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IIM INDORE

Indore Management Journal

Volume I Issue 4 January-March 2010

Indore Management Journal

The Indore Management Journal is published by the Indian Institute of Management, Indore, in the belief that management scholars and social scientists should integrate disciplines in an attempt to understand the complexities of contemporary management challenges.

We also believe that both researchers and practitioners can contribute by translating understanding into action, by linking theory and practice. These would enhance the relevance and thought in various related fields taking us a little outside traditional fields of management, such as sustainable development. We would like to draw special attention to our openness to such thinking as well as approaches.

This could entail working within one's area or crossing disciplinary boundaries. As an international journal, we also invite manuscripts from all countries. We welcome, too, proposals for special issues from potential guest editors. These should include how the topic or theme fits in with the Indore Management Journal's objectives. The descriptions of manuscripts (or the manuscripts themselves), along with author details should be submitted with the proposal.

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Contents

Editorial

This issue begins with a homage to the contribution of C. K. Prahalad, teacher and management guru across borders. His *The Fortune at the Bottom of the Pyramid* and *India@75* have much to offer to developing countries, such as ours, with a view to inclusive growth.

The grains stored out in the open … not distributed to the needy, rising prices of cereals and pulses with an uneven monsoon, all concern the Indian citizen. More to the point, should the study of management not be internalised for better governance and distribution of supplies across the country? Who would take up this responsibility of planting and dispersing the seeds of better practices?

The role of our exemplary ex-president, Dr. A. P. J. Abdul Kalam, in his plans for a developed India 2020 envisages such a system which permeates the bottom level of the underprivileged: PURA (Providing Urban Amenities in Rural Areas). An improved existence through interventions of science and technology would benefit the agricultural sector too. The articles in the Developing India section states that the objective should be framed to the concept, the strategies through to the aspiration of rural people. Finally, the last two articles dwell upon the various implementation plans at a village level with examples from Ujjain (Madhya Pradesh) to Periyar (Tamil Nadu). IIM Indore, feeling the need to bridge gaps, has decided to partner with the Government in taking up PURA concepts and implementing them in Madhya Pradesh through student participation.

Meanwhile, in the Research section two authors explore the rate of software piracy in poorer and richer nations versus the value of this piracy. The theme of development weaves together the case study, the Articles and the Book Reviews. Access to women's education, the concepts of governance as experienced and thought about and the performance management of a private business school all prominently deal with growth.

If we wish to lead as individuals or organisations, we need to reflect on the questions that plague academics or entrepreneurs. Revitalising the MBA programme is the thrust of the first book review; the second focuses on a serial entrepreneur and his business models. The third takes us to the making of breakthrough innovation at the Aravind Eye Hospital and the Hepatitis B Vaccine for the masses. All are demonstrable stories, thoughtfully trying out rationales and opportunities in diverse ways.

Whilst the focus is on development, perhaps in the context of a given nation, at a given point in time or an organisation, the role of leadership is discussed as growth in the sense of the individual. Should a leader conspire or inspire?

Abha Chatterjee

In Memoriam
Reflections on Management Contributions of Professor C. K. Prahalad*

N. Ravichandran

Professor C. K. Prahalad (CKP), recognised globally as a great management teacher, thinker, advisor and a consultant (of the practising community), passed away on 17 April 2010 after a brief illness in San Diego, USA.

The author had the privilege of knowing him for more than 15 years and had conversations with him when he regularly visited Ahmedabad. CKP started his teaching career as a faculty at Indian Institute of Management Ahmedabad (IIMA). He was a distinguished Alumni of IIMA belonging to its first batch of the Post Graduate Programme in Management (PGP). He designed and coordinated the Management Education Program (MEP), a popular executive course at IIMA. MEP is a comprehensive 4.5-month integrated management course for practising managers as an effective alternative to a regular MBA course. The design of MEP was robust, contemporary and yet flexible. The author coordinated MEP on two occasions spread over a period of 10 years in IIMA. Based on its merits MEP lasted for more than 25 years, one offer every year. Indian Institute of Management Ahmedabad recently decided to discontinue MEP.

The author, as a faculty member at IIMA, had taught a second year optional course based on the academic works of CKP, which was a popular course among several batches of the PGP students at IIMA.

In the next few pages, we briefly recapture the contributions of CKP in broad terms and reflect on them to guide the future course of management education (research, teaching and consulting) and practice.

Major Contributions of Prof. C. K. Prahalad

CKP made a name for himself by introducing the concept of core competence to explain the superior performance of Japanese organisations compared with the rest in the world. This was acknowledged to be a dramatically new way of understanding competitiveness of organisations.

CKP broke the monotonicity when he introduced the idea of strategic intent of organisations. Whilst the academic community was still confined to strategy formulation and its implementation, he gave an alternative approach to strategy implementation, viz. strategy as a leverage to accomplish extraordinary performance of the organisation with the existing (limited) resources.

* A revised version of the first CKP memorial lecture delivered at Gwalior organised by ITM, Gwalior, on 15 July 2010.

CKP enunciated innovation as a source of competitive advantage in an explicit and convincing manner. When the academic community and the practising world was trying to catch up with best practices reported globally, CKP introduced the concept of 'next' practices in his work and lectures.

Attracted by the importance of India as an emerging economy, CKP came up with a vision document on India *(India@75)*, a blue print of action for India to become a developed nation.

His latest book *The New Age of Innovation* with M.S. Krishnan tactfully combines mass customisation, strategic outsourcing, innovation on global supply chains, usage of information technology in reengineered business process, interdependence of the firms at the global level, etc.

In the later part of his career, CKP became fascinated by the developing world. Therefore, he focused extensively on the issues and problems relevant to the developing nations, with an objective to develop a comprehensive managerial approach to resolve and address challenges arising out of accomplishing inclusive growth. This resulted in his work *The Fortune at the Bottom of the Pyramid*.

CKP was a researcher based on practices. He positioned his teaching and research exclusively based on the practising community. He combined his ingenuity and creativity to identify patterns in the practising world and abstracted them routinely as new management concepts and insights. CKP reversed the knowledge cycle, viz. from practices to routinely new knowledge framework, something similar to experimental research in basic sciences.

The *Fortune at the Bottom of the Pyramid* is a new paradigm where CKP modified and magnified the trade-offs between price, features and performance of a product and services. CKP's core argument was that if an organisation dramatically reengineered the product features and performance indicators, the price of the product could be kept so attractive that it can be accessed and used by a large market segment for which it was not originally intended. CKP went on to argue that designing the product and service for the economically weaker section of the society would generate more wealth as a consequence of large volume even when the margins are low. Hence, addressing *The Bottom of the Pyramid* is an opportunity for sustained wealth creation.

Some observations on Prof. C. K. Prahalad's work

Whilst CKP is recognised for his remarkable ability in identifying patterns from the practising community (seemingly unrelated contexts) and giving them shape as management concepts or thought process, several of his ideas and thought process proposed to the management community have their origin in the strategy literature. For example, the concept of core competence has its origins from the resource-based view of a firm. The relevance and importance of innovation in the context of business strategy is fairly well documented. The idea of next practices initiated by CKP is a modified and enriched version of benchmarking.

The charming formula N = 1, R = G* that CKP produced in his book '*The New Age of Innovation*' is a palatable version to the practising community of the several well-known concepts on mass customisation, strategic outsourcing and supply chain in the flat world.

The most acclaimed concept in *The Fortune at the Bottom of the Pyramid* is an innovative way of dealing with price, performance and product features trade-offs.

These observations should not be misconstrued as a critique of the outstanding works of CKP. As a matter of fact, he provided a cohesive argument and neat logical frame of reference for several well-known management concepts and theory to the academic world based on real-life practices. CKP also used his work to build symbiotic and lasting relationship between the academia and practising world.

The concept of *The Fortune at the Bottom of the Pyramid*, as described in his latest book, is based on experiences and practices in India by looking at Jaipur Foot, Jaipur Rugs, SEWA, Bombay Dabbawallas, Amul, The Aravind Eye Care System, etc.

Whilst every thought leader in strategic management has a dream and desire to become a brand and do everything that is possible by balancing the academic and professional commitments to accomplish this dream, CKP demonstrated to the world that excellence can be achieved by his innovative insights from the practising community by focusing entirely on the practices, and working and advising CEOs. He evolved as a premium brand amongst practitioners. In addition to this, his contributions arising out of insights and observations from the practising community were widely acclaimed by the academic community. In essence, CKP practised blue ocean strategy** in his professional life before a book on this topic was written.

CKP also made his own contribution as member in government, industry and the international arena as a distinguished academician and thought leader of Indian origin. His annual seminars, organised by Ahmedabad Management Association in the Louis Khan Plaza of Indian Institute of Management, Ahmedabad campus, were a memorable annual event attended by hundreds of students and a large number of practising community. In each one of his annual seminars, CKP would bring a new concept to the wider audience.

Needless to emphasise, CKP was the most sought-after consultant, board member, advisor, coach, invited speaker and a distinguished professor.

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* According to CKP, every customer is unique and therefore organisations need to design their product and services to meet the expectations and/or aspirations of individual customers. The number of customers in a segment defined as N is equal to 1. According to discussion in the book, no organisation has all the necessary resources to deliver value to a customer. Therefore, organisations need to leverage the competency of other organisations globally. This is represented by saying the resources (R) are global (G) R = G.

** The essence of this book is to enable managers to see opportunities in unchartered territories. Usually organisations tend to compete in well-known and established clusters. Shareholders wealth can be maximised by looking at new areas, which are not dominated by existing players.

What can we do?

CKP has left a strong legacy of academic excellence arising out of professional practice. He was a shining example among management consultants and advisors. He was an icon among the teaching community.

The policy planners can use his vision document on India (India@75) as an agenda for action to ensure inclusive growth. The practising community can use each of his pathbreaking ideas or framework developed from practice to shape the future of their career and accelerate the stature of their organisation.

CKP has shown a way as to how worthwhile knowledge can be created by closely observing the underlying pattern in several seemingly unrelated situations. This may be an innovative research methodology for a budding researcher. For academicians and those who want to contribute to the practising community, CKP has shown a way as how to distinguish oneself from the crowd.

For the academic community CKP has left a large research agenda on issues related to inclusive growth and potential for wealth creation by addressing the needs at the Bottom of the Pyramid. A focused research agenda by academicians would truly be a contribution to what CKP stood for.

Annexure
Important Works of C.K. Prahalad

Bottom of Pyramid

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The support received from S. Basu at IIM, Indore, in preparing and compiling the list of important works of CKP attached with this note is gratefully acknowledged.

Developing India
Conference: Providing Urban Amenities in Rural Areas (PURA) - Conceptualisation, Impact, Assessment and Implementation Issues

Introduction:

A one-day conference was held at IIM Indore on June 10, 2010. Dr. Abdul Kalam gave the inaugural address detailing the concept over the years. Prof. Vaibhav Bhamoriya coordinated this effort by IIM Indore.

As a socially responsible institute, it was an endeavour to bringing together professionals, Central and State Government employees and NGO professionals with experience and success at catalysing social change and development. A set of papers is presented here with a view to reaching a wider audience

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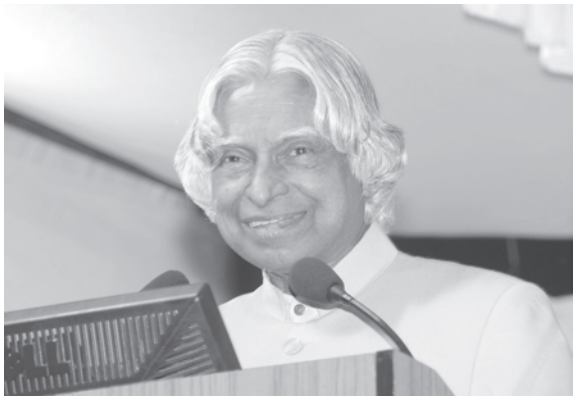
Bringing Smiles to Billion People

A. P. J. Abdul Kalam



'Rural prosperity through integrated actions'

Address at the commemorative dinner in memory of late Shri K. R. Narayanan, on the occasion of third London School of Economics and Political Science (LSE) Asia Forum 2006, 07 December 2006

New Delhi

I am delighted to address the third LSE Asia Forum 2006 organised in memory of late Shri. K. R. Narayanan.

Rashtrapati Bhavan has had a dynamic history. Post-independence, Rashtrapati Bhavan was ennobled by the stature and standing of its occupants. My illustrious predecessors, 10 presidents were all men of rare distinction, personalities of nobility, intellectual and academic giants, men of political sacrifice and above all statesmen of the highest calibre. When I

Indore Management Journal gratefully acknowledges the permission to print this Speech by Dr. A. P. J. Abdul Kalam.

go through the annals of Rashtrapati Bhavan's history post-independence, I feel humbled. My salutations to all of my esteemed and illustrious predecessors.

When I took over the presidentship from Mr. K. R. Narayanan, the tenth President, I had a unique link with him for the reason he was very much interested in the Developed India Vision 2020. He had a passion for the upliftment of the underprivileged in the society and for directing science and technology for the betterment of human lives. Whilst evolving the Vision 2020, I used to meet him frequently and brief him the progress. He used to say that value addition is important for agriculture produce, so that the agriculture field will be competitive with the other two sectors, manufacturing and services. This was the very important economic input which I got from Shri K. R Narayanan. As a tribute to this great leader with an economic acumen with a human touch and in view of the strong relationship between the LSE and India, I would like to discuss about one of the key growth drivers of Indian economy when India is in the process of transforming itself into a developed nation before 2020.

1. Ambience in the Nation

In the Indian history, very rarely our nation has come across a situation, all at a time, an ascending economic trajectory, continuously rising foreign exchange reserve, reduced rate of inflation, global recognition of the technological competence, energy of 540 million youth, umbilical connectivities of 20 million people of Indian origin in various parts of the planet and the interest shown by many developed countries to invest in our engineers and scientists including setting up of new research and development centres. The distinction between the public and the private sectors and the illusory primacy of one over the other is vanishing. India, as the largest democracy in the world, has a reputation for its democracy and for providing leadership for the one billion people with multi-cultural, multi-language and multi-religious backgrounds. And also our technological competence and value systems with civilisational heritage are highly respected. Foreign institutional investors are finding investing in India attractive. Indians are also investing in abroad and opening new business ventures. Indian economy is growing with an average annual growth rate of 8% gross domestic product.

2. Economic Development: Transforming India Into a Developed Nation

However, there is a need to lift up the economic conditions and lifestyle of over two hundred and twenty million people out of the one billion plus population. One of the reasons for this situation is that large part of the growth comes from manufacturing and services sector. The agriculture has been growing just at 1.6%. If we have to uplift the two hundred and twenty million people living below poverty line and provide improved quality of life, we have to ensure that the agricultural sector grows at least at 4% per annum. For providing this growth, we have to spread the development process to the rural sector. That is what the PURA (Providing Urban Amenities in Rural Areas) programme involving four connectivities, namely physical, electronic and knowledge leading to economic connectivity, envisages. Hence, the entire country should have 7,000 PURAs encompassing over 600,000 villages.

The theme of PURA, apart from concentrating on reinforcing agriculture, will emphasise on agro-processing, development of rural craftsmanship, dairy, fishing, and silk production, so that the non-farm revenue for the rural sector is enhanced, based on the core competence of the region. Also the rural economy will be driven by renewable energy such as solar, wind, bio-fuel and conversion of municipal waste into power. In this approach, the aim is to make sustainable development using the core competence of the rural sector.

In India, the development of a rural sector is very important. Government, private and public sectors have been taking up rural development in parts. For example, starting educational institutions and healthcare centres, laying roads, building houses, building a marketing complex, giving a communication link in a particular rural area have been taken up in the past as individual activities. During the last few decades, it is our experience that these initiatives start well, just like heavy rain resulting into multiple streams of water flow. As soon as the rain stops, few days later all the streams get dried up because there are no water bodies to collect the surplus water and store it at the right place. For the first time, PURA envisages an integrated development plan with employment generation as the focus, driven by provision of the habitat, healthcare, education, skill development, physical and electronic connectivity and marketing.

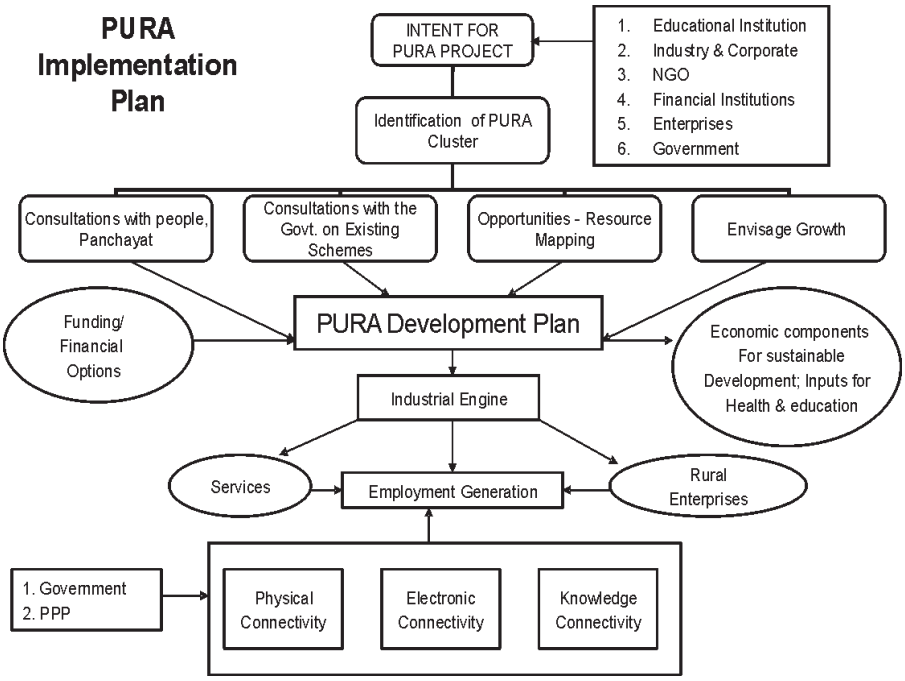
Hence, I would like to concentrate for today's discussion on how to implement PURA in Indian setting for the consideration of this audience.

3. PURA Mission

PURA envisages economic empowerment to a cluster of villages through the provision of physical connectivity, electronic connectivity and knowledge connectivity leading to economic connectivity. I would like to share with you the sequence of actions needed to realise a PURA cluster from the intention of an individual, non-government organisation (NGO), industry, educational institution or financial institution to its completion.

3.1 Profile of PURA mission

On the basis of the terrain and climatic conditions there could be four types of PURA in our country. They are plain terrain PURA, hill PURA, coastal PURA and desert PURA. The population in the plain terrain and coastal region PURA may be in the region of 20,000 to 100,000 in a cluster of 20 to 30 villages, whereas in the Hill or desert PURA may have a population of 7,500 to 15,000 people in a cluster of 30 to 50 villages or hamlets.



Note: Single window clearance by government for Physical Connectivity and other eligible social sector needs PURA should be built and operated on the lines of SEZ

Figure 1. PURA implementation plan

3.2 PURA realisation - flow sequence

The flow sequence for realisation of PURA is described.

As soon as decision is made to create a PURA, there is a need to identify the PURA cluster with the villages which are to be included. Simultaneously, consultation must commence with panchayat members, government on existing scheme, opportunities resource mapping and the envisaged growth with the business community. This consultation will lead to PURA development plan with emphasis on employment generation through an industrial engine. Parallely, government can consider development of physical, electronic and knowledge connectivity through a public-private partnership. Integrated action in all the areas is the key to the development of PURA as a business proposition.

The steps involved in creation and maintenance of PURA are:

- An institution, such as educational institution/industry/societal transformer/financial institution/small-scale enterprise/government, intends to create a PURA cluster.
- Desiring agency identifies the groups of villages in the district, which are suitable for creation of an economically empowered PURA cluster.
- Consultation with the panchayat board members, resource mapping, envisaged

growth path and study of planned existing government schemes in the area are carried out in parallel.

- The institution determines the industrial engine for the PURA development based on the core competence and natural resources of the region.

- Simultaneously, the institution works out the funding requirement including the funds, which have been catered for government's development schemes envisaged in the area.

- The industrial engine plans the services and the rural enterprises and determines the total employment generation potential of the PURA complex both during commissioning and subsequently during its operation.

- The economic empowerment of the PURA is supported by the establishment of ideal physical connectivity, electronic connectivity and knowledge connectivity for the whole complex.

- The district authorities discuss the whole PURA plan with the intending institution and arrive at an implementation plan which may include the following:

  (a) Government will be responsible for provisioning of the land required for the complex in consultation with local bodies.

  (b) The government may make the funds allotted for the regional developmental schemes available to the implementing agency to enable implementation of the PURA programme as a turn-key project with single-point responsibility.

  (c) The implementation agency will create all the connectivities envisaged for the cluster and establish financially viable enterprises leading to provision planned employment opportunities.

  (d) The implementation agency will also take the responsibility for continuous provisioning of quality healthcare and education to all people living in the PURA complex. The government will be required to provide the subsidy element to all the eligible categories of people.

3.3 Assessment of initial conditions

- Survey the land availability and land use pattern, housing conditions, roads, drinking water system, water bodies, energy systems, population characteristics including skills available, schools, vocational training centres, primary health centres and existing occupational opportunities in the proposed PURA cluster.

- Establish the development indicators for the PURA cluster for various socio-economic parameters such as poverty, safe water, infant mortality, pucca house, literacy, formal education, life expectancy and per capita expenditure.

- Examine the availability of higher educational institutions including engineering colleges in the proposed PURA cluster, which can take lead role in implementation. Existing sanctions by the central and state governments for the common facilities in the village cluster such as roads and other infrastructure facilities.

- Identify the native strengths such as availability of unique raw material, special skills and craftsmanship, which have the potential to become a wealth-generating enterprise with the infusion of technology and marketing opportunities.

- Establish optimum grouping of the villages relating the potential strengths or core competence.

- Create awareness and consensus amongst the people of the cluster of villages about the proposed PURA in the region with panchayat participation.

- Finalise a lead agency such as educational institution to plan and implement the PURA.

4. Content of the Master Plan for PURA

- Master plan: will include defining gross land-use pattern, plan for physical connectivity, plan for electronic connectivity, plan for knowledge connectivity and a plan for creation of enterprises including business plan.

- Village level layout plan: will include specification of residential areas, institutional areas (hospitals, schools, police stations, offices, village knowledge centres), rural industrial areas, commercial areas, parks, recreational areas and so on through community mobilisation procedures.

5. Thrust Areas for PURA:

Thrust areas for PURA would be the following:

- Creation of employment opportunities for all the employable people, particularly the youth.

- Capacity building in education - school, value-added employable skills and knowledge.

- Provision of quality health and timely healthcare, safe drinking water, quality-reliable electric power, energy-efficient and water-efficient pucca houses.

- Typical examples of PURA connectivities - physical, electronic, knowledge and economic - to be included in the PURA project report are given in annexure I to IV.

6. Evolution of PURA Project Report

- On the basis of PURA development plan evolves the PURA project report.
- Identify the nodal village and its cluster villages.
- Specify the development objectives based on the development indicators and means for achieving that objective as given in the master plan stated above.
- Interact with possible funding agencies and specify the funding methodology.
- Prepare a management structure for implementation of the PURA cluster specifying the linkages with agencies including NGOs, financial institutions, local bodies, district authorities and other government agencies.

7. PURA as a Business Model

It is a business proposition of Rs. 100 crores with public and private partnership over a project period of five years. Government (Bharat Nirman Programme, Rural Development Ministry, Prime Minister Sadak Yojana, Prime Minister Rozgar Yojana, Sampoorna Graha Yojana, Navodaya Schooling, 100 days Employment Guarantee Scheme and State Government Employment programmes); banks (National Bank for Agriculture and Rural Development, Asian Development Bank, World Bank, United Nations Development Programme, United Nations Children's Fund, United Nations Educational, Scientific and Cultural Organisation (UNESCO) and venture capitalists can fund PURA components. However, initially the rural development ministry is planning to create two PURA clusters in each of 600 districts in the country with seed funding. This may attract the public-private participation for providing value-added services in the three sectors of the economy and run as sustainable business propositions. Already, certain states such as Chhattisgarh, Karnataka and Kerala have taken up the PURA as a programme for implementation because government initiatives and also certain private initiatives have established working PURAs in Tamilnadu, Maharashtra, Madhya Pradesh and Andhra Pradesh.

8. Typical Working PURAs

It is possible to get an insight of PURA by studying few of the operational PURAs, which are functioning in different parts of the country. They are Periyar PURA, Loni PURA, Chitrakoot PURA and Byrraju PURA. Let me highlight some of the operational PURAs.

8.1 Periyar PURA (Tamil Nadu)

Periyar PURA complex (Figure 2.1) pioneered by Periyar Maniammai College of Technology for Women, Vallam, Tanjore is functioning near Vallam with a cluster of over 65 villages in Tamilnadu, which involves a population of one lakh. This PURA complex has all the three connectivities - physical, electronic and knowledge - leading to economic connectivity. The centre of activity emanates from the women's engineering college that provides the electronic and knowledge connectivity (Figure 2.2). Periyar PURA has healthcare centres, primary to postgraduate-level education and vocational training centres. This

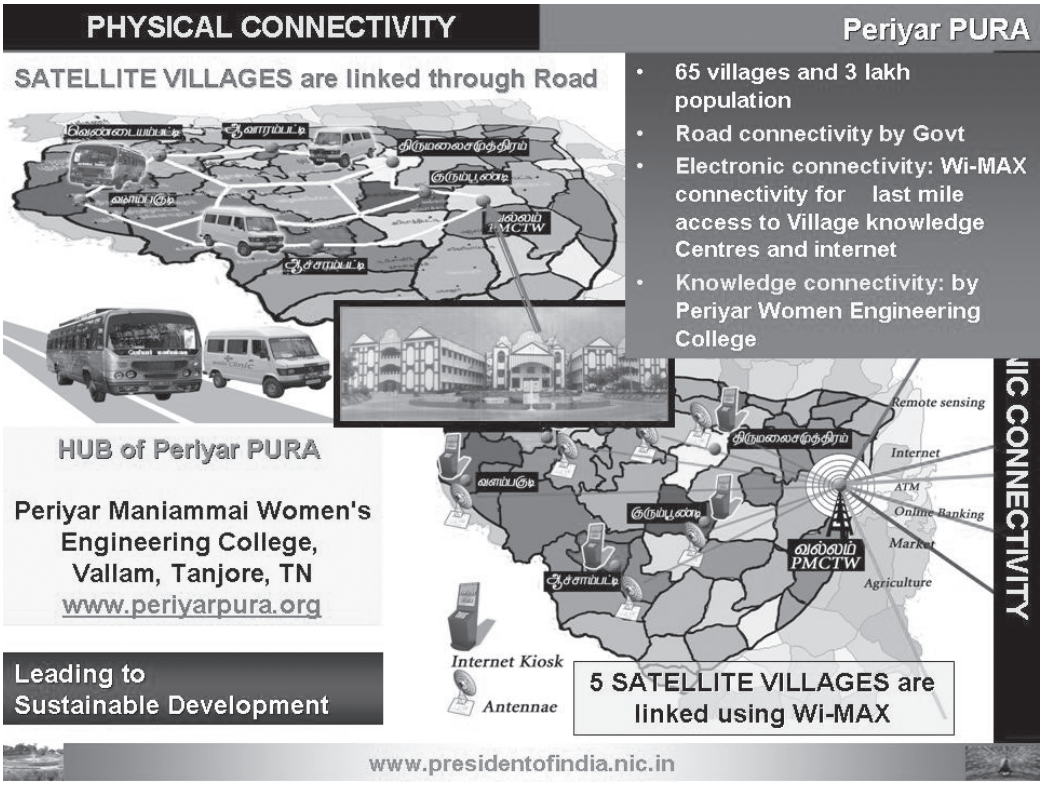


Figure 2.1 Periyar PURA

has resulted in large-scale employment generation and creation of number of entrepreneurs with the active support of 850 self-help groups. Two hundred acres of waste land has been developed into a cultivable land with innovative water-management schemes such as contour ponds and water sheds for storing and irrigating the fields. All the villagers are busy in cultivation, planting Jatropha, herbal and medicinal plants; power generation using bio-mass; food processing and above all running marketing centre. This model has emanated independent of any government initiative. The committed leadership has been provided by the engineering institution. Recently, five of the Periyar PURA villages are connected through WiMAX wireless and have minimum 4 megabits per second connectivity with the Periyar PURA nodal centre. It provides a sustainable economic development in that region.

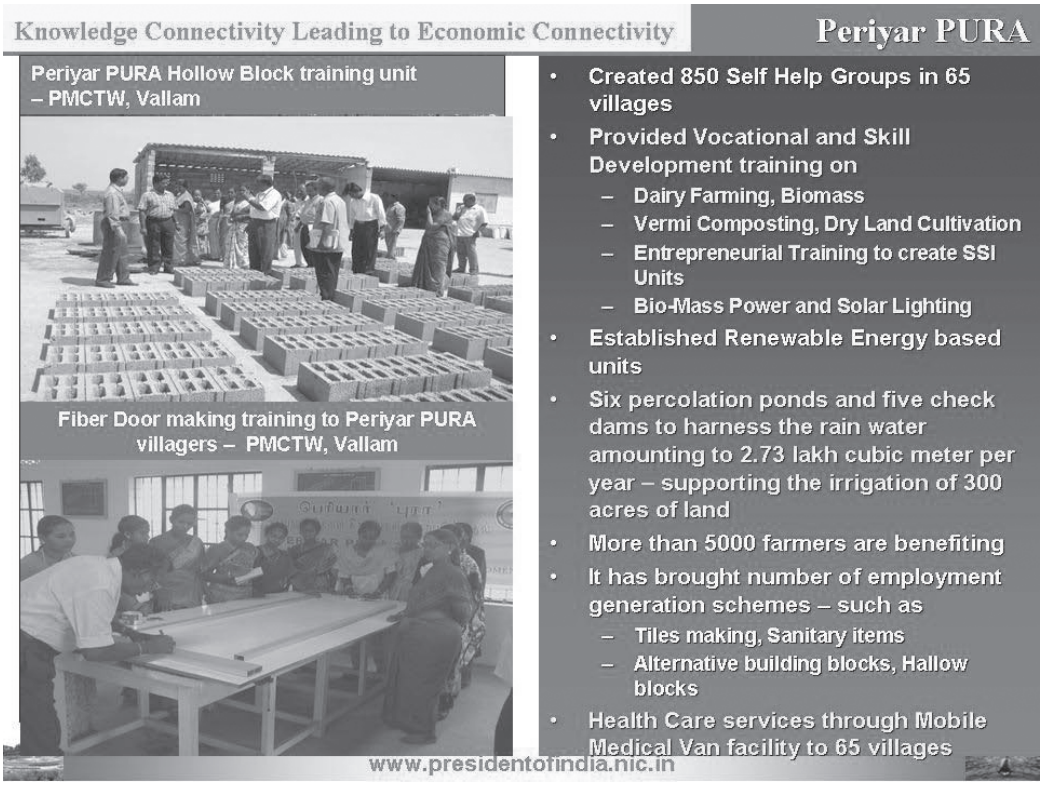


Figure 2.2 Periyar PURA

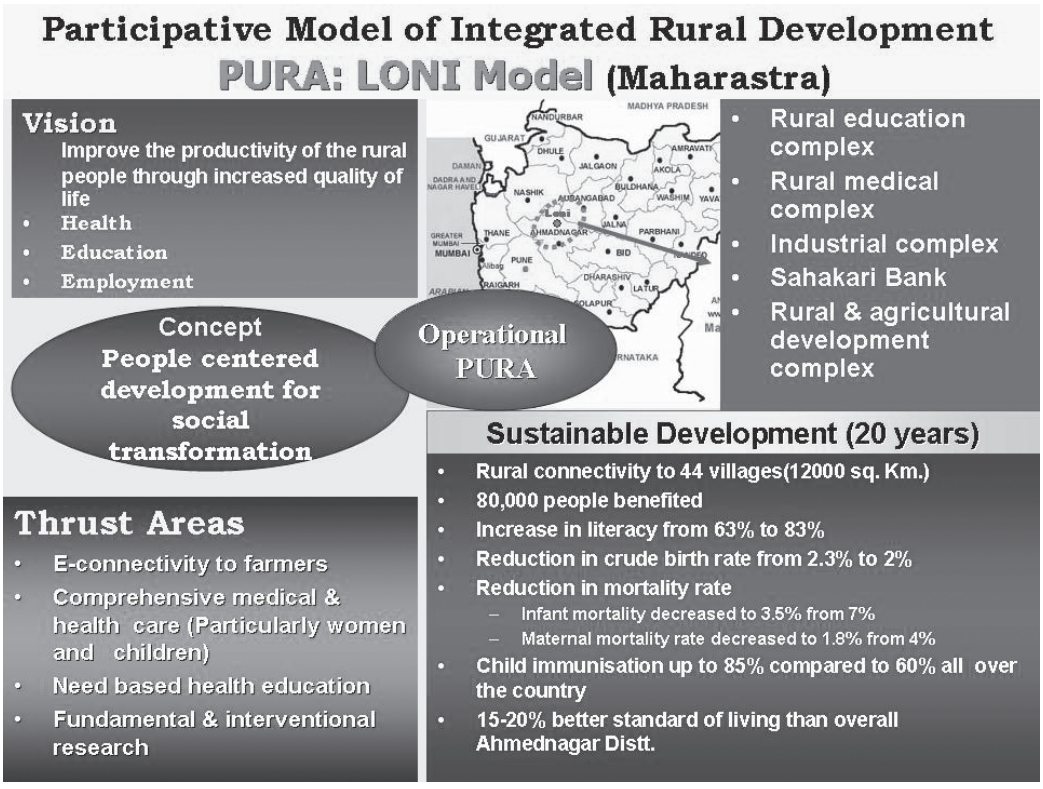


Figure 3. Loni PURA

8.2 Loni PURA (Figure 3) (Maharashtra)

Loni PURA in Maharashtra where a participative model of integrated rural development has come up amongst 44 villages with a population of 80 thousand. The Loni PURA model has been pioneered by Pravara medical trust. It is improving the productivity of the rural people through improved quality of life with healthcare, education and employment. The concept is people-centric development for social transformation. The thrust area of development has been on comprehensive medicare, particularly for women and children, need-based health education and e-connectivity to the farmers. The complex has created 27 educational and vocational institutions consisting of schools, colleges, polytechnic and industrial training institutes (ITIs) including medical and engineering colleges. They have created a sugar factory, bio-gas plants, chemical plants and power projects. They have a large number of self-help groups for providing low-interest loan for the weaker sections of the society. Because of the co-operative effort of the people, literacy in these villages has gone up from 63 to 83%, birth rate has come down, infant mortality has decreased to 35/1,000 from 70/1,000 and the standard of living of the people has gone up by over 20% compared with other villages in the neighbouring areas.

8.3 Byrraju PURA (Figure 4)

Byrraju Foundation of Satyam near Bhimavaram has undertaken the mission of establishing 32 Ashwini centres, benefiting 116 villages with a population of around 500,000 people. It has provided the electronic connectivity through wireless (512 kilobits per second - 2 megabits per second) and knowledge connectivity in co-operation with National Academy of Construction, Hyderabad and other domain experts, thereby creating economic connectivity in these villages.

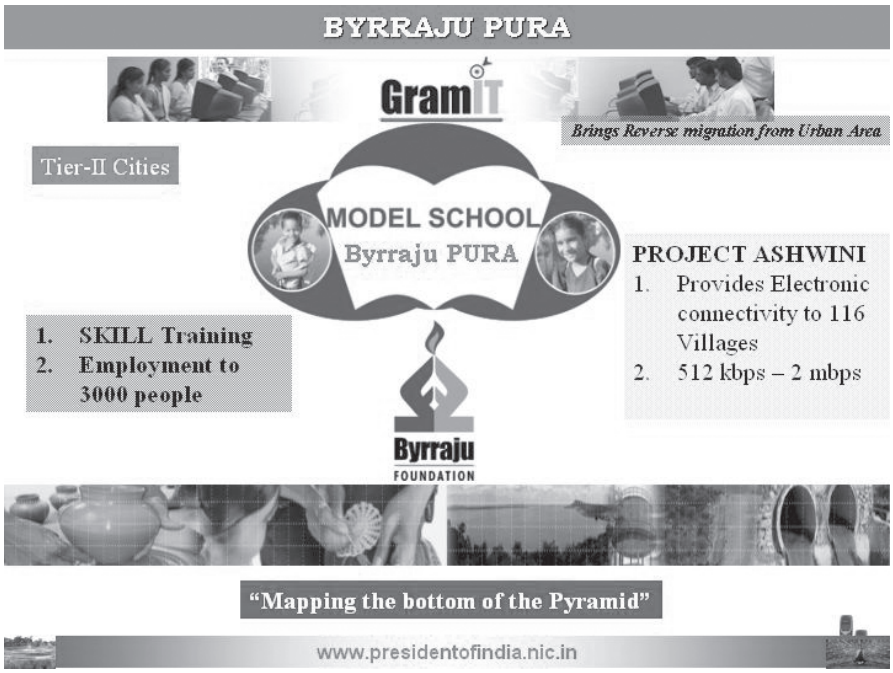


Figure 4. Byrraju PURA

8.3.1 Economic connectivity

During the last 4 years of its operation, it has skill-enabled and knowledge enabled-people in areas such as construction, tailoring, garment production, Information technology (IT) and spoken English skills. This programme resulted in 3,000 jobs with the minimum earning of Rs. 3,000 per month, which is three times that of their earlier earning potential. A rural business process outsourcing (BPO) Gram IT, established in Jallikakinada centre, has trained the unemployed graduates in IT skills and spoken English and employed 100 people for the BPO operations such as transaction processing of Human Resource data of Satyam Computers as a back office processing; data processing of 1 million self-help-group members of Andhra Pradesh such as financial data, accounting data, spending pattern, cultural aspects under the programme of 'Mapping the bottom of the Pyramid'. This Gram IT BPO has effected the 10% reverse migration from Hyderabad to Bhimavaram. This model can be replicated by many of our IT companies in the rural sector to create PURA clusters and bring rural transformation.

9. Technology-driven PURAs

In all the four operational PURAs technology and application of scientific methods of working have played a very important role. For example, power through bio-gas and solar energy is used for household lighting and also for the farms; vermicomposting; check-dams and water purification plants; Jatropha plantation to extraction and esterification; medicinal and aromatic plants cultivation, extraction and manufacture healthcare products through self-help groups; low-cost housing using alternative building blocks; dairy farming; healthcare and education services; connectivity using wireless and WiMAX technologies and enabling the sustainable development and business processing taking place amongst the village clusters. In all these operational PURAs, employment generation was the focus using technology experiences from the colleges and educational institutions and through assessment of markets, which can absorb the products and services. With the emergence of PURA clusters in different parts of the country, what is now required is to establish the linkage to PURA clusters by setting up of domain service providers through PURA nodal knowledge data centres.

10. Conclusion: PURA in 2012

This PURA complex would have transformed into a dynamic rural complex with focus on employment potential for all the families of PURA cluster with all the connectivities. This PURA complex will have its umbilical connectivity with the nearest university. Let us visualise how the PURA cluster will transform, by the year 2012, based on the already operational PURA we have discussed:

- Provide to all the village citizens dwelling units with clean water supply and sanitation facilities.

- The village complex will have 100% literacy.
- Apart from upgrading existing schools, the complex will have a few colleges; world-class vocational training institutions in construction, carpentry, welding, and natural art; computer maintenance and services; IT-enabled services; BPO and a call centre. The 'Sakshat' programme a one-stop education portal, will be used through Internet for capacity building in this region,
- People in the PURA complex will be able to get quality healthcare through telemedicine and mobile clinics via primary health centres. They will be brought under a corporate medical healthcare scheme.
- Each PURA village complex will be free from diseases such as polio, TB, leprosy and malaria and other waterborne diseases. The infant mortality will be less than 10.
- The PURA complex will promote horticulture and floriculture products, apart from agriculture in collaboration with nearby agricultural universities and research institutions.
- There will be agro-processing industries in each PURA complex for value addition to horticulture produce.
- Creation of dairy and fish farms in each PURA complex for providing additional non-farm revenue to farmers. They can also produce other dairy products.
- Revival of all existing water bodies in the PURA cluster.
- Provision of employment to all employable people of the village through additional jobs in dairy, agro-processing, construction, handicraft and tourism enterprises.
- Overall, per capita income of the PURA cluster should increase three times and people living below the poverty line should come down to zero in 6 years.

Of course to achieve the above performance, a dynamic, empowered PURA management board structure is very vital. This has to be evolved with the active participation of state governments, district authorities, societal transformers, educational institutions, small-scale industries or an enterprise in association with the panchayat. Finally, it will be managed as a viable and sustainable business proposition through the local entrepreneurship.

I would request the participants of LSE Asia Forum to study this model and offer suggestions, which will enable us to further refine the implementation process. PURA model may also be useful to other developing countries that have large population living in rural areas. My best wishes to all the members of LSE Asia Forum.

Urbanisation of Rural Areas
PURA Scheme as the Game Changer

Arvind Mayaram

For far too long, the subject of urban and rural development has been dealt with as autonomous activities by the policy makers, the academia and the civil society. This is reflected not only in the designs of the schemes and programmes but also in the standards followed, implementation methodology and the expected outcomes. In the end, those living in the rural areas feel dissatisfied with the quality of life. This is also true for the development of infrastructure. Large sums of money are being spent on the infrastructure of rural areas. However, several constraints are responsible for the impact not being so visible and for lower levels of citizen satisfaction:

- The delivery of different schemes is not simultaneous and the impact of one is often lost by the time the next infrastructure asset is created. For instance, a rural road may reach a village in the year 2008, electricity in 2010 and telecom in 2012. By the time telecom services are rolled out, the road is already in a state of disrepair.

- Whereas huge sums are earmarked for capital expenditure (capex) and creation of new infrastructure assets, very little resource is deployed for maintenance. This is also on account of the classic division between 'plan expenditure' and 'non-plan expenditure'. As non-plan expenditure is met from the state budgets, there is very little money available for maintenance of infrastructure assets.

- Each of the schemes operates autonomously and there is little synergy in the implementation. This results in sub-optimal use of resources.

- The standards set for infrastructure services delivery are far below those set for the urban population.

Poor infrastructure dampens economic potential of rural areas and results in acceleration of the migration to urban areas. This, in turn, puts pressure on urban infrastructure, and mushrooming slums in all large cities are a testimony to this fact. Inadequate economic opportunities in the rural areas also perpetuate dependence on agriculture for livelihood and make the task of poverty reduction much more difficult. The Pradhan Mantri Sadak Yojna (PMGSY), one of the best-run rural development programmes, has radically unlocked economic values in the rural areas. Although no study has established any correlation between rural roads and rural economic growth, some figures do indicate that the impact may be quite significant. According to an IIFL survey, agriculture exports from India have become more competitive, resulting in 20.2% CAGR in agriculture exports during FY04-08, compared with 11.5% annual growth in the previous decade. Much of this change in the fortunes of the rural India could be attributed to the strategy of inclusive growth followed by the Government and the contribution of the PMGSY.

It is therefore important to see how the scheme for Provision of Urban Amenities in Rural Areas (PURA) could actually act as the catalyst not only for convergence between different infrastructure development schemes in the rural areas but to emerge as a new model for the management of urbanisation of the rural areas. The recently approved PURA scheme for running of a few pilots is likely to bring about a major change in the manner in which rural development is treated by the stakeholders. For the first time, a uniquely designed public-private partnership (PPP) model is being tested for creation and maintenance of rural infrastructure assets with pre-determined service delivery standards almost akin to urban standards. While most of the capital expenditure requirements would be met from the existing Government of India schemes with the service charges determined by the Government, the construction and maintenance of assets and service delivery, for a pre-determined period, would be by the private partner on commercial considerations. To attract the private sector, the scheme is designed to be 'project based' with well-defined risks, measures for risk mitigation fully explained and allocation of risk between the sponsoring authority (Panchayat), Government of India/State Government and the private developer clearly spelt out.

Background

The idea that the rural areas must be provided urban amenities was first mooted by the then President of India, Dr. A. P. J. Abdul Kalam, during his address to the Nation on the eve of Republic Day 2003. To understand clearly his vision, one must read the extracts from the speech:

Knowledge Powered PURA

"More than two thirds of our billion population live in the rural parts of India. The vision of transformation to a 'developed' India can only be realised if we launch a mega mission for empowering the rural people. My visits to the rural parts of India have confirmed that the problem of rural India depends on the extent of connectivity available there. The connectivity that I refer to would include four components. Physical connectivity by providing roads in rural areas, electronic connectivity by providing reliable communication network and knowledge connectivity by establishing more professional institutions and vocational training centres. Schools with best infrastructure and teachers who love teaching, primary health centres, silos for storage of products and markets for promoting cottage industries and business, employment opportunities for artisans are some of the elements of PURA. All this connectivity needs to be done in an integrated way so that economic connectivity will emerge leading to self-actuating people and economy. Such a model of establishing a circular connectivity among the rural village complexes will accelerate rural development process by empowerment. I am sure that removal of poverty will call for Providing Urban amenities in Rural Areas (PURA). The model envisaged is a habitat design that would improve the quality of life in rural places and make special suggestions to remove urban congestion also. Instead of village population coming to urban area, the reverse phenomenon has to take place. The PURA has to be a business proposition economically viable and managed by entrepreneurs and local people and small-scale industrialists, as it involves education, health, power generation, transport and management. Government's support should be in the form of empowering such management agencies, providing initial economic support

and finding the right type of management structure and leaders to manage and maintain."

The Government responded positively and the then Prime Minister of India announced the PURA scheme on Independence Day in 2003.

In the first phase, the Ministry of Rural Development implemented seven pilot projects from 2004-05 to 2006-07 with a total outlay of Rs. 30 crores in the State of Assam (Gohpur), Andhra Pradesh (Rayadurg), Bihar (Motipur), Maharashtra (Basmath), Rajasthan (Shahpura), Orissa (Kujanga) and Uttar Pradesh (Bharthana). The pilots did not succeed as PURA became another rural development scheme and provided some additional funds over and above the funds available under the ongoing schemes. There was no impact of the scheme, and in most cases, the projects sanctioned under pilots did not create any meaningful infrastructure assets or economic activity as was envisaged. Based on the experience of the pilot projects and feedback from various stakeholders including the participating state governments, it was decided that the PURA scheme should be completely revamped and made more meaningful. The recently approved scheme for running a few pilots with a total plan outlay of Rs. 248 crores for the remaining period of the XI Plan is an attempt to creatively redesign the scheme to provide a different framework for the implementation of rural infrastructure development schemes and inject private sector efficiencies in the management of assets and delivery of services.

Objective

For the programme to be successfully implemented it is critical that the objective should not be multiple and should be simple to comprehend and measure. Therefore, for the revamped PURA, true to its nomenclature, provision of urban amenities in rural areas should be the primary objective and the programme has been designed to achieve this objective. However, sub-objectives include reduction in the pace of migration from rural to urban areas and creation of in situ livelihood opportunities.

The definition of provision of urban amenities has been refined. The following would constitute PURA: notified listing of urban amenities that are essential for fulfilment of PURA. These are drinking water supply and sewerage, drainage, solid waste management, skill development and development of an economic activity. In addition, electricity distribution, telecom services, street lighting through non-conventional energy sources, etc., could also be provided. The latter is only an illustrative list, which can be modified. In addition, it is expected that the private partner would also undertake some add-on commercial activities that not only create revenue streams for him but also add to the economic infrastructure of the identified villages. However, it is imperative that the list is firmed up and frozen, and once the mandatory and the optional activities are bundled in a project, all of the identified activities become mandatory and part of the project deliverables. This would be necessary for ring fencing the project. No private developer would venture to invest in a project unless all the risks are identified and mitigated to the extent possible and properly allocated. Similarly, Government also would not be able to commit resources without mitigating the risk of the uncertainty of deliverables.

Therefore, for the success of PURA project, the infrastructure provisioning can be understood through the following table:

Table I
PURA Project

Type of Infrastructure	Funding	Implementing Agency
Core Facilities (road to the village, electricity to the village, bulk water supply, etc.)	GoI/State Government	GoI/State Government or their agencies
Urban Amenities		
A. MoRD Schemes (drinking water supply and sewerage, drainage, solid waste management, skill development and development of economic activity)	RD schemes/Private Developer	Private Developer BOT model
B. Schemes of other Ministries (telecom, street lighting, electricity, etc., outside of MoRD ambit)	Schemes of other ministries/Private Developer	Private Developer BOT model
Add-on Facilities (marketing centre, industrial estate for village industries, technical/vocational training institutions, etc.)	Private Developer/ Panchayat	Private Developer

The mode of delivery is PPP, and the relationship between the public sector entity and the private sector partner would primarily be through a concession agreement. Each PURA project would have to be within a single legal jurisdiction of a local government. Project spilling over too many jurisdictions would create legal risks unacceptable to the private party. Therefore, the PURA project should be within the jurisdiction of a Panchayat, with the HQ as the growth centre and the constituent 'Grams' as nodes. Initially, the larger Panchayats could individually provide critical mass to make the project viable. Alternatively, a cluster of Panchayats could form PURA cluster with Panchayat sub-projects as its part, in order to obtain the critical mass required for interesting responsible organisations as private developers.

Business Model

As the returns on investment will be based on a thin revenue base, most of the capex will have to come from Government schemes. Practically it is difficult to manage effective

coordination in the delivery of schemes that are administered by different ministries and departments. The mandatory activities would be from within the Ministry of Rural Development schemes. Secondly, only community development schemes would ordinarily be included, as individual beneficiary schemes have a different level of political sensitivity and private developer would find it difficult to manage these. Thirdly, an omnibus provision would be made in all schemes and programmes included to allow the execution to be done through the private developer in place of Panchayats or government departments, as their agent. Fourthly, the PURA project ought to include at least one scheme of other ministries that are available 'on tap', as some areas of critical infrastructure necessary for the project are not within the purview of MoRD.

The difference in the private sector involvement in PURA project would be that the developer would not be treated as a contractor for the Panchayat or the department but as a concessionaire for the Panchayat who implements these schemes as its agent. The implementation will be done within the guidelines for each of the identified schemes/ programmes. However, it is possible that the essential infrastructure may not be fully funded by Government schemes and the developer is required to invest some capex on his own.

Lastly, it is necessary that a few 'commercially viable' and 'people centric' projects be developed, preferably in partnership with the PRIs. These would typically not be funded from the Government schemes but through private investment and run on commercial considerations. Such projects could include:

- Village tourism projects - that provide direct employment to locals and opportunities for income to local artisans, performing arts, etc
- Setting up good skill development institution - this would link up with the economic activity initiated in the project
- Integrated rural business centres - that will help the local economy to upgrade to commercial scale
- Health care facilities - that will make available quality care for the villages in the project area

A necessary ingredient for all these projects is the availability of land. The land could be made available by the PRI in return for a percentage of revenue share in the commercially viable projects. The profit that the private partner makes in such sub-projects could partly cross-subsidise to pay for 'urban amenities' infrastructure services that may not have commercial viability at this stage. On the other hand, revenues generated for the Panchayats could be the income of the Panchayats. Alternately, the developer may acquire land on his own and run these activities for earning revenues.

The 'returns' for the developer will also be from the revenues that can be generated within the overall framework of the rural economy. For example, sewerage outfall can be captured, in addition to agriculture waste, in a large bio-gas digester and the gas so generated can

in turn generate grid-enabled electricity which can be sold to the grid to generate revenue. Maintenance of the infrastructure assets and provision of services can be part funded through such revenues. Other similar innovative revenue streams can be identified from the list of the add-ons.

The viability gap that may still exist will be met from the PURA scheme under which up to 35% of the project cost can be given as a grant to the project. As the concept is very new for rural infrastructure development and it may be difficult for the private sector to identify all the risk for pricing, for the pilots the grant would be fixed based on the appraisal of the DPR (detailed project report) and approved by an inter-ministerial committee. However, once the pilots are over, it is expected that the bidding parameter will be the lowest grant sought and the fund outgo from the Government would be subject to market efficiency test.

Project cost for the purpose of grant shall constitute Capex+Opex of Essential+Add-on infrastructure. To ensure delivery of all elements of the project, add-ons submitted as part of the DPR shall become 'essential' for the purpose of performance guarantee.

Indicative PURA Project

Based on the above premise a costing exercise was undertaken for providing urban amenities - including 'Urban Amenities' and 'Add-on' infrastructure for a rural area covering 30, 000-40,000 people in one or more adjacent PRIs in an area of about 20-25 sq km (where the population resides). In addition to the above, the cost of a lead economic activity and skill development programme was also included based on available benchmarks of spending.

The following key assumptions were made for the purpose of estimating the overall costs of the project and sources of funds:

1. Existing schemes within the purview of the Ministry of Rural Development would be channelled to the PURA project as per the existing norms.

2. Additional funds over and above the norms would be provided through the PURA scheme.

3. In specific cases such as telecom, village lighting and electricity, schemes exist of other ministries, viz. the common service centre (CSC) scheme of Department of Information Technology and schemes of the Ministry of Non-conventional Energy Sources. These schemes would be available for pilot projects.

4. The operating expenses for maintenance of these facilities and Capex shortfall would be covered through a one-time capital grant as viability gap funding from PURA scheme. These facilities constitute public infrastructure being implemented through a PPP framework and as such the project would be eligible for such funding. The funds would be invested in risk-free government bonds and such similar-rated instruments

for which a return of 12% has been assumed.

5. The skill development activity is a one-time effort of coverage and hence being treated as a capital expenditure for the purposes of this project.

6. The costs of an independent engineer who would monitor and certify satisfactory delivery of these services for the purpose of performance guarantee would also be factored in, so that the private developer has a sound reference point for approval of payments by the PRI(s).

7. Add-on projects that are people centric in nature, such as village tourism, a school and an integrated hub, have been costed. It is assumed that the 25% share of profit accruing will be used by the PRIs to pay for the above-mentioned services.

Based on the above a typical PURA project would look (Figure 1).

It would be noted from the above table that an overall project cost of about Rs 100 crores would cover 7 'urban' amenities, a skill development activity covering one person from each household and support for a lead economic activity, making it a total of nine activities. In addition, three add-on activities which are people centric and are expected to create in situ livelihood for local people would also be covered. This would result in attaining, to a large extent, the goal of inclusive growth.

Total funding of about Rs. 18 crores would be from MoRD schemes (18%) and Rs. 1.9 crores (2%) from schemes of other ministries. About Rs. 49 crores, which is 49% of the project cost, would be mobilised as private sector investments in add-on projects and for Capex shortfall for infrastructure assets and to create the framework of PPP. The viability grant would be Rs. 31 crores, which is 31% of the total project cost.

Thus, at a cost of about Rs. 23,964 (this does not include 1% management fee) per capita, it would be possible to ensure robust provision of eight infrastructure amenities over a 10-year concession period, support employability for each BPL household and assist commercial scaling up of a lead economic activity. If the same amenities were to be provided through public sector delivery mode, the cost of delivery would be the same. Whereas in the PPP mode we have assumed management cost to be 1% of the capex, our understanding is that the management cost in public sector would be considerably higher, if fully costed.

However, given differences between rural locations in terms of topography, population distributions, the state of economic development and the development of PRIs, actual costs for such an exercise will require detailed study of the selected project area. While for the purpose of costing this project, no user fees have been assumed, it is desirable that some fees, to the extent that it can be reasonably borne by the beneficiaries, be charged and the services not be entirely free.

Figure 1. Summary of block costs for typical amenities proposed for PURA project

SCENARIO-2 PROJECT for 10 Years : SUMMARY OF BLOCK COSTS FOR TYPICAL AMENITIES PROPOSED FOR PURA PROJECT

Figures in Rupees Million								Sources of Funding			
A	**Urban Amenities**	**Target**	**Size**	**Unit**	**Capex**	**Opex p.a.**	**RD**	**Other**	**PURA**	**Private**	**Name of Scheme**
I	**MoRD Schemes**										
	1 Water and Sewerage	100 lpd	2.5	mlpd	71.45	–	5.72	80%		14.29	Swajaldhara Scheme
	2 Road (Village)		16.75	km	23.45		2.35			23.45	
	3 Drainage		16.75	km	13.07					13.07	
	4 Solid Waste Mgt		5	pits	1.87		0.48	80%		0.37	
	5 Skill Development		5000	persons	75.00			100%			Special SGSY
	6 Lead Economic Activity		1000	persons	50.00			100%			Special SGSY
	Sub total				**234.84**		**8.54**				
II	**Non MoRD schemes**										
	7 Village Street Lighting		840	lights	16.38		0.82		8.19	8.19	MNES
	8 Telecom		5	kiosks	0.38				0.38		DIT, CSC Scheme
	9 Electricity		1	MW	80.00				10.00	70.00	MNES
	Sub total				**96.76**		**0.82**				
B	**ADD ON PROJECTS (Revenue Earning People Centric Projects)**				**12% Return on investment (ROI)expected**						
					25% Deficit % on ROI expected						
	10 Village linked Tourism				100.00		3.00			100.00	
	11 Integrated Rural Hub for Agri-busines				100.00		3.00			100.00	
	12 CFCfor local industries				160.00		4.80			160.00	
	Sub total				**360.00**		**10.80**				
C	**Independent Engineer to be appointed for PRI Support**						6.00				
D	**Return to Developer**										
	i Management fee (% of Capex on Projects sub-total E Below)			1%			6.92				
	ii ROI for Category A Infrastructure Total figure in Rs. mn)	129.37		12%			15.52				
	(Includes project listed against Categegory A- nos. 1,2,3,4, 7 and 9)										
E	**Sub-total of Projects**				**691.59**		**48.60**				
	Viability Gap Funding			9%			311.90	–	312		PURA
	(This figure is the NPV of the Annual Operating Expenses/Deficit on Returns over a 20 year period. This amount has been discounted at the rate % shown above)										
G	**Total Project Costs (E + F) Capex + VGF**				**1003.49**		**184**	**19**	**312**	**489**	
					100%		18%	2%	31%	49%	
% Viability Gap Funding / Project Costs					31%						

Note :

1 Drains will be cleaned by sanitation staff
2 Telecom, Electricity will be covered by user fees
3 Composting pits will be self-sustaining at local community level
4 PMGSY roads to be maintained by state government
5 Skill Development treated as one time Capex to create one job per household and not ongoing activity

Per Capita Spending for Core And Vital Amenities	25,740
Per Capita Spending for Add on Projects	14,400
Total Per Capita Spending on Capex	40,140

The third category of projects constituting 'add-on activity' would primarily be self-sustaining in nature and would include people-centric activities, as seen from the illustrative list given above. Funding support would not be required from MoRD. It is conceivable that these projects could be developed as a partnership between the PRI and the private developer. The PRI could contribute land towards these projects in return for a share of equity or profit from the project. Surpluses thus generated will go back to the PRI to support development and operations of rural infrastructure. It is conceivable that a shelf of such people-centric projects would result in considerable independent revenue sources for the PRI even while promoting local development.

As the model is complex, has not been tried anywhere in the rural areas in any of the developing countries before, it requires willingness and active participation of the Panchayats and familiarity with the local conditions is a pre-requisite for success, for the pilots the selection of the PURA cluster would be left to the technically qualified private sector partners.

Process

It is expected that about six to eight pilots would be possible within the plan allocation for the scheme in the XI Plan. For the pilots, Expression of Interest would be called for from infrastructure development companies who have also played a developmental role in mainstreaming PPPs. The selection of the partners would therefore be based only on technical qualification. The selected partners would also be given the flexibility of selecting the Panchayat/cluster of Panchayats in which PURA will be implemented. Care would be taken to ensure that the selected PURA Panchayats are dispersed geographically around the country to be representative in nature. Ideally, each party should be permitted a maximum of three PURA projects. Similarly, not more than two PURA projects should be approved for any State. The technically qualified private partners would prepare DPRs for the identified PURA clusters and submit to the Department of Rural Development. The PURA grant to the project would be approved based on the appraisal of the DPRs. However, the PURA cluster project cost would not exceed Rs. 125 crores and the grant to the project would be up to 35% of the project cost. The grant will be released in four instalments, assuming that the concession will be for 10 years and the construction phase will be 2 years.

Based on the experience of the pilots, the scheme would be fine-tuned and implementation scaled up with necessary modifications. If the PURA pilots succeed, there would be a paradigm shift in the manner in which rural infrastructure is developed and maintained. It would also redefine the quality of services delivered in the rural areas.

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PURA - Concept and Strategies to Implement

Ravindra H. Dholakia

PURA, as an important strategy to improve the quality of life of the rural population, is quite consistent with the concept of development evolving over time. As Dr. Abdul Kalam describes, its justification arises from the recent economic growth experience of Indian economy. Over the past decade or so, income from agriculture and allied activities such as animal husbandry, plantations, orchards, hunting, forestry, fishing and so on has grown only at about 2% per annum in real terms. As against this, the rest of the economy is growing at the rate of more than 8% per annum in real terms. Because agriculture and allied activities account for more than 50% of the employed labour force but less than 18% of the national income of the country, the rural areas, where these low-productivity activities are heavily concentrated, continuously lag behind the urban areas in matters of income and living standards. This trend got accentuated by the growth differential observed during the last decade in the country. The urban-rural income differential reflecting the inequality in living standards and physical quality of life of people has become a serious issue in ensuring that the high-growth strategy required for the nation to convert itself into a developed country status does not bypass the rural areas and about 70% of the country's population. The emphasis on inclusive growth comes largely from such concerns.

High growth of per capita income in the urban areas leads to greater demand and consciousness about better quality infrastructure - both physical and social - by the urban consumers and by urban producers. Entrepreneurial activities motivated by profits in the private sector and governmental investments dictated by political pressures generally ensure provision of the needed infrastructure in the urban areas. It raises living standards and conditions of the urban population in general, although slums in urban areas do not get several physical infrastructural facilities. However, they have proximity and access to several other critical infrastructural facilities that the rural population does not enjoy. The concept of development of society is now widened to consider expanded choices available to people. A reasonable quantum of what may constitute minimum physical and social infrastructure, often called amenities, generally available in urban areas should be available to rural areas for equity. This in itself can lead to spectacular development in rural areas and hence in the nation. This is the basic rationale for the programme of PURA.

Millennium Development Goals (MDGs) set by common agreement amongst most nations in the world and monitored by United Nations Development Programme also include explicitly several goals and means to achieve them that implicitly point to PURA. In fact, MDGs also have separate and explicit goals about slums in the urban areas. PURA needs expansion to cover urban slums as well to derive its justification from the wider concept of development and social justice in terms of ensuring equity. As per the commitment made by India, the MDGs need to be achieved by the year 2015. The establishment of 7,000 PURA projects covering 600,000 villages before this deadline seems to be too ambitious for the right quality and content of the projects. In any case, the PURA projects, as envisioned by Dr. Kalam in his 2006 lecture, depend on collaborative and co-operative efforts of

governments, NGOs, corporate sector, educational institutions and local bodies such as Gram panchayats. There are definitely a few success stories as quoted by the ex-President, but replication of those stories in other settings is extremely challenging if not impossible.

If he were to look at the same issue now, his views could be very different. In October 2009 when he visited Indian Institute of Management (IIM) Ahmedabad, he wanted to know two things: (1) has Gujarat state really achieved the remarkable unprecedented growth of its agriculture and allied activities? and (2) if yes, how could it achieve the same over a long period of 9 to 10 years? We attempted to answer both these questions in detail and it is available in public domain (Dholakia & Datta, 2010). The growth experience of agriculture in Gujarat during the last decade has been truly splendid and unprecedented, considering the magnitude of the growth rate and duration over which it is achieved. Our analysis points to the strong possibility of the growth story continuing in the future at least for a decade or so. Gujarat has achieved more than 9% per annum growth of agricultural income in real terms during the last decade. This by itself resulted in a substantial improvement in the standard and quality of life of rural population in the state, and made the economic growth in the state very inclusive. The objective of PURA projects is practically achieved in the whole state. Dr. Kalam is really impressed with this solution. What is indeed gratifying is that such a remarkably high growth performance of agriculture and allied activities in Gujarat were achieved by following the basic concept of PURA.

Policy makers had identified water and electricity as the basic minimum necessary infrastructure for progress and development in the rural areas including agriculture and allied activities. The state government therefore concentrated on provision of these two basic amenities to all villages without exception. Moreover, the electricity should be available in all villages for domestic and commercial purposes for all the time round the clock. Rainwater harvesting through various methods wherever possible was also aggressively pursued. This coupled with excellent condition road network linking every village to trade centres, market places, and ports as well as providing electronic linkages through telecom and Internet increased effective options and choices of rural producers and consumers. These were precisely the contents of the PURA projects as described by Dr. Kalam in his 2006 lecture. However, the implementation strategy adopted in Gujarat was very different but effective. The state government took the necessary lead by providing basic infrastructural facilities and augmented critical resources with the farmers and rural producers. The rest was left to the private initiatives and entrepreneurship. State government facilitated all such initiatives by promoting market culture and competition. This model is definitely workable and replicable, perhaps to a greater extent, than the models discussed by the ex-President in his 2006 lecture.

Finally, after his lecture of 2006, the Indian government has passed several empowering legislations such as Right to Information Act, Right to Education Act, National Rural Employment Guarantee Act and so on. These acts have serious implications on the allocations of public expenditures and hence on the funding of the PURA projects as initially envisaged. Public-private partnership is the only viable option now available and corporate social responsibility can prove to be an effective way to involve corporate sector in such projects

on a large scale. However, working through achieving a rapid agricultural growth by following the example of Gujarat state seems to be the most viable and effective way to fulfil the basic objectives of PURA.

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Author's Profile

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PURA

T. N. Tiwari

"**Knowledge Powered PURA**" aptly captures the need for and approach to the development of rural India. The soul of PURA is the vision as stated by our ex-President of India, Honorable Shri A.P.J. Abdul Kalam - "The vision of transformation to a 'developed' India can only be realised if we launch a mega mission for empowering the rural people. Creation of physical, electronic and knowledge connectivity leading to economic connectivity in villages" - the three pillars of development - is a challenge and opportunity.

The PPP model provides a privileged opportunity to various business houses to become associated with the development and also provide credibility to the project.

In order to actualise this vision one needs to understand the backdrop and needs of stakeholder of rural India. Rural India is a mix of people; one can easily see a range of sections, with one end consisting of people in abject poverty and the other of rich landed gentry; however, all sections are subjected to inadequate infrastructure.

It is therefore important to understand the profile of the population, and the needs and expectations, which should be integrated for successful achievement of outcomes as envisioned in PURA.

We have attempted to capture the aspirations of different sections of people in rural India, which need to be integrated into PURA (Refer Table 1).

For materialising "Knowledge powered PURA" infrastructure needs to deliver the outcome, i.e. the people participating in the development through bank of skills and quality education. Quality education is the core energy, which will generate inclusive development. It is a reality that in rural India getting *competent teachers* may be difficult, but we can surely bring *quality content through technology to children in rural India.* Quality content - that enables the children to compete at par with their counterpart in urban India.

Technology supported education will help available teachers to become facilitators in learning, and there by overcoming the handicap. To support technology, one needs energy - Power that should support the technology. Thus in reality we need to promote different modes of power supply to drive the technology. It is therefore important to also integrate with Ministry of Renewable Energy specifically with solar mission.

In conclusion, to re-emphasise, the actualisation of "Knowledge powered PURA" will be when the following points are woven into the fabric of the project-

- *Inclusiveness of the expectation of all segments of society*
- *Adequately integrating various ministries, particularly solar mission to provide sustainable power.*
- *Broadband connectivity and technology supported quality education.*

Table I
Rural Aspiration Matrix

Rating	Landless & Migrant Labour	Small Land Farmers	Petty Business	Large Land Owners	Salaried/Service Employees	PURA Prioritization
10	Basic Survival	Increase in Land Yield/Accessibility to Grazing Land	Connectivity to Market	Connectivity to Market	Economic Connectivity (banks, commercial organisations, industries etc.)	Physical Connectivity (roads, transport facilities, etc.)
9	Relief from Debt	Physical Connectivity (roads, transport facilities, etc.)	Physical Connectivity (roads, transport facilities, etc.)	Physical Connectivity (roads, transport facilities, etc.)	Physical Connectivity (roads, transport facilities, etc.)	Electronic Connectivity (phone, Internet, cable, etc.)
8	Physical Connectivity (roads, transport facilities, etc.)	Connectivity to Market	Economic Connectivity (banks, commercial organisations, etc.)	Economic Connectivity (banks, commercial organisations, Industries etc.)	Societal Connectivity (hospital, recreational facilities, place of worship, etc.)	Knowledge Connectivity (school, colleges, vocational education, etc.)
7	Societal Connectivity (hospital, recreational facilities, place of worship, etc.)	Societal Connectivity (hospital, recreational facilities, place of worship, etc.)	Electronic Connectivity (phone, Internet, cable, etc.)	Increase in Land Yield/Accessibility to Grazing Land	Connectivity to Market	Connectivity to Market
6	Connectivity to Market	Economic Connectivity (banks, commercial organisations, etc.)	Societal Connectivity (hospital, recreational facilities, place of worship, etc.)	Societal Connectivity (hospital, recreational facilities, place of worship, etc.)	Electronic Connectivity (phone, Internet, cable, etc.)	Societal Connectivity (hospital, recreational facilities, place of worship, etc.)
5	Economic Connectivity (banks, commercial organisations, etc.)	Relief from Debt	Relief from Debt	Electronic Connectivity (phone, Internet, cable, etc.)	Knowledge Connectivity (school, colleges, vocational education, etc.)	Integrated Rural Hub
4	Political Power	Electronic Connectivity (phone, Internet, cable, etc.)	Knowledge Connectivity (school, colleges, vocational education, etc.)	Knowledge Connectivity (school, colleges, vocational education, etc.)	Relief from Debt	Solid Waste Management
3	Electronic Connectivity (phone, Internet, cable, etc.)	Knowledge Connectivity (school, colleges, vocational education, etc.)	Political Power	Political Power	Increase in Land Yield/Accessibility to Grazing Land	
2	Knowledge Connectivity (school, colleges, vocational education, etc.)	Political Power	Increase in Land Yield/Accessibility to Grazing Land	Relief from Debt	Political Power	
1	Increase in Land Yield/Accessibility to Grazing Land	Basic Survival	Basic Survival	Basic Survival	Basic Survival	

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Venturing through PURA in a cluster of villages surrounding Nagda town of Ujjain district, Madhya Pradesh

A. K. Gupta

Introduction

To lead an urban lifestyle is now considered to be an important part of people's vision whether they live in countryside or in developed urban cities of the world. Even a country like India, which predominantly had agrarian societies, is fast changing and attracting the world of consumerism and advancement. In fact, present-day society views modernisation as the key tool of development; those bereft are considered under-developed and backward.

This trend of development of the societies, particularly in India, cannot be considered as an exaggeration because it is gaining importance and is, in fact, the much needed requirement of the people. Therefore, the concept of Provision of Urban Amenities in Rural Areas (PURA), as originated by Dr. A. P. J. Abdul Kalam, former President of India, is a prerequisite to fulfill the mission of development. The idea as conceived is a corollary to the idea as enshrined in Rigveda "Let all the abundance of the universe be in our villages".

PURA concept is strengthening of settlement development by way of infrastructural support to have equitable distribution of infrastructure and rural-urban continuum so that there is accelerated social and economic growth, retardation of migration from rural to urban areas and enhancement of rural productivity with the use of urban markets.

PURA is needed because rural areas of the country still have a higher proportion of population that has neither assets nor skills to respond to competitive world of market forces. Lack of infrastructure, physical, social and economical and inadequacy of desired services related to power supply, roads, water, sanitation, transport, hygiene, health, education, employment, etc., are adding to the miseries of the rural people.

Apart from lack of infrastructure and inadequate access to desired services rural areas of the country are experiencing growing problems mainly on two counts - population explosion and marginalisation of holdings. The urban areas are also having tremendous pressure on urban basic services as a result of urbanisation. The situation would reach an alarming proportion; a study of Makenzi Global Institute (MGI) states that 40 per cent of Indian population will be in urban towns by the year 2030. Even today, as pointed out by Census of India, 2001, metropolitan cities (UA) with a population of more than 10 lakhs are 35 as compared to 23 in 1991. These facts are indicative of the severity of problems, especially those related to urban basic services, in coming times.

Although 11th Five Year Plan emphasised inclusive growth, the task is still awaited with growing problems of rural-urban divide, regional divide and rich-poor divide. Performance of GDP in the last 5 years may bring a solace to the policies of economic reforms of the Government of India. Study increase in per capita income to reach a level of Rs. 44,345/

- in the year 2010 to register India as fast coming up in the eyes of world in the list of economically well performing countries. With all these external achievements but inherent inequality, so obvious, for its majority of people GDP or per capita income is not a true measure of social and economic welfare. Therefore, Indian planners have to work not merely on compassionate grounds or on whims and fancies of their will but on the basis of focused intervention as being the concept of PURA to achieve desired results.

Sharing of a plan to implement PURA at village level

A cluster of 14 villages (Figure 1) surrounding Nagda town of Ujjain district of Madhya Pradesh is being selected on the basis of the following criteria:

- The villages abutting existing regional roads.
- The villages which are contiguous to the abutting villages.
- The availability of various other existing services considered as a priority to give additional facility.

The selected clusters are located at a distance of 3 to 5 km from Nagda town, with only one village at a distance of 16 km from Nagda. Nagda town is an industrial town in Malwa region of Madhya Pradesh. It is an important railway junction on the main western railway line between Mumbai and Delhi. Being an industrial town, Grasim of Birla group at Nagda town is the largest fiber-producing unit in Asia. The population of Nagda is nearly one lakh and it is also a Block and Tehsil Headquarter. The structure of Nagda town and its agglomeration are influenced by the alignment of railway lines. Nagda has health facilities - government hospital, ESI hospital and well-equipped hospital of Gwalior rayon (Grasim), and educational facilities - college, higher secondary school, etc., which serves as social infrastructure to Nagda and nearby villages. In Nagda town and its surrounding villages the land is fertile and agriculturally rich.

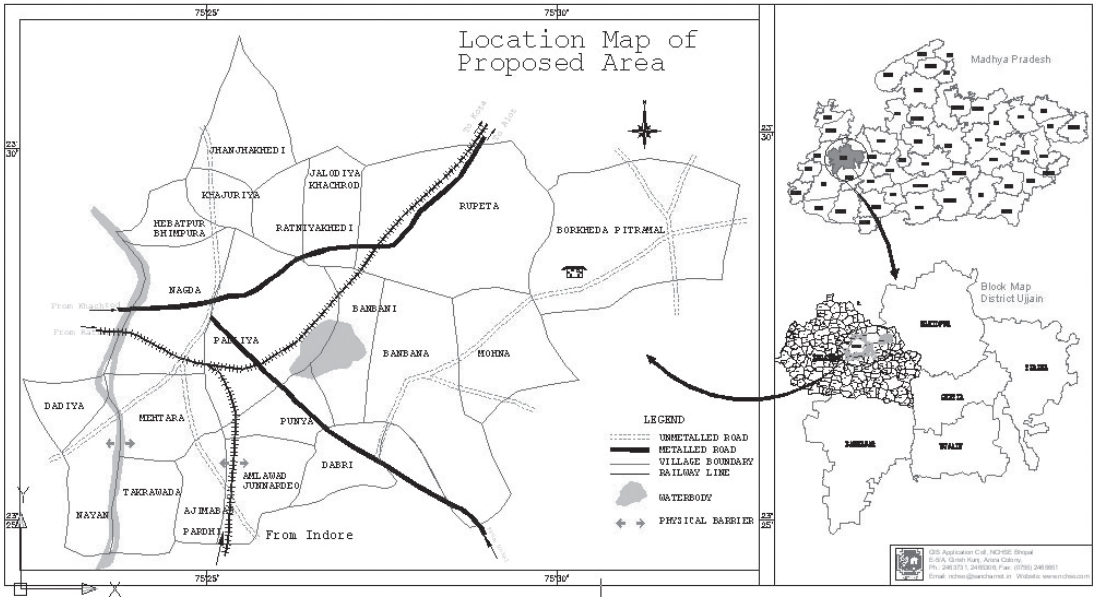

Figure 1. Location of proposed area

An account of village profile in terms of infrastructure support, its population, occupational classification, literacy rates, etc., indicates that the area is deficient in road network, power availability, educational institutions, livelihood support, markets and health support systems. Therefore, the following areas of interest need to be included in PURA cluster of Nagda:

- Road transportation and power connectivity
- Electronic connectivity
- Knowledge connectivity
- Strengthening and creation of income opportunities
- Market connectivity
- Medical amenities

Appraisal of road transportation and infrastructural gaps (Figure 2)

The location of cluster of villages shows that only three villages are abutting regional roads. Three villages are constrained by river whereas two villages are constrained by both railway and river. All 14 villages are not having metalled road; their connectivity is by kachha road from Nagda. The prevailing situation of infrastructural gaps calls for taking up the following:

- Construction of three railway overbridges.
- Construction of overbridge on river.
- Upgradation of existing 57.4-km road.
- Provision of culverts and roadside electrification.

Appraisal of power connectivity and infrastructural gaps

All the villages of the cluster are having electricity connections for domestic, agriculture, industrial and commercial use but the condition of power supply is extremely poor in these villages: not more than 6- to 8-hour supply is available. The condition of power supply in Madhya Pradesh as a whole is not satisfactory as per official claims to provide it at certain levels - village, tehsil and division.

Appraisal of electronic connectivity, telecom and Internet and infrastructural gaps

Only one village has post and telegraph and two villages have Internet facility. Interestingly, all villages have telephone facility as means of communication. The immediate need is to have Internet and post & telegraph services in all villages.

Appraisal of knowledge connectivity and infrastructural gaps

This is another important area, which needs to be taken care of. The villages have schools up to primary level, but only five villages have schools up to middle standard.

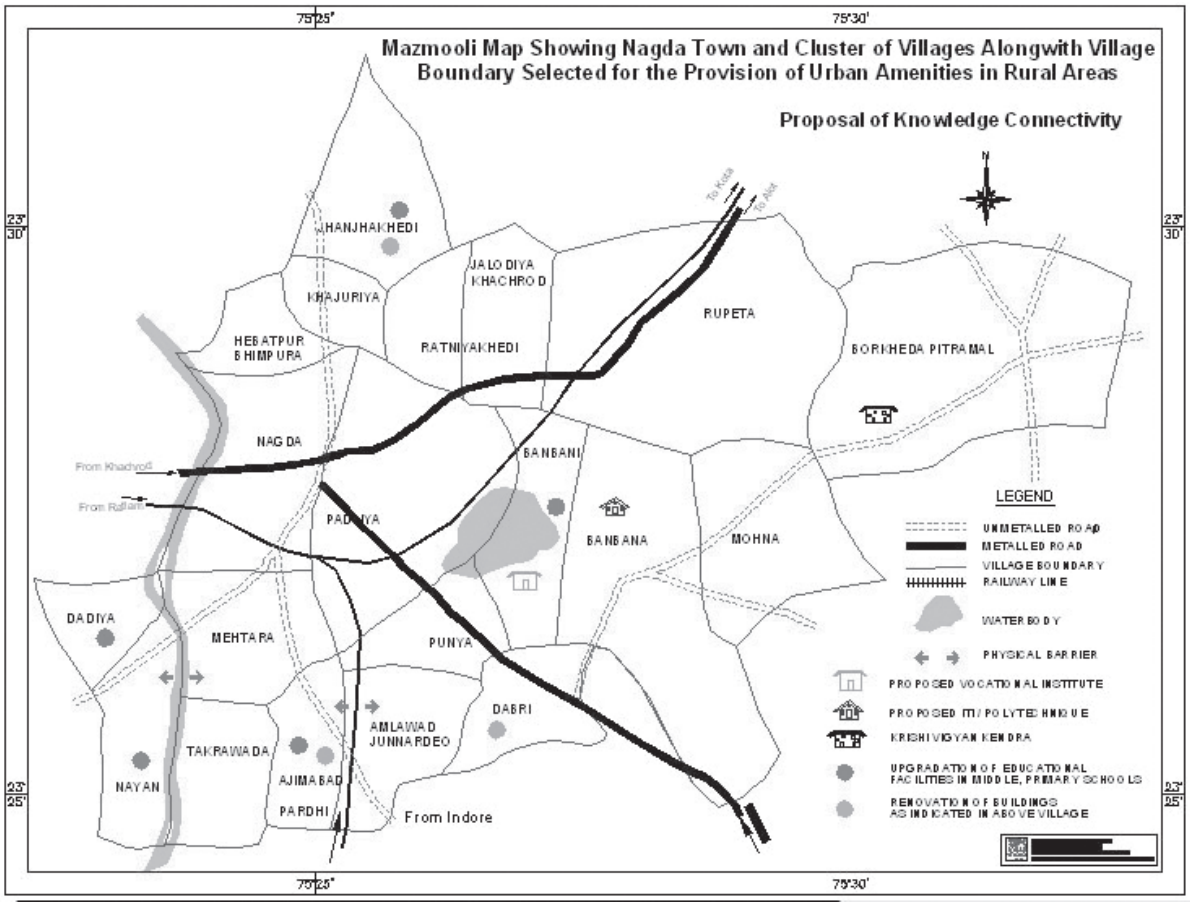

Figure 2. Map showing Nagda town and cluster of village

Strengthening and creation of income opportunities

Whilst the villages lack infrastructural support and adequate delivery of services, the income opportunities are also at a lower scale. This calls for taking up income opportunities. The following services have scope in these villages:

- Farm-based initiatives - (i) increase in irrigation facilities through renovation and newly constructed water bodies, tube wells, dug wells and lift irrigation schemes on the watershed approach; (ii) promotion of horticulture, floriculture, progressive farming, organic farming, vegetable cultivation, nursery, agro-forestry, etc. Introduction of producer companies to facilitate PPP as sustainable initiative of livelihood opportunities to boost activities related to seeds and seed production program, fertilisers, pesticides, organic manures, agricultural equipments, marketing linkages, technical guidance and distribution of dividends.

- Promotion of dairy, goatry and fishery
- Establishment of trading activities - grocery, clothes, cosmetics, shoes, cement, fertilisers, auto parts, etc.
- Carrying out of rental services through tent house, thresher, mixture, jeep, auto, centreing, seed drill and tractor, cold storages, warehouse, chilling plant, etc.
- Utility services - band, welding, bicycle repair, photocopy, hotel, tea stall, STD-PCO, saloon, tailoring, light decoration, soil excavation, boring machine, etc.
- Value addition - Flour mill, moti manka, terracotta, bamboo craft, pulse mill, spiller, fabrication, agarbatti making, bag making, readymade, handloom and handicraft items, small-scale industries, etc.

Appraisal of market connectivity and infrastructural gaps

Not even a single village has weekly haat, which can provide outlets to the farmers' produce and a source of strength to their efforts in economic matters. Therefore, there is a need to establish haat in every village and establish sub mandi in one of the cluster villages.

Appraisal of medical amenities and infrastructural gaps

The condition of health facility is deplorable; to begin with the following initiatives should be taken up:

- Proposal of construction of three sub health centres
- Proposal of providing mobile dispensary to all villages
- Augmentation of District Hospital.

Proposed Action Plan

Based on the assessment of the needs of the local area and its people, the following action plan would substantiate PURA concept:

Action Plans		
1.	Road transportation	Construction of three railway overbridges Construction of overbridge on river Upgradation of existing 57.4-km roads Provision of culverts and roadside electrification
2.	Power connectivity	Strengthening the distribution works Provision of alternate power generation source generators
3.	Electronic connectivity	Provision of Internet in 12 villages Provision of post and telegraph in 12 villages Provide cell phone facility to all 14 villages
4.	Knowledge connectivity	Provision of vocational schools with hostels Provision of polytechnic/IT with hostels Renovation of five primary schools Provision of KVK
5.	Strengthening and creation of income opportunities	Farm based initiatives Introduction of producer companies Promotion of dairy, goatry and fishery Establishment of trading activities Carrying out of rental services Utility services Value addition
6.	Market connectivity	Proposals to establish Haat in every village Establishment of sub mandi
7.	Medical amenities	Proposal of construction of three sub health centres Proposals of providing mobile dispensary to all villages Augmentation of hospital at Nagda

Transformation of PURA complex into a dynamic rural complex

The proposed action plan would significantly contribute to a dynamic rural complex by way of:

- Spread of knowledge, technical know-how, service delivery through e-governance
- Health consciousness amongst rural masses and an increased access to health services

- Replenishment of receding water level through NRM
- An improvement in hygiene, sanitation and water availability
- Strengthening of the capacities of workforce and youths through skill upgradation
- Building up of an atmosphere conducive to community participation and good governance
- Increased availability of domestic and other requirements at reasonable prices
- Enlargement of livelihood activities, increase in income levels and poverty reduction
- Attainment of inclusive growth
- Realisation of rural-urban continuum:
- to achieve accelerated social and economic growth
- to prevent migration of rural to urban
- for the use of urban markets to enhance rural productivity
- Paradigm shift to growth and opportunities

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Periyar PURA: A Model for the Development of Rural India

N. Ramachandran, M. Sivanantham & M. Gabriel

The economic liberalisation enunciated during the final decade of the 20th century has gained momentum in this decade as evidenced by a growth rate of around eight per cent of the GDP. However, the benefits of this growth have been confined mostly to urban areas, neglecting the rural areas. Poverty and lack of basic facilities such as schools, health services, roads, electricity, communication, etc., have resulted in the migration of the rural population to cities to seek better lives and jobs. If the nation has to prosper by 2020, rural development should be undertaken on a war footing to bridge the urban-rural divide, utilising the concept of PURA.

Periyar Maniammai University, Vallam, Thanjavur, Tamil Nadu launched a rural development programme based on the ideas of its mentor and social reformer Thanthai Periyar, who proclaimed that villages should get the same amenities as enjoyed by people in cities and towns.

Sixty-five villages situated on the south west of Thanjavur District and north of Pudukkottai District of Tamil Nadu are adopted by Periyar Maniammai University for implementation of sustainable development projects to give economic uplift. The staff and students conducted a socio-economic survey by using the techniques of Participatory Rural Appraisal (PRA) and Focused Group Discussion (FDG) for all the villages and created a database of physical infrastructure, natural resources, population, cropping pattern, subsidiary avocation, etc., to identify priority needs. These priority needs are being addressed, one by one, as specific projects. Local inhabitants of the villages participate in these projects, plan, implement, evaluate and maintain to archive economic sustainability. All these developments are being implemented by utilising the natural and local resources for sustained development without endangering the environment.

His Excellency the former President of India, Dr. A.P.J. Abdul Kalam, has advocated the concept of Providing Urban Amenities for Rural Areas (PURA) through physical connectivity, electronic connectivity and knowledge connectivity that will lead to economic connectivity and provide villagers with livelihood security. This concept of PURA, in all respects, resembles the programme of rural development adopted in the year 1996 by Periyar Maniammai University, Vallam, Thanjavur. During his visit on December 20, 2003, His Excellency then President of India inaugurated the PURA scheme and affectionately named it as Periyar PURA.

Periyar Maniammai University, with the participation of all Periyar institutions, 8,000 students and 850 faculty/staff, has developed a model for a National Development Programme (NDP) of overall rural development that includes enhancing the teaching skills of school teachers and improving the students' understanding in various subjects.

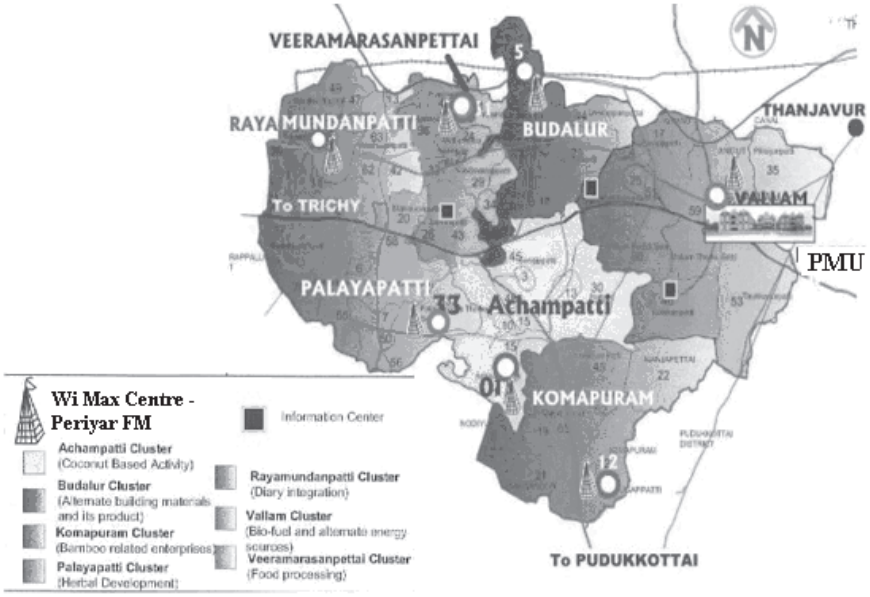


Figure 1. Periyar PURA Village in Thanjavur and Pudukkottai Districts, Tamil Nadu, India

Periyar PURA clusters and their activities

All the sixty-five villages of Periyar PURA were grouped into seven clusters (Figure 1) based on the availability of local and natural resources (soil, water, weather, biodiversity, geographical boundaries and human resources). Each cluster concentrated on developing products of specified fields so that the wealth generated would be circulated within the Periyar PURA villages.

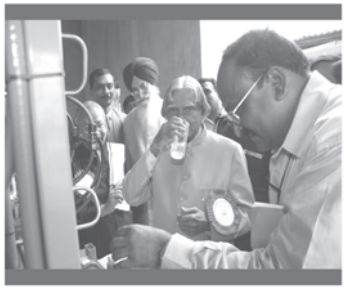
Sl. No.	Cluster	Economic Activity
1	Achampatti	Coconut-based activity
2.	Budalur	Alternative building material
3.	Komarapuram	Bamboo-related enterprise
4.	Palayapatti	Horticultural developments
5.	Rayamundampatti	-Dairy developments
6.	Vallam	Bio-fuel and alternative energy
7.	Veeramarasanpatti	Food processing

1. Physical Connectivity

The network of roads in the Periyar PURA villages was not in a good condition. Periyar PURA, with NSS volunteers and NCC cadets, has renovated some of the primitive roads with the participation of the villagers. Periyar PURA persuaded the district authorities to carry out road improvement work in Budalur - Komapuram as well as Veeramarasanpettai-Muthuveerakandiyanpatti-Avarampatti-Nandhavanapatti-Muthandipatti - on to National Highway (NH-47).

With assistance from M/S Pure-O-Tech (P) Ltd, San Diego, California, USA, a water purification plant was erected at Muthuveerakandianpatti. The purified water supply was also extended to Veeramarasanpettai and Avarampatti villages.

To alleviate the problem of inadequate housing facility, Periyar PURA has coordinated with State Bank of India, which extended housing loan to beneficiaries to the extent of rupees seven lakhs to Rayamundanpatti cluster area. Periyar PURA has been persuading the district authorities to carry out kacha, pakka and KVT house building programmes in the PURA villages.



Former President of India His Excellency Dr. A.P.J. Abdul Kalam inaugurated Water Purification Plant at Muthuveera Kandiyanpatti village on 24.09.2006

2. Electronic Connectivity

Village knowledge centres have been established, one in each cluster, to exchange and disseminate information and technology required by rural population. These knowledge centres have been connected with the main campus at PMU. Seven villages are connected through wireless broadband Wi-Max technology and Periyar FM 90.4 MHz. In order to disseminate information on the concept and activities of Periyar PURA across the global community an exclusive website www.periyarpura.org is being maintained.

School children participated in FM Radio Windsor participated in FM Radio interaction programme

Dr. Robin Wright
Professor, School of Social Work
University Programme in Periyar Maniammai University

3. Knowledge Connectivity

Regular training programmes were organised on computer operation, bakery, mushroom cultivation, bio-manure, welding, plumbing, sheet metal rolling and electrical appliances. NCC cadets, NSS volunteers and Periyar Matriculation school students enchant Periyar PURA ideals and activities through multimedia street shows among villagers.

Training on bamboo propagation and products was imparted to the people of Komapuram cluster, availing the services of NMBA. In collaboration with M/S Mico-Bosch, vocational training programme is being organised for carpenters, electricians, masons, and auto electricians with power tool operation. Trained beneficiaries are provided loan facility for the purchase of machineries and tools. M/S Cethar Vessels and BHELSIA of Trichy, in collaboration with Periyar PURA, has offered employment-guaranteed training on welding, sheet metal rolling, etc. Some of the unemployed youth from these villages have taken training with a stipend of Rs.1400/- per month.

Total sanitation has been provided to three of the Periyar PURA villages, Veeramarasanpettai, Rayamundanpatti and Achampatti. Periyar Maniammai hospital mobile medical team and NSS volunteers are periodically visiting all the villages to attend to their health needs.

Welder Training given through BHELSIA

Distribution of certificates For Mason trainees

4. Economic Connectivity

Periyar PURA is programming to provide job avenues continuously. Establishment of one modern laundry at Pillayarpatti and one unit of Fiber Reinforced Products (FRP) at Budhalur, coir product unit at Pudhupatti, pottery production unit at Manaiyeripatti and digital studio at Vallam at a cost of Rs. 55 lakhs are prime examples to emulate. The 80 SHG members of three villages in Rayamundanpatti cluster are provided with a loan of Rs. 24 lakhs for the purchase of milch animals and pasteurisation and pocketing facility by the State Bank of India, Thanjavur.

Periyar PURA is conducting an annual two-day agriculture conference along with CII on sustainable agriculture. Farmers' Forum is formed for watershed management, cropping activities and to provide linkage with knowledge generators and entrepreneurs.

System of Rice Intensification

Jatropha, a bio-fuel yielding plant, is cultivated in the campus on a large scale. The use of the bio-diesel will not harm the environment. In the surrounding villages, farmers are supplied with saplings to grow Jatropha plantation to promote the use of clean renewable alternate fuel.

Periyar PURA has the following organisations to carry out its tasks in these villages.

- Periyar Organisation for Women's Emancipation and Renaissance (POWER)
- Periyar Research Organisation for Biotechnic and Ecosystem (PROBE)
- Periyar Centre for Environment and Energy Management (PCEM)
- Periyar Renewable Energy Training Institute (PRETI)
- KVIC Regional Extension Centre (Bio-manure programme)
- Periyar Business Processing Outsourcing (PBPO)

The activities of these wings are as follows:

Periyar Organisation for Women Empowerment and Renaissance (POWER)

POWER is an NGO for the transfer of technology to the beneficiaries of the Periyar PURA villages. POWER identifies the aspirants in the locality, offers Entrepreneurship Development Programmes and assists to apply for funding schemes. Power has 8000 women in its SHGs and offers training in various areas such as bakery technology, nursery management, vermicomposting, mushroom culture, fibreboard production, ornamental plant cultivation, jute product making, etc.

Periyar Research Organisation for Biotechnic and Ecosystem (PROBE)

This is an outreach wing started in the year 1996 with a prime focus on the rural development through afforestation and biotechnology-based wasteland development activities. It has developed agro-modules in this locality to provide hands-on training in various agro-techniques in order to generate employment opportunity for the local people.

Periyar Centre for Environment and Energy Management (PCEM)

This centre was established in collaboration with University College of Cape Breton (UCCB), Nova Scotia and the College of the North Atlantic (CAN), Newfoundland, Canada. It conducts training programmes in wastewater analysis, treatment, remediation technologies and renewable energy technologies. The centre is currently involved in a project on the "Generation of power from municipal solid waste in Thanjavur" in joint technical collaboration with RWTH University, Aachen, Germany.

Periyar Renewable Energy Training Institute (PRETI)

It is a joint venture with the Ministry of Non-Conventional Energy Sources (MNES), Government of India. It offers training on renewable energy usage and energy conservation to suit the needs of various groups for a duration of one day to one month for self-help group women, unemployed youth, panchayat presidents, council members, government officials, students, faculty members and others interested in the use of renewable energy.

KVIC - Biomanure Regional Extension Centre

This centre was established in 2002 under Rural Employment Generation Programme of the Khadi and Village Industries Commission (KVIC), Ministry of Rural Development. This centre conducts regular awareness camps and skill development programmes in biogas generation and bio-manure production for the farmers and aspiring entrepreneurs of Periyar PURA villages.

Periyar Business Processing Outsourcing (PBPO)

This centre was established in 2009. There are 30 students in the first batch who are trained and have acquired knowledge in computer operations using MS Word, MS Excel, MS PowerPoint and Internet concepts. The students practice on the specialised software typewriting instructor which enhances their typing skill to accommodate them in PBPO industry. In addition, they are able to work in team spirit through this training programme. On completion of the training programme, they have self-confidence to work in any BPO industry in non-voice.

PBPO have started receiving NREGP, NMR data entry work from Budalur block. Then the block development officers of Thiruvonam and Thiruppanandal have also providing the data entry works. The data entry is done in PBPO centre and the data are sent online to the concerned blocks.

Host Institution and its Infrastructures

The host institution of Periyar PURA, i.e. Periyar Maniammai University, besides its known academic excellence, is very much involved in rural developmental activities. Consisting of committed people from Agri tech to nanotech, the infrastructure, manpower, ideology and environment really address the rural development in right sense.

Commitment of Organisation

Periyar PURA is carrying out its activities with an understanding of transfer of technology to the people in order to feed all instead of feeding a few.

Organisations availing the services of the University are as follows:

1. Tamil Nadu Water and Drainage Board, Government of India, Thanjavur.
    - Evaluation of drainage and permeability of soil
2. BSNL, Government of India
3. Public Works Department, Government of Tamil Nadu
4. Tamil Nadu Police Housing Corporation Ltd (TNPHC), Thanjavur
    - Assessment of old tiled staff quarters
5. Tamil Nadu Slum Clearance board, Government of Tamil Nadu, Thanjavur
6. Air Force Station, Government of India, Thanjavur
7. Highways Department, Thanjavur Office, Government of Tamil Nadu

8. Oil and Natural Gas Commission, Government of India
9. Muthu Pipes (PVC pipe manufacturers), Thanjavur
10. Tamil Nadu Electricity Board, Thanjavur
11. Small Industries Development Corporation Ltd. (SIDCO), Government of India
12. Indian Railways
13. District Rural Development Agency (DRDA) of many districts in Tamil Nadu
14. Air Force Station, Thanjavur

Linkage with institutions/research organisation/industry/financial institution

The institution has signed MoU with the following organisations:

1. National organisations

a. Educational and training Institutions

1. National Technical Teachers Training and Research Institute, Chennai
2. School of Quality Management, Gundur, Trichy
3. School of Energy, Bharathidasan Univerisity, Trichy
4. National Institute of Technology, Trichy
5. Foremen Training Institute, Tumkur Road, Bangalore

b. Research organisations

1. Defence Research and Development Organisation (DRDO), Government of India.
2. M. R. Morarka GDC Rural Research Foundation, Jaipur, Rajasthan

c. Business enterprises/industry

1. G.B Enterprises, Thiruchirappalli, Tamil Nadu
2. Sands Instrumentation (Pvt) Ltd., Chennai, Tamil Nadu
3. Kotak Urja Ltd., Bangalore
4. Silver Green Agro Products Export (India) Private Ltd., Thanjavur

d. Professional Associations

1. Builders Association of India, Thanjavur

2. Confederation of Indian Industry, Thiruchirappali

e. Public sector organisations

1. Bharat Heavy Electrical Limited (BHEL), Thiruchirappalli, Tamil Nadu

2. International Organisations

a. Universities

1. Memorial University of Newfoundland, Canada

2. College of North Atlantic, Newfoundland, Canada

3. University College of Cape Breton, Nova Scotia, Canada

4. National Louis University, Illinois, USA

5. RWTH, Aachen, Germany

6. Sandeago University, USA

Impact study on Periyar PURA

Periyar PURA, over a period of 5 years in implementing developmental activities in line with the PURA model, has brought in much impact on empowering and accelerating the rural development. It has addressed many issues including migration and shift in human resources, quality of life, employment, agriculture, education and infrastructure development in the project.

A Realistic Model of Public Private Partnership

A slightly different model of Public Private Partnership Periyar Maniammai University, with the support of government schemes, had solution-oriented approach and ensured the effective implementation of the project.

Convergence of development outcomes through generation of new jobs, vocational training and creation of new enterprises has enhanced women empowerment and improved quality of living and health and sanitation. Let us see how these impacts were created with the support of various public schemes.

Farm Development

This includes development of small water harvesting structures such as low-cost farm ponds, excavation of farm pond, renovation and augmentation of water resources, de-silting of village tanks for drinking water and irrigation, demonstration for popularising new crops and varieties and innovative management practices, construction of thrashing floors and distribution of agriculture implements at subsided cost by State Agriculture Department. Skill development programmes in agro-based activities have been started for about 2500 women. The cultivable area under different crops has been increased from 32,384 acres to 35,702 acres. There is a shift in crop choice too. New crops such as flowers and medicinal plants have been introduced and the area under less water-intensive crops is on the increase, retaining the farming activity for the whole year.

Vocational Trainings

On the non-farm sector, vocational training in trades such as welding, fitting, carpentry, electrical and plumbing services, CAD/CAM, CNC and machinist has produced more than 2000 skilled persons and jobs in related areas. This has arrested migration to a large extent and reduced unemployment problem among the youth.

Women Empowerment

One thousand and five hundred women SHGs enrolling 30,000 rural women are engaged in income-generating activities. They have been provided training in vermi-compost production, nursery techniques, tailoring, embroidery, bakery, coir products, fibre reinforced products, hollow block making and carpentry. In fact some of the services such as catering, stores, cafeteria, laundry, printing, tailoring and student amenities in the Periyar institutions are run as small enterprises by these trained women groups. This arrangement ensures not only quality of service to the end users but also a sustainable income to the women and thereby economic standing and empowerment.

Knowledge Development

On the educational front, Periyar PURA has worked from elementary schools to college level. Vocational training, virtual classrooms, e-tuitions, awareness creation, skill development and leadership development are the main activities targeted at the village schools. Some of the activities are done at the villages, some at the institution, and the advantages of ICT such as Wi-Max connectivity and Periyar FM are utilized. Village knowledge centres in six villages are connected to the base station at Vallam. Now children and farmers at these villages enjoy the IT impact. Spoken English modules are given to the rural children; e-tuitions for subjects such as mathematics and science are common. The overall increase in literacy is 9% from 62% recorded in 2001 census. The number of schools (75), colleges (7) and universities (4) in the region has also increased, allowing the rural community an easy access to education at an affordable cost.

Infrastructure Development

Due to the government policies, infrastructure development in sectors such as roads and railway lines brought in momentum to the development activities. Four-lane roads and broad-gauge railway lines have brought in new industries in the project area, increasing the members from 13 (in 2003) to 65 in 2010. This industrial boom helped the skill-trained youth to get employment in native areas and created service-oriented business activities such as hotels, lodging, general stores, maintenance and repair shops, etc. The indirect impact of these activities needs to be studied and can be taken as replicable model to create similar economic activities.

The support rendered by Centre for Rural Development brought in facilities such as internal roads, drinking water, drainage, street lights, graveyards, marketing complex, etc., with a little but timely intervention by the Periyar PURA functionaries.

Health and sanitation

Regular medical camps and social service camps by the University volunteers in the villages and the hospital facility in the University campus helped about 7,03,208 patients to get treated. Some of the villages were even brought under complete sanitation by constructing low-cost toilets for individual houses.

Rural Business Hub

Some of the identified economic activities for Rural Business Hub such as dairy farming, vermicompost and sericulture are in progress. A total of 280 farmers were trained in the related skills and agriculture now became agri-business for these farmers. Value-added products from the milk and cow dung fetch more prices. Rearing of silkworms and reeling of silk threads are found to be economically attractive by the small farmers. Presence of a Technology Business Incubator in the project area steers the innovation, thereby spindling the entrepreneurial environment. Micro enterprises based on rural resources are the main focus of the incubator, and the effort to bring in corporate in marketing the products of Rural Business Hub (RBH) will include small producers in value chains that will have the advantages of integrating with the supply chains, as they can supply better quality with intensive management attention to each output unit.

Extension of Periyar PURA in the Districts of Tamil Nadu

Based on the experience gained from Periyar PURA villages, it is planned and extended to other districts in Tamil Nadu, namely Nagapattinam, Villuppuram, Krishnagiri, Tiruvarur and Thanjavur.

To conclude

As per the vision of our mentor Thanthai Periyar, Periyar Maniammai University, from its inception in 1988, has grown into a centre for rural welfare activities and the mission to achieve prosperity in the year 2020 or even earlier is feasible, as envisaged by our beloved His Excellency former President Dr. A.P.J. Abdul Kalam. This successful module can also be replicated for the development of other villages in the country.

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Article
Rate of Software Piracy Vs Value of Software Piracy

Shashank S. Rao & Deepak Iyengar

Abstract

A number of studies conclude that there is a greater rate of software piracy by individuals from poorer compared to richer countries. Using archival data, we measure the value of pirated software in addition to the rate of piracy. Under the rational choice theory of crime, we conduct analyses comparing the rate versus value measures of software piracy for a comprehensive sample of 97 countries.

Results confirm the previous finding of higher software piracy rates in poorer compared to richer countries. We extend these findings by demonstrating that the overall value of software pirated per person is greater in richer countries.

The uniqueness of this study is that the value of software piracy has not been studied before in as much depth as the rate of piracy. Software firms can devote their scarce resources to fight digital piracy in countries where the value of the piracy is higher than the rate of piracy.

Keywords: software piracy, piracy value, piracy rate, construct validity.

1. Introduction

Gopal & Sander's (1998) treatise on international software piracy was a watershed article for behavioural software piracy researchers. It was one of the first studies to identify a relationship between national income and software piracy, which is now well accepted. The central premise of the study was that countries with lower per capita income would have higher software piracy rates than countries with higher per capita income. In subsequent years, these results have been replicated by a number of researchers (Andres, 2006; Bagchi et al., 2006b; Depken & Simmons, 2004; Husted, 2000; Marron & Steel, 2000). In this paper, we argue that piracy rates, as operationalised in past studies, capture only one aspect of the full extent to which users engage in piracy. Through an assessment of this value-based measure of pirated software, we are able to account more completely for observed differences in software piracy behaviour. Moreover, in further explicating the domain of software piracy (Craig & Burnett, 2005) this new measure offers additional insights on the relationship between poverty and software piracy.

Although multiple definitions of software piracy exist (BSA & IDC, 2004), typically, the term 'software piracy' refers to some form of unauthorised copying of software (Law & Wong, 2005). Piracy has been a problem for digital content creators, from the mid 1990s where it was viewed as a serious issue needing attention (Gopal & Sanders, 1998) to the present day where it is considered the single largest threat to jobs in the information technology

industry (BSA & IDC, 2004). In an April 2003 study funded by the Business Software Alliance (BSA) and the International Data Corporation (IDC), they concluded that reduction of worldwide piracy by 10% over 4 years would add more than 1 million new jobs and $400 billion in economic growth worldwide (BSA & IDC, 2004).

The increase of piracy has, of late, greatly affected the market for software applications (Andres, 2006). According to the International Planning Research Corporation (IPRC), the estimated world piracy rate for business software applications alone was 39% in 2002, leading to losses of $13.07 billion (IPRC, 2003). According to the first annual Business Software Alliance (BSA) & International Data Corporation (IDC) study in 2004, for every two dollars worth of software purchased legitimately, one dollar's worth was obtained illegally. In fact, the situation in some countries such as Russia and China is so grim that the Software Publishers Association (SPA) has designated them as 'one-copy countries', which essentially means that the entire country's demand can be met by one single copy of legitimate software (Banerjee, 2003). According to IDC estimates, while the PC software market will grow from $50 billion to $70 billion over the next 5 years, the value of the pirated software market will grow to about $40 billion.

Paralleling this growth, piracy-related research has been a hotbed of activity in the recent past. According to Holsapple et al. (2008), the amount of research in piracy has grown from 2 published papers per year in 1990 to 28 published papers in the first half of 2006. Whilst this explosion of research is encouraging, even more interesting is the opinion of academicians that research in piracy is still in a nascent stage and a disciplined analysis of piracy as a domain is yet to be conducted (Zwass, 2005).

In this paper, we utilise a framework based on the Rational Choice Theory of Crime to study the phenomenon of software piracy. Specifically, we address the question "do computer users in poorer countries differ significantly from those in richer countries, with respect to their usage of pirated software?" We first replicate previous studies and demonstrate that our data provide results that are consistent with historic studies in the domain of piracy. This supports the validity of our findings and grounds our study in the extant literature. Subsequently, we extend the previous piracy framework to propose a new measure of software piracy and its potential causes. Our findings throw an interesting light on the historical studies dealing with software piracy. Findings from this research demonstrate that alternative indicators are sensitive to different aspects of the domain of software piracy and result in radically divergent findings. In particular, we propose a new measure that reflects the value of software pirated versus its traditional assessment in terms of the rate or frequency of pirating. The rate of software piracy has been studied in the literature in the past but we have yet to find a study using the value of software piracy as an indicator of software piracy. The implication of using this new indicator has far-reaching consequences as it shows poorer countries to be pirating less in terms of value compared to richer countries. Finally, we provide an extended framework discussing the contribution of our findings whilst reconciling our results with the apparently contradicting view of previous research.

The remainder of this paper is organised as follows: In the next section, we provide a brief synthesis of the existing research stream on software piracy. Section 3 introduces the new measure, along with the rationale for the same, whilst Section 4 operationalises the model. Subsequently, we present the results of our findings in a staged series of analyses, which are presented in Section 5. Sections 6 and 7 summarise our findings and present implications and conclusions of this research.

2. Research Background

Software piracy has been a phenomenon of significant interest among researchers and practitioners and, as a result, a substantial amount of published work exists in this domain. According to data gathered by Holsapple et al. (2008), since 1990 the overall number of published software piracy studies exceeds 75. As they note, research on software piracy behaviour has relied on two forms of data collection: archival (8 studies) and surveys (51 studies), whilst the remainder comprises analytical works. Using the empirical studies as a base, we focus our discussion on the measures of software piracy and the antecedents most frequently investigated in this past research (see Holsapple et al., 2008).

2.1 Measurement of software piracy behaviour

Survey research has been employed as one popular approach to develop a deeper understanding of software piracy behaviour (see Peace et al. (2003) for an excellent example). Several indicators using this methodology have been used to operationalise software piracy, ranging from the actual conduct of piracy (Gupta et al., 2004; Moores & Dhaliwal, 2004) to intention to pirate (Tang & Farn, 2005), to attitude and intention to pirate software (Peace et al., 2003). It is interesting to note that all of these operationalisations of the underlying behavioural construct of software piracy find significant results with respect to largely similar indicators (which will be discussed shortly). These results are, however, not surprising as the Theory of Planned Behaviour (Ajzen, 1991) suggests that attitude towards an activity is indeed an important determinant of the intention to carry out that activity. Consequently, intention, although fallible, can serve as a useful indicator of behaviour-based piracy.

Archival research methods, on the other hand, have investigated only one dependent indicator: the software piracy rate provided by the BSA (Gopal & Sanders, 1998; Husted, 2000; Bagchi et al., 2006a; Andres, 2006). This rate is measured as the difference between the market potential for new software (based on an estimate of new hardware sold) and the actual amount of software that was correspondingly sold. Gopal & Sanders (1998) proposed one of the first macroeconomic models of software piracy based on this dependent variable. According to their proposition, countries with low per capita income are expected to have higher software piracy rates. A key point that we will discuss subsequently is that the results of Gopal & Sanders (1998) are based upon piracy rates for only 13 countries. Subsequently a number of researchers have successfully replicated the Gopal & Sanders (1998) results (Husted, 2000; Bagchi et al., 2006a; Andres, 2006; Depken & Simmons, 2004). Table 1 provides a brief overview of the original Gopal & Sanders (1998) paper and these subsequent studies along dimensions we now discuss in more detail.

Table I
Summary of archival research in software piracy

Authors	Factors				
	Demo-graphics	Legal Regulation	Income	Infrastructure	Number of countries
Gopal & Sanders 1998	Yes	Yes	Yes	No	13
Husted 2000	No	No	Yes	No	39
Bagchi et al. 2006	No	Yes	Yes	No	37
Andres 2006	No	Yes	Yes	No	34
Depken & Simmons 2004	No	Yes	Yes	No	65
Shin et al. 2004	No	Yes	Yes	No	49
Marron & Steel 2000	No	Yes	Yes	No	49
Rodriguez 2006	No	Yes	Yes	Yes	23

2.2 Antecedents of Software Piracy Behaviour

Several antecedents have been proposed as predictors of software piracy behaviour amongst individuals. In this section, we will discuss the predictors most frequently investigated in models of software piracy.

2.2.1: *The Income Effect:* This dimension is by far the most widely tested of the antecedents to piracy behaviour both by survey researchers as well as in archival studies. An analytical explanation is provided by Conner & Rummelt (1991), who suggest that the decision to purchase or pirate software is a function of the value obtained from the programme, the cost of pirating and the price of the software. Whilst their model is analytical, the underlying rationale is empirically tested by Peace et al. (2003). Empirical results from this and similar studies converge with the expectations that the price of software (as a function of income) is an important determinant of the propensity to pirate it (Jussawalla, 1992). For instance, Cheng et al. (1997) conclude that one of the primary reasons that students pirate software is the otherwise high cost of buying an original version. Implicit here is the idea that higher priced software is more desirable to pirate than lower priced software. As we discuss later, this finding relates to the premise underlying our new measure of the value of pirated software.

Within the broader domain of income, another interesting variable that has been reported to be predictive is income inequality (Andres, 2006; Husted, 2000). The premise is that with a more equal income distribution there will be a relatively larger economic middle class, which is more prone to acquire illegal copies of software. The argument is that the rich have no need to acquire pirated copies of software, whilst the poor have no access to computers and subsequently no need to pirate software (Husted, 2000). Consequently, an increase in income inequality would be expected to indicate a lower degree of software piracy. Two studies test and provide support for this relationship (Andres, 2006; Husted, 2000).

2.2.2: *The effect of infrastructure:* Survey research has proposed that one of the drivers of software piracy has been the rapid growth in bandwidth availability (Hinduja, 2001; Peace et al., 2003). According to Wall (2001), the Internet is a haven for computer criminals as it provides a domain where digital content is easy to access whilst at the same time providing a certain sense of anonymity to the criminal. Interesting anecdotal evidence is provided by Leyden (2004). With 79% of its population connected to broadband, Iceland is one of the most 'wired' countries in the world. According to SMAIS (Samtök Myndrétthafa á Íslandi, which is the Icelandic equivalent of the Motion Pictures Association of America), raids by police on users of P2P networks for illegal sharing activities reduced Internet traffic by almost 40% (Leyden, 2004). The implication here is that at least 40% of the country's available bandwidth was used for pirating digital content.

Archival researchers, however, have obtained mixed results regarding whether a facilitating infrastructure has significant effects on software piracy. For example, in a longitudinal study on international software piracy, Bagchi et al. (2006a) found significant results for 1996 data, but did not find a significant effect in subsequent years.

2.2.3: *The effect of legal protectionism:* The role played by legal protectionism on software piracy behaviour was first analysed by Gopal & Sanders (1997). Legal solutions could include unannounced audits or bringing lawsuits against unauthorised users of copyrighted contents (Mason, 1986). The premise is that, although legal guardianship of software does not directly influence the cost or effort of piracy, it dissuades piracy due to the threat of sanctions (Gopal & Sanders, 1997). Survey researchers have found that one of the primary reasons proposed for the widespread copying of software has been that pirates are unaware of the law (Christinsen & Eining, 1991; Simpson et al., 1994). Other reasons include limited enforcement of the law, leading to threats that are too minimal to be taken seriously (Hinduja, 2003). Similar findings are reported in other studies where the low probability of being apprehended and penalised is given as one of the primary reasons people continue to engage in piracy (Cheng et al., 1997; Tan, 2002). At the same time, it has been suggested that a higher perceived risk of getting caught (when the legal sanctions are enforced strictly) causes a reduction in pirating behaviour (Peace et al., 2003). These findings appear to be consistent with Deterrence Theory, which states that certainty and severity of punishment decrease deviant activity.

Archival researchers have investigated this construct, again with mixed results. Bagchi et al. (2006a) found significant results of legal protectionism on software piracy in 2003, but did not find similar results in any of the prior years. Similar results were reported by Andres (2006) for 1995. It is interesting to note that the 1996 data for Bagchi et al. (2006a) were similar to the data used by Andres (2006), but the results were opposite in terms of directionality. This difference may be the result of a strong sampling bias in that their samples were limited in scope {Bagchi et al. (2006a) =37 countries; Andres (2006) = 23 countries}.

2.2.4: *The effect of demographics:* Survey research has repeatedly indicated that various demographics serve as good predictors of software piracy behaviour. Three of the demographics that have consistently been suggested by survey researchers are age, gender and computer familiarity (Holsapple et al., 2008). Hinduja (2001) indicates that software pirates are mostly younger males, who are very familiar with computer systems. To the best of our knowledge archival research has not controlled for demographic differences when studying software piracy behaviour.

Consistently across context or culture, younger people are more likely to engage in piracy as compared to older people. In a study conducted amongst respondents in Singapore, Gan & Koh (2006) found significant results, suggesting that age is negatively related to intention to pirate software. Similar results are reported by Kini et al. (2004) in a study amongst respondents in Thailand. Polakowski & Schneider (1998) also found support for their proposition that age is related to software piracy (negatively) using a sample of American students.

The effect of gender is one of the more widely studied demographic factors in the context of software piracy. Within the context of criminology, it has been observed that females have a substantially lower propensity to commit crimes than males (Piquero & Sealock, 2004). Whilst this phenomenon has been studied extensively in diverse contexts, piracy research yields very interesting results. Most researchers conclude that software pirates (especially Internet-based pirates) are generally male (Rahim et al., 1999; Sims et al., 1996; Wood & Glass, 1996; Hinduja, 2001, 2003). Higgins et al. (2006) contends that this difference between the propensity of males and females is largely because of social learning and self-control. As they note, software piracy is a behaviour that is adopted largely due to the influence of peer groups and differential learning from social groups (Higgins et al., 2006). Archival research, in contrast, has not studied the effects of gender.

Whilst the effect of computer familiarity on the incidence of pirating behaviour is not commonly investigated, the few researchers who have examined this factor take the view that software pirates are creative and intelligent (Rahim et al., 1999). They conclude that pirates are likely to be highly familiar with computer systems (Piquero & Sealock, 2004; Rahim et al., 1999). Other researchers believe this is not a surprising finding as pirates must be skilled in computer use because they must know where and how to find this information and how to use it (Craig & Burnett, 2005). Again, archival research has not investigated this effect.

3. The Complete Model And The Development Of A New Measure:

3.1 Completing the model

A synthesis of the literature addressing software piracy behaviour leads to the model shown in Figure 1. The relationships posed serve to integrate past research whilst serving as a nomological network enabling a comprehensive assessment of the validity of our new measure of piracy behaviour.

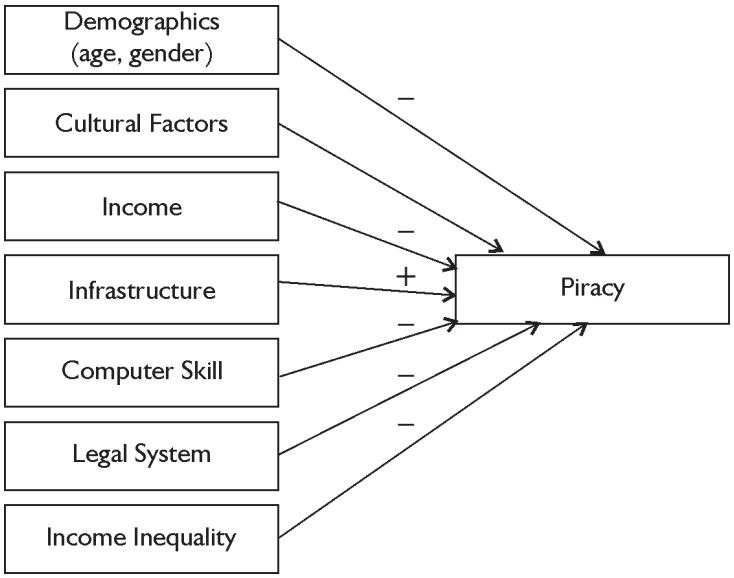

Figure 1. A model of software piracy behaviour

As mentioned in the introduction, one purpose of this paper is to address the substantive research question as to whether computer users in poorer countries differ significantly from those in richer countries with respect to their usage of pirated software and, if so, how is this difference manifested? To accomplish this goal we first assess the construct validity of our proposed measure. We do this by estimating the proposed relationships through a series of empirical stages. In the first stage of our analyses, we replicate past research results by using the previously utilised measure of software piracy (rates). Next, a series of analyses demonstrate how results diverge from prior studies by analysing a new indicator that is sensitive to the value of pirated software. Doing so enables a more complete examination of this substantive research question from differing perspectives. To accomplish these dual goals, the difference in piracy behaviour with respect to the varying effects of income on piracy is examined, controlling for the effects of the predictors shown in Figure 1. This gives rise to our first hypothesis based upon the rate of piracy, as employed in past archival research:

H1: Poorer countries will have a higher overall rate of piracy as compared to richer countries after controlling for the stated antecedents.

This relationship has been widely studied in the literature and been consistently supported (Gopal & Sanders, 1998; Husted, 2000; Andres, 2006; Bagchi et al., 2006a). A successful replication of this historical finding provides a first step towards establishing the validity of our subsequent results.

Most archival data in the area of software piracy have been supplied by the Business Software Alliance (BSA). The BSA is a network of software manufacturers and includes a number of software manufacturers such as Microsoft and Novell (Husted, 2000). This organisation measures the piracy rates in different countries and reports it as a percentage number (with 0% indicating no piracy and 100% indicating full piracy). The piracy rate is calculated as the difference between software programs installed and the amount of licensed software sold legally. This is to say that under ideal circumstances, the market for new software in any country would be a function of the new hardware (computer systems) sold in that country within a particular time frame. The difference between this estimated demand and actual sale of software could be considered the software that is pirated. Whilst this system does have its flaws (one argument has been that the method, in fact, underestimates piracy because a substantial amount of software gets sold for older computers (Traphagan & Griffith, 1998)), most empirical models have largely used the BSA piracy rate estimates (Andres, 2006; Gopal & Sanders, 1998; Husted, 2000; Marron & Steel 2000; Depken & Simmons, 2004; Rodríguez, 2006). Also, whilst the data may have an element of bias in it, we have no reason to believe that the results for any particular set of countries will be differentially biased; i.e., even if a bias is present, it should be a uniform bias across the cross section and, thus, not affect the overall results (Bagchi et al., 2006b).

3.2 The need for a new measure

The measure of piracy defined by the BSA (predominately used in past archival research) assesses the total percent of hardware that runs on pirated software. However, this measure does not account for individual differences between computer users in different countries. As in the survey-based behavioural research on software piracy, it is important to note that it is the users of computer systems that pirate software, not the computer systems themselves. Software piracy, as measured by the overall piracy rate, would be reflective of the actual usage environment, only if each computer in each country would be used by only one (or at least the same number) user. This case is best illustrated by way of an example.

Let us assume that country X has a software piracy rate of 80%, whilst another country Y has a software piracy rate of 45%. Casual observation would suggest that country X has a higher piracy rate than country Y, in effect implying that the citizens of country X pirate far more software than those of country Y. However, suppose we now add on this additional consideration; on average, every computer in country X is shared by 2 persons, whilst every computer in country Y is used by just 1 person (i.e. In country Y, each user has his own computer).

In that case, it would be fair to deduce that each user of each computer is, on an average, responsible for only (80% / 2) = 40% of the piracy, whilst each computer user of each computer in country X is responsible for (45%/1) = 45%.

Also suppose country X's software has a total dollar value of $100 (indicating the total value of pirated software running in that country) and the number of computers is 10. Then the loss due to piracy will be on an average $100/10 = $10 per computer. Also, if each computer is being shared by two users, then each will be responsible for $10/2 = $5 of piracy, on average. On the other hand, if the said computer was being used by just one person, then on an average the single user would have been responsible for all $10 worth of piracy. This difference is fundamental to the valid assessment of the value of overall piracy losses.

It would normally be expected that the number of users per computer would be lower in richer countries than in poorer countries (as more people would have access to their own computer in richer countries). In order to check for this, we obtained data on the number of users per computer from the World Bank. It is interesting to note that the number of users per computer is, in fact, not symmetric across countries (median users =2.97, S.D. = 2.65). For example, the number of users per computer ranges from 0.91 in Switzerland and USA (indicating that each user has, on an average, more than one computer) to 6.4 in Vietnam (indicating that almost 7 users share one computer). In light of this difference we adjust the piracy rates by the number of users per computer. The result is a significant change in the distribution of values representing country-specific differences in piracy rates. For example, the piracy rate for the US is 28% versus .31 for the proposed measure (in the United States, the users per computer is .91). In contrast, for China there are 2.6 users per computer changing the rate measure of 85% to .33 for the value-based measure.

As a result of this effect, we propose and develop a new measure to assess the extent of software piracy, i.e. software piracy per computer user. This is represented by equation 1 below:

$$\text{Software piracy per computer user} = \sum D_{\alpha} \; / \; \textit{Users} \qquad [1]$$

Where: D_{α} = Average dollar value of pirated software per computer, given as

$$D_{\alpha} = \sum D_{\beta} / C_i \qquad [2]$$

Where: $\sum D_{\beta}$ = Total dollar value of pirated software in the country &

C_i = Total number of computers in the country

Or, in simple terms, software piracy per computer user is given as

$$\frac{Totle\ \ value\ of\ \ software\ \ pirated}{Numbers\ of\ computers} \times \frac{1}{Users\ per\ computer} \quad [3]$$

Our premise is that this measure will be more sensitive in accounting for individual differences in the value of pirated software versus the BSA's overall software piracy rate. In effect, we expect to find a difference in results when comparing the BSA-based aggregate software piracy rate with our more value-sensitive per user piracy measure. Specifically, we expect to find a negative relationship between income and software piracy for the aggregate rate-based measure (as per H1, which is consistent with previous research), but do not expect this same relationship for our proposed value-based measure. The rationale for this differential expectation is provided next.

3.3 Theoretical Background

Prior research has, to a varying extent, embraced a criminological perspective on software privacy (Hinduja, 2001; Higgins et al., 2006; Rodríguez, 2006). We extend this research by considering the rational choice theory of crimes and utilise this theory in making predictions for the types of countries most likely to pirate higher valued software. Landes & Posner's (1989) economic theory of copyright provides a useful starting point for critically studying the impact of differing economic situations on copyright infringement. According to this viewpoint, any predetermined degree of copyright protection can be enforced on any digital content at a certain cost to the copyright owner. Thus, in an optimal system, there would be no copyright infringement, as the original publisher (or content creator) would impose the right level of protection in order to protect the product's content from infringement. However in reality, there is indeed some amount of illegal copying present in every market (see Rodríguez, A. (2006) for a discussion).

The Rational Choice Theory (RCT) of crime suggests that people will make decisions to commit crime in a rational manner, i.e. based upon their expectations for profit maximisation and the minimisation of losses (Felson & Clarke, 1993). Accordingly, individuals choose what they believe to be the best means to achieve their desired end goals. This theory conjectures that individuals are modelled as maximising utility, the "currency" for everything they cherish. According to this formulation, the occurrence of crime will vary according to three broad configurations of factors (Rock, 2004). The first of the situational factors refers to the effort involved (ease or difficulty) in committing the crime. Situational crime prevention (also called target hardening) refers to the act of making the effort involved in carrying out the crime as high as possible, thus deterring crime. Examples of this may include the use of big locks on houses, increasing gun control. Specific to software piracy, increases in technological access, such as Internet bandwidth availability, may act as situational facilitators that increase the incidence of crimes, such as piracy.

The second of the RCT factors refers to the risks involved in offending. Formal surveillance by police in streets is an example of how this second factor attempts to raise the barrier to direct predatory crimes. Specific to software piracy, deterrents could include the extent of adherence to legal regulation and international intellectual protection memberships to

which society is subjected. These two deterrent-oriented factors are included in our model under the legal system (see Figure 1)

The final RCT crime dimension refers to the potential rewards of the crime that the perpetuator may enjoy. For example, researchers have pointed out that within the context of burglaries, compact, old school buildings on small plots are three times less likely to be burgled as compared to larger, new buildings, irrespective of location (Hope, 1982). The issue is that compact buildings give the impression that the possible rewards from breaking in are less than what could be obtained from breaking into a larger building. The complete RCT framework is illustrated in Figure 2 and indeed, as will be subsequently shown, several streams of criminological theory converge on similar propositions.

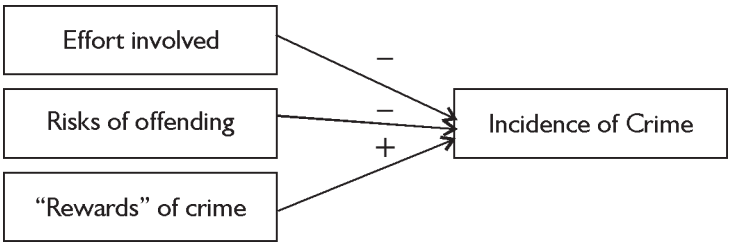

Figure 2. Rational choice theory of crime

According to the RCT, individuals who would gain the most out of obtaining a copy of pirated software (who would have the highest propensity to pirate) would be those who would receive maximum utility in return. A similar argument is provided by Ehrlich's economic theory of crime (Ehrlich,1973), in which it is argued that the decision to commit a crime is a rational choice involving the optimal allocation of resources. Consequently, offenders will be motivated to commit that crime wherein the potential rewards to risk ratio is the highest. Indeed, Rodríguez (2006) argued that Ehrlich's (1973) opportunities and rewards can be replaced by the costs and benefits involved with conducting an illegal activity (in this case, software piracy). Subsequently, Rodríguez (2006) demonstrated that increasing deterrent controls on software piracy decreased the opportunity for committing this crime. Earlier studies that tested this relationship found similar results (Gopal & Sanders,1997).

However, it is useful to note that no study has to date tested what effects the second factor (i.e. increasing the rewards of the crime) might have on copyright infringement in an international context (Ehrlich,1973). With respect to piracy, people using dedicated systems solely for themselves would find greater value (rewards of the crime) for pirated software than people using shared systems. This is because using pirated software on dedicated computers would provide a greater comparative advantage and, subsequently, increased reward to the user of a dedicated system (as the same functional utility is obtained for a lesser cost), whereas users of shared computers would receive a lower level of relative utility (as the benefit would have to be shared with other users of the same computer). In effect, we would expect to see users of dedicated systems to display higher piracy propensity. As we have already noted, people in richer countries have a greater number of dedicated systems than do people in poorer countries. Thus using our new measure

and the economic theory of crime (Ehrlich, 1973), we predict the somewhat counterintuitive second hypothesis, which, if supported, would contradict results in the extant literature.

H2: Richer countries will have higher per user piracy than poorer countries after controlling for all other stated antecedents (situational indicators of the RCT).

4. Operationalising The Current Study

As mentioned earlier, most archival research dealing with software piracy has operationalised the effect of income on piracy by using country per capita GDP (or GNP) [(Gopal & Sanders, 1998; Husted, 2000). In this paper, we used the PPP-adjusted GDP, obtained from the International Monetary Fund (IMF) world economic outlook.

Demographics (median age and male to female ratios) and computer familiarity were obtained from the CIA world fact book (available online at www.cia.gov). To our knowledge, archival research has not controlled for these demographics, which have been reported to be significant predictors of piracy in survey-based research. In this paper, we use average computer literacy within the country (percentage of the population who know how to use computers) as a proxy for average computer familiarity.

The strength of the judicial system was measured by the World Bank "Rule of Law Index" (Kaufmann & Mastruzzi, 2003), which is consistent with the methodology employed by Andres (2006). The World Bank rule of law index ranks countries on a scale of 2.5 to 2.5, wherein higher values indicate a more efficient and effective judicial system. This study has been conducted once every 2 years since 1996. We use the values for 2002 which were the latest available. In order to verify the quality of this data, we also obtained the corruption perception index measured by Transparency International (consistent with Bagchi et al. (2006a)) and the regulatory quality index and the government effectiveness indices measured by the World Bank. This latter index was used by Rodríguez (2006) as a proxy for the quality of the regulatory system. Principal components analysis indicated that almost 80% of the variance across these four indices was explained by one underlying dimension (first eigenvalue = 3.207). Thus, for simplicity and parsimony, only the Transparency International index was retained.

Within the context of legal protectionism international trade organisation membership (e.g. TRIPS / WIPO) is quite likely to reflect the extent to which one country does or does not tolerate intellectual property violation (Rodríguez, 2006). Among the major international copyright membership conventions, WIPO (World Intellectual Property Organisation) is one of the oldest and has the widest memberships. WIPO is one of the specialised agencies of the United Nations created in 1967 with the stated purpose of encouraging creative activity and promoting the protection of intellectual property throughout the world. Thus, our measure of external legal protectionism was coded as to whether a country was a member of WIPO (1) or not (0).

The availability of facilitating infrastructure was measured as a function of three variables: availability of telephones, the availability of the number of Internet service providers and

the network readiness score of the World Economic Forum. The first two variables are consistent with Bagchi et al. (2006a). However, whilst Bagchi et al. (2006a) obtained these data from the World Bank figures, we obtained our data from the CIA fact book. Doing so allowed us to expand our sample from 37 countries (Bagchi et al., 2006a) to 97 countries.

The degree of economic inequality was measured using the Gini index consistent with previous research (Andres, 2006; Husted, 2000). The Gini index (United Nations Human Development Report 2005) is a measure of inequality of a distribution and is represented as a ratio with values between 0 and 1. The Gini index is an often used indicator of income inequality, in which 0 corresponds to perfect income equality whilst. at the other extreme. 1 corresponds to perfect income inequality. In reality, the majority of nations range between 0.25 (primarily richer countries) and 0.7 (mostly poorer countries).

5. Data Analysis And Results

We divide our data analysis into four steps, the results of which are presented in this section. As mentioned, one of the purposes of this paper is to assess whether computer users in poorer countries differ from computer users in richer countries in terms of the rate versus value of their usage of pirated software. In order to maintain consistency with previous research we use the same data analysis methodology employed previously.

Step 1:

Gopal & Sanders (1998) performed a regression analysis on their archival data for 13 countries and suggested that per capita GDP was a significant factor in predicting piracy rates. In study 1, we first replicate the results of the original Gopal & Sanders (1998) study.

We conducted a regression with the prior measure of piracy (rate) as the dependent variable and per capita GDP as the independent variable. The effect of per capita GDP on piracy rates was consistent with the results obtained by Gopal & Sanders (1998) (b = -5.03, p=0.000, R squared = 0.574), and supports H1. These results are consistent with the original study and replicate their research for a more recent sample of data. These results are also consistent with other subsequent studies (Andres, 2006; Husted, 2000). It should, however, be noted that the samples for these latter studies were different from our sample, as we specifically chose those countries for step 1 to be consistent with the sample used by Gopal & Sanders (1998).

Step 2:

Next, we extended the previously proposed model to the full sample of 97 countries. To the best of our knowledge, no prior study had looked at such a large sample of countries,

1 For the comparison to the Gopal & Sanders, (1998) sample of 13 countries, we ran the analysis without the control variables; as the number of data points is too small to reliability accommodate six independent variables. This is consistent with the empirical model utilised in the study.

whilst studying the relation between GDP and piracy. The one study to approach our sample size was by Marron & Steel (2000), where the authors had data from 77 countries. However, this sample did not contain the control variables depicted in Figure 1. With the addition of their control variables (Hofstede's cultural dimensions), their sample (Marron & Steel, 2000) was reduced to only 49 countries. In our case, analyses included all of the prescribed controls (age, gender ratios, legal controls, infrastructure availability and economic inequality), thus more rigorously testing H1.

A regression for our full sample with piracy rate as the dependent variable and per capita GDP and the control variables as the independent predictors was conducted in step 2. Again, the same effect for income was significant (b = -15.91, p = 0.000, R squared = 0.81) . Thus, H1 is further supported. Our results compare favourably with previous studies, thus indicating that our expanded sample is both more comprehensive and comparable in composition to prior archival data sets.

Step 3:

We now test H2, with the addition of our new measure of software piracy per computer user (see equation 3 shown previously). Again, we first tested the model on the original Gopal & Sanders (1998) set of 13 countries. In this case, the dependent variable was the dollar value of piracy per computer user whilst the indicator variable was per capita GDP (this model did not include the control variables due to the small sample size). The reverse effect of income was in the hypothesised direction, although not statistically significant (b = 6.14, p > .05). Thus, H2 is not supported for the original sample of 13 countries. This lack of significance is most likely due to a selection bias towards affluent countries in the original Gopal & Sanders (1998) set. The average income of the 13-country sample of Gopal & Sanders (1998) was U.S. $29542.11, versus U.S. $15101.03 for the extended sample of 97 countries (t = -5.1809, p =0.000).

Step 4:

In this step we conduct our analyses by incorporating the proposed new measure (per computer user piracy) using the sample of 94 countries (users per computer data were not available for three countries). This analysis was conducted with all the stated control variables. Regression results with per capita GDP, as the indicator variable was statistically significant (b = 11.16, p < 0.002). Thus, we find significant support for the second hypothesis: more affluent countries have higher per computer user piracy than poorer countries. As predicted, these results contradict the findings reported in past archival studies that have used the rate of software piracy as the focal variable of interest.

2 The results for the controls were largely consistent with previous research (for IT infrastructure, b = 2.33, p < .10; Judicial System, b = -1.2, p < .10; Economic Equality, b = 3.53, p < .01; External Governance, b = -1.35, p > .10. The results for the latter do not replicate Rodríguez, (2006), but in that study the sample consisted of only European countries. When paring our sample to match the same, the b was -1.95, p<0.10, indicating partial replication.

Step 5:

Finally, we tested whether the inflection effect for software piracy holds for our new measure of software piracy per computer user. Gopal & Sanders (2000) have recently presented evidence that software piracy undergoes an inflection in countries with per capita income of around US $6000. The key finding was that at income below $6000, piracy showed a significant negative correlation. This result was again replicated by Shin et al. (2000). Essentially Gopal & Sanders (2000) and others postulate a moderator effect (Baron & Kenny, 1986) of relative affluence on the relationship between GDP and piracy. We assessed this moderator effect to examine whether this inflection would manifest itself at the point suggested in these prior studies.

It is important to note that the last available calculation of this inflection point was based on 1999 data (Shin et al., 2000). Thus, we adjusted the income level for inflation according to the International Labour Organisation (ILO) inflation index (average world inflation between 1999 and 2005 was 3.3% year-on-year). The proposed inflection point thus obtained was $6800. We subsequently divided the 94 countries into two groups, one below the new inflection point and the other above the inflection point, and performed a separate regression within each group. These results are summarised in table 2.

Table 2
Regression results at the inflection point

Class	Obs.	Mean*	Min ($)	Max ($)	Std. Dev. ($)	Piracy % (PPP)	Piracy/users (PPP)
< $6800	28	3661	900	6200	1589	–0.0086 (0.000)	0.4185 (0.264)
> $6800	66	19743	6800	43400	10559	–0.0053 (0.010)	6.8663 (0.016)

* Mean GDP per Capita ($)

Results were consistent with the pattern suggested by Gopal & Sanders (2000) for the piracy rate measure; the strength of the relation did indeed decrease from 0.0086 to 0.0053). However, the more interesting finding was that the inflection point also emerged for the new measure of piracy value. Below the inflection point, the regression coefficient changed with the new measure; from a statistically insignificant value ($b = 0.4185$, $p < .264$) to a value ($b = 6.8663$, $p < 0.016$) above inflection.

This finding indicates that whilst there is no distinct trend in terms of value of pirated software for countries with per capita income less than $6800, for counties with per capita income in excess of $6800, the value of pirated software increases as the income of the countries increases. Thus, overall economic well-being/income level moderates the relationship between per capita GDP and the value of pirated software. This provides an

additional test of our premise that the type of software piracy (the rate or degree versus the price or value of the software) varies based upon the affluent status of the country, a point we subsequently discuss in more detail.

6. Summary of findings

Whilst piracy rates may be higher for poorer countries than for richer ones, this does not imply that computer users in poorer countries should be regarded as bigger software pirates compared to richer ones. In fact, the results for our study suggest the relationship reverses; that is, computer users in richer countries on average pirate more high value software than computer users in poorer countries.

We found a significant relationship between per capita GDP and overall piracy rate, as has been hypothesised previously. Consistent with Gopal & Sanders (1998) and other previous research, poorer countries do demonstrate a higher piracy rate when compared to richer ones. At the same time, we find significant support for our second hypothesis, which proposed that absolute piracy per user level (dollar value of pirated software per user) is higher for richer countries than for poorer countries. It is important to note that these differences cannot merely be dismissed as an artefact of differential pricing of software on the part of vendors, as research suggests that this differential pricing is indeed not country specific (Gopal & Sanders, 2000). How, then, do we reconcile these apparently contradictory findings? Is there a message that these results suggest?

Combining our two results, we get a very interesting overall picture: software users in poorer countries pirate a substantially higher percentage of their software than do users in richer countries, whilst the value of software pirated per person is higher in rich countries than in poor countries. Whilst we do not have specific individual-level data to support this proposition, we believe this might be grounded in the nature and degree of the utilitarian-based needs driving computer use. Users in poorer countries may pirate predominantly only the required software needed for their basic functional usage (e.g. word processing). In contrast, users in richer countries may pirate more expensive software that is designed to fulfil higher order needs. Among the latter could be entertainment-oriented software such as expensive games, or high-end versions of operating systems or work-oriented productivity improvement software. Although conjecture on our part, this provides a testable proposition and an interesting avenue for future research.

In light of this finding we also believe that it is useful to ask a critical philosophical question: do multiple small misdemeanours imply a more serious transgression of accepted social values than fewer, but more serious, violations of the law. That is, should a person who commits multiple small crimes necessarily be considered more "socially unacceptable" than a person who commits much larger, albeit fewer crimes? To give an example, would we say that a pickpocket, who steals people's wallets on a regular basis, is a more serious criminal than a white-collar worker who has embezzled a large amount of funds from a bank?

Whilst any straightforward answer to the above question is probably an oversimplification, not answering the question itself may also be a mistake through imposing a value judgment that labels software users in poorer countries as "bigger" pirates of software and consequently as "bigger" violators of intellectual property (a common conclusion in past archival software piracy research). Future research needs to re-examine this phenomenon more closely than has occurred to date. There perhaps has been a tendency to stereotype by concluding that the majority of piracy incidents occur in poorer nations (Gopal & Sanders, 1998; Shin et al., 2000). In one sense this is understandable, as our research confirms that when one considers piracy rates this conclusion is supported. However, this conclusion does not provide a complete picture of the piracy phenomenon, as our research has shown that software piracy is a far more complicated phenomenon than attributions based on piracy rates suggest.

A second implication of our findings is to underscore the importance of understanding more completely what domains our measures of key theoretical constructs empirically assess and to continually evaluate the validity of our operationalisations of important IS constructs. As this research demonstrates, continued assessment of the validity of the measures of our constructs is crucial to expanding the scope of knowledge of phenomena such as software piracy. Our knowledge of this phenomenon is crucially dependent on fully explicating the domain of software piracy as we have demonstrated in this study. As Torgerson (1958) (p. 2) suggests, 'The development of a theoretical science … would seem to be virtually impossible unless its variables can be measured adequately'.

7. Conclusion

In this paper, an alternative approach for measuring the extent and nature of software piracy was introduced by differentiating the rate of software piracy from the value of pirated software. Using the rational choice theory of crime as a theoretical foundation we assessed this alternative measure of piracy. Differential results demonstrated the consequences of considering the rate versus value of pirated software. Our goal was not to imply that one measure is always more appropriate than the other, but rather to show that the two measures tap different aspects of the domain of piracy. We also do not imply that previous research has been misguided in the way piracy has been addressed. Rather, our research strives to more fully explicate the domain and nature of software piracy and reveal meaningfully different aspects of this domain. We believe that applying these different perspectives to software piracy is important before making conclusions on "who pirates more and who pirates less of what."

Drawing conclusions regarding software users and their associated respect for intellectual property is a challenging endeavour that is worthy of future research that examines not only aggregate country-level differences, but also individual-level antecedents, motivations and consequences of piracy. Researchers attempting to more completely study and understand international software piracy should incorporate constructs in their model, which account for the differential value of pirated items. As we have demonstrated, this is an important consideration for software piracy in that the assumption of 'one size fits all' results in potentially misleading and imprecise theory.

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VIEWPOINT

Leadership Behaviour that Inspires Others to Conspire

Kamal K. Jain

'It is better not to make merit a matter of reward lest people conspire and contend'.

- Lao Tzu

'No one can lead who does not first acquire power, and no leader can be great who does not know how to use power', goes an old saying. Why do many leaders display remarkable tenacity whilst amassing power? And why do a handful of them crash once they've acquired it? The pursuit of power changes people in profound ways. Once on the top, people often feel compelled to give up the same attitudes and behaviours such as modesty, courtesy, compassion, prudence and self-restraint that made them successful in the first place. Not many people use great power for great purpose. For many people there is nothing there but the desire for more power. They have no agenda but to dominate other men. It is at this time that these successful leaders demonstrate certain behaviour that inspires others to conspire. Be mindful of the fact that their destructive effect can be so large that it can be likened to Tsunami. The ripple effect created by the collapse of Enron and Satyam will hang in the minds of people, howsoever-short human memory could be. Those who have greater potential to create value are also likely to flounder it. Chairman of Housing Development Finance Corporation, Deepak Parekh, speaking on 44th convocation of IIM Ahmedabad, observed, 'The more successful you get, the higher the chances of being pulled into unethical and immoral business practices.' These leaders get results because they are irresistibly charming, exercise great personal magnetism and inspire others. Inspiring others for a noble cause? Essential. Inspiring others to conspire? Possible. Want to figure out how? Let us try.

1. Results Get a Centre Stage and the Processes Gets Dethroned

Why not? Anyone who has seen competition would be tempted to ask this. How do you outing and outsmart your competitors if you do not focus on results? Propagate this theory and you give enough reason to people to conspire. Remember the joke about performance appraisal. A man was sleeping in his house. Suddenly, Yamaraj appeared and said, 'go out and enjoy. Nothing will happen to you for the next 10 years.' He did so and met with an accident and died. On the way to heaven is hell…saw Yamaraj whistling and relaxing. He asked, 'Yamraj, why did you lie to me ?' '...sorry son, appraisal time, had to achieve target...'

Indore Management Journal gratefully acknowledges the permission to reproduce the article. A modified version of this article was published in the Financial Express dated 25. 12. 2009.

Metrics in performance assessment package all come as numbers. 'The problem is that numbers-driven managers often end up producing reams of low-quality data', says Andrew Likierman. In his article 'The Five Traps of Performance Measurement' in Harvard Business Review, he cited that in 2002 a leaked internal memo from associates at Clifford Chance, one of the world's largest law firms, contended that pressure to deliver billable hours had encouraged its lawyers to pad their numbers and created an incentive to allocate to senior associates work that could be done by less expensive junior associates. Lawyers aren't the only ones: a number of prominent companies have been caught trying to manipulate their numbers. Since 2004, Royal Dutch Shell has paid $470 million to settle lawsuits relating to its overstatement of reserves. Morgan Stanley was reportedly willing to lose 20 million on a securities trade for the Finnish government just before closing its books for 2004 to improve its position in the league table for global equity capital market rankings. He further continues by stating that you can't prevent people from gaming numbers, no matter how outstanding your organisation. The moment you choose to manage by a metric, you invite your managers to manipulate it. Metrics are only proxies for performance. Someone who has learned how to optimise a metric without actually having to perform will often do just that.

Amy C Edmonson, in the article 'Competitive Imperatives of Learning' which appeared in July 2008 issue of Harvard Business Review, highlighted that when organisations get fixated too much on efficiency, critical information and ideas fail to rise to the top. 'When people get the message that speed, efficiency and results are what matter, they become exceedingly reluctant to risk taking up managers' time with any but the most certain and positive of inputs. They don't offer ideas, concerns or even questions.' One study at a high-tech multinational found that more than half the employees believed it was unsafe to say what was on their minds. Subsequent interviews revealed that employees withheld not only bad news but also new ideas; both seemed risky because of higher-ups' emphasis on superb and timely performance. Jack Welch, in his famous book 'Winning', mentioned that when people don't express themselves frankly, they damage operations and the company greatly. Being non-candid is a subtle way of conspiracy against the company and its leaders. But who pushes people into this?

2. Result Rewards Linkage

Tell a salesman that a reward of 10% (Rs. 1 lakh in monetary terms) is up for grab if he meets his sales target of Rs. 10 lakhs. Now if he has sold goods worth Rs. 9.75 lakhs, what should he do? Buy goods worth Rs. 0.25 lakhs himself or force a dealer to place order for additional Rs. 0.25 lakhs at no extra cost. Makes sense! This will not be an isolated case. Leaders produce, what Gary Hamel says, denominator managers (managers who downsize, declutter, divest and delay under pressure for quick return on investment).

To motivate people to execute well, companies often reward those divisions or plants with the best performance. This can make people reluctant to share ideas or best practices with their colleagues in other groups. So far so good. But these divisions, plants and individuals start conspiring against each other to prove that they are better than others. This results into unhealthy internal competition.

In his famous book, 'Punished by Rewards: The Trouble With Gold Stars, Incentive Plans, A's, Praise, and Other Bribes', Alfie Kohn says, 'Get rid of all rewards.' He observed that rewards actually interfere with motivation and lower morale, quality and productivity. According to him 'motivating' people usually means 'making them do what you want.' It is coercive and controlling, and people respond by rebelling. The rebellion is either direct - the employee responds by 'making a scene', or indirect - the employee begins a campaign to undermine the manager. And there begins the endless loop of control and rebellion.

In truth, the best a manager can do 'is set up certain conditions that will maximise the probability of (the employee) developing an interest…and remove the conditions that (constrain).' In other words, the best thing a manager can do is to treat employees with respect. According to the research anthology 'Paying for Productivity: A Look at the Evidence', 'Changing the way workers are treated may boost productivity more than changing the way they are paid.'

3. Considering Organisation's Achievement as Their Personal Achievement

If a leader has contributed to the growth of a company in a big way, there is immense danger of confusing company's achievements as his personal achievement. Sydney Finkelstein, in his article, 'Seven Habits of Spectacularly Unsuccessful People', stated that the most surprising thing that may happen when chief executive officers identify too much with their company is that they may become less careful with the company's assets. When leaders identify with their companies too much, they become increasingly likely to use corporate funds for personal reasons. They feel that their personal travel shall be treated as a business expense. Because they work long hours and they give up their private lives for the company they come to believe that everything they do is 'for the company' and should be paid for by the company.

This twisted logic seems to have been one of the factors shaping the behaviour of Dennis Kozlowski of Tyco. His pride in his company and his pride in his own extravagance were not in conflict but seem, in fact, to have reinforced each other. This is why he could sound so innocent and sincere, making speeches about the need for ethical conduct in business whilst simultaneously using corporate funds for personal purposes. If Kozlowski seemed utterly shameless, it was because in his own mind, these things demonstrated his worth to his company and to society.

Take the case of Frank Newman at Bankers Trust in 1998. On 03 September, 2 days after Newman announced the $350 million trading loss, he and Lizabeth jumped on BT's G-IV jet and flew to Paris for the long weekend. In fact, Newman and his wife used the jet so frequently that the airplane personnel reportedly used to call him "Alpha" and her "Alpha2."

In late September, Bankers Trust sponsored an opening-night gala at Carnegie Hall. Newman and his wife flanked First Lady Hillary Clinton during the performance, and a society-page photo of the couple appeared in the Sunday New York Times. Bank employees report

seeing an enlarged copy of the picture, with a derisive caption added, posted at bank headquarters (reported by A Serwer in Fortune Magazine).

Such people want to be 'larger than life', 'legendary'', and 'awe-inspiring'. In the pursuit of their ambitions they spread most fatal contagious virus amongst their followers. When leaders believe that means justify end, they actually encourage followers to conspire.

4. Everyone Is Doing It

Leaders also justify their actions by claiming, 'everyone is doing it'. Warren Buffett once said of companies who manipulate their financial statements, 'A great group of people involved would not have behaved in the manner they did except for the fact that they felt others were doing it as well. So every time you hear that phrase that everyone else is doing it, it should raise a huge, red flag'. 'Always bear in mind', said Deepak Parekh, 'that your reputation once lost, is almost impossible to earn back. There is no such thing as a temporary breach of integrity - you cannot make amendments later. So do not stay in any place where doing the right thing is not an option. Work honestly, make people trust you and let them depend on your integrity.' When the tide runs out, you can see who is swimming naked, said Warren Buffett rather aptly.

It is thus evident that leaders because of charisma, power and position that they hold are in a strong position to inspire others. At the same time certain behaviour of a leader, consciously or subconsciously, can tempt people to conspire. It is time that we get aware of this. In every reader sits a leader, ready to 'rule' the world, ah sorry, 'serve' the world.

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Management Case
Managing Intellectual Capital: The case of Narmada Institute of Management Studies

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Abstract

This article describes the performance management system for faculty members of Narmada Institute of Management Studies (NIMS), a middle-level business management institution located in central India. It raises issues regarding the implementation of an incentive plan for academicians, in terms of fairness and consistency in procedures, assigning numerical value to every academic activity and defining minimum workload. The article also examines theoretical considerations of performance management related to the linkage between organisational and individual goals. Finally, we discuss whether performance management systems serve any definite purpose in academic settings.

Key words: Performance management, goal setting, appraisal, incentives, compensation, control systems

1. Introduction

Organisations seek to maximise the potential of their employees through performance management systems (Aguinis, 2009). Performance management systems aim to align individual and organisational goals and work with the assumption that if all individuals in the organisation achieve their goals then the organisational goal can also be met. Performance management systems are also an integral element of an organisation's overall strategy to attract, manage and retain talent.

Educational institutions, like business management schools, also employ performance management systems as a mechanism to monitor and enhance the performance of their faculty. Business management institutions in India can be broadly categorised into the following:

- Management institutions affiliated to the Union Ministry of Human Resource Development (HRD) such as the IIMs[1].
- Management departments of the state and central universities such as the Faculty of Management Studies (Delhi University) and Jamnalal Bajaj Institute of Management (Mumbai University).
- Self-financed autonomous business schools recognised by the All India Council for Technical Education (AICTE)[2].

1 IIMs are autonomous institutions affiliated to the Union Ministry of HRD and are considered the best business management institutions in India.

2 AICTE is an autonomous body appointed by the Ministry of HRD and is responsible for governing the activities of institutions involved in professional studies such as engineering colleges and business management schools.

Institutions belonging to the fourth category are privately funded by entrepreneurs or business houses and operated like corporate organisations. These institutions face enormous competitive pressures and often struggle to fill their quota of seats. Private management schools are evaluated by prospective students in terms of their faculty quality, infrastructure, placements and industry interface. They are ranked lower than the IIMs and a few university departments in annual rankings. Hence, there is a need to excel in course offerings, service delivery and quality of resources, that is, faculty members and infrastructure.

Most of these institutes had been able to create adequate infrastructure in terms of classrooms, office space, Internet access, library facilities and living and recreation facilities for the students.

However, private institutes were struggling to attract top-quality faculty members. Moreover, AICTE norms ruled that the faculty to student ratio be maintained at 1:15. Thus, private business management schools were competing for both quantity and quality of faculty members. These schools were devising performance management systems linked to attractive incentive schemes as a strategy to attract quality faculty. This article discusses the case of NIMS, a private business management school based in central India, and describes the performance management system implemented by NIMS.

2. Narmada Institute Of Management Studies: A Profile

NIMS was a middle-level business management institution based in central India and established in 2004. Spread across 30 acres, it was located about 35 kilometres outside a fast-growing tier-II city, which was in the heart of the country. One of the biggest advantages of this city was that it was easily accessible by rail from the five major metropolis cities of the nation. NIMS was conceived as a fully integrated business management school engaged in the following activities:

- Teaching: Full-time residential postgraduate programmes in management
- Research: Academic and field-based research in various areas of management
- Executive education and consulting services

Over a period of nearly 5 years, since 2004, NIMS had earned a fairly good reputation, especially for its flagship programme, the Postgraduate Diploma in Management (PGDM). Because it was an autonomous business management school, the faculty members had the freedom to design new courses, decide on the course content, select appropriate pedagogy and use appropriate evaluation and grading system. Recently, it had started a doctoral level programme as well. Besides, the distance learning operations and executive education were identified as new sources of growth, and significant investments were made to strengthen its presence in these segments. Notwithstanding other challenges, the strategy for growth had paid off in the short run. In terms of student strength, the institute was able to grow four times in the short span of 5 years. The total fee revenue of NIMS from the flagship programme was around Indian rupee (INR) 120 million.

3. Business School Rankings and Student Perception

Starting from the year 1995, leading business magazines and newspapers were publishing perception-based as well as objective business management school rankings. These annual rankings were known to significantly influence the students' choice of the business management school as well as recruiters' decision to visit the school for campus placement. Hence, it was necessary for the autonomous, self-financed business management schools to get a good ranking consistently.

There were two types of survey: (1) surveys that used objective measurements of business school performance on various parameters such as intellectual capital (21% weightage), infrastructure and facilities (19%), industry interface (19%), placement performance (23%), International linkage (8%) and recruiters satisfaction (10%) and (2) Perception-based surveys that ranked business schools based on the perceptions of current students, prospective students (aspirants), recruiters and so on (Table 1). Most ranking agencies considered a business management school only after the first two batches had successfully passed out. NIMS was at a stage where it could no longer be considered a 'new entrant', and hence there was an urgent need to stabilise operations at NIMS.

In the year 2007 to 2008 when NIMS went for ranking for the first time, it was ranked amongst the top 40 business management schools in the country. It was also ranked amongst the top 20 private ownership business schools in India. In a survey based on objective parameters, NIMS was amongst the top 30 private business schools of the country. In another survey published by a leading business magazine which ranked the top 20 business schools and remaining were categorised into A++, A+ and so on till C++, NIMS had figured in A+ category. Although the impact of these surveys with recruiters was not known, the prospective students were significantly influenced by these surveys.

4. Need for Quality Faculty Members

The other set of key stakeholders were academicians who considered NIMS as a potential employer. Quality of intellectual capital greatly influenced most ranking agencies. This obviously meant that institute rankings greatly depended on top-class faculty members who regularly published research in international journals, conducted successful executive education programmes (EEPs) and were sought after for their consulting services. It was easy for business schools to replicate and create physical infrastructure, course curriculum and pedagogy, and academic resources such as library and technology-enabled systems. However, quality of intellectual capital provided an institute with the only source of sustained competitive advantage. Little wonder then that most top business schools strived to provide working conditions and performance management systems, which were believed to attract and retain the top academic talent.

Attracting good faculty members was an uphill task for NIMS. Because there was no other well-known autonomous business management school in central India, the faculty resource locally available had limited exposure to time-tested teaching and learning methodologies. Besides, the existing business management schools in central India were primarily teaching

shops with no emphasis on knowledge creation activities such as research and publication, international linkages and conferences. Hence, NIMS was forced to attract talent from other parts of the country. Good faculty members from metros and large cities were reluctant to move to this tier-II city for host of reasons. Given the lack of industrialisation, there were very few job opportunities for the spouses of the faculty members. Even for the faculty members, there were very few opportunities to engage in lucrative consulting assignments or conduct executive training programmes. The yield ratio for faculty selection was rapidly deteriorating and becoming a cause for concern. In the last two rounds of recruitment, NIMS was not able to hire even a single faculty. Although the recruitment advertisements attracted many responses, most of the applicants did not fit the bill and were rejected at the resume screening stage itself. The institute was located around 35 km outside the city and entailed a 60-minute drive to work. Some potential candidates also cited this as a reason for rejecting the offer by NIMS.

In the year 2007 to 2008, NIMS earned roughly INR 120 million through various activities. Around 90% of this was contributed by fees revenue through students for the regular postgraduate programme in management. The total payout on account of faculty salary was around INR 14 million. Of this, around INR 4 million was paid to visiting faculty members who were not full-time employees of the institute and were paid on an hourly basis. Clearly, no efforts were spared in ensuring that salaries were at par if not better than the industry. NIMS was amongst the best paymasters in the business school spectrum till 2007 to 2008. However, since June 2008 several business schools had started revising faculty salaries and quite a few institutes offered salaries that were at par or slightly better than NIMS. Moreover, in 2008, the Sixth Pay Commission, a body appointed by the Union Ministry of HRD, had come out with their recommendations. These included a complete revamp of faculty salaries in government-sponsored institutions. It was expected that when the Pay Commission recommendations were implemented the salaries at government-aided business schools would increase by 60 to 80%.

Hence, it was a chicken-egg situation. Good faculty members would like to work in a good business management school, and unless NIMS attracted good faculty, it would remain mediocre. Having invested close to INR 350 million, the board of directors was keen to recover the investment and earn surplus as early as possible. They had communicated to the director that the operations had to be scaled up significantly. Between 2004 and 2008 the student intake had gone up from 85 to 360. Hence, the director was under tremendous pressure to retain as well as recruit more and better faculty to meet the regulatory requirement of faculty student ratio of 1:10. The plan was to increase the faculty strength from 12 to 60 in 3-year time to meet the growth requirements. This naturally entailed providing additional incentives by way of opportunities to earn more. NIMS had already instituted a special allowance, which was 10% of the base salary. This however, was not adequate. A variable pay system linked with performance had to be introduced sooner or later.

5. The Performance Management System

The current system of performance management and work measurement clearly indicated the minimum workload expected from faculty at the beginning of the year itself. Faculty members at a business school were primarily responsible for teaching, research and consulting. In addition, there could be some administrative responsibilities allotted based on institutional requirements. Each activity had certain units allotted, which varied depending on the nature of activity (Table 2). For instance, by teaching a postgraduate course, a faculty member could earn between 40 and 210 units depending on the number of sections and number of students in each section.

5.1. Illustration of units earned through multiple sections of the same course

Take the case of a faculty member teaching the same course across five sections of 60 students each; in this case the units earned by the faculty member were as under:

- Units allotted for course planning: **10 units**
- Units allotted for course delivery (20 sessions of 90 minutes each): 20*5 = **100 units** (20 units per section taught, irrespective of the number of students)
- Units allotted for evaluation and student interaction: 20*5 (20 units per section since each section had more than 51 students) = **100 units**
- Total units earned: **210 units**

Similarly, units were allotted for research publications based on the nature and quality of publications. Administrative responsibility and teaching in EEPs were also allotted units. Units were also allotted for teaching feedback. Faculty members receiving excellent teaching feedback of, say, over 4.5 on a scale of 5 were entitled to 15 additional units. Units for administrative activities were allotted based on the expected effort required. For instance, dean (academics) was supposed to run the entire postgraduate programme including admissions, induction, regular teaching sessions, conduct of examinations, internships and convocation ceremony. Hence, a total of 75 units were allotted for the position.

The minimum workload for each faculty member was pegged at 300 units per year and this was equivalent to teaching six courses in the entire year. Each faculty had to accumulate a minimum of 300 units in a given financial year, that is, from April to March. The faculty members were remunerated INR 2,000 for each additional unit earned above the minimum stipulation. Thus, if a faculty member accumulated 400 units in the accounting period she or he was entitled to a total incentive of INR 200,000 before statutory deductions.

The system found favour with faculty members because it allowed them to plan various activities for the entire year based on their area of expertise. It also indicated the additional remuneration that they could expect to receive as variable pay towards the end of the financial year. This system obviated the uncertainty and anxiety associated with variable pay

systems without compromising on performance expectations of the management. Moreover, the system also partially addressed issues about the quality of performance. For instance, above par to excellent teaching feedback from the student community earned a faculty member additional units. Research published internationally was rewarded substantially more than that published in national journals.

Even though faculty members supported the existing unit-based system, the top management had reasons to be worried. On the basis of the units earned by faculty members for the year 2007 to 2008 (Table 3), the board of directors felt that the minimum workload specified was too low. Besides, in certain activities such as teaching, the total units earned by a few faculty members were far beyond what was perceived as 'difficult to achieve'. Moreover, it was also felt that the system did not emphasise quality of work.

6. Implementation Issues

The existing work measurement system was believed to suffer on the following account:

- Equalisation of unit allocation: The allotment of units in some activities especially the administrative positions remained a debatable issue. The hostel warden was allotted only 25 units even though the perception was that this role called for high involvement on part of the faculty member who took up the responsibility.

- Multiple administrative responsibilities: Some faculty members took up several administrative responsibilities simultaneously, and at times, this allowed them to earn as much as 40% of the minimum workload through administration only. In one case the same faculty member was holding the positions of dean (academics), library committee chairperson and co-ordinator of the national event, thus earning 125 units annually.

- Upper limits on teaching: In the formative years when the number of faculty members was limited, several faculty members taught as many as seven to nine courses per year. The upper limit on teaching was capped at seven courses but even this allowed faculty members to earn 120% of the minimum specified workload only through teaching. There were several instances where faculty members earned as many at 360 to 390 units only through teaching.

- Units for teaching feedback: It was believed in some quarters that allotting units for teaching feedback led some faculty members to engage in populism and student appeasement.

- Units allotted for research and publications: The number of units allotted for publishing in top-class journals was not commensurate with the effort. For instance, publishing a research paper in a financial times 40 (FT 40) journal would take a minimum effort of 12 months; but only 50 units were allotted for this. As against that engaging a teaching course could get a faculty member more than 50 unit.

- Ambiguity about some activities: There was an ambiguity about the unit allocation for activities such as writing cases and organising conferences. Although the institute encouraged faculty members to write cases, the performance management system did not specify the number of units allotted for case writing. The institute did not have a policy of registering cases and creating a portfolio of cases. Hence, faculty members who wrote cases for class discussion were directed to either publish them in a journal or get them registered with a case portfolio such as European Case Clearing House. Faculty members were then awarded units based on the nature of publication.

- Misuse of the work measurement system: The work measurement system was vulnerable to misuse. For instance, faculty members who served on the editorial board of the institute journals could publish their own papers in these journals and earn units for both activities, that is, publishing as well as the administrative task of being on the editorial board.

- EEP: The units allotted for engaging sessions in EEPs were believed to be inadequate. Under the current system, faculty members got between 1.25 to 2.5 units per session taught in executive training programmes. This worked out to around INR 2,500 to 5,000 per session. Because faculty members could earn nearly the same amount teaching in the regular postgraduate programmes, not many were enthusiastic about travelling to client locations and engaging sessions.

7. Conceptual Framework

7.1. Aligning organisational goals to individual goals

Performance management is a process, which aims to enhance organisational performance by positively impacting the contribution of individuals and groups within the organisation. The fundamental premise in performance management theory is that organisational goals can be linked to unit-level and individual goals, and hence the best way of achieving organisational performance is by ensuring that individual goals are met. Performance management is a cyclical process that includes goal setting, performance facilitation, performance measurement, feedback, linkage with rewards and developmental needs.

In the absence of a formal goal-setting process it is unlikely that employees are aware of what is expected from them. In the context of NIMS, the employees being referred to are faculty members who have their own area of expertise and preferences. If a particular faculty member prefers teaching to doing research, she or he is well justified in maximising teaching load and focusing very little on research and publications. Are the goals of individual faculty members aligned with the institutional goals? How should the institute ensure that this happens?

The goal of NIMS is to be amongst the top-ranked private business management institutions. In order to achieve this, it is important for the institute to produce top-class and path-breaking research. EEPs brought lot of credit to the institute and were believed to earn invaluable credit when the annual business school rankings were published. It was a well-

known fact that 'interface with the industry' formed a critical component of the business school rankings, and ranking agencies allotted greater weight to this particular parameter. Besides, enhancing the institute's ranking, EEP was also a revenue centre. From a strategic perspective, revenue from EEPs enables business schools to mitigate the risk of having only one source of revenue, that is, revenue from fees collected. At the same time, teaching activities in the Master of Business Administration (MBA) programme did not fetch an institute significantly higher credit from ranking agencies.

In its current form, the unit-based work measurement system failed to link organisational goals with individual's goals. Clearly, it was more remunerative for faculty members to maximise earnings by teaching as many courses as possible instead of engaging in research or executive education. There seems a case for enhancing the unit allocation in these two areas and limiting the teaching workload of faculty members.

8. Academic Incentive Plans and Performance Management

8.1. Evaluating the existing unit-based performance management system at NIMS

The performance measurement system at NIMS has two distinct components:

- The unit-based system: Where faculty members are allotted units based on the work performed by them during the year (Table 2 of the case). Variable payouts are based on this system.

- Performance appraisal by committee and director: Herein, a designated committee of senior faculty members and director appraise performance of faculty members on various parameters such as participation in institution building activities, teaching feedback received, research output, participation in EEPs and behavioural issues. Results of this appraisal process are used to decide on increments in base salary and promotions.

- Both the above components are intricately linked: The performance appraisal committee takes into account several dimensions that are already captured in the unit-based system, that is, teaching feedback and research output. Questions that can be raised are as follows:

- Is NIMS getting into a double-counting situation?

- If yes, then should there be distinct qualitative dimensions used by the performance appraisal committee instead of relying only on the quantitative measures?

On the contrary, the unit-based system of NIMS provides an objective basis of measuring performance. There is merit in considering the unit-based system as a legitimate mechanism for awarding increments and promotions. NIMS can integrate quality-related parameters in the existing unit-based system and utilise only this system for variable incentive as well as annual increments.

There seems an inherent lack of consistency in the existing system. For instance, a faculty member who accumulates 450 units during the year not only earns attractive financial incentive but also benefits in terms of annual increments that are awarded based on his ability to perform beyond the minimum specified workload. There are compelling arguments for and against the overlap in two components of performance management at NIMS. The unit-based system allows faculty to plan their workload over the year and also gives them a fairly accurate assessment of expected earnings through variable payouts at the end of the year. Because the unit-based system essentially measures work output, it can be used as a predetermined goal. This allows the institution to assess performance against predetermined standards and hence be used for deciding annual performance ratings and base pay revisions. Advantages of the existing unit-based system include:

- First, the system is very comprehensive and captures all activities in which faculty members are expected to be involved. Unit allocation for each activity has been detailed in the system.

- Second, the system enables faculty members to plan their work activities for the entire year and also indicates the amount of variable pay likely to result from this work plan. This allows the faculty members to plan in accordance with their areas of specialisation and removes any uncertainty regarding earnings.

- The unit-based system that measures work output is in essence similar to a predetermined goal.

- Goal setting is largely a collaborative process; with individual faculty members preparing their respective work plans which are subsequently ratified after discussion with the Director.

- The system ensures that biases do not creep into performance measurement. Because all activities have units allotted, it becomes fairly objective in terms of quantifying work. This, however, takes attention away from quality of work.

The system seems constrained by several weaknesses some of which are enlisted below:

- First, the system fails to link organisational objectives with individual objectives. This has been explicated in detail earlier.

- Second, the system does not emphasise quality of work in any area except teaching. For instance, publication in any international journal fetches a faculty member the same amount of units. Top-rated journal take more than 12 months to review and accept research papers while lower-ranked journals usually review and accept papers in as few as 15 days. Obviously, reputation of an academician and the affiliated institute grows as more research is published in top-rated journals. If NIMS aims to be recognised as a centre for research excellence, then there has to be a system, which differentiates research, based on quality of output and accords differential rewards for the same.

- Finally, the system lends itself to 'gaming'. This could also be a consequence of ignoring quality parameters in some areas. Some faculty members publish research papers in journals in which they themselves serve on the editorial board. The system has no mechanism in place to control such actions. However, in most areas the management has endeavoured to make the system infallible.

8.2. Vulnerability against misuse

A critical area of concern with the unit-based system is its vulnerability against misuse. Teaching was considered to be the activity that enabled faculty members to earn easy units. Many faculty members were teaching the same courses for several years, and the effort required to deliver these courses was minimal. The unit system was also susceptible to misuse in other areas. There were instances where particular faculty members served on editorial boards of international journals and took advantage of this association by publishing papers in these very international refereed journals. Each international publication earned a faculty 50 units or an equivalent of INR 100,000. The institute witnessed around 10 international conferences being organised. For a conference to be classified as 'international' it just needed participation by a few academicians based overseas. India, being amongst the largest economies in the world having a thriving academic fraternity, was generally a favoured destination for researchers in middle (or lower level) institutes in Asia, Asia-Pacific, Africa and some European nations. Besides, there were innumerable Indians working as faculty members in North America, Europe and Asia-Pacific. Conferences in top-level institutes in India provided them an opportunity to visit their hometowns and spend time with relatives and friends. Hence, virtually every conference organised by NIMS could be classified as an international conference. The faculty who organised the conference was allotted as many as 100 units for each conference. Clearly, there was scope for misuse in this context.

8.3. Fairness and consistency of the unit-based system

It seems worthwhile examining the fairness of the unit-based system. Three significant issues that seem to arise are as follows:

- Is there a consistency in equalisation of work units' allocation?
- Are faculty members getting an equal opportunity to earn units?
- Specification of minimum workload in each sphere of activity.

The moot question is whether the institute has 'valued' work items in terms of effort and involvement before allotting units. For instance, what was the rationale behind allotting 40 units to case writing, which was nearly as much as one could earn by teaching a full course (45 units in this case)? Does it mean that the amount of effort required for writing a case was equivalent to that required for teaching a course spread across 3 months? The other critical issue is of minimum and maximum workload in each area. The existing unit-based system defined limits very loosely. Faculty members did not have a minimum teaching load, and the maximum teaching load was waived in many instances. NIMS being a private business school had to adhere to norms laid down by the AICTE. Thus, students had to complete

a minimum of 120 teaching credits during the 2-year programme. Choice of elective courses in the 2nd year largely depended on their utility with respect to creating job opportunities. Thus, marketing and finance courses were over-subscribed and courses in human resource management and information technology hardly found any takers. Faculty members from marketing and finance domain invariably ended up conducting more than seven courses each year, thus earning significantly more than faculty members from other areas.

Research publications did not have even the prerequisite minimum. Faculty members could go through the entire year without a single publication and yet earn substantially through variable payouts. Unlike their North American counterparts, Indian business schools did not believe in the 'publish or perish' motto. Even so top-rated business schools had a pre-specified minimum publishing standard. By following the tenure track policy, it was virtually impossible for faculty members to get promoted to the next level without having a decent publishing track record.

9. Scope of Performance Management System and Their Utility in Academic Institutions

Performance management systems are designed with the objective of motivating individual employees and maximising their potential. However, if these systems are not implemented carefully the results can be damaging both for the organisation as well as for the individual employees. There is reason to believe that design of performance management systems in an academic institution may not follow the same considerations as a corporate organisation.

To begin with, we shall discuss the goal-setting process. Goal setting enables an organisation to link individual and organisational priorities. Individual goals cascade from the mission and vision of the organisation. However, is this necessarily true of academic institutions as well? Let us consider the case of an education institution that employs eminent academicians and even Nobel Laureates. These academicians are likely to be specialists in one domain through years of concentrated effort in the direction. Instead of attempting to cascade the institutional mission and vision to these individuals the administration might prefer leaving them to pursue their area of interest. The linkage of goals might actually be bottom-up rather than top-down.

Next comes the issue of incentive plans and their utility in motivating academicians. Research has shown that financial benefits actually undermine intrinsic motivation (Kohn, 1993). Research output stems from a faculty member's innate interest in a particular area. Academicians are known to conduct and publish owing to an intrinsic motivation for the same. Most top academicians would derive immense satisfaction by publishing in top-quality journals. The system at NIMS does not encourage faculty members to target top-rated journals; on the contrary, it drives them towards lower-quality journals in the hope of accumulating units. This is akin to the 'folly of rewarding A while hoping for B'.

Performance measurement should have a reward as well as development objective. The measurement system in NIMS has two aspects. First, all faculty members get monetary benefits based on the units earned. Second, the units earned along with other performance

parameters such as quality of research output, number of executive programmes conducted, teaching feedback ratings and contribution to institutional building activities also count towards the year-end performance evaluation. The annual increments in base salary and promotions are decided on this year-end evaluation. However, the performance management system does not, in most cases, address development needs of faculty members. Generally, in educational institutions faculty members have pre-specified budget, which can be utilised for attending workshops, conferences and other activities that aid self-development. The existing performance management system at NIMS is independent of this.

NIMS's position in life cycle of a business school has a significant impact on the performance management system that it may choose. As a relatively younger institution, NIMS is in the stage of rapid expansion and growth. Faculty members are a critical resource because NIMS aims to add as many faculty members as possible in the shortest span of time. Additionally, NIMS also suffers on account of a poorly connected location. Under this situation, NIMS may be justified in implementing a performance management system that might get perceived as 'liberal and generous'. However, as operations of NIMS stabilise, strategic considerations are likely to change, and getting perceived as an institution that 'gives away easy money' may work against the objective of attracting and nurturing top talent.

10. Conclusion

This article highlights the significance of a performance management system as a mechanism for managing intellectual capital. On the basis of the evidence presented through the case of NIMS, it is fair to state that having some mechanism to measure and manage the performance of academicians is preferable than having no formal system at all. Although the system at NIMS has a few lacunae, it enables the institute to track performance in most activities and provides a basis for deciding compensation of faculty members. However, in order to be effective, performance management systems need to be characterised by fairness and consistency. Fairness denotes equal opportunity to all employees and rewards that are equitable with efforts. Consistency, on the contrary, signifies that the system evaluates similar type of performance using the same set of rules and regulations. The system at NIMS has enough scope for improvement on both accounts. It is also useful to recognise that even immaculately designed performance management and reward systems are vulnerable to some level of misuse. Systems development is an iterative process and the management of NIMS should strive to identify shortcomings and effect changes in the system on a continuous basis.

Performance management at NIMS can be viewed from the perspectives of the faculty members, the institution and the promoters (board members). The aspirations of all three stakeholders are likely to be different in some aspects. Most people choose a career in academics owing to an inherent interest in the field. However, even academicians aspire for monetary benefits that are in line with the efforts required of them. In this process, it is likely that individual faculty members engage only in activities that are likely to maximise their earnings with the same level of effort. The institute aims to be recognised as a centre for excellence in management education. This can be achieved by enhancing the quality and number of research publications and consulting assignments. The institute needs to motivate its faculty members in this direction.

The primary motive of the promoters and board members is to generate an operating surplus and plough it back for the future expansion. This might entail tight monitoring of costs including payouts to faculty members. However, promoters also realise that attracting top-level academicians is a necessary condition for the growth of the institute. Faculty compensation is an important element of the management's strategy to recruit top-notch faculty members. This seems to provide a convergence to the aspirations of all three parties.

The discussion can also be seen in light of managing intellectual capital or employees engaged in creative pursuits. Faculty members have their own interests and areas of strengths that may not always coincide with organisational priorities. It may be counter-productive if these employees are subject to the standard performance management practices designed for managers and executives in functional roles. Organisations might want to consider performance management measures that target intrinsic motivation of employees engaged in knowledge creation.

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Table I

Brand equity survey 2008 - parameters on which business schools are ranked

	All	Current MBA	Aspirants	Recruiters	Young Executives	Functional Heads
Reputation	21	15	02	14	24	05
Faculty	10	21	19	14	15	06
Success of Placements	12	10	06	15	18	07
Quality of Placements	01	17	21	15	08	32
Pedagogy	08	09	17	10	04	27
Admission Eligibility	26	15	03	23	11	01
Specialist Units	08	12	15	08	19	09
Infrastructure	14	01	17	01	01	13

Figures in percentage.

Attributes:

Reputation: high-ranking, toughest admission exam, achievements of alumni, international recognition, through knowledge, tie-up with foreign institutes

Infrastructure: high-speed Internet connectivity, physical infrastructure, library, easy financial aid, convenient location, high-standard hostel and mess

Placements: 100%, multiple placement offers

Faculty: high-quality research papers, visiting professors - industry captains, well-trained faculty

Specialist units: known for unique programmes

Quality of placements: average salary best in the industry, placement aboard and in multinational companies

Teaching methodology: student faculty ratio 1:1, counseling, industry exposure, teaching methodology

Admission eligibility: prefer students with work experience, admission to engineers only.

Table 2
Faculty work measurement system NIMS

[a] Teaching and research supervision

Programme/Activity	Sub-activity	Work Units	Remarks
PGDM and other long-duration programmes*	Course planning	10	Units for 3 credits courses of 20 sessions each
	Presentation and delivery (per section)	20	
	Evaluation and grading (class size < 25) (per section)	10	
	Evaluation and grading (class size between 26 and 50) (per section)	15	
	Evaluation and grading (class size > 51) (per section)	20	
	Student feedback	5 to 15 units*	
Supervision of PhD thesis		20	—
Evaluation of internships and student projects	Per student	2	Pro-rated of more than 1 faculty member is involved

* Units for student feedback of teaching (on a scale of 1-5)

1. Feedback of 4.51 and above : 15 units
2. Feedback of 4.01 to 4.5 : 10 units
3. Feedback of 3.51 to 4.0 : 5 units
4. Feedback of 3.01 to 3.5 : 2 units

[b] Research and publication

Programme/Activity	Sub-activity	Work Units	Remarks
Research	International journal publication (refereed)	50	—
	International journal publication (non-refereed)	25	—
	National journal publication (refereed)	20	—
	National journal publication (non-refereed)	10	—
	Case writing with teaching note	40	—
	Serving on the editorial board of an international journal	10	—
Conferences	Organising and international conference	100	Should result in published edited volume

[c] Executive education and consulting

Programme/Activity	Sub-activity	Work Units	Remarks
Open management development programmes	Preparation per programme	10	Programme Director
	Programme co-ordination per day	0.5	
	Preparation, teaching and tutorial per session	1.25	Programme faculty
Off-campus programmes	Preparation per programme	10	Programme Director
	Programme co-ordination per day	0.5	
	Preparation, teaching and tutorial per session	2.5	Programme faculty
Consulting	For each 30% share of the minimum prescribed rate (INR 15,000/day) received by the institute	2	

[d] Administration

Responsibility	Details	Work units	Remarks
Dean	Academics	75	
Programme Chairperson	PGDM programme	60	
Programme Chairpersons	Other long-duration programmes, Research and PhD., EEP/consulting	40	Each of the roles
Administrative Chairpersons	Alumni affairs, library committee, student affairs, computer centre, corporate communi-cations, student counselling, international relations, national event	25	Each of the roles
Hostel warden	Men's hostel and ladies hostel	50	Each of the roles
Chairperson Placement Committee	PGDM programme	90	
Chairpersons	Academic areas	10	

Table 3
Representative data of units earned by some faculty members at NIMS for the year 2006 to 2007

Sr. No.	Teaching	Research	Administrative Responsibility	Others	Total Units earned
1	589		100	14	703
2	526		95	28	649
3	528		50	14	592
4	531		10	8	549
5	375		85	14	474
6	346		10	21	377
7	245	130		7	382
8	378		60	16	454
9	29	20	25	15	355
10	486	60		9	555
11	353	60	14	7	434
12	198		25	16	239
13	33	20		16	69
14	408		3		411
15	113		80	9	202
16	New joining				0
17	New joining				0
18	253		155	13	421
19	369			8	377

EEP - NIL

Authors' Profiles

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PERSPECTIVES

Perspectives on Corporate Governance

Neeraj Diwedi

In the backdrop of the Satyam scandal, which rocked corporate India in the early 2009, a seminar was organised at IIM Indore to sensitise the participants about corporate governance and brainstorm on various related issues. As the scandal involved one of the respected industries, which boasted of sound, proactive corporate governance practices, a need was felt to understand what unique pressure this industry faces which leads to episodes like these. Objective was also to understand whether this episode was just and aberration for the industry or it is a more broad-based problem facing the information technology industry.

Of course, as has happened in other parts of the world, every such scandal leads to the regulators re-looking at the corporate governance codes and hence more stringent regulations. The idea behind the seminar was to explore what can be done, going beyond the regulations, to make corporate governance a way of life for corporate India. This seminar presents views on corporate governance from four different angles.

S. Sandilya, Chairman, Eicher Motors Ltd.
Corporate Governance: Some Views and Experiences

Any organisation, whether a business or a non-profit, needs some kind of governance to ensure that it is run in a way that meets the expectations of its stakeholders. Corporate governance is about creating value for all stakeholders of the organisation in a sustained manner by following most legal and ethical means.

The real task of ensuring good corporate governance in a company lies with the board of directors, while every person in the chain who helps to create value for stakeholders needs to be governed. A successful organisation requires an alignment between three Ps - Purpose, Process and People. Corporate governance leads to robust processes in the organisation, which helps its people realise its purpose.

It is also important to understand why companies follow good corporate governance practices. Different companies have different motives. A large number of companies do it just because it is a legal obligation. A second set of companies do it because of the pressures of globalisation - these are particularly the companies who have intentions of accessing foreign capital markets or have to work with foreign clients or have to do business abroad. For them, it helps develop a trust amongst the foreign stakeholders that they are dealing with a company sound in transparency and ethical standards. A third motive is to show an image of a good corporate citizen so that your stakeholders trust you more. However, the most crucial fourth reason is for the companies who believe that following good governance practices is good for them. Such companies go beyond the letter of the

law and practice corporate governance in its true spirit. We need more of these fourth type of companies to lift the overall standards of corporate governance in the country.

More important than understanding why organisations should have good corporate governance practices is to understand how they should improve these practices. The following steps will help any organisation improve its corporate governance practices:

- Comply with prevailing legal framework on corporate governance - this should not be just a tick box approach on compliance with various provisions, but companies should go beyond the minimum prescribed regulatory requirements.
- Have robust systems in place to ensure good corporate governance. More importantly, have monitoring mechanisms to gauge the effectiveness of these systems. Most of the corporate frauds that we have observed in recent past have not been because of the absence of sound systems being in place, but because of they not being adhered to.
- Define a set of values for the organisation - practice them, show that people at the topmost position also adhere to those. Lead by example. Let stakeholders know that the top management abides by what it talks. The ancient wisdom of "Yatha Raja Tatha Praja" captures the essence of this.
- Practice openness and transparency - let all your stakeholders know what you do and why you do.
- Encourage, nurture and enforce organisational and personal integrity.
- Have an effective internal and external communication system in place - it is not only important to practice good corporate governance, but also equally important to let your stakeholders know.

Some experiences at Eicher

Eicher Motors has been one of the few corporations in India who have been following sound corporate governance practices much before these were mandated by law. Some of the best practices worth mentioning are:

- Being a pioneer in India in having investors' meets in the late 1980s. Eicher had these meetings at various locations to make it convenient for the investors to attend them.
- Being a pioneer in having a supervisory board. This board is over and above the statutory board, which the companies are required to have. This board would comprise eminent people in the line of business, independent of the management. The function of this board was to focus mainly on strategy, controls and people, while being relieved from statutory duties. This was scrapped in 2004 as these functions were brought under the purview of the statutory board itself in the new corporate governance regulation.

- Having a robust process of selection of board members, which helped Eicher get independent professionals on board, much before it was mandated by the corporate governance code.

- Having a policy of not offering gifts to shareholders at the annual general meetings, while it was a common practice some time back.

- Having the practice of exclusive meetings with various stakeholders, to understand the aspirations of various stakeholders and also communicate the company's policies on corporate governance and ethical practices.

- Having a policy of not employing relatives of employees. This is practiced at every level in the organisation.

Good corporate governance starts with having a good self-governance or following self-discipline because only a team of self-governed individuals will lead to a self-governed corporation. Finally, to sum it all, it can be said that corporations with good corporate governance LAST, whereas corporations with bad corporate governance are LOST.

Asank Desai, Founder and Ex-Chairman Mastek India Ltd. Significance of Corporate Governance for the IT Industry

Information Technology (IT) industry in India has grown in leaps and bounds since its modest beginnings in the 1990s. The industry is now close to $50 billion in size, which is a growth of approximately 1,000 times in a period of 20 years. This also means a compound annual growth rate of 40 to 45%, which would be the highest growth recorded by any industry for such a long continuous period. The industry contributes close to 6% to our general development procedure. Moreover, 79% of the industry revenue comes from export. A majority of this export is to the Anglo-Saxon countries (US accounting for 60% and UK for 19%). This fact itself is a driver of corporate governance in the IT industry in India. Practising good corporate governance becomes important for the IT industry as the customers it is dealing with are sophisticated and situated thousands of miles away from India.

This also explains why IT industry has been the pioneer in introducing improved corporate governance structures in India. The customer sitting miles away and planning to give a large mission-critical job to an IT company in India would like to make sure that the company is well placed to execute this task. This does not only mean that the company should have technical capabilities but also that it should have robust corporate governance practices.

IT industry in India derives most of its export revenues from three sources - custom application development, application maintenance and BPO services. The BPO services are even more mission-critical for the customers of Indian IT industry because there we are managing client's business processes. Sustainability of clients or the value of client in the minds of their own customers depends on the strengths of these business processes. Because

it is very critical for the client, he wants to ensure that these processes are run by companies that have high ethical standards, value sets and governance systems in place. A good example of this was the alleged credit card data theft scandal where India-based BPO employees, who were handling their customer relationships, leaked a client's customer information. Of course, the customer companies would like to avoid such instances.

Another thrust to corporate governance for IT companies comes from the kind of employee base these companies have. IT industry in India employs close to 2.2 million people directly, and with a multiplier effect of 3.6 times, it generates indirect employment of about 8 million jobs. We, thus, have about 10.2 million employees linked to this industry. More importantly, the workforce in the industry is entirely of highly qualified knowledge workers who are sensitive to the issues of corporate governance. Attracting and retaining good-quality workforce requires these companies to project an image of being highly professional and ethical companies.

Yet another pressure for following good corporate governance practices in the IT industry is the unique shareholding structure these companies have. Most of the IT companies in India have significant holdings (16-20% on an average) from foreign institutional investors and many of them also have their customers as their shareholders. There is always a pressure from these shareholder groups that the company adhere to the best practices of corporate governance.

One of the important issues as regards to corporate governance, which is important for IT industry, is the issue of risk management and mitigation. Risk management has been historically given high importance by the industry. Most of the companies have elaborate system of identifying potential risk areas and reporting back to the board of directors, the steps taken by the company to mitigate them.

Due to these pressures, IT industry in India has been one sector which has been ahead of others as far as corporate governance implementation is concerned. IT industry players have been rated high in corporate governance by most rating agencies. This effect has also trickled to other industries and improved the overall corporate governance climate in India.

Kamlesh S. Vikamsey, CA, Partner Khimji, Kunwarji and Company
Corporate Governance and the Role of Audit Function

Corporate governance is about maximising shareholders' value, legally, ethically and on sustainable basis, ensuring fairness to every stakeholder. The objective of corporate governance is to ensure three things - first is the effectiveness and efficiency of operations, that is having sound internal controls; second is the reliability of financial reporting, that is having transparency and good disclosure practices; and finally compliance with laws and regulations. Meeting these objectives will ensure that a company has key aspects of corporate governance, which are:

- Accountability to all stakeholders
- Transparency to all stakeholders
- Equality of treatment for all stakeholders

1. The Board of Directors

A decade back taking a directorship position in a company was considered to be a very honourable job but with very little effort or accountability. Today this job has become a very onerous job. One has to keep himself well informed about the affairs of the company as well as other regulatory aspects, should be very vigilant and should be able to ask the right kind of questions. The board is accountable to the company and the shareholders. Its prime responsibility is to provide strategic guidance to the management. It is also responsible for effective monitoring of the management. Specifically, the board should review and give guidance on the business plans of the company, evaluate and approve major capital expenditure decisions, acquisitions and divestitures, look into risk management and set performance objectives. It is also responsible for monitoring the effectiveness of company's governance practices and recommending changes as and when necessary.

The board should apply high ethical standards, take into account the interests of stakeholders and exercise objective independent judgment on corporate affairs. For performing these tasks, the board of directors should have optimum size and mix of directors. It should have both executive and independent directors; it should have directors with varied skills and experience. There should also be a policy of rotation of directors across committees so that they develop a broader perspective. For a board member to function effectively, it is important that he is fully informed. It is the responsibility of the management to provide all the information required by the board to function effectively. The board functions through various sub-committees, such as risk management committee, investor grievance committee, compensation committee and nomination committee. Effectiveness and independence of these committees is crucial for the board to function effectively.

2. Role of Management

Responsibility of ensuring sound corporate governance practices lies with the board of directors. However, top management is responsible for ensuring that the board gets the right information to act on. Specifically, the management has following roles and responsibilities with regard to corporate governance in a company:

- Financial reporting and certification to board of directors by chief financial officer and chief executive officer.
- Making sure that financial statements and cash flows present true and fair view and comply with accounting standards and applicable laws.

- Ensuring that no fraudulent, illegal or violative transaction is entered by the company.
- Responsibility for design and operations of effective internal controls.
- Disclosing deficiency in internal controls and steps taken for proper disclosure and transparency to stakeholders.
- Ensuring that there is a whistle-blower protection policy in place.

3. The Role of Audit Committee

Having an audit committee is mandatory for specified listed companies, as per Clause 49 of the listing agreement. Also, as per Section 292A of Companies Act, all public companies with paid-up capital of more than Rs. 5 crore should also have an audit committee. Audit committee is a subset of the board and has to be headed by an independent director. The management and the auditors must report to the audit committee and are required to assist the audit committee discharging its corporate governance functions.

The function of audit committee is to assess and review the financial reporting system to ensure that financial statements are correct, sufficient and credible. It is also meant to provide proper direction and oversee operations of total audit function. It is responsible for organisation, operation and quality control of internal audit and external audit and for reviewing adequacy of internal controls.

3.1 The role of external auditors

The objective of statutory audit is to have an independent examination of the books of account of the company and to provide opinion on true and fair view of financial statements. It is also to ensure the preparation of transparent accounts in accordance with the accepted accounting standards and practices. External auditors are required to follow the auditing standards issued by Institute of Chartered Accountants of India. Apart from these auditing standards, there are ethical standards which the external auditors must also address. An external auditor must ensure that his independence is not compromised in any way - for example, he cannot write the accounts of the company or be an internal auditor to a company where he is working as an external auditor.

Conclusion

The suggestions and views of the three speakers demonstrate three clear paths - self governance, the use of technology and the importance and role of audit which should help mitigate corporate governance challenges in India.

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Women's education in India: A situational analysis

Nisha Nair

Abstract

The paper examines the issue of women's access to education in India. Drawing on existing literature and various statistics concerning women's education, the paper provides an overview of the state of education with respect to women and highlights some of the issues and barriers to women's education. Based on an analysis of emergent issues, some recommendations and suggestions are offered in terms of grassroots level interventions, strategic initiatives and enabling policy framework, towards improving women's access to education.

'You can tell the condition of a nation by looking at the status of its women'

- Jawaharlal Nehru

1. Introduction

Free and compulsory education to all children between the ages of 6 and 14 is a fundamental right of citizens under the 86th Amendment to the Constitution of India. Yet, the state of education of women in India is far from 'free' or as totalising and encompassing as the right appears to guarantee. Although the government, through its various initiatives such as the Sarva Shiksha Abhiyan (aimed at providing primary education especially to girl children from disadvantaged rural areas), attempts to improve the education of women, the barrier to educating women is not always monetary and within the purview of the state.

Post independence there has been a concerted attempt to improve literacy levels of the population in India. Many schemes have been introduced to increase the access, expand coverage and improve the quality of education. Amongst them the universalisation of elementary education, incentive schemes for retention and non-formal education for adults are noteworthy for their scope and intent. Special attention has been given to the education of women in all of the schemes. However, despite the varied attempts of the government and various NGOs operating in the field of education, the statistics for women's education leaves a lot to be desired.

According to the 2001 census data (Census Report, 2001), national literacy rate stands at 64.84%. While male literacy was noted as 75.26%, female literacy lags behind at 53.67%. A more recent government report on education statistics (2008), notes that the literacy rates for women in India has steadily increased from 8.9% in 1951 to around 57% in 2004. Although substantial progress has been achieved since India won its independence when less than 8% of females were literate, the gains have not been rapid enough to keep pace with population growth. Although there has been marked improvement over the years, there is still much wanting in terms of women's literacy. The problem is further compounded if we look at the male-female gap in literacy rates. This has almost always

been more than 20% over the years. For a more detailed examination of education statistics see Appendix I.

The various statistics and numerous studies have repeatedly pointed to the need to extend the reach and access of education to the women of the country. Although literacy rates and access to education are an area of concern for both males and females, they appear particularly problematic for women. The dropout rates and enrolment in higher education imply that getting girls to enroll in schools is the first hurdle, once surmounted girls are more likely than boys to stay on for primary education, but pose a challenge again at the secondary and higher level of education. Although it is well acknowledged that when you educate a woman you educate a nation, this often-quoted maxim has somehow been lost in translation as the reality of women's education in India seems to suggest.

2. Education in India

The issues concerning women's access to education are not uniform across different stages, professions or geographical spread. A brief look at the education landscape with respect to women's education is provided here, with more details provided in Appendix I.

2.1. Primary and Secondary Education

Under the Right of Children to Free and Compulsory Education, government has made education free for children of 6-14 years of age. One would expect that with this promise of free education, there would be an equal number of girls enrolling in primary education. However, in reality the picture looks much different. According to a 2008 government report, educational statistics indicate that the number of girls per 100 boys is around 80% for classes upto the VIII and a little over 70% for secondary higher education that covers classes upto XII. Secondary education generally covers children in the age group of 14-18 years, which is roughly 88.5 million people according to the 2001 Census. However, enrolment figures show that only 31 million of these are attending school (Census, 2001). Of those attending, it appears that attracting and retaining girl children for secondary education is more difficult compared with primary education as well as attracting and retaining boys at the same level of education. The possible reasons for the same are discussed later in the article.

2.2. Higher Education

India's higher education system is the third largest in the world, after China and the United States. As of 2009, India has 20 central universities, 217 state universities, 106 deemed universities, 5 institutions established and functioning under the State Act, and various institutes which are of national importance, such as the IITs, IIMs and universities such as JNU. Other institutions include 16000 colleges, including 1800 exclusive women's colleges, functioning under various universities and institutions (Government Report, 2009). Despite these exceptional numbers and acknowledged quality of many institutions, it is surprising that women record a lower presence across most institutions of higher education as

discussed in Appendix I. Significant male-female disparities exist in the enrolment of women in higher education. Gender disparity in enrolment ratio is also because of visible differences in rural areas.

2.3. Geographical Differences

Literacy rates are not uniform across the country as shown in Appendix II.

Female literacy amongst the four large northern states - Bihar, Uttar Pradesh, Rajasthan and Madhya Pradesh - is lower than the national average (53.67%), while states such as Kerala, Goa and Mizoram record comparatively higher literacy rates for women (Census, 2001). The discrepancy between male and female literacy rates is also higher for states such as Bihar, Jharkand, Chattisgarh, Rajasthan and Uttar Pradesh. The differences in literacy rate for women also vary across urban and rural areas. The access level of education for women (as measured by the Gross Enrolment Ratio, see Appendix I) in rural areas is almost three times lower than that of urban areas (Census, 2001) as shown in Appendix III. There is also considerable inter-state variation in education access, as can be inferred from the 2001 Census data. While the GER at the aggregate level is about 13%, it is more than the national average in states such as Kerala, Goa, Nagaland and Manipur and substantially lower in states such as Bihar, Orissa, Madhya Pradesh and Uttar Pradesh.

2.4. Vocational and Technical Education

Vocational education is a separate stream of higher education aimed at providing opportunities to students to choose programmes of study towards gainful employment. The total enrolment in over 8000 institutions spread across the country catering to technical vocational skill building such as the Industrial Training Institutes (ITIs) and the Arts and Crafts schools is of the order of 1.4 million, of which women constitute less than 28% (UNESCO report, 1991). Of the 950 or so ITIs including both government and private, 104 were set up exclusively for women giving training in areas such as receptionists, electronics, book binding and the like. Even considering technical education imparted through polytechnics, 35 of the 450 recognised ones have been exclusively set up for women, providing training in areas such as pharmacy, food technology, textile design, commercial art etc. Although the rate of participation is gradually increasing, women constitute, on an average, only about 10 percent of total enrolment in technical and vocational education at post secondary level, and about 28 percent at secondary and post secondary levels, taken together. For more detailed education statistics, see Appendix I.

3. Barriers to Women's Education

Why do the statistics reflecting women's literacy, their enrolment in primary, secondary and higher education or their dropout rates read so poorly? What do they tell us about women's access to education? What systemic errors have aided in this and what can be done to remedy the situation? This section highlights some of the barriers to women's education, drawing on previous studies where possible.

Inadequate school facilities can sometimes serve as a deterrent for the girl child's participation in formal schooling. A report by the International Programs Centre for the U.S. Department of Commerce (Velkoff, 1998) lists the chief barriers to women's education in India as inadequate sanitary facilities, shortage of female teachers and gender bias in curriculum. A BBC news report by Kaushik Basu (2004) notes that a study of 188 government-run primary schools found that 59% of the schools had no drinking water and 89% had no toilets. Another report in the Times of India (2005) cites a 2003/2004 data by National Institute of Educational Planning and Administration that reported only 3.5% of primary schools in Bihar and Chhattisgarh had toilets for girls. In Madhya Pradesh, Maharashtra, Andhra Pradesh, Gujarat, Rajasthan and Himachal Pradesh, the rates were 12-16%. Lack of toilets can be particularly detrimental to girl's school attendance, where the only option of attending to nature's call out in the open can pose both a physical as well as a psychological barrier.

Some of the barriers to women's education are sociological, rooted in gender stereotyping and gender segregation, and others are driven by economic concerns and constraints. A consequence of gender profiling and stereotyping is that women tend to participate more in programmes that relate to their domestic role. In institutions of higher learning, women are more inclined to enrol in courses traditionally considered more suitable for them such as arts and education, but less in courses related to science and technology. Likewise enrolment in vocational and technical fields has been male-dominated and providers of non-formal education and training tend to conduct programmes that relate to women's domestic role rather than their productive role. Families are also far less likely to educate girls than boys, and far more likely to pull them out of school, either to help out at home or for other socially induced normative considerations.

Parental reluctance to educate girls is a huge factor inhibiting their access to education. There exist various factors that fuel the choices parents in Indian society make with regard to refusing or limiting the education of the girl child. The way a society views its women determines the roles it delegates to them and the choices made for them or those they are allowed to make. When women are seen primarily as child bearers and rearers, then education is sometimes viewed as an unnecessary and extravagant indulgence. A mindset that views education for girls as unlikely to reap any returns ascribes to the view that investing in the education of the male child is like an investment as the son is likely to be responsible for caring for aging parents, and women with largely a reproductive role in society have little need for education and any gains from it are anyway likely to accrue to the homes they go to after marriage. Economically poorer sections are often not in a position to send their children to school and are likely to invest in the male child than in the female child if they can for the above-mentioned reasons. The middle class too often does not consider education for women an important means for preparing them as individuals in their own right. Amongst the upper middle class, where education of women may not be encumbered by economic constraints, discriminatory stances, such as women's education having lower economic utility or at best being a secondary wage earner, do exist and are pervasive in the attitudes and norms prevalent in society.

In many cases, women themselves are responsible for holding back their participation in education, working on preconceived notions that they will be unable to cope with the pressures of balancing work and home, assuming that mobility in employment can cause strain at the home front, or to confirm to socially induced images of feminity. Studies conducted by the National Committee on the Status of Women in India (1974), covering a sample of 200 undertakings in the private and public sectors, reveal amongst others that women were restricted to a few limited types of occupation because of prevailing social attitudes regarding their aptitude, resistance of employers, denial of training opportunities in higher skills and their ignorance regarding the opportunities open to them.

Women and girls receive far less education than men, due to prevailing social norms and sometimes fears of violence. Pointing to the inhibitions parents feel, especially amongst the poor or backward sections of society, Sonalde Desai, in her book on Gender Inequalities and Demographic Behaviour, argues that 'another disincentive for sending daughters to school is a concern for the protection of their virginity. When schools are located at a distance, when teachers are male, and when girls are expected to study along with boys, parents are often unwilling to expose their daughters to the potential assault on their virginity'.

Added to these biases and concerns is the social reality of the girl child as a vital resource in agriculture and household chores. Census reports and findings across various studies on the employment of women reveal that women workers in agriculture and related activities constitute about 88% (of the total female workforce) in rural areas and about 18% in urban areas (UNESCO report, 1991). In rural households and especially amongst the poor, the girl child is a valuable resource for housework and in the fields, an additional hand that cannot be wasted away through an education with almost invisible gains and far too heavy a price that most rural and poor families cannot afford to pay. Thus, a large proportion of the girls missing from schools are kept at home to tend to the responsibilities of housework and serve as free labour in the farms and fields.

It is interesting to observe that although women constitute a major chunk of the workforce in rural areas especially with respect to agriculture, the percentage of women in skilled, technical and professional level in agricultural machinery, production, marketing and extension services is just around 4% according to the UNESCO report. Here is a massive segment of working women badly in need of training through non-formal modes to help them adopt scientific and technological devices and practices to improve their work and productivity; however, their education for the same seems to be hugely lacking.

The different stages or levels of education are shown in Figure 1 along with the key attendant issues regarding accomplishment of women's education for each of the levels. If we consider different stages or avenues for education, then education can be categorised in terms of primary and secondary school education, vocational and finishing school education, arts and sciences and professional-level education. Primary and secondary levels would encompass the basic school level education while finishing school would refer to skills training for

employment in sectors such as nursing and BPOs. Arts and science education pertains to higher degree education in the field of arts and sciences with graduates in commerce, home science, sociology etc. falling in this category. Medical, engineering and other professional-level education appears at the other end of the chain.

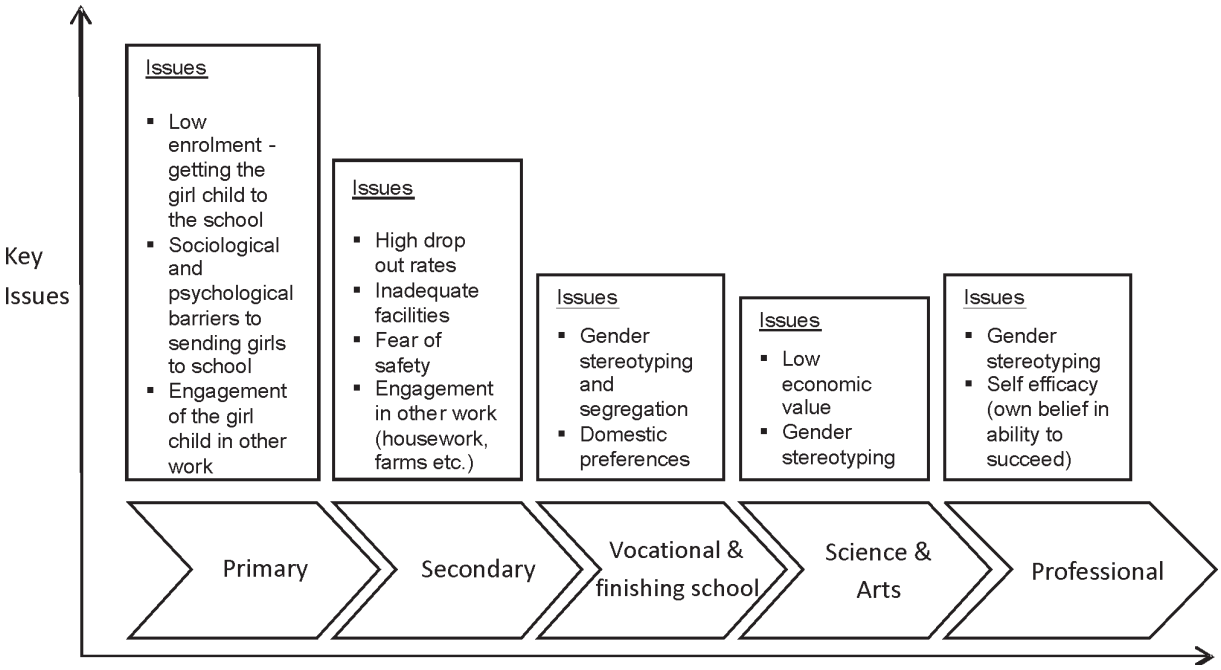

Figure1. Levels of education with key issues

Issues of women's access to education are not uniform along the varying levels as the figure indicates. Although getting the girl child to enrol in primary schools seems to be the most problematic, once enrolled girl children are more likely to continue their primary education. At the secondary level of education, girls tend to drop out more than boys, again posing a challenge to retain the girl child for secondary education. Therefore, the focus primarily is on drawing girl children to enrol in schools at the primary level and ensuring their continuation for secondary education. Participation of women in vocational training and skills building, particularly in non-stereotyped ones, and in professional-level courses also requires particular attention as the statistics suggest (see Appendix I). Thus, addressing the issue of women's access to education may require a customised approach, with issues at different levels of education varying by region or state. For example, the BIMARU states (Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh) may require greater focus on primary and secondary level education for women given their poor literacy levels. Urban pockets may want to focus more on finishing schools with more avenues for employment in catering services or BPOs, and rural areas could benefit with a greater concentration of vocational schools geared towards agriculture-related skills training. It may also be kept in mind that the impact of interventions for improving access to education may also vary according to the level. For example, attempts to ensure participation of the girl child in formal schooling may have a higher impact at the primary level, since there is a high probability that once enrolled girls will continue with their education. Similarly, impact on society with increased

participation of women in vocational and professional-level education may also be high, since this would mean greater participation in the labour pool and improved economic and psychological fallouts of the same. Thus, considering issues pertaining to women's access to education may require a unique lens focusing on the differing levels, issues and varying degree of impact. A more customised approach to addressing the problems related to women's access to education is required, as will also be discussed in the recommendations put forth later in the paper.

4. Role of the State

Being the largest machinery for dispensing and disseminating education, the role of the state in providing women access to education is most primal and influential. Over the years, the government's commitment to education articulated through the constitutional Act for Free and Compulsory Education until the age of 14, its National Policy on Education, or its various schemes and initiatives to promote the education of women all have been oriented towards enhancing women's access to education.

The National Policy on Education 1986, revised in 1992, was an important decision in the field of policy on women's education. It recognised for the first time the gender imbalances in educational access and achievement and also the need to redress them through enhancing infrastructure and the empowerment of women for their participation in the education process.

The Mahila Samakhya programme was launched in 1988 in pursuance of the goals of the New Education Policy for the education and empowerment of women in rural areas, particularly of women from socially and economically marginalised groups. Women from remote, underdeveloped areas or from weaker social groups across more than 21,000 villages fell under the Mahila Samakhya Scheme. Apart from provisions for education the programme also aims to raise awareness by holding meetings and seminars at rural levels.

Another government initiative, the Sarva Shiksha Abhiyan (SSA), was started in 2001, with the intent to provide education to children between 6 and 14 years by 2010. The programme focuses especially on girls and children with challenged social or financial backgrounds, charged with providing infrastructure and relevant resource material in the form of free textbooks to children in remote areas. The effectiveness of the programme is yet to be measured.

Although these various endeavours of the government have, over time, yielded significant results, especially with respect to increasing literacy levels amongst women, gender disparities continue to persist, more so in rural areas and amongst disadvantaged communities. Many villages continue to not even have a school, fewer than one third of India's primary and middle-school teachers are women and schools have remained inflexible to the labour demands of girls as various reports suggest. The question of improving women's access to education then remains, beyond the structural changes, at a deeper level one of a sociological change rooted in changing mindsets and empowering women, to challenge

the assumptions we hold as a society about the role of women in the labour market and the value of educating women.

The attempt of the state thus far has been a blanket approach to address the issue of access to education for women. Its various initiatives such as the Sarva Siksha Abhyan have largely focused on spearheading education access for all across the country. Although these efforts are commendable, a more customised approach may be required as discussed earlier. Approaches for addressing the issues would differ based on the particular requirements of the region. Enhancing literacy levels should take priority in states with lower literacy rates through sustained interventions and programmes designed for the purpose, while in other areas where basic education issues may be addressed, for example states such as Kerala, employable skills and professional-level education efforts may warrant greater attention to address the issue of migration. When imbalances in education for women have been pervasive and prevalent for long, as the continuing 20% differential in literacy rates for men and women suggests, the state may have to intervene in more drastic ways, as will be discussed in the next section along with other recommendations.

5. The Way Forward - Some Recommendations

Although much work has been done to improve the state of education in India, we are still a long way off from attaining standards comparable even to other developing nations. India is ranked 109 amongst 128 countries in its education index for women (see Appendix I for information on global education indices and India's standing on them).

Although there is much work to be done to enhance education in India, particular attention is warranted to women's access to education. An attempt has to be made to remove the social, psychological and structural barriers, for participation of majority of women in education. The state must play a prominent role in preventing gender stereotyping and segregation in education, and providing stipends, scholarships, loans, transport facilities, guidance and counseling services to women and their families, especially belonging to the lower and marginalised sections of society, and with required regulation and intervention, when necessary, to correct the imbalances in education access.

Below are some recommendations and suggestions for improving access to education for women of the country. The recommendations can be categorised as those related to (a) grassroots level improvements related to mindset changes, (b) strategic initiatives related to innovation and incentivisation and (c) enabling policy level framework that deals with regulation and reservation, as shown in Figure 2. Each of these is discussed in detail.

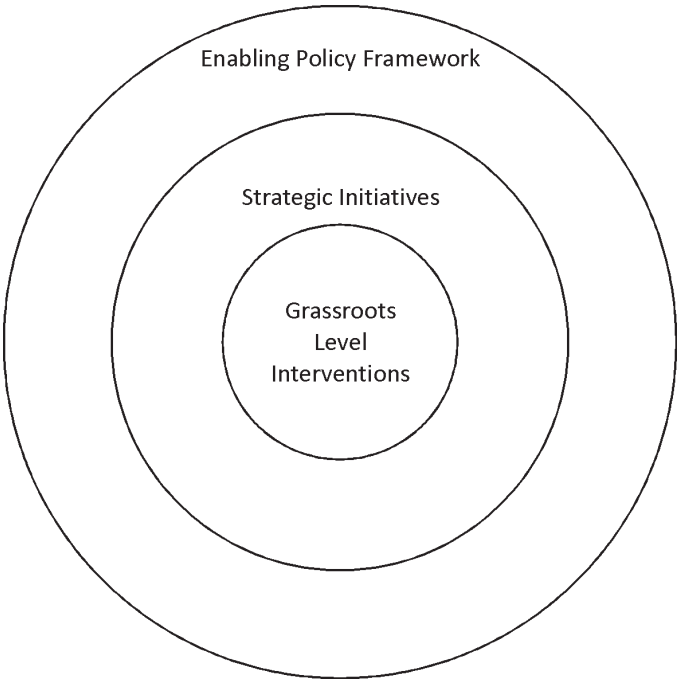

Figure 2. Towards improving access to education for women - broad recommendation categories

5.1. Grassroot level improvements/interventions

One of the foremost requirements for ensuring increased participation of women in education is effecting a mindset change in society. This class of recommendation, the building block or core of enabling any kind of change, is discussed first.

- Sensitisation and awareness building for women's education: Although the government and various voluntary organisations engage in various attempts to sensitise the local population to the need for women's education, much needs to be done in this area. Unless parents of the girl child see value and merit in sending the girl child to school, they will resist doing so and instead prefer to use her help in household chores or agricultural activities. Institutes of higher education such as the IIMs and other management schools can lead the way by designing programmes using marketing and selling skills to facilitate dialogue and build greater awareness about the benefits of educating the girl child. Rural immersion programmes for management students, especially in regions where the participation rate in schools is particularly low, will pave the way for better understanding and awareness of the differing needs and constraints of the intended beneficiaries. Parental reluctance can be targeted and stymied through such interaction, with a discussion of the various options and avenues that education can open up building awareness, and joint exploration facilitating alternate solutions keeping in mind the needs of the target population. Institutes of higher learning such as the IIMs, IITs, NITs, TISS, JNU etc. can lead the way by partnering with the state governments in the region to spearhead such an initiative.

5.2. Strategic initiatives

Beyond building awareness and sensitising people towards the need for educating women, innovative approaches to make education available and accessible to women, and incentives to make the prospect attractive for both women and their families, is required. Some recommendations in this direction are offered below.

- Target segment and approaches: We need to move towards a segment-based and sector-wise approach to tackle the problem of poor access to education for women. In rural areas, where enrolment of women in education is rather low, mechanisms need to evolve such that the schools are more accessible for the girl child as well as the psychological and sociological barriers to sending the girl child to school are overcome. An approach that ensures the schools go to the girls instead of the girl child having to struggle to reach the school is one possible direction. For example, the concept of mobile schools in far-flung rural areas where the teacher and the classroom can be made mobile is likely to reach far more girl children and also effect parental sensitisation for education of the girl child in the process. Similarly, other mediums can be explored such as video and tele schooling, imparting education through e-choupals and panchayats, and tie-ups with mobile health clinics to get the school to reach the girl child rather than have them labour to reach the schools. A segmented approach will have to consider how best to address the particular requirements and needs of the region, depending on the potential for tie-ups and alternative media that can be used to deliver education.

- Build linkages between government schemes such as NREGS and education: A recurring concern is that of poor infrastructure in schools, such as provision for toilets for women, that specifically addresses the needs of the girl child. While every school needs to have adequate facilities such as drinking water and toilets for both men and women, the fact that these are currently not in place indicates perhaps the lack of will or the fund and resource crunch at the local level. A way out might be to tie up with the NREGS (National Rural Employment Guarantee Scheme) that focuses on developmental projects while ensuring minimum 100 days of employment with education-related projects. State governments can introduce projects under the NREGS that focus on providing adequate infrastructure in schools, with particular attention to the specific and differing needs of the girl child. This will jointly address the NREGS objectives as well as assure the female population of adequate school facilities.

- Incentivisation for education of the girl child: Since girls are more likely than boys to stay on in schools once they enrol, the primary problem is that of attracting the girl child to the school in the first place. To facilitate this process, beyond communicating the usefulness of education to women, education of the girl child must become an attractive proposition for the parents of the girl child, who might otherwise prioritise sending the male child only to school. Some form of monetary incentive that state governments or panchayats can introduce at their level would go a long

way in ensuring equal participation of both boys and girls in formal education. While mid-day meal schemes are one such incentivisation, it might help if incentive plans that particularly target the female child are introduced. For example, if a family has its girl children enrolled in schools, they can be made eligible for further discounts through the Public Distribution System (PDS) or entitled to food stamps, or even direct subsidies can be offered. Other forms of incentives that directly address the concerns of the parents, such as discounts in agricultural supplies for parents of the girl child or loaning out the school premises for marriage of girls who have completed 16 years of schooling, can all be made available. While these incentives may not cost the government much in aggregate, they are likely to fuel stronger participation especially in the short term where instrumental and monetary concerns override the need to educate women.

5.3. Enabling policy framework

Efforts to improve access to education for women may also be addressed through effective regulation and government intervention beyond piecemeal efforts by the citizen body for any long-lasting impact. This class of recommendation is shown as the outer ring in the figure, intended as the overarching umbrella in efforts to revitalise education access for women.

- Reservation for women in education: The role of legislation and government intervention is one of the most powerful and effective tools to remedy systemic errors and imbalances prevalent in any society, which continue to be sustained over a period of time. A form of affirmative action, akin to other affirmative actions that provide for reservation to SC/ST and OBC in institutes of higher education, reservation for women in education can potentially reduce the disparity in education access and enrolment, and therefore opportunities made available to women. Although government intervention may not always be desirable, there is no denying that the reservation policy for 'backward castes' has benefited a section of the population and has been instrumental in correcting existing social imbalances. Extending the same logic, since women have continued to be inadequately represented across the education value chain, necessitating a certain percentage of women participation across various levels through required legislation and reservation will not only ensure fair representation but also encourage schools and institutes to actively devise means and programmes to attract women to their portals. Additional subsidies and incentives can further augment such structural mechanisms to ensure gender parity in education.

The road ahead for education of women is long and winding. Much needs to be accomplished, first to attract the girl child to enrol in schools and then to retain, train and educate them. Although structural issues may be easier to address with the commitment and will of the government and local bodies, the psychological and sociological barriers require long-term sustained efforts from all. Improving attitudes towards the girl child, challenging prevalent norms of society and countering gender stereotyping and segregation will require more than government engagement; it will take the concerted effort of civil

society, NGOs, institutes of higher learning, other stakeholders in education and, above all, the initiative and will of women themselves.

6. Conclusion

One may ask why education of women is even important, or why the state ought to focus on it, beyond improving the numbers and statistics to reflect figures at par with the rest of the developed world. Is it a mere image building exercise in an attempt to stay on top of the numbers? Although that may be equally important, there are more to accrue for the individual, family unit and ultimately the nation, with investment in education of its women.

Neglecting the education of women, who constitute nearly half of the population, does not auger well for the development of any nation. Beyond the obvious imbalance in the labour pool, education for women is an important determinant of their enhanced self-esteem and self-confidence, helping to build a positive image, developing their ability to think critically, fostering better decision making and helping them make more informed choices about health, employment and even the education of their children. Education will not only ensure more participation in developmental processes but also enhance awareness of rights and entitlements in society, so that women can enhance their participation in society on an equal footing in all areas. The economic independence that education brings is an added incentive. Economic independence and awareness will help curtail the vicious cycle of reinforcing negative stereotypes and aid women in chartering paths as individuals in their own right, contributing to society, polity and the economy.

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Acknowledgement-

I would like to thank Professor Ravichandran for his many readings and insightful comments on earlier drafts of this article.

Appendix I

Education statistics at a glance

The extent of education is generally measured by an index referred to as the gross enrolment ratio (GER). The GER measures the access level by taking the ratio of persons in all age groups enrolled in various programmes to total population in the age group. If we look at the GER for women, this is particularly low for women in secondary education (35.8%) and in higher education (9.4%), according to a government report of 2008. The GER for women has consistently trailed behind that for men across years, although the gap is steadily decreasing (Government Report, 2008). Examining the Gender Parity Index[3] (GPI), there appears to be some improvement over the years especially for elementary education. From a 0.22 value in the 1950s to 0.88 in 2005/2006, this is indicative of the closing divide between the genders in terms of education at the primary level. However, the GPI for secondary education (Classes IX and X, and Classes XI and XII), at around 0.82, tends to be lower compared with the primary level (Government Report, 2008).

School attendance rates from the 2001 Census suggest that no more than one third of all girls (and a lower proportion of rural girls) aged 5-14 years are attending school. The dropout rate for girls upto class X is 63.6% (3.5% higher than that for males). Interestingly, the dropout rate at the primary level for females (21.8%) is slightly lower than that of their male counterparts (28.7%). If we look at the percentage of girls' enrolment to total enrolment by stage of education, women enrolment is least in higher education (Census, 2001).

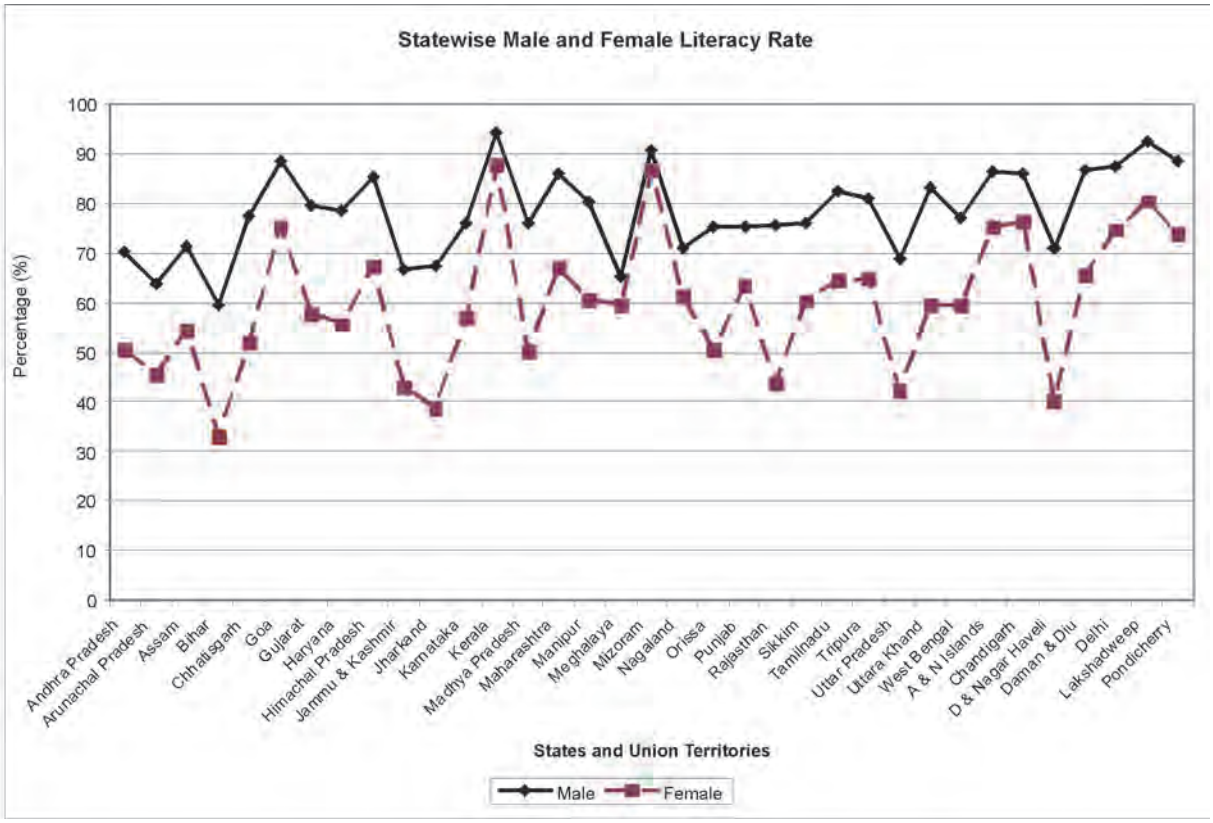
Significant male-female disparities exist in the enrolment ratio for the eligible pool of students as computed by the Enrolment of Eligibility Ratio (which is a measure of the enrolment of those who completed higher secondary level of education, indicating access to higher

3 Gender Parity Index is a ratio of Girls GER To Boys GER in a given level of education

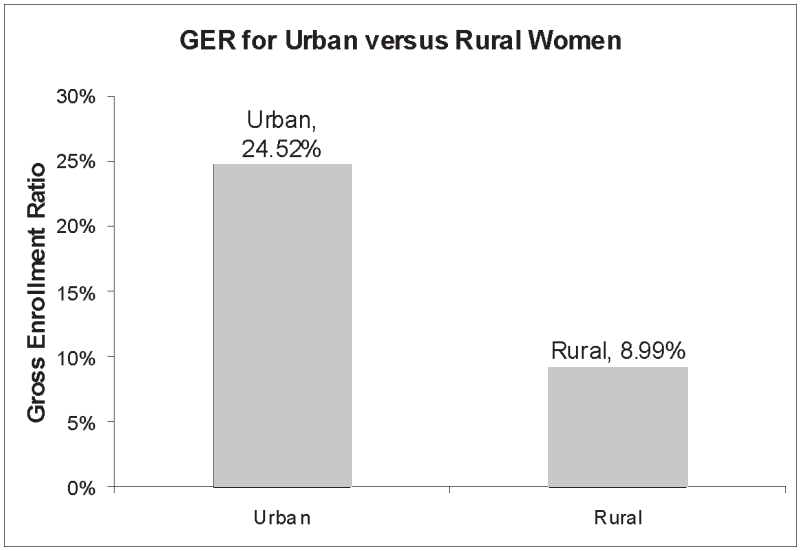
education). According to the National Sample Survey report of 2003, the EER of males is around 63% while that of females is 54% (Thorat, 2006). In the case of the more preferred professional-level medical and engineering courses, women were found to constitute only 25% and 7%, respectively, of the total enrolled candidates according to a UNESCO report (1991). The report also found heavy concentration of women in stereotyped non-engineering and non-technical programmes such as nursing (97%), primary teacher training (91%), secretarial practice (19%) and pharmacy (28%).

The education development index (EDI) is a global parameter for monitoring education across countries. It is essentially the arithmetic mean of four different education indices, one of which is the gender-related index. While the EDI can vary from 0 to 1, the closer a country's EDI value is to 1, the greater the reach of its overall education. A 2008 Global Monitoring Report on the education index lists India amongst the bottom scorers along with Pakistan, Bangladesh and Nigeria with an EDI score of around 0.7 averaging across different years. The Global Education Digest of 2007 by UNESCO lists India again in the lowest quartile in comparing the GER across primary, lower secondary, upper secondary and tertiary education (World Bank-IMF Report, 2007). The most recent 2010 Global Monitoring Report of UNESCO lists India again amongst countries with low EDI, with a gender-specific Education for All (EFA) index of 0.841.

Appendix II
State wise male and female literacy rate (based on Census, 2001)



Appendix III
Gross enrolment ratio for urban versus rural women



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BOOK REVIEWS

Rethinking the MBA: Business Education at a Crossroads

Shiva Kumar Srinivasan

Srikant M. Datar et al. (2010). *Rethinking the MBA: Business Education at a Crossroads* (Boston: Harvard Business Press, Indian Reprint), pp. 378. Rs. 895, ISBN 978-1-4221-3164-0

What does it mean to re-think the MBA? Why now? To what purpose? And, at whose insistence? These are some of the questions that spring readily to mind whilst considering the arguments marshalled by the editors in their evaluation of the future of MBA programmes in a colloquium that was held to commemorate the centennial of the Harvard Business School in 2008. As Dean Jay Light puts it 'wryly', it is necessary to re-evaluate the structure of the Harvard MBA given that it has been around for a 100 years. Senior Harvard Business School (HBS) faculty such as John Quelch, Robert Kaplan and Jay Light championed this book, which began as a colloquium in which over a 100 faculty members participated. The idea behind this book is to make available the findings of this 'empirical' colloquium to as wide an audience of business educators and management professionals as possible. The colloquium also threw up a large number of suggestions on how MBA programmes can be revitalised for the future. In order to do this, it is important to learn from the best business schools in the world. Although not all the top MBA programmes have been evaluated, the editors have tried to compile in-depth case studies with the help of three case writers based on the availability of the requisite data about these programmes.

The book is divided into two parts and has a total of 13 chapters including six case studies of top business schools including HBS itself. It will be of use to those interested in educational administration, curricular design and the theory and practice of higher education in the United States and France. The only non-American school that is profiled here is INSEAD at Fontainebleau/Singapore. This book will also be of use to students who want to pick up a management degree but are bewildered by the range of options available. The empirical studies given here can serve as the foundation for a thorough due diligence on the part of applicants to these programmes. Not all the business schools profiled here are necessarily into the case method in the strong sense like Harvard. This book is therefore an invaluable opportunity to understand how top educational administrators evaluate the relevance and function of case teaching as opposed to the traditional forms of teaching such as lectures and the emerging forms of pedagogy such as role plays, simulations and so on, within the total repertoire of methods available to faculty and students in business schools. The attempt to re-evaluate the HBS programme is motivated by both structural and historical reasons; the structural reason is cited by Dean Light above, whereas the historical reason is related to the crisis of 2008 and the ongoing discussions amongst business academics on what if anything could have been done to avoid such crises, or at least understand how to prevent them from happening in the future.

The case studies of the top business schools are also designed to bring out the strategic directions envisaged in these programmes. So, for instance, Chicago Booth uses 'flexibility' and 'disciplines' as its anchors; INSEAD (Institut Européen d'Administration des Affaires i.e., European Institute for Business Administration) organises its activities around the idea of 'globalisation', HBS on the notion of general management, Yale around the possibilities of 'integration' and 'large-scale change', Stanford on 'customisation' and so on. The case writers make it obvious that these schools were not chosen because they are copies of the HBS prototype, but indeed because they are differentiated in their offerings. HBS comes out as the only school that organises everything around the challenges and demands of the case method, and is probably the most traditional in requiring the physical presence of students for a 2-year period in its Boston campus. Most of the schools profiled are experimenting with 1-year MBAs, multiple campuses, exchange programmes, evening and weekend classes, building links to the university to which they are affiliated for fulfilling course requirements and so on. HBS however comes across as more of a stand-alone business model which is rather self-assured and self-contained in its style of doing things. The fact that the editors are willing to allow rigorous comparisons of the HBS way of doing things with different business schools is itself indicative of the pressure amongst the top schools to differentiate their offerings. These case studies are detailed enough to incorporate discussions on the pros and cons of attracting and retaining faculty given the presence of a particular teaching method. So, for instance, there are important cost factors in the different pedagogical ideas that are being used as differentiators in the top schools. Even the cost implications of team teaching, for instance, in the attempt to 'integrate' the curriculum are thought-through here. This book, therefore, is going to become an important input for any business school that wants to think-through its options in matters pertaining to reforming or revising its curriculum. What all these attempts have in common is the need to de-compartmentalise the cognitive approaches to learning on the part of students and faculty along with a modest attempt at costing in trying to do so.

What is the model of integration in the context of learning that is set out in this book? The model basically revolves around the notion of 'knowing, doing and being'. Knowing pertains to the actual content that is passed on to students in the classroom through cases, textbooks and so on. Doing pertains to the notion of 'application' in the context of problem solving (including discussions on what sort of a mind-set is required to apply a theory or framework as opposed to merely discussing it). Being pertains to the sense of self that is at play or which circulates in a dialectical way amongst those who find themselves within the transferential dynamics that characterises the relationship between leaders and followers. Datar et al. (2010) argue that using this tripartite schema of knowing, doing and being might be an interesting way for a business school to organise its offerings rather than in terms of a mere list of courses that is not sufficiently differentiated. The perennial question of what courses to include or exclude, the relationship between the core curriculum and electives, must be understood from the point of view of the pedagogical objectives rather than in terms of the areas to be covered. This tripartite scheme not only provides a classificatory structure for sorting out course offerings but also helps students to keep in mind the rationale that dictates the choices that they make, or which is formally recommended by the school in which they are enrolled. It is of course not always the case that all schools will be able to make a neat division of the entire curriculum and the

skill sets that it envisages along these lines, but nonetheless such schemes are attempts to integrate what is on offer in the curriculum. This schema can also be applied, for instance, to the cases that are already included in this book to see what new interpretations are possible amongst the top schools and their range of MBA programmes. What this book forces top educational administrators to do is to take the advice that they are fond of giving to their students, which is to not only differentiate but also think-through and work-through the theoretical rationale for doing so.

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Simply Fly: A Deccan Odyssey by Captain G.R. Gopinath*

N. Ravichandran

Gopinath, G. R. (2009). *Simply Fly: A Deccan Odyssey:* Collins Business, New Delhi, pp. 400pages. Price: Rs. Rs. 499.00, ISBN 9788172238421

This book, a story on Captain Gopinath as an entrepreneur narrated over 370 pages, is organized into 13 chapters. The book has a foreword by Dr. A.P.J. Abdul Kalam and a special endnote by Henry Mintzberg, a well-known management professor.

What is this book?

This book is a story of a serial entrepreneur. It takes the reader through the journey of a village boy (born in Gorur located 23 km away from Hassan on the banks of the river Hemavathy). After an initial schooling in the village Gopinth, he moved to a Sainik school and then eventually to the National Defence Academy in Khadakvasla, Pune. He served in the Indian Army for a brief period of time and decided to quit to set up his own organic farm on the land given by the government as a part of a rehabilitation package. He started his organic farm with a small investment of Rs. 6,000/-. Gopi, with the help of a 15-year-old boy Raju, converted the 30 acres of barren land into a viable organic farm by his hard work. Over a period of 10-15 years, the farm became a successful venture and won several awards (Rolex award for Enterprise in 1996).

When the farm activities stabilised, Gopi started a motorcycle dealership in Hassan. Motivated by his popularity he also contested an election on a BJP ticket. Given the untapped tourism potential opportunity of India, Gopi started a helicopter company. Subsequently he formed the India's first visible low-cost airline (Air Deccan). This was subsequently sold to his competitor. The book describes the story of the entrepreneur so far.

The book is extremely well written in terms of content, style, and flow. The chapters are well organised. The description is detailed and vivid.

Each chapter starts with an impactful quotation. The chapters do not have a title. However, every chapter is organised with several subtitles. The flow of book is uninterrupted. There are several self-contained essays related to the political situation in India, organic farming, untapped tourism potential of India, the executive education program of Mintzberg, travel experience from Singapore to Bangalore via the Southeast Asian Arc, and the economic reforms in India. These essays are comprehensive and informative. However, they distract the attention of the serious reader from the main story.

* This review is written only for academic purposes. This is not intended to serve as a commentary or opinion of an individual. The opinion expressed in this review is the opinion of the author and does not necessarily represent the views of the Institution.

Profile of Captain Gopinath

Based on the information provided in the book, the emerging profile of Captain Gopinath is challenging the existing situation, constantly driven by a sense of urgency, willing to do everything that is possible to get things done on time, an individual in a great hurry, and a dominant leader. He is hardworking and a tough negotiator. There is an element of pride and self-motivation in whatever has been attempted by him, as discussed in this book. It is a matter of great interest whether these are defining attributes of an entrepreneur.

Experiences Narrated

There are number of experiences that are explained in this book, which will provide valuable experience and insight to a potential management student, professional, and an entrepreneur. Some of them relate to the farming experience, the election process underwent by Capt. Gopinath (interfaces with Shatrughan Sinha and Atal Behari Vajpayee based on professional expectations), buying the first helicopter, chance meeting with the Chief Minister of Andhra Pradesh, meeting with Richard Brandson, decisions related to IT infrastructure for Air Deccan, experience in the stock market by the first IPO offering, negotiations with Reliance, take-over proposal by Vijay Mallya. While each of these incidents provides a meaningful insight into an entrepreneur's journey, the reader would have enriched by more descriptions of similar kind of the entrepreneurial journey of Captain Gopinath.

Chance and Luck

The book is incomplete on patterns related to several coincidences. Captain Gopinath has met several personalities who have been able to help or support his cause throughout his entrepreneurial journey. There are a number of such incidents to believe that all this happened by chance. Obviously, Captain Gopinath had a strong network of contacts and used it effectively to build his business. The important lesson for an entrepreneur is to identify and build social contexts, and leverage them towards their entrepreneurial objective. The book provides almost no information about the performance of Air Deccan in terms of growth, market share, profitability, and valuation. Similarly, no specific information is available on Captain Gopinath's farm and his political adventure. In the absence of any basic information on the performance of these ventures, the reader is constrained in his ability to assess the effectiveness of the ventures and its impact on the entrepreneurial journey of Captain Gopinath.

Business Models

Air Deccan Business Model has always been controversial. The core issue is, in an industry where the input costs are driven by global prices, how to sustain a business in which the revenue model is not even adjusted for purchasing power parity of the local currency. This would remain as a controversial issue and perhaps explain the decline and lacklustre performance of Air Deccan. The expectation of Captain Gopinath in the political arena seems to be a decision based on opportunity. It underlines the importance of an

entrepreneur in managing the challenges of his expectation. It is an acknowledged fact that Air Deccan is an airline that changed the landscape of the airline industry, made more people to fly, and followed several innovative practices. Unfortunately the business was based on an unsustainable model. Often as narrated in the book, business opportunities are combined with pleasure trips along with family and friends. This is a unique advantage enjoyed by entrepreneurs, who operated in a private domain.

Lost Opportunities

Capitan Gopinath had remarkable success in organic farming. He was globally recognised (won the Rolex price) for this initiative. Possibly an opportunity was lost in not furthering organic farming to global scales. The contribution from such an initiative would have been dramatic in the Indian context. Focus on tourism and helicopter services is again an opportunity that was not explored fully. Air Deccan, which was driven by ambition and innovation, became a casualty of unplanned growth and unsustainable business model. While the series of entrepreneurship initiatives are laudable for an entrepreneur, the book provides a valuable lesson in terms of opportunities lost.

Relevance of this work

This book is a classic example (with the most familiar situation) where the business fails and the entrepreneurs add value to themselves. The disconnect between the entrepreneurs and the business is too obvious from this book. The book also provides an experience to move from one opportunity to another opportunity for a creative and determined entrepreneur. Some ventures succeed and others do not.

The book is a worthwhile contribution in the Indian business context. The reasons are several fold. India, as a country, needs to encourage entrepreneurship in several sectors of its economy including agriculture, services, business, and governance. This book will provide the much-needed gap in professionalising entrepreneurship in the context of Indian society. The book is likely to enthuse several young men and women who want to do something that excites them. The book provides an account of a colourful life over a period of 40 years. It also provides a perspective on life by documenting several initiatives undertaken by a serial entrepreneur.

Reflections

1. What is entrepreneurship? Is it manifestation of an individual's personality in social and business space or is it an individual's ability to generate wealth based on opportunities identified

2. When does or should an entrepreneur change his domain of operation?

3. What prohibits an entrepreneur in building global scales?

4. While entrepreneurship is an important wealth creation or societal enhancement mechanism, is there a social cost to entrepreneurship?

5. If business results do not correlate with entrepreneur's wealth, who should pay for the social cost of the entrepreneur's venture?

Author's Profile

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Making Breakthrough Innovation Happen

D. L. Sunder

Munshi, Porus (2009). *Making Breakthrough Innovation Happen*. Collins Business: An imprint of HarperCollins India, pp. 256 pages. Price: Rs. 295.00, ISBN 9788172237745.

The book is a collection of case studies on innovation. The foreword by Mr. Narang highlights the motivation behind the book, and the note from Mr. Mashelkar lends credence. The introduction by the author provides the backdrop on how the book came about and how the cases were selected. This book is on what the author calls 'orbit shifting innovation', generally understood as radical innovation. These are innovations that not only challenge the current beliefs and thinking but also redefine the industry. The book is divided into four sections, with two to three cases in each highlighting an important aspect of innovation.

In Section 1 the author stresses on the importance of the 'challenge'. According to him, if you choose a challenge that is not difficult or intimidating, it is unlikely to result in a breakthrough innovation. Taking on the challenge of eliminating unnecessary blindness, Dr. Venkataswamy created Aravind Eye Hospital, which redefined the way cataract operations are done. Reducing the crime rate in Trichy was a daunting challenge for Mr. Tripathy. His innovative approach is now a case study for others in law enforcement. Developing and producing Hepatitis B vaccine for the masses in India at an affordable rate was an impossible challenge. Mr. Varaprasad Reddy of Shanta Biotech is now not only a major supplier of Hepatitis B vaccine in India, but also the supplier of vaccines to WHO. Each and every case in the book illustrates the nature of the challenge and how these were met.

Section 2 focuses on a fundamental aspect of the innovation process - the need to question established norms and procedures in the quest for breakthrough ideas. This is difficult in organisations where procedures and norms have evolved over the years and questioning them is equivalent to questioning those in power. This is even more difficult in successful organisations because the past success of the organisation could be attributed to these very norms and procedures. The section flows naturally from the first time you are faced with an impossible challenge and existing methods or frameworks provide no help. It emphasises the need to repeatedly ask why and why not? The section also highlights the importance of insights into the innovation process. In essence, this section is about the process of insighting and developing strategies for making breakthroughs happen.

The third section deals with the essence of all successful innovation strategies - getting people on board. How does one get people to believe in and accept the challenge? How do you enrol stakeholders who are crucial for successful implementation of the strategy? The section provides examples of how the proponents sought and secured stakeholders' commitment. Concepts such as involvement, commitment and constant communication are highlighted through the cases. It also talks of burning your bridges as one of the strategies to signal commitment.

The final section is about how one sustains the motivation and involvement in the long journey towards making breakthroughs happen. It is easy to come up with a great idea or vision. Roadblocks, resistance to change and vested interests surface during the implementation. The cases in this section show that perseverance and belief in one's own ideas are crucial in this journey. It very subtly makes you realise that others need to see your unshakable commitment in the face of adversity, before they convert.

I found the book interesting for a number of reasons. First it reads like a theme-based storybook and the cases trigger a chord within you. Second, it is not just about product innovation. There are cases of marketing innovation, process innovation and innovative business models. Third, the cases in the book are from diverse areas such as fighting crime, municipal administration, R&D, new product development and health care. The diversity in cases provides a rich menu with something for everyone.

The book comes at the right time. Flush from success on the IT front, Indians are now confident and willing to take risks. From a nation of clerks and coolies, the desire is to transform into a nation of entrepreneurs. This book highlights the nexus between innovation and entrepreneurship. The cases of Su-Kam and Cavin Care on innovative entrepreneurs reinforce Schumpeter's theory that innovation is central to entrepreneurship. If one believes that innovation and entrepreneurship are fundamental to India's continued growth and success, this book provides shining examples and role models for us to follow.

The book is inspirational. When we talk of innovation, the names that normally get discussed are 3M, Sony and Apple. If you are looking for Indian names to add to the list, the book provides you with many. Furthermore, it is easy to relate to the proponents in the cases, as they could be just any one of us. Dr. Venkataswamy was a retired government doctor, Mr. Ranganathan was a small entrepreneur and Mr. Vasudevan was a manager. What was common were the apparently insurmountable challenges they faced. Their cases show how their commitment coupled with tenacious zeal transformed not only their organisations but also their industry.

A must read for innovators, entrepreneurs, intrapreneurs, managers and students who are looking to make breakthroughs happen.

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Contents

ISSN 0975-1653

Printed : Sahitya Mudranalaya Pvt. Ltd., Ahmedabad-22.