



Grassroots innovations for survival

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Although participation is much discussed, poor people rarely get the opportunity to develop their own agenda and vision or set terms for the involvement of outsiders. The entire participatory paradigm illustrates that people are participating in plans and programmes that we – outsiders – have designed. Not only is there little opportunity for them to articulate their ideas, there is also seldom an institutional space where their ingenuity and creativity in solving their own problems can be recognised, respected and rewarded.

Poor people must be inventive to survive. However, sometimes their coping strategies are inadequate and then they have serious difficulties in meeting their basic needs, educating their children and generating sustainable employment opportunities. Nevertheless, there are clear signs that within their local knowledge they have a tremendous potential for restoring the economic and ecological balance.

The Honey Bee network

Ten years ago, this awareness motivated me and some of my former students and colleagues to set up the Honey Bee network. Metaphorically the Honey Bee represents the ethical and professional values that most of us often neither profess or practise. A honey bee does two things that we intellectuals often fail to do: it collects pollen from the flowers and they do not complain, and it connects flowers in pollination. In the Honey Bee network, it is a

matter of principle that we always credit the knowledge we collect from people and we share any benefit that arises from this knowledge fairly with them. We insist that this knowledge is transmitted in vernacular languages thus ensuring people-to-people communication. Honey Bee is a knowledge centre/network pooling solutions developed by people working in different sectors from all parts of the world. It creates links not only between people but also between formal and informal science. Honey Bee has collected over 10,000 examples of contemporary innovations and outstanding examples of the use of traditional local knowledge in the sustainable management of natural resources. These innovations are shared with local communities and individuals in over 75 countries through the Honey Bee newsletter which is issued in eight different languages (English, Spanish, Hindi, Gujarati, Tamil, Kannada, Pahari, and Telugu. SRISTI (Society for Research and Initiatives for Sustainable Technologies and Institutions), a global NGO based in India, was set up in 1993 to provide support to the Honey Bee network.

Of course, people cannot solve all their own problems and sometimes the solutions they find will be inadequate. Often there is scope for adding value and improving efficiency and effectiveness. However, it is clear that a development strategy that does not build upon what poor people are rich in, their knowledge, institutions and creativity, will never be

ethically sound, professionally accountable or efficient.

Finding the odd balls

Our local innovation database has been developed using methods and approaches that people can use without much difficulty. We believe that learning has to be mutual and patient. The categories used must be those that people work with in defining their worldview. What Honey Bee has done is quite simple. During their summer vacation we ask students to help us find the odd balls, the farmers in the villages who are experimenting and doing things differently. Many of these farmers have found very creative and innovative solutions to their problems. The unusual thing about these innovations is that they remain so localised that even farmers in the same village sometimes do not know about them. However, this lack of diffusion does not mean these innovations lack validity.

We use several other methods to scout out innovations including competitions among functionaries of agricultural departments, NGOs, and educational institutions and information stalls in cultural and agricultural fairs. 'Shodh Yatras' or walks through the villages are organised every year in summer and winter for ten days to identify as well as honour the innovators and traditional knowledge experts at their doorstep.

We have come across technological, socio-cultural, institutional and educational

innovations that contribute to the conservation of local resources, generate additional income and reduce or prevent losses. Farmers have developed unique solutions for controlling pests or diseases in crops and livestock, conserving soil and water, improving farm implements, various kinds of bullock carts for performing farm operations, storing grains, conserving land races and local breeds of livestock and conserving aquatic and terrestrial biodiversity. Below are some examples.

Strip-sowing equipment

Amrutbhai Agrawat, an artisan, makes farm implements in Pikhori Village, Junagadh District, Gujarat. He had developed several innovative farm implements including a wheat-sowing box and a groundnut digger. In most sowing equipment, the seeds fall on the ground through the lowest pipe-shaped portion. The spacing devices are located in the seed box. In dry windy regions, lodging can be a problem in irrigated fields. Amrutbhai devised a box that spreads the seeds in a strip. While the seed rate remains constant, the distance between the seeds is increased and they do not fall on one another. With better root growth, there is more efficient nutrient uptake and the crop does not lodge. With a stronger root network, the crop is better able to withstand water stress and also does not lodge. Similarly, the groundnut digger was designed with the help of a flexible blade hoe that allows the distance between the two rows to be changed and the depth at which the hoe enters the soil to uproot the groundnut pods to be adjusted.

Venture capital

Amrutbhai also tackled another centuries old problem. On most tropical plains, farmers cart farmyard manure to the field. They have to spread the manure by carrying it by basket to the right place. This demands much time and labour. By modifying the bullock cart Amrutbhai created a cart that the farmer could easily tilt so he could gradually distribute manure single-handed over the entire field. He discussed the idea with us and defined the risks. This was an idea worthy of the support of Venture Capital Fund (VCF). There are many programmes on micro-finance but no program on micro-venture finance. SRISTI recognised the gap and, with the support of a grant from the International Development and Research Centre (IDRC) and using its own resources, decided to experiment with the VCF idea. A proposal was prepared and reviewed and the cart was developed through a small risk-taking venture of Amrutbhai and SRISTI.

Later, this innovation received support from the Technopreneurial Promotion Program (TePP) of the Department of Scientific and Industrial Research through

the efforts of Gujarat Grassroots Innovation Augmentation Network. GIAN helped in filing the patent on behalf of the innovator and in licensing the innovation to three entrepreneurs for five districts and for five years netting about US\$ 2,000 as a license fee to Amrutbhai.

Many other ideas and inventions remain undeveloped or inadequately developed because there is no VCF to support them.

Cross-cultural exchange

This knowledge has great potential for generating cross-cultural and regional linkages. For instance, pastoralists in Mongolia make an animal lick out of onion leaves with wheat germ, sodium bicarbonate and dried milk. This lick is rich in selenium. Selenium deficiency, for example, can cause young calves to die prematurely. When the Honey Bee network idea was discussed with Akwasane people in Canada it emerged that they had a livestock problem which could be traced to selenium deficiency. This shows the potential of the Honey Bee network: a practice in Mongolia, documented by a professor in Scotland and published in Honey Bee, was made available to indigenous peoples in Canada and provided a possible solution to local problems.

Rewarding creativity

The intellectual property rights of local communities and individuals have often been usurped by national and international corporations and professionals without any regulation or restriction. Not only were the contributions of local knowledge not recognised but when profits were made nothing was shared with the people. An example of unfair extraction: about 70% of plant-derived human drugs are being used commercially in the same way as they were used by the native people who discovered them. What modern science did was to improve the method of extraction or develop a synthetic analogue of the compound. The basic R&D was done by the people but they were never compensated.

There is a clear need to correct the unfair and unjust system of extracting local knowledge from people for corporate benefit. It should be noted, however, that many local communities do not necessarily seek material rewards but this is no reason for keeping people poor.

International registry

At present, any innovation once published comes into the public domain and becomes non-patentable. At the same time, people-to-people networking requires dissemination of ideas in numerous different languages to promote learning and experimentation. An international innovations registry INSTAR (International Network for Sustainable Technologies

Application and Registration) was set up to prevent conflict developing between the need to protect intellectual property rights and dissemination for people-to-people networking. This registry, like the ISBN number for books, can provide a quick and inexpensive way of gaining some protection (say for ten years) for innovations. Later, with the help of an international fund for promoting sustainable technologies, more detailed patent applications could be filed on behalf of the innovators. Securing benefits also may raise the interest of younger people in green technologies, which may help this knowledge system not just survive but grow.

Recently, the Government of India has set up the National Innovation Foundation to make a national register of innovations, help link innovations with investment capital and enterprises, and to forge links between formal and informal science. Perhaps the time has come for setting up a Global Innovation Foundation as well.

Restructuring required

For most marginal communities in fragile environments, the standardised solutions developed for high-potential "green-revolution" regions are unworkable. However, in general there are no organisational arrangements that provide incentives to encourage scientists to work with the people to develop technologies that limit the potential for diffusion. Restructuring of international and national research organisations is required if technology development and diffusion is to become relevant and meaningful for marginal environments and disadvantaged communities. The Honey Bee network, with its limited resources and experiences, has demonstrated that such a transformation is feasible. ■

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