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6

# New Economic Policies and Environment: The Case of Biodiversity Conservation

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Three central elements of new economic policies are: (a) reduction in governmental controls and interventions in the play of market forces, (b) global integration of Indian economy through reduction of tariffs and trade restrictions pursuant of GATT, and (c) greater opportunities for entrepreneurship development. Obviously, the new policies do not aim at just these three goals. Also, not all these goals are being pursued with equal vigour. There are many aspects of new policies which are having adverse consequences on the poor as well as environment. But, I would like to deal with the possibilities that new economic policies open up for empowering poor people as well as other creative sections of Indian society such as scientists and technologists. While discussing these possibilities, I am aware of the risk of being overoptimistic and, therefore, becoming vulnerable to the charge of being naive. I would take the risk and speculate rather than be cautious and just repeat what every predictor of doomsday has said already. I need to qualify my statement just a little more. My speculations are based not so much on likely support from policy makers as on the potential of local



creativity that seems to be unfolding slowly. To be more precise, the creativity always existed but it may be given a little more space now.

## Pressures for Policy Change

The espoused goals of policies are not always co-terminus with the actual goals. Further, the policy environment is not dominated entirely by the domestic actors, players, and forces but external forces including World Bank, WTO, international treatise like Convention of Biological Diversity (CBD) and International Convention to Combat Desertification (ICCD), etc., also make a substantial difference. In addition, the relative pressure, different domestic constituents of the state can put on public policy makers, differs and thus varies the extent to which their interests are looked after by the state or civil society. New economic policies as a sign of paradigm shift are quite different from the same as a philosophy of action.

As a paradigm, these are part of a standardized package which the World Bank and IMF are imposing on all countries regardless of the origin of their problems or the nature of their endowments. In a way, this paradigm treats every patient who is sick with the same medicine except that some can manoeuvre to get sweeter pills for some time. I have no doubt that eventually the bitter pills will have to be swallowed.

As a philosophy, the new policies reflect the same tendency of doing even the right things under external guidance or motivation rather than doing the same through internal genius. After all the conditions which brought the crisis few years ago were created under the intellectual and administrative leadership of the same people who were now asking for a radical departure. Obviously then authenticity of many of the proposed changes became suspect to begin with. Later when the hard choices were deferred indefinitely, remaining doubts about legitimacy were also removed. Austerity in public and private roles, greater commitment to poverty alleviation manifesting only in

election year and weakening of commitment for disadvantaged regions, access of local communities to natural resources, etc., indicate the delicate ground on which the future of reforms stands[1].

## Environmental Challenge and Role of Biodiversity

The non-sustainability of input intensive approaches to agriculture is well understood and appreciated at present. The declining water table, increasing imbalance of soil, micro and macro nutrients, greater resistance of pests to the chemical pesticides and reduction in the availability of predators can be traced in some sense to the dominant tendency of declining diversity in land use strategies. When the same crop or variety is grown in a field year after year, the nutrients are withdrawn from particular level in the soil. Similarly, the application of only macro nutrients and that too in a highly unbalanced manner (see Economic Survey, 1993) implies that native fertility of the soil is mined till one after another micro nutrient become limiting factor. The lack of application of organic matter adds to this problem. Similarly, illogical pricing of water and power leads to wasteful use of resources such as excessive withdrawal of groundwater disregarding the recharge rate. Cheap interest rate for tractors and other heavy machinery leads to over-capitalization, excessive soil erosion in semi-arid and arid regions due to loosening of soil, cultivation of marginal lands and consequent siltation of tanks, streams and river-beds. Excessive use of chemical pesticides attracting low custom duty and domestic taxes has led to increased resistance of the pests, high chemical residues and hazards to human and animal lives besides decline in soil micro organisms.

In some respects, these trends were strong during the period of subsidized input based agriculture growth strategy. Undoubtedly, the food production had increased but at a great environmental cost. Contrary to the claims of many armchair environmentalists and so-called populist farm leaders, the diversity of



cropping systems declined through popularization of high yielding varieties developed and marketed by the public sector and not through import of seeds by the multinational corporations. One may argue that new economic policies leading to withdrawal of subsidies even if in gradual manner may correct some of the distortions in the resource use patterns. However, that need not happen just because prices are allowed to be governed moderately by the market forces keeping in view the short-term interests of articulate and material resource rich farmers. The implications of new economic policies for the high growth regions, moderately growth regions and low or negative growth regions will obviously not be uniform.

### *High Growth Regions*

The liberalized opportunity for export, elimination of restrictions of minimum export prices and emergence of long-term contracts may modify the nature of land use and consequent environmental effects significantly. On one hand, the short-term gains may become even more attractive and thus reducing incentives for long-term investments in soil and water conservation. On the other hand, it is possible that demand for organic products from Europe (and in due course within the country) may increase the incentives for lessening the use of chemicals in agriculture and thereby reducing negative externalities. It is also possible that increased export opportunities lead to a greater specialization reducing the diversity both cropwise and varietywise even further. This will make the system more vulnerable to large scale disease epidemics or pest attacks.

In the livestock sector, the quality of products may suffer because of high chemical residues in the animal feed and thus reduced export potential. On the other hand, given the high income elasticity of livestock products, domestic demand may increase due to expansion of middle class. This expansion may also generate greater opportunities for labour absorption as suggested by earlier studies by Prof. Vyas. But, within livestock

sector, increase in the export demand for mutton and sheep meat may lead to higher growth of the population of small ruminants.

There are already indications of such a trend in western arid and semi-arid parts of India.[2] In the absence of increased pastures or improved soil cover, the expansion of herds of small ruminants may accelerate the rate of soil erosion. These consequences would be felt in medium to low growth regions.

Liberalized import of rags may depress wool prices and thus reduce incentives for shepherds to have smaller herd of quality animals. This was happening even before the new economic policies came into being. The rate of this change may accelerate because of new policies.

### *Moderate Growth Regions*

Removal of restrictions on the export of durum wheat recently provides an indication of how the economic returns in these regions may increase despite limited changes in the productivity levels. Most of the medium growth regions have moderate to good rainfall, relatively speaking low level of irrigation, increased problem of waterlogging, soil salinity and alkalinity and average to poor market infrastructure. It is in these regions that growth pull is expected. If one continues to use input intensive green revolution model, we may run into similar problems as evident in high growth regions even in shorter time. But, if the approach is modified in favour of diversified resource use strategies with greater local value addition, the consequences may differ.

### *Low or Negative Growth Regions*

The extent of soil erosion and declining groundwater availability clearly indicate serious problems ahead. The energy crisis may further aggravate the pressure for deforestation. The new economic policies, however, can help in reversing this trend if only biodiversity based knowledge and resources can be properly inventorized, analyzed, value added and priced. It is this possibility which I discuss next.



## Biodiversity Based Opportunities for Economic Transformation of Marginal Communities and Regions

The regions of high biodiversity invariably are inhabited by the poorest people (Gupta, 1991,1992,1993,1995, 1995a). The poverty is a consequence of inability of the market to generate demand for diverse products of irregular shapes, tastes, smell, etc. These products arrive in the market at different times and in varying quantities. The costs of logistics to arrange transportation, storage and display of diverse products obviously are very high. The shelf space for a few varieties of tomato *vis-a-vis* a large number of them may make all the difference to the risk and returns of the entrepreneur.

Because market forces and state support system are equally weak, people have to be extremely inventive and creative to survive in marginal regions. Many of these survival strategies imply development of local solutions to the local problems. These solutions could be in the form of herbal pesticides, veterinary medicine or even human medicine, vegetative dyes, vegetative leather processing, indigenous soil and water conservation methods, farm implements, etc. Many of these solutions are inefficient and may even be counter-productive. Yet, there are many more which are not only efficient but also environmentally and economically quite effective and viable. But, their viability contributes to generation of only limited surplus, if any. The reason is that the market places no premium on such outputs grown without chemical inputs such as pesticides.

The research being done at SRISTI (Society for Research and Initiatives for Sustainable Technologies and Institutions), Ahmedabad with the help of Honey Bee network demonstrates tremendous potential for transforming the economic status of people conserving biodiversity and associated knowledge systems.

There are at least five ways in which this knowledge could be produced:

### *(1) By Chance or Accident*

Sometimes a particular plant or mineral happens to be together in a place such that an accidental combination produces a pest repellent or wound curing function. Replication of this observation generates a recipe. It is true that even for observing accident, or making discovery serendipitiously, one needs a prepared mind and this implies familiarity with certain possibilities.

### *(2) Through Trial and Error*

Many problems have persisted over a long period of time and thus have challenged human ingenuity. Some people have an innate urge to experiment and try different things. Even trial and error method presupposes an ability to short list a few possibilities among many that may exist. Short-listing requires some criteria and these criteria hold the key to a particular solution being environmental friendly or not. Thus, some solutions are effective but not sustainable because of the negative externalities generated in the process just as some others are.

### *(3) Through Analogies*

Sometimes solution in one context triggers imagination in another context. Many examples of this kind of solution suggest an extraordinary capacity on the part of person trying this change to link apparently unconnectable contexts. Analogic transformation may take place through several possibilities. For instance, when somebody develops a rig to drill a well after looking at a lift in high rise buildings. Or someone else develops a lever system by which a cart operator can empty the cart containing compost in the field without needing another person by looking at how a vegetable vendor removes the pan with goods from the weighing bar.



### *(4) Through Consultation, Collective Search, Development of an Experimental Strategy and Individual or Collective Experimentation*

Many solutions require building a long chain of arguments or possibilities which are known to different people. Step-by-step as one discovers a particular link or a human node knowing about that link, a network starts emerging. In due course when all the pieces in a puzzle have been put together, the solutions become possible.

### *(5) From Abstract Conceptualization to Empirical Solution*

Some people have a capacity to theorize certain ways in which problem can be solved. Either they themselves or somebody else takes up a testing protocol for checking out whether or not the given theory leads to expected result. Such an abstract way of dealing with solution of problem is quite similar to the practice in modern science. The difference is that many times one may find a right solution for wrong reason.

There may be many other approaches for solving a problem. My contention is that biodiversity based solutions may have involved any one or more approaches. The same approaches or heuristics when tried by formal scientists make them eligible for deriving intellectual property rights over the product of their labour. If indigenous solutions which are very innovative in nature involve similar process, similar rewards may be necessary. One has to appreciate that ethical values of different innovators and knowledgeable people vary a great deal. To some innovators trading the knowledge about particular use of a plant or its extract for any material gain is an unacceptable deal. To them this knowledge is priceless. Still others feel that the effectiveness of knowledge may decline if they received any compensation. There are a few who realize that this knowledge perhaps is their only way of surviving and thus would like to charge proper price.

I have discussed in an accompanying paper on "Ethical and

Equity Issues in Prospecting Biodiversity" how one has to resolve whole range of issues in this regard. It will suffice to state here that value addition in this precious knowledge can provide global leadership to the community which has conserved biodiversity and maintained a learning laboratory.

## New Economic Policies and Economic Transformation

Most developmental strategies have focused on what people do not know or do not have. What I am suggesting in this paper is a basic departure. My contention is that global demand for herbal products, safe technologies, clothes dyed with vegetative dyes or leather processed with vegetative tannins can provide opportunity to creative but poor individuals and communities. Since domestic demand for such products is still limited due to 'colonized' minds and tastes of the elite, new economic policies may make a quantum jump possible. The Intellectual Property Right (IPR) regime expected to come into full force after inaction of new product patent laws and plant variety acts may provide scope for protecting innovations not just by individuals but also by communities and not just in contemporary period but also in past. The provision of Convention on Biological Diversity (CBD), the intention underlying FAO undertaking on plant genetic resources and the provisions of GATT/WTO on IPRs provide a conducive environment for asserting rights of creative peoples.

The developmental policies of last few decades provide only one opportunity to these people that is of becoming 'unskilled labourer' for rural or urban labour market.

The effort that we are making tries to ensure that by getting the price right for the skills and perspectives of biodiversity conserving people, we break the nexus between high poverty and high biodiversity.

New economic policies do not aim at achieving this. But if we have confidence in our capacity to solve our problems through our own genius, we may be able to use the opportunity



that these policies offer.

I am not suggesting that poor communities will conserve resources by using them within sustainable limits. Perhaps, to expect them to maintain all the restraints may be unfair when the consumption patterns of urban elite in India and abroad are not changing.

Thus, institution building for generating such codes of conduct that match individual gain with societal expectations is necessary. But, this necessity is far more urgent and important in our own case since our life-styles and consumption patterns are totally non-sustainable. We have to turn a new leaf in generating greater accountability among ourselves towards poor and disadvantaged communities.

## Turning the Tide: Ten Challenges before Development Planners

There are thus several challenges that development planners face in the next century.

The first challenge is to find ways by which people struggling with similar problems in different parts of the world get to know the solutions developed by some innovative and creative communities or individuals in another part of the world.

The second challenge is to link formal and informal science so that value can be added to these innovations. These can be made more robust without losing the advantage of their simplicity or low cost.

The third challenge is to mould public policies for development, credit, and science and technology development, etc., in a manner that these little innovations can get scaled up or become enterprises. It is sad commentary on the state of developmental initiatives that nowhere in the world a venture capital fund exists which can support small innovations and help convert other such ideas into enterprises.

The fourth challenge in the wake of globalization is to make niche markets accessible for decentralized production by

communities in different parts of the world, particularly for organic or low chemical input products, crafts, other farm and non-farm products, etc.[3] This will require market research, consumer surveys, data base development, brokerage function between financial institutions, entrepreneurs, and product development and marketing expertise. Niche markets will evolve by influencing consumer preference in favour of biodiverse products which can generate incentives for *in situ* conservation as well as for organic products. In any case the ultimate cost of development is borne by the consumers.

The fifth challenge is to build upon and augment the empathy and concern that poor people seem to have in larger measure for the non-human sentient beings as well as nature. This is evident from their greater reliance on the common properties, livestock, forest products, etc., for their survival. These concerns are becoming weak in many cases due to lack of alternative survival options.

The sixth challenge is to generate self-design institutional innovations which make it possible for people to take control of the resources for sustainable livelihoods. This will include land and water reforms but more importantly reforms in political institutions. The constitutional amendment in India making elections in institutions of village self-governance compulsory is a step in that direction.

The seventh challenge is to transform the learning systems and strategies in public systems and also international development institutions. The change is slowly taking place but true proportions of crisis in the post-structural adjustment phase is not fully fathomed by leaders of civil society.

The eighth challenge is to enable knowledge networks follow an approach of having two-way communication and two-way power. Thus, the poor should be able to influence the content of what they need and what they will provide but also determine how the knowledge provided by them will be used. They should have countervailing power to match the power of



providers in formal knowledge system.

The ninth challenge is to involve civil society in taking responsibility for shaping values and generating responsibility for a fair and equitable society devoid of hunger.

The tenth challenge is to provide youth in or out of educational system an opportunity to recognize the nature of embedded injustice in various existing institutions and the scope for non-violent Gandhian way of correcting them. This is the most difficult challenge. Because patience required for non-violent processes does not evolve if we have decided to assign higher quotas of hypocrisy to ourselves and those in whom we trust. It is true that lack of employment opportunities hardly provides the conditions suitable for generating non-violent and patient approaches. And yet, if knowledge centre can network innovators around the world, it may be possible to generate competitiveness in the knowledge and enterprise networks. In the process, employment may be generated to alleviate poverty.

These challenges will require a new paradigm of thinking if solutions have to be lasting. First, transformation required in our thinking is that we have to move away from just problem-solving to solution-augmenting strategy. Second, we need to recognize that our excessive patience with mediocrity and injustice is a moral ingression into the realm of self-serving worldview. Thus, we need to question the moral basis of co-existence of hunger and affluence and restrict not just to the economic and social basis. Both of these transformations are fundamental to the new goal of having a world without hunger. And what is most exciting aspect of these transformations is that once transformed, any individual or institution does not remain the same. The change begins from within and infects others rather quietly. People do not even realize that they have started seeing the world differently for some time. This vision may look similar to the missionary mode of social change. But, are not we all pursuing some missions always relentlessly. The point is to modify these missions (Gupta, 1995).

cense fee or other forms of compensation. Under this provision, the local communities do not have to feel obliged or be under patronizing pressure.

(3) The weightage to local institutions, practices, sacred sites, etc., may improve the prospects of local communities conserving their resources. Since additional gains accrue only so long as resources are conserved, these incentives may encourage conservation. Tourism is another function through which non-extractive resource use can generate incentives for conservation.

For all the three instruments to work, several institutional changes would be required ranging from curricula and pedagogy in the educational systems at different levels to changing the nature of discourse around developmental projects in high biodiversity rich areas. The value formation takes place in the early stages of life. There is very little in the educational curriculum which generates respect in the mind of learners towards resource conserving disadvantaged communities and grass roots innovators. In a recent study we found that at least in some cases the drop-out children knew more compared to the enrolled children in terms of local ecological knowledge. In any case, there was not clear correlation between the rank achieved by children in biodiversity contests and academic exams. Apparently, in the early stages, some of the children who have an aptitude for ecological knowledge and can grow as ecologists get rejected by the formal academic system (Chand, Shukla and Gupta, 1994).

## Summing Up

In this paper, I have tried to highlight an almost impossible scenario. The contention is that in the post GATT, CBD and ICCD phase, creative and innovative communities as well as individuals may get a chance to compete globally through blending of their informal science with formal science. This competitive edge may emerge not from any benevolence of state or international market structures. Instead this possibility may emanate from the emerging consumer preference in the west about safe natural products based on biological diversity found in abundance in developing world. The support structures like Honey Bee network may provide the linkages that are necessary for grass roots creativity and innovation to be rewarded through the IPR regime evolving in post GATT and CBD phase. We realize that pressures for environmental degradation may increase due to tendency for maximizing economic returns in the short term. But I am asserting that the converse can also happen if we were to use the window in the international trade for green products that have positive impact in source as well as target countries.



My major argument is that defeatist mentality so characteristic of the intellectual elites of the Third World may just turn out to be self-fulfilling prophecies. If we have to turn a new leaf, confidence in the people's knowledge system will have to be placed. The Honey Bee network and SRISTI (Society for Research and Initiatives for Sustainable Technologies and Institutions)—an NGO set up to support it—are trying to prove this point through national and international policy debates as well as concrete action research initiatives. I believe that environmental externalities may be internalized if the consumer pressure in the domestic and export markets becomes intense. The challenge is to make civil society actors to assert their demand for safe, green and fair future.

## Notes

1. A good example of the way reforms have affected (or not) the mind-set of bureaucrats in government is a letter I got from Ministry of Human Resource Development (HRD). I had met a professor from Gutenberg University at an International Conference on Ecological Economics in Stockholm few years ago. He approached me after my presentation and offered to

support some of the capacity building efforts we might like to take up in India. I suggested that we organize summer school on Management of Common Property Resources for university teachers. Accordingly, a support was promised and grant transferred to the Institute where I teach. However, as per the Government of India guidelines, we have to take a clearance from Ministry of HRD for receiving any foreign assistance. Accordingly, we wrote to government and waited for a response. When even after six months no response came, I sent a fax to the Secretary of Ministry of HRD asking as to what more should be done. I also asked for reasons for refusal if that was the decision so that we keep them in mind for future. The sanction came within twenty-four hours but with conditions one of which was: "sensitive matters regarding environment should not be discussed". I was flabbergasted. If no sensitive issue was to be discussed then why were we organizing the summer school. I, of course, refused to accept such a condition and replied that we would give full freedom to each faculty member about what he or she taught. We never heard anything. We discussed all the sensitive issues about common property resources, and also the most sensitive issue about the value of indigenous ecological institutions. This is just to illustrate that new economic policies are being enacted in a context in which the bureaucrats in New Delhi are still not able to shed some of the obsolete controls, no matter how absurd their consequences be.

2. The socio-cultural dimension of this transformation is that some of the higher castes such as Rajputs which did not rear sheep and goat earlier have started doing so now in response to economic opportunities.
3. Not many people have noted a provision in GATT documents about the non-actionable subsidies as applicable to disadvantaged communities and regions. As per this provision, in contagious regions which have unemployment level 110 percent of the average and per capita income 90 per cent of the average, subsidies provided for development are non-actionable. It is a different mater that many developing countries may not have economic resources to subsidize any way. But if subsidies are targeted which they should be, these regions would be entitled to have such subsidy. This will also influence the comparative advantage of the products which may be marketed from these regions globally.



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the conduct of the honey bee:

(i) The network believes that we should collect the knowledge of the people, as the honey bee collects pollen, without making the flowers poorer.

(ii) We should connect people to people as innovators with other innovators as the honey bee connects different flowers through pollination.

We insist in our work that two principles are followed without fail: one, whatever we learn from the people must be shared with them in their language; and two, every innovation must be sourced to individuals/communities with names and addresses to protect the intellectual property rights of the people.

The Honey Bee network newsletter is brought out in six languages in India (i.e., Hindi, Gujarati, Malayalam, Tamil, Kannada and Telugu) and Zonkha in Bhutan so that dialogue with the people takes place in their own languages. Creative people from one place should be able to communicate with similar people elsewhere to trigger mutual imagination and fertilize respective recipes for sustainable natural resource management.

There are at least three specific instruments through which economic weightage for stronger ethical values of communities and individuals conserving diversity despite reaming poor can be generated.

(1) *The non-actionable subsidies for disadvantaged regions*: Under Article 8 (Part Four) of GATT, the assistance to disadvantaged regions which are contiguous geographical area and where per capita income is not above 85 per cent of the average for the territory and where unemployment rate is at least 110 per cent of the average measured over three-year period is non-actionable. Thus, weights can be assigned to the conservation practices and levies can be charged on various products or services to subsidize these regions for a comprehensive development policy. It is assumed that in view of the various factors mentioned earlier, the local regional councils may not have enough surplus to undertake these investment themselves. New ecological enterprises requiring value addition in natural products of these regions can be subsidized so that additional cost due to locational disadvantages can be set off. These industries might enable higher value addition through better technologies and with smaller quantities of the raw material. This will generate incomes and employment without creating stress on ethical values preventing excessive extraction of a given resource. Domestic support (Annexure 2, Article 21) also provides a basis for supporting research in connection with environmental programmes, plant protection, and extension besides infrastructural development. Support for the disadvantaged regions is accepted under this Annexure as well.



It is not my argument that states will indeed do so. What I am implying is that should a political commitment materialize, doing so will not be impeded by at least the new world trade order despite much popular beliefs to the contrary.

(2) *Compensation for local creativity, innovation, traditional knowledge of ethno-medicinal and ethno-agricultural uses of plants*: Various arrangements for compensation will be discussed later but this instrument certainly can enable providing weights to the knowledge and resource conserving practice. Under TRIPS, patent protection can be extended to the products based on plants, animals, micro organisms, etc., provided they meet the conditions of newness, non-obviousness and inventiveness besides utility. Despite controversy on the patentability of traditional knowledge held by a community, it is possible to file applications on behalf of large communities either through their representatives or collectively for a specific contributions. In addition to traditional knowledge, contemporary innovations for pest control, veterinary medicine etc., can also be protected. State can buy these patents and make them available freely to investors after paying the local communities a reasonable li-

To modify these missions, a concept of knowledge centre has been recently proposed (IFAD, 1995; Gupta, 1995) to network the knowledge nodes of problem solvers around the world.

The links between formal and informal knowledge systems have to crafted carefully if knowledge centre has to draw upon both the streams of knowledge. The criterion of evaluation may vary in different knowledge systems. Similarly, the criterion of effectiveness also varies in formal and informal knowledge systems. The knowledge centre cannot validate and authenticate the information collected from different information nodes nor should it try to do so. It can merely vouchsafe for the authenticity of information it generates itself as a node. Therefore, the roles of knowledge centre as a node, hub, co-ordinator and as a generator of values and norms have to be distinguished.

The goals of knowledge centre could be as follows (Gupta, 1995):

a. To trigger a multi-channel, multi-node and multi-level network of individuals, institutions and social movements engaged in generating solutions to the problem of hunger and poverty.
b. To operationalize various Articles of International Convention to Combat Desertification, particularly Article 16 (b), Article 18, Article 19 and 20 (c & d), Article 25-3 (a), Article 26, etc., in order to network existing information channels so as to make innovative solutions accessible to people in a manner that they can use these and share feedback/feed-forward.
c. To generate reciprocity amongst providers and receivers of information so that incentives for problem solvers to network with knowledge centre continue to grow.
d. To develop and operationalize an international fund for recognizing, respecting and rewarding creativity and innovation at grass roots level ensuring sustainable use of natural resources, protection of basic human rights, gender equality, and ethical discourse and conduct of business.



e. To network with existing efforts all over the globe with similar goals such as International Foundation for Science (IFS), Sweden, Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI), Honey Bee network for indigenous innovations, Tranet, ISEE, IASCP, CIKARD, etc.
f. To mobilize volunteers from private and public sectors, third sector and even religious organizations to generate and support local trust funds to be managed by communities trying to augment innovative solutions developed by them or others.
g. To set up a venture capital fund for small innovations which may support innovators directly or may underwrite risk or provide bank guarantees for similar funds to be set up in different parts of the world for augmenting people's capacity to solve their own problems.
h. To fulfil an ethical obligation towards poor people by ensuring (i) all the information concerning any programme or project is made available in local language to the people's representatives at local level before designing and implementing the same, (ii) sharing of information during the course of project implementation and respecting the right of people to information, and (iii) protecting the intellectual property and cultural heritage rights of local communities.

My contention in this paper is that new economic policies open the possibilities of these ideas being tried. Whether the dominant elite in our society will let such ideas be debated and experimented may depend upon, how far can this elite see into future. I have no doubt that with the demise of centralized big structures, future belongs to small, scattered, knowledge nodes networked through knowledge centre just as tried by Honey Bee network.

## How Does Honey Bee Network Pursue These Goals?

The Honey Bee network draws its philosophical principles from

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