

Transforming Indian villages through innovations, knowledge network and entrepreneurship:

Dealing with the bottom of the pyramid or *tip of the iceberg*¹

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There have been several major transitions in our thinking about the way Indian villages can be made vibrant laboratories for innovations, entrepreneurship and social and economic change through networking. Right from the community development days, many experiments were done, some localized successes were achieved but by and large the approach remained based on a patronizing and providing attitude. Lately, when models based on the conceptualization of poor people as consumers (Prahalad) became dominant, large number of thinkers felt that this indeed was the model to work on.

Villages are therefore conceptualized as *sink* and not as *source* of ideas, innovations and entrepreneurial initiatives. The work of Honey Bee Network over last 16 years has demonstrated the potential Indian villages have in terms of generating new innovations as well as utilizing traditional knowledge for survival. Just because an entrepreneurship model has not emerged as yet converting these innovations and traditional knowledge into enterprises at a large scale (though GIANS have done it successfully at small scale), it does not mean that such a model would not emerge. It will require some basic rethinking in our philosophical and ethical basis of conceptualizing rural transformation. President Kalam's vision of PURA (Providing Urban Facilities in Rural Areas) is one such transformative step. There are several others that we need to build upon. The agribusiness potential through horizontal as well as vertical networking at the level of knowledge systems, institutions and cultural platforms remains to be harnessed. The contribution of science and technology in shifting the production function frontiers, i.e., technological benchmarks has to be recognized as one of the fundamental steps in this transformation. The scientific and technological innovations emerge in labs but also in the laboratories of life as Dr. Mashelkar, Chairperson, National Innovation Foundation (NIF) and Director General, CSIR, often puts it.

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In this paper, I first discuss the basic transformation required in our mindset. Later, I present a framework of knowledge churning centres, Gyan Manthan Kendra – GMK, to be set up in each village with or without ICT applications. Lastly, I predict the likely changes to follow once the approach suggested here is given a fair trial. The pooling of best practices available at the grassroots level will generate tremendous opportunity for knowledge based enterprises (social, economic, and cultural) to be created in the villages so that the persistent decline in self-respect of rural youth will not only be arrested but reversed. To me, the final yardstick to measure the success of the model I propose is when rural youth will take pride in flaunting his/her rural connections rather than masking them through rapid learning of English speaking in roadside educational dhabas. Nothing demeans a culture more when the language, the literature including folklore and institutions which enrich the cultural life are devalued and denigrated. The raise of strife in many parts of central Europe, west Asia, east Asia and even south Asia can be traced to this simple lesson, often ignored by the policy makers and strategic thinkers.

Rethinking rural: From Sink to Source

What applies at international level also applies at national level when the north and the south of economic spectrum dialogue. Just as developing countries are seen as sink of resources, skills, knowledge and institutions, the rural areas are also conceptualized as sinks of similar kind. It is not surprising therefore to see the bankruptcy of imagination at the highest level while conceptualizing rural employment programme or village knowledge centres. People are seen as vessels in which knowledge, ideas and information have to be poured. The village knowledge centres reinforce the lab to land model, so characteristic of agricultural research systems. The National Rural Employment Programme likewise considers the menial labour as *the* resource of the rural people rather than their mental labour, creativity and innovative potential. If after five decades of discourse on development, the planners cannot go beyond visualizing rural people as only hands, legs to work and mouths to be fed, then it shows that somewhere along the line the intellectuals have also failed in communicating the power of ideas that evolve in the crucible of creativity that lies in large number of villages. In fact, if one looks at the diversity of culture, language and institutions as a sign of richness, then urban regions are far more sterile, unimaginative and uniform in their taste of food, clothes, cultural resources such as films, literature and fashion. Extending same malice to rural areas may not be a very good idea, after all.

How can we change the situation:

1. Visualising rural youth as curious, committed and creative source of ideas and innovations which can generate new uses of local as well as external resources through decentralized tool rooms, design centres and knowledge churning centres (GMK).
 - i. Given the high dropout rates in educational systems, we often bemoan the fact that such people are only worthy of being unskilled labourers. What do we make of the fact that more than

80 per cent of the grassroots innovators and knowledge holders scouted and recognized by NIF in the last five years are school drop outs. It says something about our educational system. But it also says something about the potential of school drop outs.

- ii. Should traditional knowledge be seen as relic of past to be celebrated but not valorized? How do we interpret the success of Chinese medicine in penetrating European US markets. One in five Americans has used Chinese medicine. Chinese have about 45 per cent of the total patents on herbal knowledge in the world followed by Japanese 22 per cent, Russians 16 per cent and EU countries 8 per cent and then the rest of the world. India figures nowhere. Can traditional knowledge become therefore a major precursor or trigger of knowledge based enterprises.
2. Should development process be built upon resources people lack, or resources in which they are rich.
- i. The resources in which poor people are rich are their knowledge, institutions and culture. Can these become the basis for future transformation?
 - ii. The knowledge rights of the creative people must be protected through an effective, accessible and affordable intellectual property right systems. At the same time, incentives should be provided to disclose this knowledge to national depositories like NIF so that it can be shared with others. A technology acquisition fund can compensate those knowledge providers whose knowledge has potential for economic value addition. Later, this knowledge pool could be governed by open source philosophy so long as people meet their livelihood needs. For commercial purposes, licenses may be needed. It is a model similar to General Purpose License under Linux.
 - iii. Whenever we develop delivery systems that visualize people as ignorant or as just the recipient of information, we invariably become patronizing. It is not surprising that most ICT kiosks are vertical systems with very little functionalities for horizontal exchange and networking. The fact that Indian language content is so sparse demonstrates the respect ICT application planners in the country have for people's knowledge base (for exception, see sristi.org/wsa and sristi.org)
 - iv. The concept of poor as providers requires a basic rethinking in why people are poor. When the food they eat (minor millets, roots and tubers and many other uncultivated sources) are richer in

nutrition (how else will they survive with so little to eat), wouldn't their knowledge provide powerful leads for nutraceuticals. Unless we have a framework of *respect, recognition, reward and reciprocity* in place as articulated by Honey Bee Network, they will have no reason to disclose their knowledge, the only resource left in their control.

- v. A learning process approach requires acknowledging one's ignorance explicitly. How often have we acknowledged our inability to solve some of the most persistent rural problems which for various institutional reasons and cultural biases have also not been solved by the rural community themselves. The drudgery in the lives of women is one example. Similarly, the exploitation of the rural dalits is another. The continued inefficiency of large number of hand tools is still another illustration of our apathy.

3. Rethinking village knowledge centres (VKC) as Gyan Manthan Kendra (GMK) :

- i. Can we emphasize knowledge churning instead of just delivery as a basis of conceptualizing the GMK instead of VKCs. The dominance of knowledge delivery approach so characteristic of green revolution model is not surprising. It reinforces the biased assumptions about rural society. The perspective that Honey Bee Network has thrown up questions these biases. There is no way we can reinforce self-esteem of people unless we take pains to identify their strengths and then build upon them systematically.
- ii. The GMK approach has following six key components:
 - 1. Local language databases on local best practices in technology, institutions and cultural resources, designs of borders of old sarees/lehngas, arrangements of utensils in the kitchen, biodiversity and local knowledge registers, old marriage cards, old manuscripts, oral knowledge about healing, or recipes or any other technological or other knowledge systems etc., designs of cradles or doors or windows, or any other artifact which local community wishes to preserve for posterity, or for generating cultural and ecological tourism opportunities.
 - 2. Horizontal exchange of knowledge, information and opportunities for barter, sale, exchange, pooling and other ways of networking and using resources.

3. Collaborative platform for joint product development, on-farm and in-workshop experiments and sharing results of these experiments.
 4. Seeking external knowledge from the knowledgeable research centres, individuals, mentors and other centres of excellence, sharing this knowledge to reduce the transaction costs of seeking and providing solutions.
 5. An entrepreneurial platform for building value chain around the individual innovation, traditional knowledge or for pooling best practices through rural, urban entrepreneurs or joint ventures, or licensing of technologies to national or international companies or communities or individual entrepreneurs.
 6. Problems which need to be solved, benchmarks of technological efficiency and resources which are under utilized should be mapped, shared, contracted to technology institutions or other stakeholders.
 7. Database on innovation and traditional knowledge by other people developed by Honey Bee Network and NIF could be made available on CDs to every village GMK so that people not only get inspired but also get motivated to experiment, assimilate and innovate.
- iii. The concept of GMK places much greater reliance on the strengths of local economies, ecological context and institutional base of the communities. To illustrate, when we had a Shodh Yatra in Alwar, we recognized large tracts of land covered with adusa plant (*Adhatoda vasaca*) without any use being made of it. This region could have become the supplier of cough syrup and various other products based on this plant for the whole world. Likewise, we noticed during Shodh Yatra in Himachal Pradesh that there were long stretches in Kagra region full of curry patta leaves. This region could provide the curry patta powder and fragrance to the whole world. The current business models and development philosophies do not look for such opportunities because answers are supposed to come from outside. I have argued that out of more than 25000 crores that government spends on agricultural and rural activities every year, even if 5000 crores are spent on knowledge intensive approach to agricultural and rural transformation. Rural India can indeed shine very fast.

4. Sustainability of rural transformation requires significant investments in non-chemical approaches to agricultural growth and use other ways of reducing unit cost of production.
 - a. It is well known that external input intensive agriculture is not sustainable. There is a crisis in the heartland of green revolution, i.e, Punjab and Haryana. Farmers are looking for reduction in the cost and not increase in the production in the short run. The existing approaches are unlikely to work. The transition to sustainability has not been made.
 - b. Unless the common property resource management becomes a pivot of future transformation, the long term solution to sustainability problems is unlikely to arise. Too much of individual oriented approach has weakened the community structures and respect for common properties. No purpose is served by exporting urban problems of not respecting common properties to rural areas in the name of modernization. The linkage between crop, livestock, tree and crafts has been seldom studied together.
 - c. Herbal pesticides, veterinary medicine and other products which have no or very low negative externality deserve much higher priority. The current mindset which recognizes the potential of Bt varieties but does not recognize the need for giving a fair trial to alternative approaches of pest control is unlikely to help in generating sustainable alternatives.
 - d. Public policy, particularly, is weak when it comes to non-monetary inputs essentially including knowledge and management solutions for transforming rural technological change.
 - e. The database of local/indigenous common property institutions developed by Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI) has never been made accessible in local languages to the communities. How would newer models of cooperation emerge when time tested models which have worked are not diffused. The relationship between private enterprise and community institutions is an area considerably unexplored. The Panchayati raj institutions have not been enabled to use entrepreneurial approaches to solve local problems and generate revenue.
 - f. The stranglehold of bureaucracy has become weaker in industrial sector but in agricultural and rural development sectors, it continues to grow and thus stifle local initiatives. There has to be a time bound plan to roll back the stifling procedures and constraints so that local entrepreneurship can further develop.

5. There are 400,000 technology students which do a project every year. Imagine if one per cent of these projects addressed the real life problems of rural enterprises and technological systems, we would solve 4000 problems every year. Despite my advocacy for this linkage between technological youth and social and economic institutions, not much progress has been made. A society which permits, nay encourages the youth to pursue activities which have no direct social impact sows the seed of cynicism and mediocrity. This is one malice which needs to be gotten over at the earliest.

Forecasting future:

- With the growth of cell phones, should not one have welcomed and diffused the innovation by Prem Singh to switch on or off the tube well by using cell phone. The Nokias and Samsungs of the world could not provide this facility to farmers which Prem Singh has provided in less than a few thousand rupees. NIF award to him and NDTV's showcasing of his innovation has generated interest but not business. The conference of this kind will serve a purpose if innovations like these are licensed at the end of the day to the entrepreneurs who can provide value added services to farmers and also to other consumers. Prem Singh would then start inventing other things from the money that he will get. Farmers may not be able to tame the recalcitrant bureaucracy of electrical utilities. But they can cope with their weird, unpredictable ways of providing low quality power by switching on and off their tube wells according to their convenience and stabilizers designed by Kamble and Vishwa Karma. These devices monitor a variety of the problems that arise due to quality of the power or errors in the pump set or engine. Prem Singh's device coupled with the stabilizers will add tremendous value to rural productivity. Who in Government or private sector or industrial associations is applying his/her mind to build such connections? I anticipate that the pressure of performance by innovators will force reorganisation of several institutions which have been empathetic and indifferent in the next few years.
- The amphibious bicycle developed by Shri.Saidullah way back in 1975 was recognized by NIF in 2005. How can a country call itself a knowledge society when grassroots innovations take so long to be recognized. Even after recognition, why should be not able to diffuse this cycle in different parts of the country for cycle race in irrigation canals, transportation of provisions and vending around the large water bodies in eastern India, removing aquatic weeds, entertainment in water parks and so on. In the recent flood in Mumbai if car drivers had Saidullah's cycle in their cars, they could have saved themselves for 20 to 30 kms walk to their homes. I hope that the inertia which prevents knowledge managers to ignore such possibilities will be overcome. The village knowledge centres will be reconceptualised as Gyan Manthan Kendra and knowledge, innovation and practices of formal and informal sectors will fuse.

There are large numbers of other steps we can take to transform the opportunities in rural India. We have to dump the model which looks at creative people as the bottom of the pyramid. In fact, the only legitimate, ethical and optimistic scenario for India's transformation can be when we accept ourselves at the bottom of the intellectual and innovation pyramid and these innovators in rural and urban area as the tip of the ice berg. Once we change our mindset, the possibilities for knowledge network, entrepreneurial upsurge and innovation based cultural transformation will expand enormously. The experience of intellectual property rights claimed on different agricultural commodities shows how indifferent the urban India is to the potential of adding value to the production and skills of rural India. Just to give an example, in crops like psyllium which are grown only in India, out of about 800 patents in US, hardly four are by Indians. If this is the way we visualize future of Indian agri business in which we export only the raw materials, and rest of the world adds value, then we should forget about increasing the incomes and making the resource use system sustainable.

My contention is that we need change in the mindset more at the top level in public and private sectors than at the bottom level. For a change, this transformation of making rural India vibrant and innovative must begin from the top. The Ministry of Agriculture at the Centre and the state level first must unlearn their lessons in this regard and become open to accept their inadequacy to appreciate the talent that exists at the grassroots. Once we acknowledge the limitation of our current institutions and knowledge management systems, we will begin to appreciate the need for change. And at that stage, the transformation in Baramati, Anand will match the vibrance of Saidullah from Motihari in Bihar, Kanakdas in Morigaon in Assam, Prem Singh of Ambala and Kamble of Sholapur. We have to give creativity a chance.