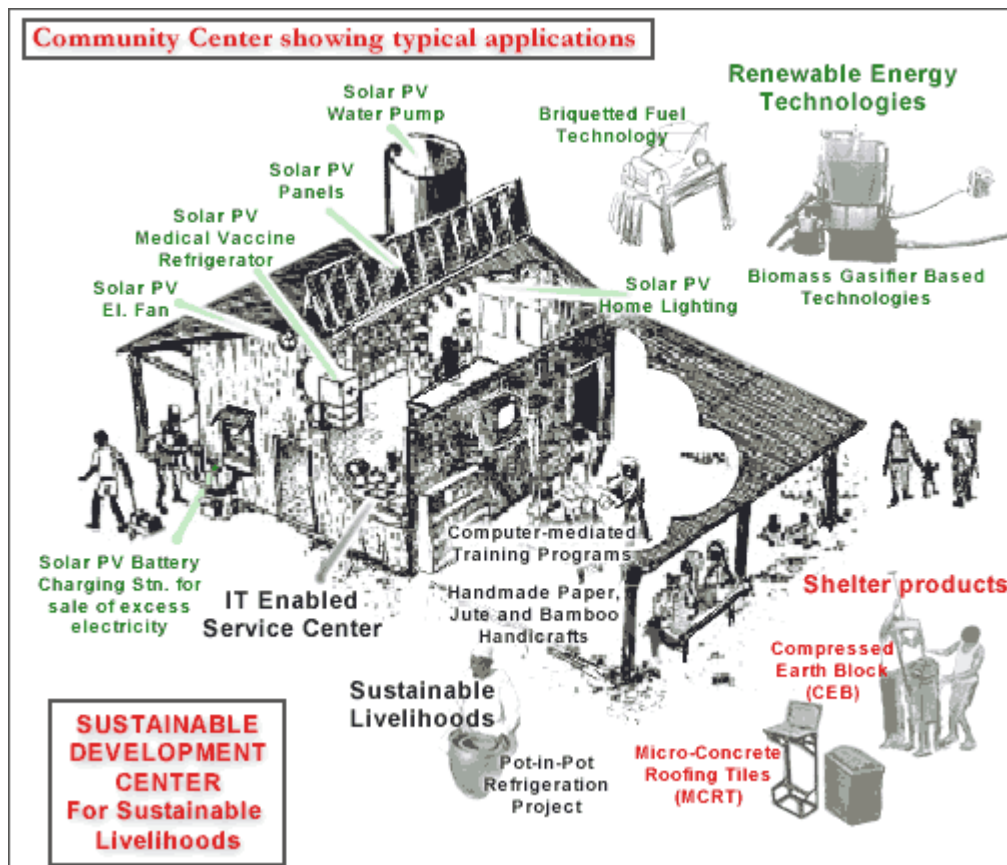


Figure A2.1: An IT-Enabled Village ‘Community Center’ showing typical applications

VICs are scaled down models of ITECCs, and specifically equipped and resourced to promote participatory practices for sustainable development in all sections of the rural community—especially women and children and the youth of the community—who take an active role in leadership development programs. The VIC is intended to become the headquarters of the ICs, and—like the ITECC, but with reduced capabilities and resources—will be equipped to deliver (a) tele-medicine services; (b) provide state-of-the-art in educational and training programs for the beneficiary village community members at the grassroots level, such as participatory rural assessments, transects and structured community building programs; (c) in general, handle the information and program design requests from villagers for all the six focus types from ‘A’ to ‘F’; (d) promote the scientific approach in problem solving methods, such as KAIZEN and continuous improvement methodology, and the scientific management of resources.

²⁸ A microcosm of an ITECC, complete with IT-enabled services for knowledge and information dissemination of ideas, products and service that are most relevant to the immediate rural community.

The operating roles of the VIC are to:

- Implement the goals and objectives of the RCP as they apply to the VIC, in general, and this project, in particular—as defined in Section 2—based on a mainly three-way communication pattern between the ITECC, itself and the ICs, including:
 - Receive RCP program instructions and guidelines issued by the VIC;
 - Provide continuous feedback to the ITECC and ICs, based on their grassroots interaction with the village community members.
- Continuously provide the ICs with new information and educational materials that are received from the ITECCs and to a lesser extent from the RCPS, as well as those that are generated by the VIC staff, and authorized for circulation to the target community by the VIC;
- Interact regularly with village community elders, SHGs, school teachers and children and in general everyone at the village level who can have an impact on the RCP;
- Provide an opportunity for ICs to use the VIC as a base of their mobile operations, and to present their problems and to propose their own solutions to village-based problems, as a result of their direct grassroots interaction with the village community members and their children;
- Provide village community members with information to empower women and children especially, but also to provide greater livelihoods and networking opportunities for the men of the community—the major objectives being to enhance livelihoods opportunities and environmental awareness;
- Initiate and implement ‘Quality Circles’ methodologies for continuous improvement in the service delivery to the villagers;
- Implement the programs for transformation in moral stance and values of the target rural community.

Information Consultants (ICs)

The generic ‘**Information Consultants**’²⁹ (ICs)—shown as small brown tablets distributed at the corners of the hexagonal formations in Figure 5—are bright young girls and boys, preferably those who are part of the target village community—who will function as the ‘last meter’ linkage between the RCP program and the beneficiaries: the indigent people. At least six ICs will be attached to each VICs, as shown in Figure A2.1 and will champion the cause of total empowerment of villagers in their designated areas of operation, which may overlap with other VICs. They could function under the matrix organizational structure³⁰ and vigorously pursue the dissemination of rural ICT in a structured way with a human face through the application of ‘soft technologies’.

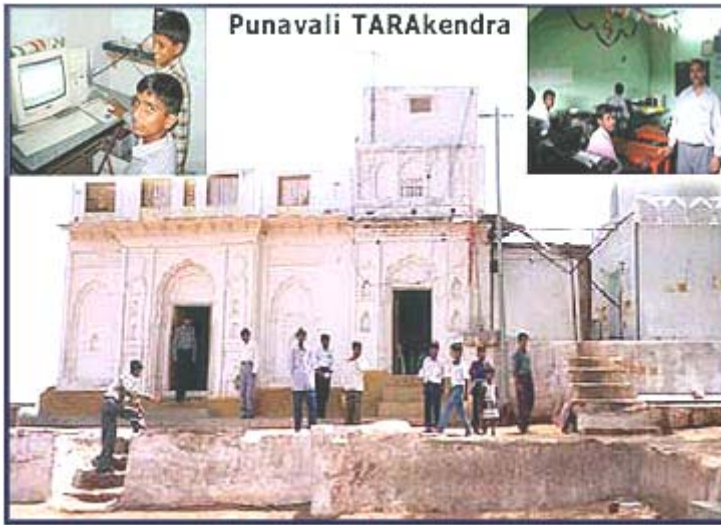
A legitimate question that is frequently asked is: *How do we get the rural people, who have little or no computer skills, to exploit these advanced ICT strategies?*

We will answer this question by citing three case studies, which describe the enormous impact of Information Technology (IT) initiatives in the lives of ordinary people of rural India and the children in the slums of Delhi.

²⁹ Village-based personnel are the link between the IT-Enabled Community Center and the beneficiary village community members, with whom they deliberate, seek information or advice on commercial terms.

³⁰ An organizational structure in which the managers across verticals share responsibility with the functional staff along horizontal lines, for assigning priorities and for directing the work of individuals assigned to the project.

Our partner—TARAhaat.com—which is promoted by Delhi-based Development Alternatives, and provides online services to rural communities in North India, has shown the way by successfully disseminating hundreds of ICT initiatives in their village communities, by way of building TARAKendras—of the type shown in the figure on the left (the insets show the results of a similar initiative by the SARI project in Madurai, Tamil Nadu).



TARAhaat.com is both, a horizontal as well as a vertical portal (hence a Mother portal, or 'Mortal') and has a unique interactive and graphics-intensive interface system, which allows semi-literate and neo-literate users enhanced access to IT-enabled products and services. The training programs in various subjects of local importance are a special feature of the TARAKendras.

Another way is the 'HP-e-inclusion' strategy that has been tested and successfully implemented in Costa Rica, for example (shown in the pictures below), and replicated by NGOs in some places in India and Bangladesh, which is to empower a small group of motivated local entrepreneurs—who may be compared to the ICs in the present proposal—to market IT-enabled services on a commission basis, by charging a small fee to send or receive an e-mail to or from distant relatives, an additional fee to browse the web and obtain, for example, important information



for an agricultural product or translation services from English to the language . Going door-to-door, these young operators will quickly ascertain and meet the needs of local community elders.

Then there is Dr. Sugata Mitra's 'hole-in-the-wall' cognitive study of slum children, which demonstrated that young children have such innate and intuitive skills that they do not need any coaching to learn computer operating skills. In fact, it is usually the children in all social strata who guide their elders on computer operational procedures and methods.

The slum environment shown in the middle of the picture on the next page is not vastly different from any rural environment, which gives us the confidence that our knowledge-based initiatives will be successful, with the children to begin with at least and then gradually to seize the imagination of the entire beneficiary community.

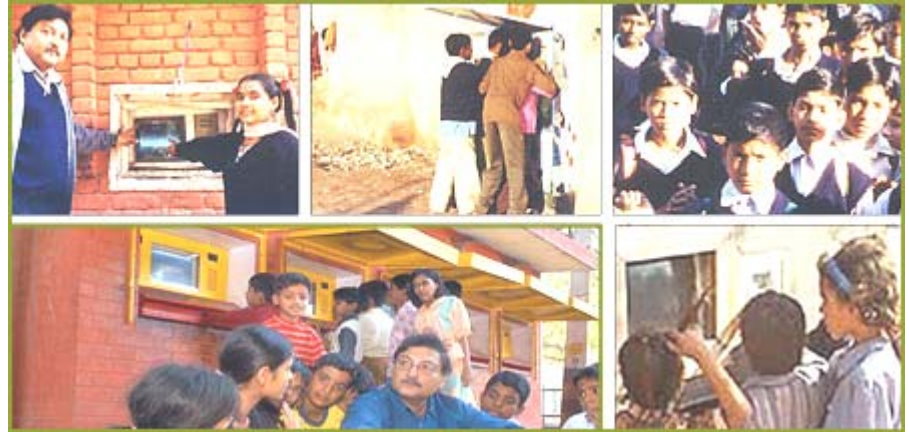
The following is an extract from 'Hole in The Wall', Frontline, WORLD, October 2002, <www.pbs.org/.../stories/india/thestory.html>:

Dr. Mitra heads research and development at NIIT, a leading computer software and training company in New Delhi. Just outside his office is a wall that separates his air-conditioned 21st-century office from a slum. Mitra decided to place a high-speed computer in the wall, connect it to the Internet, and watch who, if anyone, might use it. To his delight, curious children were immediately attracted to the strange new machine. "When they said, 'Can we touch it?'" Mitra recalls, "I said, 'It's on your side of the wall.' The rules say whatever is on their side, they can touch, so they touched it."

Within minutes, children figured out how to point and click. By the end of the day they were browsing. "Given access and opportunity, the children quickly taught themselves the rudiments of computer literacy."

One boy in particular, Rajinder, has become a computer whiz and a celebrity in India. "Mainly I go to the Disney site," Rajinder tells FRONTLINE/World, but he also regularly visits news sites and likes to use computer paint tools. His teacher says that Rajinder is a much better student now: "He has become quite bold and expressive. I've got great hopes for this child."

When Dr. Mitra asks Rajinder to define the Internet, the doe-eyed boy replies immediately, "That with which you can do anything."



The IC model can offer multiple and scalable information services to the local rural community with a variety of complementary computing and imaging devices that can be accessed at the local VIC. The ICs can also be trained to impart knowledge of 'Appropriate Technologies' and examples of demonstration projects, especially those based on the six focus areas, available for viewing and study at the appropriate ITECCs and VICs.

Annexure 3**REUSABILITY OF THE ‘NEW PARADIGM’**

An important yardstick of the new paradigm for TRD is its reusability, in time and space. This approach is analogous to another paradigm shift that has taken place in Information Technology—the shift from procedural programming to object oriented technologies, which are more disciplined than conventional structured techniques.

Paradigm shift—procedural to object orientation

Although procedural programming³¹ is often a better choice than simple sequential or unstructured programming, it has been overtaken in recent years by a new paradigm for software development in the IT industry—object-oriented technologies, for a number of reasons³².

The most commonly touted benefit of object orientation is reuse. One of the major benefits of objects³³ is that they are reusable³⁴.

In a well-designed object-oriented system, it should be possible to (a) implement a systemic change without having to make alterations at other unrelated points in the system; (b) reduce the overall amount of maintenance required since many problems can be detected and corrected in the design phase.

There is nothing more powerful than an idea whose time has come ...

Applying object orientation concepts to TRD

In Section 6.1, we have already been introduced to the concept of modularity *vis-à-vis* the ‘Lonsdaleite’ hexagonal structure for TRD. If we assume that there are no urban centers anywhere near to this target community, it would logically imply that the region around it would also be rural, and therefore eligible for TRD intervention, again, on the assumption that we want to eradicate rural poverty everywhere. It is in scenarios such as this, that the power of ‘reusability’ in object orientation comes to the fore. Let us see how object orientation would work.

We will first need to know what the system has to do.

In other words, we need ‘Domain Experts’, who will determine what needs to be done to get the indigent people out of poverty, globally. Fortunately for us, we already have the answer to this question, as we have already defined the approach for TRD in Section 4, which is as follows:

³¹ Procedural programming is a top-down approach, in which the problem is decomposed into sub-problems, which are solved recursively. Procedures, also known as routines, subroutines, methods, or functions (not to be confused with mathematical functions, but similar to those used in functional programming) simply contain a series of computational steps to be carried out. Any given procedure might be called at any point during a program's execution, including by other procedures or itself.

³² Object Oriented Programming (OOP) is a pattern which enables applications to be developed economically and delivered easily. It permits delegation of specializations, which makes application development more manageable.

³³ An object is an implementation of one or more roles; roles are a set of related responsibilities; responsibility is an obligation for collaboration; collaboration is an interaction of objects or roles (or both).

³⁴ It should be noted that no one method, technology or technique would solve all the problems associated with reuse. There will always be complications, and these must be expected and planned for.

1. Use a hexagonal structure, with a ‘Central Ring’ that has an RAC at the center and 24 VICs distributed around it, as shown in Figure 5;
2. Develop the ‘Rural Convergence Program’ Structure, as shown in Figures 5 and 6;
3. Use an implementation model of the ‘Rural Convergence Program’, with (a) RAC + RCP Secretariat; (b) six ITECCs, each with six VICs, and its complement of at least six ICs, as shown in Figure 6.

It would be useful at this point to redraw Figure 5, without the labels to distract us, and by restoring the hexagonal structures around the ‘Target Community’ to their original luminosity. The result is shown in the figure below:

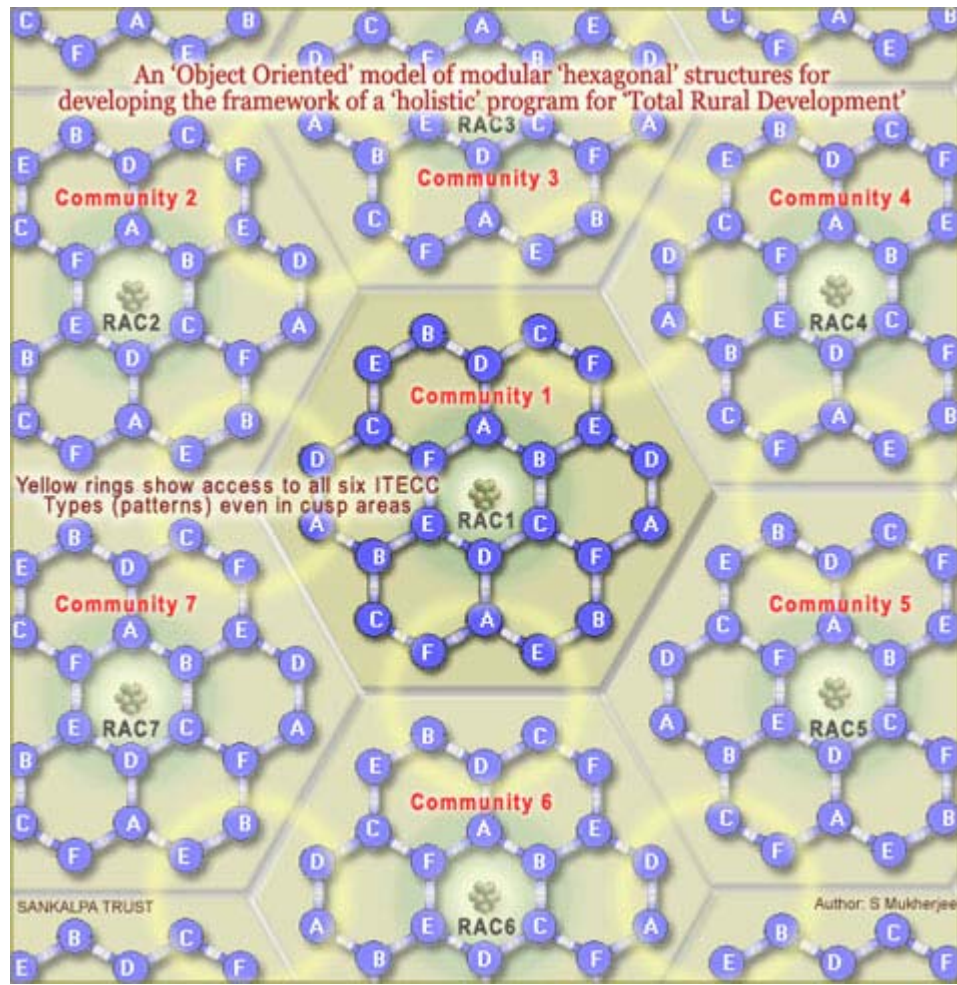


Figure A3.1: Object Oriented Model of Modular Hexagonal Structures for TRD. The ‘Target Community’ in Figure 5 is shown above as the referential ‘Community 1’, with the remaining six communities numbered from 2 to 7, clockwise. The corresponding ‘Rural Access Centers’ are marked from RAC1 to RAC7. The sprinkling of yellow rings shows that the indigent people—even in the peripheral fringe areas between two communities—have access to all six ITECC Types (patterns) ‘A’ to ‘F’. This will ensure a uniform transfer of knowledge-based products and service, and the uniform development of the entire community.

This results in the hexagonal object shown at the center of Figure A3.1—marked ‘Community 1’, which we will refer to as the ‘**RCP Module**’. It defines a pattern for ‘Total Rural Development’, which can be reused—and has been reused six more times in Figure A3.1 above—to produce the regional TRD program, spread over seven such communities, and can theoretically extend to as wide an area as may be needed.

This is the essence of object orientation—the power of reusability. Once the ‘Domain Expert’ has determined that—at the macro level—the ‘RCP Module’ is the pattern of rural development that can bring entire communities of indigent people out of poverty, then we can reuse this pattern, globally, without having to reinvent the model every time we visit a new, rural place that needs ‘Total Rural Development’.

Simultaneously—at the micro-level—we need to address the special needs of each community. This aspect has already been stressed in Section 5—for effective participatory development. In terms of the Object Oriented framework briefly described in footnote # 20, these special requirements of each particular village or community can be factored into the object framework as ‘specializations’. This will enable the service delivery to be customized for local conditions.

Superimposed over this general pattern, our ‘Domain Expert’ would also have defined (a) the special attributes of the [RAC + RCP Secretariat] combine at the hub of the ‘RCP Module’; (b) the design features and attributes of the ITECCs and VICs, and (c) the equipment, the special training requirement of ICs, and other details that will be needed for ‘customizing’ a successful TRD program for, say, ‘Community 1’.

In a similar fashion, the ‘specialization’ requirements for all the adjoining communities #2 to #7 can similarly be determined and entered into the object oriented framework.

To reiterate: We have therefore used a pattern at the macro level to define the common underlying principle or pattern for developing a TRD program, which will get the indigent people out of poverty. We also have the means to define the special attributes of each community at the micro-level, which must be customized for the TRD Program to be effective, perhaps right down to individual families in villages, and if needed, right down to the level of individual members of the community!

It must be emphasized here that, whereas this detailed level of planning and execution is not possible with the conventional and traditional methods of monitoring, evaluation and control in the older paradigms of rural development, it becomes immediately apparent that, with the advent of advanced computing hardware, and now with the maturity of object oriented technologies for the development of appropriate software, we can achieve hitherto unimaginable levels of precision in the design, implementation and control of this rural development process. In this new paradigm for rural development, we can truly empower the erstwhile neglected and impoverished indigent people, with modern science and technology, if it is applied appropriately. This is the essence of the new paradigm. Empowerment of ALL indigent people with a human face, keeping the following motto uppermost in our minds, that: the essence of sustainability is morality.

With this explanation, we conclude our brief and introductory discussion on the analogy between object-oriented technologies in the IT industry and the proposed application of object orientation for total rural development.

Just as there has been a paradigm shift in software development from procedural programming to object oriented programming, we propose that we initiate a paradigm shift from the traditional ‘procedural’ and ‘top-down’ rural development regimes to the modern and object oriented and ‘bottom-up’ technique exemplified by the preceding discussion on object orientation for ‘Total Rural Development’.

Modeling of TRD with UML®

This discussion on the application of object oriented technologies for rural development will not be complete, if we did not also discuss the impact that the Unified Modeling Language™, or UML³⁵ as it is more well known in the industry, can have in simplifying the modeling and study of rural development initiatives, especially one which is as complicated as TRD.

The fundamental reason to use the UML is to communicate certain concepts more clearly than natural language, which can be imprecise and gets tangled when it comes to more complex concepts. UML permits a certain amount of precision without losing or avoiding the details; and on the contrary, we can use UML to highlight important details.

It is easy to ‘lose sight of the forest for the trees’ on a large project. UML helps planners to acquire an overall view of the system. For example, a look at a ‘class diagram’³⁶ can quickly tell the planner what kinds of abstractions are present in the system and where the questionable parts are that need further work. Probing deeper, we can see how ‘classes’ collaborate, and that bring on ‘interaction diagrams’³⁷ that illustrate key behaviors in the system.

With a few choice diagrams in hand, we can find our way around the project much more easily. To build a ‘Road map’ of a large system, we can use ‘package diagrams’³⁸ to show the major parts of the system and their interdependencies. For each package, we can then draw a class diagram, taking a specification perspective.

These are just a few examples of visual tools to help capture the intricacies of the project and document them for posterity. See Footnote # 22 for information on how one can get more details of this modeling approach.

Patterns help to explain why our project design is the way it is, and can be used to describe the important ideas in the system that appear in multiple places. It is also useful to describe the designs and concepts that have been rejected, and why they were rejected. Usually, in large projects, this kind of crucial information is forgotten, and we end up repeating avoidable past mistakes. UML helps to keep a control on the communication process, make it brief and document it for posterity. An important part of an effective communication strategy is in highlighting the important things, while leaving out the unnecessary or unimportant things.

One of the biggest challenges in the development of TRD is that of building the right system—one that meets the beneficiary community’s needs at a reasonable cost. The communication imbroglio makes this difficult, if our beneficiaries and domain experts talk in a different language. However, achieving good communication, along with good understanding of the beneficiary’s world, is the key to developing a good solution system. With UML, individual ‘use case’³⁹ diagrams help us to overcome the language barrier in understanding the beneficiary needs. The sum of all use cases provides us with a ‘dynamic’ model of the system, and what it will do.

The goal of any modeling effort is to try to identify a vision that has a good chance of working. The UML-based model is a good starting point, for this. Even if we do not take the next step of using this UML-based model to develop a software approach for design and control of the new

³⁵ OMG™ is an international, open membership, not-for-profit computer industry consortium. The Unified Modeling Language™ - UML - is OMG's most-used specification, and the way the world models not only application structure, behavior and architecture, but also business process and data structure. More details on UML can be obtained from <http://www.uml.org/>

³⁶ A UML class describes a set of objects that share the same attributes, operations, relationships & semantics.

³⁷ Shows how several objects collaborate in single use case.

³⁸ Shows groups of classes and dependencies among them.

³⁹ A ‘use case’ is a set of scenarios tied together by a common user goal.

paradigm, it is enough that we obtain a mature understanding of our problems and the solutions that we may need.

Reusability of internal objects in the ‘RCP Module’

We have reviewed the advantages of reusability of the ‘RCP Module’ in Figure A3.1. This is at the macro level, where a successful development paradigm can be reused *en bloc*, globally.

However, there are equal, if not greater advantages, to reuse when we consider the internal patterns and objects of the ‘RCP Module’. For instance, there are six types of ITECCs as explained in Section 6.1. In each of these six types of ITECCs, there will be the same pattern of organizational functions: program management, accounting, M&E, maintenance and so on. Application of object oriented techniques to the design, resource planning and implementation of these six ITECCs will not only yield significant cost benefits; it will also contribute to the building of a robust system, that is also better maintainable, which is the principle advantage of modeling techniques⁴⁰.

Model Driven Architecture® (MDA®) ^[19] is an approach to system development, which increases the power of models in that work. It is model-driven because it provides a means for using models to direct the course of understanding, design, construction, deployment, operation, maintenance and modification.

The advantages of applying modeling techniques⁴¹ become even more apparent in the case of (a) ‘Village Information Centers’ (VICs), as there are six to each ITECC, making a total of 24 VICs, and (b) with at least 84 ‘Information Consultants’ (ICs), in each ‘RCP Module’, as shown in Figure 5. For example, reuse of patterns and objects in the framework for the design and implementation of the training, resource planning and control applications for these VICs and ICs require working with only generic packages and substitution of the problem-specific elements for the generic model elements, as appropriate—instead of handling each one on a case-by-case basis, as would be necessary in the traditional approach.

The benefits of reusability are reduced implementation time, significant improvement in productivity, increased software quality and test coverage, and localized code modifications when a change is required.

⁴⁰ The essence of Model Driven Architecture (MDA) ^[19] is that the creation of an executable software architecture should be driven by the formulation of models rather than by manually writing source code. Source code is generated from the models by a compilation step, much as machine code is generated from source code. The MDA initiative aims to move software development to a higher level of abstraction.

⁴¹ Modeling ensures that the software systems deliver the functionality that the enterprise requires, is comprehensive and stable, and yet able to evolve in a controlled manner as the environment changes over time.

Details of project partners and their contact persons

Project Holder: The TRD Group

Dr. Ashok Khosla—Chairman
Dr. Subhrankar Mukherjee—Secretary
Address: P6 Cluster 2, Purbachal, Salt Lake, Kolkata 700097, India.
Telephone/Mobile: +91 (11) 2613 4103 and +91 94330 19821
eMail: <akhosla@devalt.org> and <subra@enr.colostate.edu>

Lead Partner: Sankalpa Trust, INDIA

Dr. Subhrankar Mukherjee—Principal Investigator for the Proposal and Managing Trustee
Registered Address:, P6: Cluster 2, Purbachal, Salt Lake, Calcutta 700097, India.
Telephone: +91 (33) 2335 9812
Mobile: +91 94330 19821
eMail: <subra@enr.colostate.edu> , <subhrankar@gmail.com>

Global Partner: Development Alternatives, INDIA

Dr. Ashok Khosla, Chairman
Address: Development Alternatives, 111/9-Z, Kishangarh, Vasant Kunj, New Delhi – 110070.
Telephone: 91 (11) 2613-4103
Fax: 91 (11) 2613-0817
eMail: akhosla@devalt.org

Academic Partner: Village Earth—Colorado State University, Fort Collins, USA

Mr. David C. Bartecchi, Executive Director
Address: Village Earth, PO Box 797, Fort Collins, CO 80522, U.S.A.
Telephone: (970) 491-0633
Fax: (970) 491-2729
eMail: david@villageearth.org

Technology Partner: Society for Appropriate Rural Technology for Sustainability (ARTS), INDIA

Dr. Subhrankar Mukherjee—President
Registered Address: P6: Cluster 2, Purbachal, Salt Lake, Calcutta 700097, India.
Telephone: +91 (33) 2335 9812
Mobile: +91 94330 19821
eMail: <subra@enr.colostate.edu> , <subhrankar@gmail.com>

Multipliers			1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year		
General Sustainability Factor (GSF)			1.00	1.00	0.80	0.60	0.40	0.20	0.00		
Inflation in Salaries (%)	10.0%		1.000	1.100	1.210	1.331	1.464	1.611	1.772		
Rate of Inflation (%)	6.0%		1.000	1.060	1.124	1.191	1.262	1.338	1.419		
Discount Rate	8.0%		1.000	0.926	0.857	0.794	0.735	0.681	0.630		
RCP SECRETARIAT BUDGET											
ITEMS	Unit	#	Rs/unit	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	Total
1. Human resources											
1.1 Salaries (gross amounts)											
1.1.1 Executives											
1.1.1.1 Chief Executive	Per mth	13	200,000	2,600,000	2,860,000	2,516,800	2,076,360	1,522,664	837,465	0	12,413,289
1.1.1.2 Dy. Chief Executive	Per mth	13	200,000	2,600,000	2,860,000	2,516,800	2,076,360	1,522,664	837,465	0	12,413,289
1.1.1.3 Village Coordination Executive	Per mth	13	150,000	1,950,000	2,145,000	1,887,600	1,557,270	1,141,998	628,099	0	9,309,967
1.1.1.4 Environmental Programs Executive	Per mth	13	150,000	1,950,000	2,145,000	1,887,600	1,557,270	1,141,998	628,099	0	9,309,967
1.1.1.5 DC Liaison Executive	Per mth	13	150,000	1,950,000	2,145,000	1,887,600	1,557,270	1,141,998	628,099	0	9,309,967
1.1.1.6 Advisor	Per mth	13	150,000	1,800,000	1,980,000	1,742,400	1,437,480	1,054,152	579,784	0	8,593,816
1.1.2 Project Management											
1.1.2.1 Project Manager	Per mth	13	100,000	1,300,000	1,430,000	1,258,400	1,038,180	761,332	418,733	0	6,206,645
1.1.2.2 Assistant Manager	Per mth	13	25,000	325,000	357,500	314,600	259,545	190,333	104,683	0	1,551,661
1.1.2.3 HRD/Training Manager	Per mth	13	80,000	1,040,000	1,144,000	1,006,720	830,544	609,066	334,986	0	4,965,316
1.1.2.4 Assistant HRD/Training Manager	Per mth	13	20,000	260,000	286,000	251,680	207,636	152,266	83,747	0	1,241,329
1.1.2.5 Finance/Accounts Manager	Per mth	13	80,000	1,040,000	1,144,000	1,006,720	830,544	609,066	334,986	0	4,965,316
1.1.2.6 Assistant Finance/Accounts Manager	Per mth	13	20,000	260,000	286,000	251,680	207,636	152,266	83,747	0	1,241,329
1.1.2.7 Materials Manager	Per mth	13	80,000	1,040,000	1,144,000	1,006,720	830,544	609,066	334,986	0	4,965,316
1.1.2.8 Assistant Materials Manager	Per mth	13	20,000	260,000	286,000	251,680	207,636	152,266	83,747	0	1,241,329
1.1.2.9 Technical Manager	Per mth	13	80,000	1,040,000	1,144,000	1,006,720	830,544	609,066	334,986	0	4,965,316
1.1.2.10 Assistant Technical Manager	Per mth	13	20,000	260,000	286,000	251,680	207,636	152,266	83,747	0	1,241,329
1.1.2.11 Quality Manager	Per mth	13	80,000	1,040,000	1,144,000	1,006,720	830,544	609,066	334,986	0	4,965,316
1.1.2.12 Assistant Quality Manager	Per mth	13	20,000	260,000	286,000	251,680	207,636	152,266	83,747	0	1,241,329
1.1.2.13 Systems Administrator	Per mth	13	80,000	1,040,000	1,144,000	1,006,720	830,544	609,066	334,986	0	4,965,316
1.1.2.14 Assistant Systems Administrator	Per mth	13	20,000	260,000	286,000	251,680	207,636	152,266	83,747	0	1,241,329
1.1.3 Junior management											
1.1.3.1 Village Action Executive Assistant (2 persons)	Per mth	13	35,000	910,000	1,001,000	880,880	726,726	532,932	293,113	0	4,344,651
1.1.3.2 Environmental Programs Exec. Asst.	Per mth	13	35,000	455,000	500,500	440,440	363,363	266,466	146,556	0	2,172,326
1.1.3.3 Administration Officer	Per mth	13	35,000	455,000	500,500	440,440	363,363	266,466	146,556	0	2,172,326
1.1.3.4 Market Development Officer	Per mth	13	35,000	455,000	500,500	440,440	363,363	266,466	146,556	0	2,172,326
1.1.3.5 Communications Officer	Per mth	13	35,000	455,000	500,500	440,440	363,363	266,466	146,556	0	2,172,326
1.1.4 Research Associates											
1.1.4.1 Research Fellows - 9 persons	Per mth	13	25,000	2,925,000	3,217,500	2,831,400	2,335,905	1,712,997	942,148	0	13,964,950
1.1.4.2 Research Assistants - 12 persons	Per mth	13	15,000	2,340,000	2,574,000	2,265,120	1,868,724	1,370,398	753,719	0	11,171,960
1.1.5 Support Staff											
1.1.5.1 Support Staff	Per mth	13	10,000	520,000	572,000	503,360	415,272	304,533	167,493	0	2,482,658
1.2 Per diems for missions/travel											
1.2.1 National travel	Per trip	20	2,000	40,000	42,400	44,944	47,641	50,499	53,529	56,741	335,754
1.2.2 Local (staff assigned to the pilot project)	Per mth	12	2,500	30,000	31,800	33,708	35,730	37,874	40,147	42,556	251,815
Subtotal Human Resources				30,860,000	33,943,200	29,883,372	24,672,265	18,120,229	10,011,196	99,296	147,589,559
Present Value of future payments (10% discount rate)				30,860,000	31,428,889	25,620,175	19,585,640	13,318,909	6,813,452	62,574	
Present Value (at 10% discount rate)				127,689,638		42.6%					
2. Travel											
2.1 International travel	Per flgt	10	100,000	1,000,000	1,060,000	1,123,600	1,191,016	1,262,477	1,338,226	1,418,519	8,393,838
2.2 National travel	Per flgt	40	15,000	600,000	636,000	674,160	714,610	757,486	802,935	851,111	5,036,303
2.3 Local transportation and logistic expenses	Per mth	12	25,000	300,000	318,000	337,080	357,305	378,743	401,468	425,556	2,518,151
Subtotal Travel				1,900,000	2,014,000	2,134,840	2,262,930	2,398,706	2,542,629	2,695,186	15,948,292
Present Value of future payments (10% discount rate)				1,900,000	1,864,815	1,830,281	1,796,387	1,763,121	1,730,470	1,698,425	
Present Value (at 10% discount rate)				12,583,499		4%					
3. Equipment and supplies											
3.1 Public Private Partnership investments (25%)											
				11,745,525	10,480,014	18,514,691	16,152,735	3,230,547	1,615,273	807,637	62,546,422
3.2 RCP Infrastructure expenses											
3.2.1 Building				2,000,000			400,000				2,400,000
3.2.2 Desktop PCs and peripherals	Per Unit	36	40,000	1,440,000			360,000				1,800,000
3.2.3 Laptops and peripherals	Per Unit	10	70,000	700,000			175,000				875,000
3.2.4 UPS (10kVA) plus batteries	Per Unit	1	200,000	200,000			40,000				240,000
3.2.5 Genset (~10kVA)	Per Unit	1	150,000	150,000			30,000				180,000
3.2.6 Printer	Per Unit	1	25,000	25,000			5,000				30,000
3.2.7 Other media & communication equipment	Per Year	1	Compound	200,000			40,000				240,000
3.2.8 Furniture & fittings	Per Year	1	Compound	500,000			100,000				600,000
3.2.9 4WD Vehicle - TATA Jeep + accessories	Per Unit	1	1,200,000	1,200,000			240,000				1,440,000
3.2.10 4WD Vehicle - Mahindra Jeep + accessories	Per Unit	1	500,000	500,000			100,000				600,000
3.2.11 Motor bikes	Per Unit	25	60,000	1,500,000			300,000				1,800,000
3.2.12 Bicycles for fieldstaff	Per Unit	10	2,500	25,000			5,000				30,000
3.2.13 Micellaneous office equipment				100,000			20,000				120,000
Subtotal Equipment and Supplies				20,285,525	10,480,014	18,514,691	17,967,735	3,230,547	1,615,273	807,637	72,901,422
Present Value of future payments (10% discount rate)				20,285,525	9,703,717	15,873,364	14,263,367	2,374,548	1,099,328	508,948	
Present Value (at 10% discount rate)				64,108,797		21%					
4. RCP Office Expenses											
4.1 Vehicle costs -											
4.1.1 Car fuel (Rs.12,500/month x 2 4WD vehicles)	Per mth	12	25,000	300,000	318,000	337,080	357,305	378,743	401,468	425,556	2,518,151
4.1.2 Car maintenance (Rs 1,000/month x 2 nos)	Per mth	12	2,000	24,000	25,440	26,966	28,584	30,299	32,117	34,044	201,452
4.1.3 Motor-bike fuel (Rs.750/month x 25 motor-bikes)	Per mth	12	18,750	225,000	238,500	252,810	267,979	284,057	301,101	319,167	1,888,613
4.1.4 Motorbike Maintenance (Rs.100/month x 25 nos)	Per mth	12	2,500	30,000	31,800	33,708	35,730	37,874	40,147	42,556	251,815
4.1.5 Car rentals	Per mth	12	5,000	60,000	63,600	67,416	71,461	75,749	80,294	85,111	503,630
4.2 Hub rent	Per mth	12	10,000	120,000	127,200	134,832	142,922	151,497	160,587	170,222	1,007,261
4.3 Utilities, Internet, services	Per mth	12	30,000	360,000	381,600	404,496	428,766	454,492	481,761	510,667	3,021,782
4.4 Other Communication expenses	Per mth	12	1,000	12,000	12,720	13,483	14,292	15,150	16,059	17,022	100,726
4.5 Phone (Rs.750/mo x 20 cellphones)	Per mth	12	15,000	180,000	190,800	202,248	214,383	227,246	240,881	255,333	1,510,891
4.6 Stationary	Per mth	12	2,000	24,000	25,440	26,966	28,584	30,299	32,117	34,044	201,452
4.7 Documentation	Per mth	12	1,000	12,000	12,720	13,483	14,292	15,150	16,059	17,022	100,726
4.8 Photography	Per mth	12	2,000	24,000	25,440	26,966	28,584	30,299	32,117	34,044	201,452
4.9 Media (posters & publications)	Per mth	12	10,000	120,000	127,200	134,832	142,922	151,497	160,587	170,222	1,007,261
4.10 Insurance	Per mth	12	15,000	180,000	190,800	202,248	214,383	227,246	240,881	255,333	1,510,891
4.11 Newsletter Printing	Per mth	12	5,000	60,000	63,600	67,416	71,461	75,749	80,294	85,111	503,630
4.12 Miscellaneous Office Running Costs	Per mth	12	2,500	30,000	31,800	33,708	35,730	37,874	40,147	42,556	251,815
Subtotal Local office				1,761,000	1,866,660	1,978,660	2,097,379	2,223,222	2,356,615	2,498,012	14,781,548
Present Value of future payments (10% discount rate)				1,761,000	1,728,389	1,696,382	1,664,967	1,634,134	1,603,873	1,574,171	
Present Value (at 10% discount rate)				11,662,916		4%					

5. Other costs, services											
5.1 Capacity Building											
5.1.1 Training for Trainers	Per mth	12	20,000	150,000	159,000	168,540	178,652	142,029	100,367	53,194	951,782
5.1.2 For beneficiaries	Per mth	12	100,000	150,000	159,000	168,540	178,652	142,029	100,367	53,194	951,782
5.2 Expenses to create training materials	Per mth	12	75,000	125,000	132,500	140,450	148,877	118,357	83,639	44,329	793,152
5.3 Monitoring & Evaluation costs	Per mth	12	25,000	300,000	300,000	318,000	337,080	267,979	189,372	100,367	1,812,797
5.4 Networking & transference with NGOs	Per year	1	Compound	50,000	53,000	56,180	59,551	47,343	33,456	17,731	317,261
5.5 Cost of 'Market creation approach' services	Per year	1	Compound	1,000,000	1,060,000	1,191,016	1,418,519	1,790,848	2,396,558	3,399,564	12,256,505
5.3 Jingles production	Per year	1	Compound	250,000	125,000	125,000	125,000	125,000	125,000	125,000	1,000,000
Subtotal Other costs, services				2,025,000	1,988,500	2,167,726	2,446,332	2,633,584	3,028,758	3,793,380	18,083,279
Present Value of future payments (10% discount rate)				2,025,000	1,841,204	1,858,476	1,941,977	1,935,763	2,061,322	2,390,473	
Present Value (at 10% discount rate)				14,054,214							5%
6. Special Programs											
6.1 Advanced Technology investments	Per Year	1	Compound	5,000,000	1,000,000	750,000	500,000	500,000	500,000	500,000	8,750,000
6.2 Microfinance Revolving Fund	Per Year	1	Compound	2,000,000	400,000	300,000	200,000	200,000	200,000	200,000	3,500,000
6.3 Process improvement programs	Per mth	12	75,000	225,000	900,000	954,000	1,011,240	803,936	568,115	301,101	4,763,391
6.4 RCP modeling using UML	Per mth	12	100,000	300,000	1,200,000	900,000	450,000	225,000	180,000	144,000	3,399,000
6.5 Object oriented software development	Per mth	12	125,000	375,000	1,500,000	1,590,000	1,685,400	1,786,524	1,893,715	2,007,338	10,837,978
6.6 Programs for transformation of values	Per mth	12	75,000	225,000	900,000	954,000	758,430	535,957	284,057	301,101	3,958,545
6.7 Website development & maintenance	Per Year	1	Compound	500,000	100,000	50,000	50,000	50,000	50,000	50,000	850,000
6.8 Seminar Series	Per Year	1	Compound	11,610,000	2,322,000	1,161,000	1,161,000	1,161,000	1,161,000	1,161,000	19,737,000
Subtotal Special Programs				20,235,000	8,322,000	6,659,000	5,816,070	5,262,417	4,836,887	4,664,540	55,795,914
Present Value of future payments (10% discount rate)				20,235,000	7,705,556	5,709,019	4,616,984	3,868,034	3,291,904	2,939,451	
Present Value (at 10% discount rate)				48,365,948							16%
7. Subtotal direct costs of TRD Pilot Project (Σ[1 to 6])											
				77,066,525	58,614,374	61,338,289	55,262,711	33,868,705	24,391,359	14,558,051	325,100,014
Present Value estimates of #7 (10% discount rate)				77,066,525	54,272,568	52,587,696	43,869,322	24,894,509	16,600,349	9,174,042	
Present Value of #7 (at 10% discount rate)				278,465,011							93%
8. Provision for contingency reserve (2.5% of #7)											
				1,926,663	1,465,359	1,533,457	1,381,568	846,718	609,784	363,951	8,127,500
9. Total direct costs of TRD Pilot Project (7 + 8)											
				78,993,188	60,079,733	62,871,746	56,644,279	34,715,422	25,001,143	14,922,002	333,227,514
10. Administrative/Institutional Overhead costs (5% of #9)											
				3,949,659	3,003,987	3,143,587	2,832,214	1,735,771	1,250,057	746,100	16,661,376
11. TOTAL BUDGETARY ESTIMATE (9 + 10)											
				82,942,848	63,083,720	66,015,333	59,476,493	36,451,194	26,251,201	15,668,102	349,888,890
Present Value of future payments (10% discount rate)				82,942,848	58,410,852	56,597,508	47,214,358	26,792,715	17,866,126	9,873,562	
Present Value (at 10% discount rate)				299,697,969							100%

Note: Details of program expenses, methodology and justification of estimations will be made available on

Multiplying Factors			1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year
General Sustainability Factor (GSF)			1.00	1.00	0.80	0.60	0.40	0.20	0.00
Inflation in Salaries (%)	10.0%		1.000	1.100	1.210	1.331	1.464	1.611	1.772
Rate of Inflation (%)	6.0%		1.000	1.060	1.124	1.191	1.262	1.338	1.419
Discount Rate (or 'Hurdle' Rate)	8.0%		1.000	0.926	0.857	0.794	0.735	0.681	0.630

ITECC BUDGET											
ITEMS	Unit	#	Rs/unit	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	Total
1. Human resources											
1.1 Salaries (gross amounts)											
1.1.1 ITECC Management											
1.1.1.1 Center Manager	Per month	13	75,000	975,000	1,072,500	943,800	778,635	570,999	314,049	0	4,654,983
1.1.2 Project Management											
1.1.2.1 Market Development Officer	Per month	13	50,000	650,000	715,000	629,200	519,090	380,666	209,366	0	3,103,322
1.1.2.2 Engineer/System Manager	Per month	13	50,000	650,000	715,000	629,200	519,090	380,666	209,366	0	3,103,322
1.1.3 Research Associates											
1.1.3.1 Research Assistants (3 persons)	Per mh	13	15,000	585,000	643,500	566,280	467,181	342,599	188,430	0	2,792,990
1.1.3.2 Documentalist	Per mh	13	15,000	130,000	143,000	125,840	103,818	76,133	41,873	0	620,664
1.1.4 Support Staff	Per mh	13	10,000	104,000	114,400	100,672	83,054	60,907	33,499	0	496,532
1.2 Per diems for missions/travel											
1.2.1 National travel	Per trip	12	2,000	24,000	25,440	26,966	28,584	30,299	32,117	34,044	201,452
1.2.2 Local (staff assigned to the pilot project)	Per mh	12	2,500	30,000	31,800	33,708	35,730	37,874	40,147	42,556	251,815
Subtotal Human Resources				3,148,000	3,460,640	3,055,666	2,535,183	1,880,144	1,068,848	76,600	15,225,081
Present Value of future payments (10% discount rate)				3,148,000	3,204,296	2,619,741	2,012,510	1,381,962	727,440	48,271	
Present Value (at 10% discount rate)				13,142,221	20%						
Present Value Cost for six ITECCS				78,853,324							
2.Travel											
2.1 International travel	Per flgt	6	100,000	600,000	636,000	674,160	714,610	757,486	802,935	851,111	5,036,303
2.1 National travel	Per flgt	12	15,000	180,000	190,800	202,248	214,383	227,246	240,881	255,333	1,510,891
2.2. Local transportation and logistic expenses	Per mh	12	25,000	300,000	318,000	337,080	357,305	378,743	401,468	425,556	2,518,151
Subtotal Travel				1,080,000	1,144,800	1,213,488	1,286,297	1,363,475	1,445,284	1,532,001	9,065,345
Present Value of future payments (10% discount rate)				1,080,000	1,060,000	1,040,370	1,021,104	1,002,195	983,636	965,420	
Present Value (at 10% discount rate)				7,152,726	11%						
Present Value Cost for six ITECCS				42,916,353							
3. Equipment and supplies											
3.1 Public Private Partnership investments (65%)				5,089,728	4,541,339	8,023,033	6,999,518	1,399,904	3,499,759	1,749,880	31,303,161
3.2 RCP Infrastructure expenses											
3.2.1 Building				1,500,000			300,000				1,800,000
3.2.2 Desktop PCs and peripherals	Per Unit	8	40,000	320,000			80,000				400,000
3.2.3 Laptops and peripherals	Per Unit	2	70,000	140,000			35,000				175,000
3.2.4 UPS (3kVA) plus batteries	Per Unit	1	63,000	63,000			12,600				75,600
3.2.5 Genset (~3kVA) + diesel	Per Unit	1	90,000	90,000			18,000				108,000
3.2.6 Printer	Per Unit	1	16,000	16,000			3,200				19,200
3.2.7 Other media & communication equipment	Per Year	1	Compnd	50,000			10,000				60,000
3.2.8 Furniture & fittings	Per Year	1	Compnd	100,000			20,000				120,000
3.2.10 4WD Vehicle - Mahindra Jeep + accessories	Per Unit	1	500,000	500,000			100,000				600,000
3.2.11 Motor bikes	Per Unit	5	60,000	300,000			60,000				360,000
3.2.12 Bicycles for fieldstaff	Per Unit	5	2,500	12,500			2,500				15,000
3.2.13 Micellaneous office equipment				15,000			3,000				18,000
Subtotal Equipment and Supplies				8,196,228	4,541,339	8,023,033	7,643,818	1,399,904	3,499,759	1,749,880	35,053,961
Present Value of future payments (10% discount rate)				8,196,228	4,204,944	6,878,458	6,067,909	1,028,971	2,381,877	1,102,721	
Present Value (at 10% discount rate)				29,861,108	45%						
Present Value Cost for six ITECCS				179,166,646							
4. ITECC Office Expenses											
4.1 Vehicle costs -											
4.1.1 Car fuel (Rs.12,500/month x 1 4WD vehicles)	Per mh	12	12,500	150,000	159,000	168,540	178,652	189,372	200,734	212,778	1,259,076
4.1.2 Car maintenance (Rs 1,000/month x 1 nos)	Per mh	12	1,000	12,000	12,720	13,483	14,292	15,150	16,059	17,022	100,726
4.1.3 Motor-bike fuel (Rs.750/month x 5 motor-bikes)	Per mh	12	3,750	45,000	47,700	50,562	53,596	56,811	60,220	63,833	377,723
4.1.4 Motorbike Maintenance (Rs.100/month x 5 nos)	Per mh	12	500	6,000	6,360	6,742	7,146	7,575	8,029	8,511	50,363
4.1.5 Car rentals	Per mh	1	5,000	5,000	5,300	5,618	5,955	6,312	6,691	7,093	41,969
4.2 Hub rent	Per mh	12	5,000	60,000	63,600	67,416	71,461	75,749	80,294	85,111	503,630
4.3 Utilities, Internet, services	Per mh	12	5,000	60,000	63,600	67,416	71,461	75,749	80,294	85,111	503,630
4.4 Other Communication expenses	Per mh	12	200	2,400	2,544	2,697	2,858	3,030	3,212	3,404	20,145
4.5 Phone (Rs.750/mo x 4 cellphones)	Per mh	12	3,000	36,000	38,160	40,450	42,877	45,449	48,176	51,067	302,178
4.6 Stationary	Per mh	12	250	3,000	3,180	3,371	3,573	3,787	4,015	4,256	25,182
4.7 Documentation	Per mh	12	150	1,800	1,908	2,022	2,144	2,272	2,409	2,553	15,109
4.8 Photography	Per mh	12	250	3,000	3,180	3,371	3,573	3,787	4,015	4,256	25,182
4.9 Media (posters & publications)	Per mh	12	1,000	12,000	12,720	13,483	14,292	15,150	16,059	17,022	100,726
4.10 Insurance	Per mh	12	1,500	18,000	19,080	20,225	21,438	22,725	24,088	25,533	151,089
4.11 Newsletter Printing	Per mh	12	500	6,000	6,360	6,742	7,146	7,575	8,029	8,511	50,363
4.12 Miscellaneous Office Running Costs	Per mh	12	500	6,000	6,360	6,742	7,146	7,575	8,029	8,511	50,363
Subtotal Local office				426,200	451,772	478,878	507,611	538,068	570,352	604,573	3,577,454
Present Value of future payments (10% discount rate)				426,200	418,307	410,561	402,958	395,496	388,172	380,983	
Present Value (at 10% discount rate)				2,822,677	4%						
Present Value Cost for six ITECCS				16,936,065							
5. Other costs, services											
5.1 Capacity Building											
5.1.1 Training for Trainers	Per mh	12	10,000	30,000	120,000	33,708	40,147	31,917	22,554	11,954	290,280
5.1.2 For beneficiaries	Per mh	12	10,000	30,000	120,000	33,708	40,147	31,917	22,554	11,954	290,280
5.2 Expenses to create training materials	Per mh	12	5,000	15,000	60,000	16,854	20,073	15,958	11,277	5,977	145,140
5.3 Monitoring & Evaluation costs	Per mh	12	10,000	120,000	120,000	134,832	160,587	127,667	90,218	47,815	801,119
5.4 Networking & transference with NGOs	Per year	1	Compnd	100,000	112,360	112,360	133,823	106,389	75,182	39,846	679,959
5.3 Jingles production	Per year	1	Compnd	25,000	12,500	12,500	12,500	12,500	12,500	12,500	100,000
Subtotal Other costs, services				320,000	544,860	343,962	407,277	326,347	234,285	130,046	2,306,778
Present Value of future payments (10% discount rate)				320,000	504,500	294,892	323,309	239,875	159,451	81,951	
Present Value (at 10% discount rate)				1,923,978	3%						
Present Value Cost for six ITECCS				11,543,870							

6. Special Programs											
6.1 ITECC Focus area capital investment	Per Year	1	Compnd	3,000,000	600,000	300,000	150,000	75,000	75,000	75,000	4,275,000
6.2 Microfinance Revolving Fund	Per Year	1	Compnd	400,000	424,000	212,000	106,000	53,000	53,000	53,000	1,301,000
6.3 Process improvement programs	Per mh	12	15,000	45,000	180,000	90,000	45,000	22,500	22,500	22,500	427,500
6.4 Programs for transformation of values	Per mh	12	25,000	75,000	300,000	150,000	75,000	37,500	37,500	37,500	712,500
Subtotal Special Programs				3,520,000	1,504,000	752,000	376,000	188,000	188,000	188,000	6,716,000
Present Value of future payments (10% discount rate)				3,520,000	1,392,593	644,719	298,481	138,186	127,950	118,472	
Present Value (at 10% discount rate)				6,240,399							9%
Present Value Cost for six ITECCS				37,442,397							
7. Subtotal direct costs of TRD Pilot Project (Σ[1 to 6])											
				16,690,428	11,647,411	13,867,028	12,756,186	5,695,938	7,006,528	4,281,099	71,944,618
Present Value estimates of #7 (10% discount rate)				16,690,428	10,784,640	11,888,741	10,126,272	4,186,684	4,768,525	2,697,819	
Present Value of #7 (at 10% discount rate)				61,143,109							93%
8. Provision for contingency reserve (2.5% of #7)				417,261	291,185	346,676	318,905	142,398	175,163	107,027	1,798,615
9. Total direct costs of TRD Pilot Project (7 + 8)				17,107,688	11,938,597	14,213,703	13,075,091	5,838,336	7,181,691	4,388,127	73,743,233
10. Administrative/Institutional Overhead costs (5% of #9)				855,384	596,930	710,685	653,755	291,917	359,085	219,406	3,687,162
11. TOTAL BUDGETARY ESTIMATE (9 + 10)				17,963,073	12,535,526	14,924,388	13,728,846	6,130,253	7,540,776	4,607,533	77,430,395
Present Value of future payments (10% discount rate)				17,963,073	11,606,969	12,795,258	10,898,400	4,505,919	5,132,125	2,903,528	
Present Value (at 10% discount rate)				65,805,271							100%
Present Value Cost for six ITECCS				394,831,626							

Note: Details of program expenses, methodology and justification of estimations will be made available on request.

Multiplying Factors			1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year
General Sustainability Factor (GSF)			1.00	1.00	0.80	0.60	0.40	0.20	0.00
Inflation in Salaries (%)	10.0%		1.000	1.100	1.210	1.331	1.464	1.611	1.772
Rate of Inflation (%)	6.0%		1.000	1.060	1.124	1.191	1.262	1.338	1.419
Discount Rate	8.0%		1.000	0.926	0.857	0.794	0.735	0.681	0.630

Village Information Center (VIC) Budget

ITEMS	Unit	#	Rs/unit	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	Total
1. Human resources											
1.1 Salaries (gross amounts)											
1.1.1 VIC Management											
1.1.1.1 VIC Manager	Per month	13	50,000	650,000	715,000	629,200	519,090	380,666	209,366	0	3,103,322
1.1.2 Project Management											
1.1.2.1 Engineer	Per month	13	40,000	520,000	572,000	503,360	415,272	304,533	167,493	0	2,482,658
1.1.3 Research Associates											
1.1.3.1 Research Assistants (1 person)	Per month	13	15,000	195,000	214,500	188,760	155,727	114,200	62,810	0	930,997
1.1.4 Support Staff	Per month	13	7,500	97,500	107,250	94,380	77,864	57,100	31,405	0	465,498
1.2 Per diems for missions/trave											
1.2.1 National travel	Per trip	24	2,000	48,000	50,880	53,933	57,169	60,599	64,235	68,089	402,904
1.2.2 Local (staff assigned to the pilot project)	Per month	12	250	3,000	3,180	3,371	3,573	3,787	4,015	4,256	25,182
Subtotal Human Resources				1,513,500	1,662,810	1,473,004	1,228,694	920,885	539,324	72,344	7,410,561
Present Value of future payments (10% discount rate)				1,513,500	1,539,639	1,262,863	975,377	676,878	367,055	45,589	
Present Value (at 10% discount rate)				6,380,901							57%
Present Value Cost for 24 VICs											153,141,624
2. Travel											
2.1 National travel	Per trip	24	2,500	60,000	63,600	67,416	71,461	75,749	80,294	85,111	503,630
2.2 Local transportation and logistic expense	Per month	12	2,500	30,000	31,800	33,708	35,730	37,874	40,147	42,556	251,815
Subtotal Travel				90,000	95,400	101,124	107,191	113,623	120,440	127,667	755,445
Present Value of future payments (10% discount rate)				90,000	88,333	86,698	85,092	83,516	81,970	80,452	
Present Value (at 10% discount rate)				596,060							5%
Present Value Cost for 24 VICs											14,305,451
3. Equipment and supplies											
3.1 Public Private Partnership investments (65%)				195,759	174,667	308,578	269,212	53,842	134,606	67,303	1,203,968
3.2 RCP Infrastructure expenses:											
3.2.1 Building				400,000			80,000				480,000
3.2.2 Desktop PCs and peripherals	Per Unit	3	40,000	120,000			30,000				150,000
3.2.3 Laptops and peripherals	Per Unit	1	70,000	70,000			17,500				87,500
3.2.4 UPS (1kVA) plus batteries	Per Unit	1	21,000	21,000			4,200				25,200
3.2.5 Genset (~3kVA) + diesel	Per Unit	1	30,000	30,000			6,000				36,000
3.2.6 Printer	Per Unit	1	16,000	16,000			3,200				19,200
3.2.7 Other media & communication equipment	Per Year	1	Compound	12,500			2,500				15,000
3.2.8 Furniture & fittings	Per Year	1	Compound	20,000			4,000				24,000
3.2.9 Motor bikes	Per Unit	1	60,000	60,000			12,000				72,000
3.2.12 Bicycles for fieldstaff	Per Unit	2	2,500	5,000			1,000				6,000
3.2.13 Miscellaneous office equipment				15,000			3,000				18,000
Subtotal Equipment and Supplies				965,259	174,667	308,578	432,612	53,842	134,606	67,303	2,136,868
Present Value of future payments (10% discount rate)				965,259	161,729	264,556	343,422	39,576	91,611	42,412	
Present Value (at 10% discount rate)				1,908,564							17%
Present Value Cost for 24 VICs											45,805,531
4. ITECC Office Expenses											
4.1 Vehicle costs -											
4.1.1 Motor-bike fuel (Rs.750/month x 1 motor-bike)	Per month	12	750	9,000	9,540	10,112	10,719	11,362	12,044	12,767	75,545
4.1.2 Motorbike Maintenance (Rs.100/month x 1 motor-bike)	Per month	12	100	1,200	1,272	1,348	1,429	1,515	1,606	1,702	10,073
4.2 Hub rent	Per month	12	2,000	24,000	25,440	26,966	28,584	30,299	32,117	34,044	201,452
4.3 Utilities, Internet, services:	Per month	12	2,000	24,000	25,440	26,966	28,584	30,299	32,117	34,044	201,452
4.4 Other Communication expenses	Per month	12	200	2,400	2,544	2,697	2,858	3,030	3,212	3,404	20,145
4.5 Phone (Rs.750/mo x 2 cellphones)	Per month	12	1,500	18,000	19,080	20,225	21,438	22,725	24,088	25,533	151,089
4.6 Stationary	Per month	12	75	900	954	1,011	1,072	1,136	1,204	1,277	7,554
4.7 Documentation	Per month	12	50	600	636	674	715	757	803	851	5,036
4.8 Photography	Per month	12	100	1,200	1,272	1,348	1,429	1,515	1,606	1,702	10,073
4.10 Insurance	Per month	12	250	3,000	3,180	3,371	3,573	3,787	4,015	4,256	25,182
4.12 Miscellaneous Office Running Costs	Per month	12	100	1,200	1,272	1,348	1,429	1,515	1,606	1,702	10,073
Subtotal Local office				85,500	90,630	96,068	101,832	107,942	114,418	121,283	717,673
Present Value of future payments (10% discount rate)				85,500	83,917	82,363	80,837	79,340	77,871	76,429	
Present Value (at 10% discount rate)				566,257							5%
Present Value Cost for 24 VICs											13,590,179
5. Other costs, services											
5.1 Capacity Building											
5.1.1 Training for Trainers	Per month	12	1,000	3,000	12,000	3,371	3,573	3,787	4,015	4,256	34,002
5.1.2 For beneficiaries	Per month	12	2,000	6,000	24,000	6,742	7,146	7,575	8,029	8,511	68,003
5.2 Expenses to create training material	Per month	12	5,000	15,000	60,000	16,854	17,865	18,937	20,073	21,278	170,008
5.3 Monitoring & Evaluation cost:	Per month	12	2,000	24,000	24,000	26,966	28,584	30,299	32,117	34,044	200,012
Subtotal Other costs, services				48,000	120,000	53,933	57,169	60,599	64,235	68,089	472,024
Present Value of future payments (10% discount rate)				48,000	111,111	46,239	45,382	44,542	43,717	42,908	
Present Value (at 10% discount rate)				381,899							3%
Present Value Cost for 24 VICs											9,165,574
6. Special Programs											
6.1 VIC Focus area investments	Per Year	1	Compound	200,000	40,000	20,000	10,000	5,000	5,000	5,000	285,000
6.2 Microfinance Revolving Fund	Per Year	1	Compound	50,000	56,180	28,090	14,045	7,023	7,023	7,023	169,383
6.3 Process improvement programs	Per Year	1	Compound	5,000	20,000	21,200	22,472	17,865	12,625	6,691	105,853
6.4 Programs for transformation of values	Per Year	1	Compound	5,000	20,000	21,200	22,472	17,865	12,625	6,691	105,853
Subtotal Special Programs				260,000	136,180	90,490	68,989	47,753	37,272	25,405	666,089
Present Value of future payments (10% discount rate)				260,000	126,093	77,581	54,766	35,100	25,367	16,009	
Present Value (at 10% discount rate)				594,915							5%
Present Value Cost for 24 VICs											14,277,954
7. Subtotal direct costs of TRD Pilot Project (Σ[1 to 6])				2,962,259	2,279,687	2,123,196	1,996,488	1,304,644	1,010,295	482,091	12,158,660
Present Value estimates of #7 (10% discount rate)				2,962,259	2,110,821	1,820,299	1,584,876	958,952	687,590	303,799	
Present Value of #7 (at 10% discount rate)				10,428,596							93%
8. Provision for contingency reserve (2.5% of #7)				74,056	56,992	53,080	49,912	32,616	25,257	12,052	303,967
9. Total direct costs of TRD Pilot Project (7 + 8)				3,036,315	2,336,679	2,176,276	2,046,400	1,337,260	1,035,553	494,144	12,462,627
10. Administrative/Institutional Overhead costs (5% of #9)				151,816	116,834	108,814	102,320	66,863	51,778	24,707	623,131
11. TOTAL BUDGETARY ESTIMATE (9 + 10)				3,188,131	2,453,513	2,285,090	2,148,720	1,404,123	1,087,330	518,851	13,085,758
Present Value of future payments (10% discount rate)				3,188,131	2,271,771	1,959,096	1,705,723	1,032,072	740,019	326,964	
Present Value (at 10% discount rate)				11,223,777							100%
Present Value Cost for 24 VICs											269,370,644

Note: Details of program expenses, methodology and justification of estimations will be made available on request.

Multiplying Factors			1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year
General Sustainability Factor (GSF)			1.00	1.00	0.80	0.60	0.40	0.20	0.00
Inflation in Salaries (%)	10.0%		1.0000	1.1000	1.2100	1.3310	1.4641	1.6105	1.7716
Rate of Inflation (%)	6.0%		1.0000	1.0600	1.1236	1.1910	1.2625	1.3382	1.4185
Discount Rate	8.0%		1.0000	0.9259	0.8573	0.7938	0.7350	0.6806	0.6302

Information Consultant (IC) Budget

ITEMS	Unit	#	Rs/unit	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	Total
1. Human resources											
1.1 Salaries (gross amounts)											
1.1.1 Information Consultant	Per month	13	25,000	325,000	357,500	314,600	259,545	190,333	104,683	0	1,551,661
1.2 Per diems for missions/travel											
1.2.2 Local (staff assigned to the pilot project)	Per month	12	750	9,000	9,540	10,112	10,719	11,362	12,044	12,767	75,545
Subtotal Human Resources				334,000	367,040	324,712	270,264	201,695	116,727	12,767	1,627,206
Present Value of future payments (10% discount rate)				334,000	339,852	278,389	214,544	148,252	79,443	8,045	
Present Value (at 10% discount rate)				1,402,525							75%
Present Value Cost for 84 ICs				117,812,064							
2. Travel											
2.1 Local transportation and logistic expense	Per month	12	250	3,000	3,180	3,371	3,573	3,787	4,015	4,256	25,182
Subtotal Travel				3,000	3,180	3,371	3,573	3,787	4,015	4,256	25,182
Present Value of future payments (10% discount rate)				3,000	2,944	2,890	2,836	2,784	2,732	2,682	
Present Value (at 10% discount rate)				19,869							1%
Present Value Cost for 84 ICs				1,668,969							
3. Equipment and supplies											
3.1 IC Infrastructure expenses:											
3.1.1 Laptops and peripherals	Per Unit	1	70,000	70,000			17,500				87,500
3.1.2 Other media & communication equipment	Per Year	1	Compound	5,000			1,000				6,000
3.1.3 Motor bikes	Per Unit	1	60,000	60,000			12,000				72,000
Subtotal Equipment and Supplies				135,000	0	0	30,500	0	0	0	165,500
Present Value of future payments (10% discount rate)				135,000	0	0	24,212	0	0	0	
Present Value (at 10% discount rate)				159,212							8%
Present Value Cost for 84 ICs				13,373,798							
4. IC Operational Expenses											
4.1 Vehicle costs -											
4.1.1 Motor-bike fuel (Rs.750/month x 1 motor-bike)	Per month	12	750	9,000	9,540	10,112	10,719	11,362	12,044	12,767	75,545
4.1.2 Motorbike Maintenance (Rs.100/month x 1 motor-bike)	Per month	12	100	1,200	1,272	1,348	1,429	1,515	1,606	1,702	10,073
4.2 Phone (Rs.750/mo x 1 cellphone)	Per month	12	750	9,000	9,540	10,112	10,719	11,362	12,044	12,767	75,545
4.3 Miscellaneous operational costs	Per month	12	100	1,200	1,272	1,348	1,429	1,515	1,606	1,702	10,073
Subtotal IC Operational Expenses				20,400	21,624	22,921	24,297	25,755	27,300	28,938	171,234
Present Value of future payments (10% discount rate)				20,400	20,022	19,651	19,288	18,930	18,580	18,236	
Present Value (at 10% discount rate)				135,107							7%
Present Value Cost for 84 ICs				11,348,991							
5. Other costs, services											
5.1 Capacity Building											
5.1.1 For beneficiaries	Per month	12	500	1,500	6,000	1,685	1,787	1,894	2,007	2,128	17,001
5.2 Miscellaneous	Per month	12	100	300	1,200	337	357	379	401	426	3,400
Subtotal Other costs, services				1,800	7,200	2,022	2,144	2,272	2,409	2,553	20,401
Present Value of future payments (10% discount rate)				1,800	6,667	1,734	1,702	1,670	1,639	1,609	
Present Value (at 10% discount rate)				16,821							0.9%
Present Value Cost for 84 ICs				1,412,982							
6. Special Programs											
6.1 Process improvement programs	Per Year	1	Compound	1,000	1,060	1,191	1,419	1,791	2,397	3,400	12,257
6.2 Programs for transformation of values	Per Year	1	Compound	500	530	596	709	895	1,198	1,700	6,128
Subtotal Special Programs				1,500	1,590	1,787	2,128	2,686	3,595	5,099	18,385
Present Value of future payments (10% discount rate)				1,500	1,472	1,532	1,689	1,974	2,447	3,213	
Present Value (at 10% discount rate)				13,828							0.7%
Present Value Cost for 84 ICs				1,161,511							
7. Subtotal direct costs of TRD Pilot Project (Σ[1 to 6])											
				495,700	400,634	354,814	332,906	236,196	154,045	53,613	2,027,907
Present Value estimates of #7 (10% discount rate)				495,700	370,957	304,196	264,271	173,611	104,841	33,785	
Present Value of #7 (at 10% discount rate)				1,747,361							93%
8. Provision for contingency reserve (2.5% of #7)											
				12,393	10,016	8,870	8,323	5,905	3,851	1,340	50,698
9. Total direct costs of TRD Pilot Project (7 + 8)				508,093	410,650	363,684	341,228	242,101	157,896	54,953	2,078,605
10. Administrative/Institutional Overhead costs (5% of #9)				25,405	20,532	18,184	17,061	12,105	7,895	2,748	103,930
11. TOTAL BUDGETARY ESTIMATE (9 + 10)				533,497	431,182	381,868	358,290	254,206	165,791	57,701	2,182,535
Present Value of future payments (10% discount rate)				533,497	399,243	327,390	284,422	186,849	112,835	36,361	
Present Value (at 10% discount rate)				1,880,597							100%
Present Value Cost for 84 ICs				157,970,162							

Note: Details of program expenses, methodology and justification of estimations will be made available on request.

Annexure 6: Annualized financial outlay and disbursement of funds necessary for the seven-year project.

Rural Convergence Program	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	Total
	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)
RCP Elements								
RCPS	77,066,525	54,272,568	52,587,696	43,869,322	24,894,509	16,600,349	9,174,042	278,465,011
ITECCs	100,142,565	64,707,841	71,332,446	60,757,633	25,120,106	28,611,150	16,186,913	366,858,654
VICs	71,094,210	50,659,709	43,687,168	38,037,030	23,014,852	16,502,159	7,291,183	250,286,312
ICs	41,638,800	31,160,422	25,552,423	22,198,776	14,583,332	8,806,614	2,837,948	146,778,315
Contingency	3,722,815	3,722,815	3,722,815	3,722,815	3,722,815	3,722,815	3,722,815	26,059,707
Institutional Overhead	7,445,631	7,445,631	7,445,631	7,445,631	7,445,631	7,445,631	7,445,631	52,119,415
Total	301,110,546	211,968,986	204,328,180	176,031,206	98,781,245	81,688,719	46,658,532	1,120,567,415