ICT can make it happen

See the unseen hear the unheard

Speak up!

A Voice of Creative Grassroots Innovators and Traditional Knowledge Holders
A corn farmer was consistently winning the award for the best corn at the state agricultural fair. One day, the local newspaper decided to interview him. The reporter discovered that the farmer had a habit of sharing his corn seed with his neighbours. The reporter was surprised.

“How can you afford to share your best seed with your neighbours? After all they compete against you in the competition. Why do you want to help them?” he asked

“Why sir,” said the farmer, “didn’t you know? The wind picks up pollen from the ripening corn and swirls it from field to field. If my neighbours grow inferior corn, cross pollination will steadily degrade the quality of my corn. If I am to grow good corn, I must help my neighbours grow good corn.”

This is the story of the connectedness of life. Just like his corn cannot improve unless his neighbour’s corn also improves, our lives cannot improve unless we touch other lives also. The welfare of each is bound up with the welfare of all.

Source: This story is taken from the book How to Talk Well, by James Bender (New York: McGraw-Hill Book Co., Inc., 1994). We thank Shailesh Shukla for bringing this to our notice : Ed.
Unfolding Entrepreneurial Potential in Millions of Villages: Can Digital Networks Help?

The asymmetry in access to resources, institutions and technologies between urban and rural areas is enormous. Therefore, many creative people in the rural areas are unable to fully exploit their potential, not because they don’t have ideas or the persistence to pursue them, but because they lack an appreciative peer group. The idea of setting up one lac (0.1 million) Common Service Centres in as many villages proposed by Government of India can have revolutionary implications, if its full potential is realized. Let me share some of the possibilities that can make this effort truly transformative.

Information and Communication Technology (ICT) applications can definitely reduce the digital divide, provided the institutional contexts in which knowledge evolves is properly appreciated. Three barriers often impede learning: language, literacy and localism. SRISTI and IIMA had developed perhaps the first multi language, multi media database of innovations in 1997 to overcome these barriers, but not much has happened after that. High transaction costs impede the access to digital knowledge, innovation and opportunity base. A culturally sensitive interface can overcome some of the inhibitions that people may have in accessing them. The major challenge is to create an institutional structure around the Village Level Entrepreneur (VLE), who will run the Common Service Centers so as to generate social capital. VLEs can contribute to this cause by taking several initiatives (a) build a database of social enterprises like voluntary blood donors which can be linked with services like indiannblooddonors.com (b) create a database of skills of different kinds in the village including cultural strengths to promote networking for commercial and non-commercial purposes (c) mobilizing collective action for management of common property resources (d) make a database of people from the village working outside who can act as mentors to budding entrepreneurs, knowledge holders and students (e) create a platform for barter exchange of various kinds of products and services in order to generate horizontal village to village network (f) develop a pool of tutors who can provide tuitions to the children who are first generation learners and (g) provide opportunities for voluntary work within the village for people from anywhere in the world who would like to contribute towards societal upliftment processes.

Many of these activities will reduce asymmetrical opportunities which often arise when new technologies are used. Generally when new opportunities appear, the people who are able to take advantage of it are not always the neediest ones. The gulf between the haves and have-nots may reduce in the above framework of the social capital. In terms of economic initiatives which a Village Level Entrepreneur can take, the availability of the public information and government records in itself is unlikely to provide any substantial financial income. Some incentives which may motivate an entrepreneur to create social capital as a prelude to creating financial capital are I) Cross-subsidization: VLE can generate more revenue through other activities, or for every service delivered in low paying or non-paying activity, she also gets incentives for taking up some more paying activities or availability of the former give her a legitimacy which generates demand for other services. II) Access to a large data base of green grassroots innovations, which not only provides information about innovations but can also serve as a trigger for ideas and innovations. The database can trigger demand for goods and services offered by grassroots innovators and traditional knowledge holders. There is also an opportunity for lateral learning and pooling of best practices and building value chain across villages or sectors. III) Social capital built through provision of socially useful but less paying activities may motivate people to try out the other more paying services. Innovations can also help in pulling other people to the kiosk.

In addition, the livelihood prospects for these VLEs can be improved in the following ways: i) providing link with major e-commerce platforms to auction their goods and services, ii) encouraging major retail chains to use these kiosks as distributed retail points, iii) helping major procurers of rural produce procure their raw material and value added products through CSC. For instance, linkage with courier services which carry suitable packaging boxes might generate demand for locally processed foods, nutraceuticals and a whole range of organically produced materials, or hand made things. iv) innovators could get orders for their products and might be able to compete better against providers with vast distribution network. Special recognition can be given to those who promote sales of decentralized knowledge based products and services; v) market research companies can develop panels of respondents at CSCs to gauge changing perceptions, attitudes, preferences and purchase decisions; vi) VLEs may provide bundling and dissemination facilities for workers and artisans to help them in mobility and pooling of services and vii) insurance, tele-medicine, bulk-repair service providers, etc., will also get new opportunities of reaching rural masses. These CSC could generate incentives for people to seek what President Kalam says urban facilities in rural areas (though I hope he does not want urban pollution, chaos, self-centeredness and lack of respect for common properties to come into rural areas).

These initiatives can go a long way in empowering village level entrepreneurship. Creativity in business processes need to match creativity in technological innovations. For grassroots innovators, the one lac Common Service Centres offer enormous opportunity for scaling up their businesses. Linkage with auction platforms like E-bay will provide global opportunities. The next frontier in the innovation movement is broad-hasing market access and improving the income earning opportunities for innovators and other stakeholders. Only when rural products are bought by all of us will income flow from our hands to them. The collaborative model will have to be developed so that rural producers compete not among themselves as much as with others entrenched interests. ICTs have the potential to invert the metaphor of Gandhiji’s three monkeys. They can bring the unseen and unheard into public focus and give voice to the disempowered. I hope that the readers will suggest many more ideas for using ICTs for empowering knowledge rich, economically poor people with particular emphasis on knowledge based value chain development.

Anil K Gupta
Validating People’s Knowledge: The Role of Formal Sciences

Arun Kumar, R Raj Bansali and B L Gajja, Central Arid Zone Research Institute (CAZRI), Jodhpur

The use of milk to control different virus among plants has been widely reported as Local Traditional Knowledge (LTK) in different parts of the world. The challenge before formal science is to validate these practices and engage in active dissemination of them, to promote sustainable agriculture.

Sustainable agriculture strives to integrate modern sciences like biotechnology with traditional farming wisdom. In recent years, there has been a tremendous focus on the use of green pesticides, but the relevance of indigenous knowledge in sustainable agriculture is not unequivocal. A logical strategy would be the integration of recognized bio-agents with indigenous knowledge. Bio-agents like plant growth promoting rhizobacteria, animal product like milk, plant extracts such as leaf proteins and Trichoderma spp. reduce diseases in many plant species through the manipulation of the host plant’s physical and biochemical properties.

Gupta (1992) has strongly emphasized the use of milk as Local Traditional Knowledge (LTK) for managing disease in crops. Milk has been described as a natural inhibitor for managing plant viruses with better sticking and spreading qualities (Cook, 1957; Agrios, 1988; Singh and Yadav, 1999; Vyas and Kumar, 2002; Arun Kumar et al., 2002 and Nene, 2003). Milk has been effectively used for controlling powdery mildews (Bettiol, 1997). Fungitoxicity of goat milk against M. phaseolina was studied by Raja and Kurucheve (1997). They found that goat milk significantly inhibited growth of M. phaseolina. Application of skim milk powder and warm water is recommended for managing common bunt (Tilletia caries) in winter wheat (Winter et al., 1997). Milk and its components have been reported as possible inhibitors of virus multiplication in Tobacco Mosaic Virus in tomato, pepper and tobacco; Urdbean Mosaic Virus, Potato virus Y in potato and sugarcane mosaic virus in sugarcane. (Hare and Lucas, 1959, Shands, Webb, and Schultz, 1962, Denby and Wilk, 1965, Singh, Srivastava and Singh, 1985).

Experiments undertaken in Central Arid Zone Research Institute (CAZRI), Jodhpur, to validate the practice have shown positive results. The following paper describes two such experiments: "Antagonistic effect of raw cow milk and Gliocladium virens against downy mildew of Pearl millet" and "Effect of Raw Cow Milk and Trichoderma viride in the management of leaf curl disease of chilli".

Use of Raw Cow Milk (RCM) and Gliocladium virens against downy mildew of pearl millet

Downy mildew (DM) or green-ear disease of pearl millet, caused by biotrophic fungus Sclerospora graminicola is a major constraint in improving productivity of millet. The infected plants develop severe disease syndrome and succumb even before reaching maturity. Instead of normal inflorescence, malformed ears are produced, which bear hypertrophied and distorted flowers. Disease resistant cultivars, chemical seed treatment and cultural practices are often used for its management.

A field experiment was conducted during the rainy season in a DM affected plot at CAZRI. ‘Nokha-local’, a DM-susceptible cultivar was used. The experiment was conducted with five treatments: seed treatment with RCM for 18 hrs in 1:1 ratio at the room temperature; seed treatment of Gliocladium virens (6g/kg seed); soil treatment with G virens (10 g/m²); seed treatment of RCM + G. viridescens and G. virens in soil; and control (no soil and seed treatment) in a randomized block design with three replications. Each plot measured 3m X 2m, with 4 rows and each row had 20 plants. The crop was fertilized with Di Ammonium Phosphate (@40 kg/ha) as basal dose. No insecticide or weedicide was applied. DM incidence records were taken twice, 30 days after sowing (DAS) and at soft dough stage (60 DAS) during rainy season. Fresh weight/dry weight ratio was analyzed for all the treatments along with 1000 seed weight.

Raw cow milk seems to be as effective as G. virens in controlling disease incidence.

DM management requires reducing primary inoculum from seed and soil and secondary infections between plants during the crop growth. G. virens appeared to have an edge over the RCM in reducing the DM incidence. Gliocladium spp. applied as soil or seed treatments, grow readily along with the developing root system of the treated plant and protects the roots from initial infection (Howell, 2003). In terms of disease incidence and protection over control, RCM seed treatment (12.6%) seems to be on par with soil treatment by G. virens (57.4 % protection). However, a combination of all three treatments did not show significant difference from G. virens seed treatment for disease incidence and control. Results indicated some additive effect of RCM probably through induced resistance (Arun Kumar et al., 2002). The amino acid proline and potassium phosphate

1 This article has been written based on the following papers : Use of raw cow milk and Gliocladium virens against downy mildew of Pearl millet, by Arun Kumar and R Raj Bhanasali and Use of Raw Cow Milk and Trichoderma viride induced Management of Leaf Curl Disease in Chilli by Arun Kumar and B L Gajja.
in the milk are known to boost immune system in plants (Bettiol, 1999; Nene, 2003).

**Effect of Raw Cow Milk and *Trichoderma viride***
induced management of leaf curl disease in chilli

Chilli crop occupies a cultivated area of 0.915 million ha. It forms 16 % of the total export of spices from India. It is widely cultivated in Rajasthan, particularly in the arid region of Jodhpur. However, the average yield of chilli in India is very low (0.8t/ha) compared to other chilli producing countries like Korea and Indonesia, where it ranges from 2 to 3 t/ha. The popular cultivars of chilli are susceptible to leaf curl disease, which is responsible for the low yield of chilli in the area. In about a decade, the yield of chilli in Jodhpur region has reduced by 28 per cent.

Leaf curl disease is caused by Tobacco Leaf Curl Gemini Virus (TLCvV). The affected leaves show curling, puckering and distortion with blistering of inter-veinal areas and shortening of internodes. In severity, axillary buds of affected plants are stimulated to produce clusters of leaves of reduced size with fewer flowers and fruits. The disease is transmitted by insect vectors like white fly (*Bemisia tabaci*) and thrips (*Scirtothrips dorsalis* and *Polyphagotarsonemus latus*). Pesticides have not been effective in controlling this disease. Moreover, the disease resistant cultivars perform poorly on yield and other growth parameters.

An alternative disease management technology (ADMT) was developed which combines local technical knowledge with modern bio-control agents. The technology involved seed treatment with raw cow milk for 24 hours in 1:1 ratio (RCM diluted to 50% by adding water) at the room temperature, and treatment of soil with *Trichoderma viride* (6 g/kg of seed) followed by dipping of nursery-raised saplings in raw cow milk for 20 minutes before transplantation. The ADMT was introduced in the farmers’ fields in some villages in Jodhpur district. It resulted in 46 to 60% protection of LCD over farmer’s practice with improvement in yield and quality of fruits.

An impact evaluation of this practice was carried out in Jodhpur region. Two categories of farmers, the participant group, which hosted demonstration of the technology on their farms and the control group, randomly selected from the area were studied. It was found that the application of new technology successfully managed LCD in chilli. The cost of pesticides used under FP was around 5 %, which was reduced to 1.14 per cent under ADMT. The yield increased by 25.4 %. The increase in employment generation due to ADMT was 12.5 per cent.

### Integration of local traditional knowledge and bio-control agents resulted in better protection from Leaf Curl disease compared to farmer’s practices.

Farmers innovations do matter. Simple solutions need not be ignored, just because of their simplicity. Honey Bee published an editorial about the farmer’s practice of dipping hands in milk before sowing tobacco seeds in 1992 (HB 3(2)). The practice was first brought to our attention by Dr. Chari. In HB 3 (3&4) (1992) Dr. Chari and Dr. Nagarajan have written more on this practice and Dr. Joshi has also commented on this practice of the farmers in HB 4(4) (1993). Dr. Arun Kumar has also written about the results of a field trial on the efficacy of milk for controlling leaf curl disease in chilli in HB 9 (3) (1998).

Has any Government of India ever communicated this solution to farmers through the vast extension machinery or public broadcasting system which they have at their disposal? How many more farmers must commit suicide due to ineffective chemical pesticide and increasing cost of cultivation? Ed.

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**References**


Full references are available on the website and can also be provided to readers on request.
Animal husbandry has been practiced in Iran for more than 9500 years (Hunter and Whitten, 1976). Over this period, Iranian stockbreeders have accumulated a lot of knowledge in this field. The authors have already compiled two books in on this subject (Amiri Ardakani and Emadi, 2003 & 2004). This paper discusses Iranian stockbreeders’ experiences in the area of post-production management of some livestock by-products such as manure, bone, horn, hoof, blood and fat.

**Manure**

Manure is considered to differ in their nature and properties depending on the animal, its food ration and nutrition quality. Since poultry manure is considered very strong, it is never used single. Manure of donkey, sheep, horse and mule are “warm” and cow’s manure is “cool”.

Fresh animal manure should not be used, because it produces worms and damages trees and their roots. When manure is allowed to decay, the weed seeds in the manure grow out and are killed. The larvae of the insects which might be surviving also die owing to high temperature and moisture.

Local people are very careful about the rate, time and pattern of usage. Pomegranate gardeners apply about 20 tons of manure per hectare of soil, before establishing gardens. Around 50 kgs of decomposed manure per hectare is used in vineyards (Amiri Ardakani and Emadi, 2002). In some areas, farmers graze livestock directly on the fallow land, and pen the livestock within the farm, or feed livestock within arable farmlands. This method was widely prevalent in Northern Iran and some farmers also pay galesh shepherds and provide them food and water, in exchange for grazing their sheep on the farm.

Similar practices are common in several parts of India.

**Providing Energy**

In the North Western parts of Iran, they make a flat and sunlit dung chamber outside the house premises to keep their winter fuel. The chambers are burnt after two or three years as it is believed that the dung would be a good shelter for disease carrying insects.

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3 The findings of recent research confirm this fact. In one Ton of pigeon manure, there is 3.5 kg of nitrogen. The value of pigeon’s manure is twice as much as hen’s manure and 8 times as much as cow’s manure. (Emami, 2001).
Other Uses

Manure is also used singly or in combination with other substances to control pests and diseases in plants. Threshed bitter gourd (colocynth), vine wood ash and cow dung is used to kill aphids and mites. Some farmers leach their seeds in cow’s urine or gall, to protect them against terrestrial pests. Camel urine can be sprayed on clothes to kill moth. In some rural regions, the smoke produced by burning manure is used to repel stinging mosquitoes (Amiri Ardakani & Emadi, 2002).

Dung is also used in the treatment of human diseases. In some villages of Sepidan County, women utilized newly-born foal’s dung, referred to as “korari” and lactating donkey’s milk for the treatment of whooping cough, referred to as “seh koffa”.

In some villages, Kuhgiluyeh and Boyerahmad provinces, they use dung for plastering a special type of silo, “lup”4. It is also used for making bricks.

In the medieval ages, bowls made of cow’s dung were used for cultivation to shorten the ripening period of summer crops (Heravi, 1977, p 249). In some western Iranian areas, they make vessels of different shapes and sizes, locally referred to as “kelareh” or carrying garbage and feed stuff.

In Orissa, cow dung is mixed with ash and applied over mud pots. It helps in keeping food fresh during the summers (HB 16 (2), 2005)

Blood

In Meymandinezhad’s words, during the Parthian era, Iranian interred their swords in a shield filled with the blood of wolf, hog, bull and ram, when concluding peace treaties. (Olfati, 1995, p 661).

Farmers use the waste materials of the slaughtered live stock, including blood and excretion, to fertilize the soil. In most of rural areas, after slaughtering and skinning the livestock, they bury rumen and other remaining entrails like testes and spleen, in gardens as they are not permitted to be used as a food.

References
A round 22,000 visitors thronged the campus of the Indian Institute of Management, on 10 and 11 December 2005, when the third Traditional Food Festival Sattvik was organized by SRISTI, NIF, GIAN and IIM. The venue was an enchanting spectacle, with a wide spread of culinary delicacies on either side, even as the center space was devoted to grassroots innovations. The festival posed certain fundamental questions about the kind of foods we consume and how we could make it more healthy and nutritious. In the process, could we also ensure that the poor farmers who cultivate such healthy food grains get a fair share of the profits? The food festival aims to generate market based incentives for such lesser known, organically grown crops and their varieties. After all, unless the urban consumers start demanding these grains, the income will never flow from our pockets to the small and experimenting farmers. In most cases, the grains grown by these farmers are not only more nutritious, but are also ‘compulsively’ organic, because many of the farmers cannot afford to use any chemical growth promoters or pesticides.

Over 60 farmers, including many women, as well as entrepreneurs, Civil Society Organizations like Gantar, Paryavaran Shikshan Kendra and Gujarat Gram Vidyapith, and others utilized this opportunity to display and sell their ideas and produce. The farmers mostly came from the dry regions of Gujarat, like Kutch, Banaskantha, Panchmahal, and Surendranagar. Rajasthan, Tamil Nadu and Uttar Pradesh were the other states represented.

The festival also provided an opportunity to spread the message about healthy food. The tribal people from Panchmahal district gave the urban consumers a rare treat of kumbh aur shuri ki bhaji. At the Gujarat Vidyapith stall eatables like dry fruits laddoo, bavte ka laddoo and Khajur ka sharbat were sold and the advantages of such types of food were also explained. The Paryavaran Shikshan Kendra did brisk business with the muthiya of Moringa oleifera and a novel preparation - sharbet made from cactus (Euphorbia caducitolia). It definitely opened our eyes to the nutritious potential of what is otherwise considered an inhospitable plant. In Saurashtra, the plant is believed to have medicinal value, specially for increasing haemoglobin in the blood. The delicacy was lapped up by the

Sattvik 2005, the third Traditional Food Festival opened the eyes of the urban consumer to the nutritive value of traditional and organically grown grains, while simultaneously providing a platform for the rural producers to directly sell their produce in the urban market. The purpose was also to test the consumer response to different varieties of minor and major crops so that market based incentives could be generated for conservation of agro-biodiversity.
crowds and the sales of this beverage generated around Rs. 10,000 over the two days.

At the Kishor Vataliya stall, the Farali Khichu and soup of kalathi (Dolichos biflorus), was doing brisk business. The Arya Sanskriti stall came up with an interesting idea of selling rain water, and drew many visitors. At the Akhand Jyot Foundation Stall, the attractions were methi (Trigonella foenum-graecum) thepla, Vegetable pancake and Bhaidaku of Echinochloa colomn. At the Swagat stall, different delicacies made of maize were available, including soup, samosa and halva.

The stall set up under Canadian International Development Agency, Guelph, implemented by IFPRI and

Recipe Contests: Rewarding Culinary Creativity

The recipe contest was organized on Dec 9, 2005 at the IIM A campus. The recipes were supposed to encourage the use of the lesser known and consumed food grains and minor millets such as kui (Carvia callosa), kodri (Paspalum scrobiculatum), banti, bavto (Eleusine coracana) and kang (Setaria italica). The purpose was to help the revival of traditional, diverse food and create awareness about the nutritional benefits of minor millets and uncultivated plants. We believe that the housewives who use these recipes have played a major role in the conservation of the grains and vegetables involved in the recipes, and need to be recognized and rewarded.

The entries were judged by Ms. Ambarben Trivedi (HoD of Health and Nutrition, NC Bodiwala College), Mr. B.B.S. Chauhan (Chief Chef, Hotel Inder Residency), Ms. Smithaben Dave (Lecturer, SLU Women’s College) and Ms. Kavitaben Phatak (winner of the recipe contest for the last two years). The recipes were judged based on the taste, nutritional value, method of cooking, knowledge about medicinal use and presentation.

One hundred and eighty two people submitted 334 entries by post. Of these, 65 people were present at the venue on the allotted day and between them prepared 140 traditional dishes. A leading Gujarati daily helped us mobilize participants for the contest.

Through the competition, we were able to document the use of 59 crops of which 18 were grains and 41 were vegetables. The most commonly used grains were makkai (Zea mays) (69), jowar (Sorghum vulgare) (67) and kodri (Paspalum scrobiculatum) (63). The least common grains were Kali (Oryza sativa), Jov (Hordeum vulgare) and Moth(Vigna aconitifolia), each of which were used once. Among the vegetables, the most commonly used were tamarind flower (Tamarindus indica) used ten times, followed by Methi (Trigonella foenum-graecum) used seven times, and sargavo (Moringa oleifera) and palak (Spinacea oleracea) used five times each. The least common vegetables were padma (Nelumbo nucifera), Apple (Pyrus malus), Gulab na ful (Rosa damascus), Punrnava na pan (Boerhavia diffusa), used once each.

The first prize was bagged by Hema Mehta from Ahmedabad, who prepared a nutritious pancake using kodri. The recipe was aesthetically presented and involved the use of very little oil. The second prize went to Ekta Parikh, also from Ahmedabad who prepared a special katli using 35 medicinal plants and the third prize went to Sheetal Shah, from Baroda, who made kodri ki tikiya. Ms. Sheetal Shah remarked that when she had first read about the contest in the paper, she thought there must have been a misprint, because she could not believe that the minor millets and uncultivated grains could be used in the recipes. She then consulted her mother and learnt about the uses of these grains and the recipe which won her the prize.
Exhibiting Grassroots Creativity

The Innovation Exhibition set up by GIAN and NIF was a major attraction at the festival. This was an opportunity to display many grassroots innovations. Interestingly, when we had organized an exhibition of only the grassroots innovations, it drew far fewer visitors. The blend of culinary and technological creativity seems to have worked.

Vinod Gajjar, who has developed innovative tongs to hold hot vessels was able to sell about 220 pieces. Mr. M M Ahuja, the entrepreneur who has licensed the water cooler developed by Arvindbhai Patel, has received 50 enquiries from people who were interested in ordering the product. He expects that at least 10 per cent will materialize into orders. Mr. Mansukhbhai Prajapati has received orders worth Rs. 20,000 for the earthen container for keeping vegetables fresh and orders worth Rs. 10,000 for the Teflon coated earthen pan, an interesting use of modern technology for traditional objects. Mr. Panchal was able to sell 50 pieces of the motorized phirkee, which can be used to wind strings while flying kites. He considers this to be a good sale, specially since the kite festival was still more than a month away, during the food festival. He has also received enquiries from around 100 people. Mr. Sakarbhai Prajapati’s health care chair, which helps people exercise, was another popular attraction, and he ended up selling not only the two chairs he had brought for demonstration, but 10 more pieces to people who contacted him after having seen his chair at the exhibition.

IIMA attempted to create awareness about the nutritional value of traditional varieties of grains like minor millets and maize from Dahod (Gujarat) rice varieties from Faizabad (UP) and bajra (Pennisetum typhoides) from Sikar (Rajasthan). The rice varieties on display included Kalanamak, Lalmati, Dhaniya, Kanakjir, Bengal Juhi, Baghari, Dehula, Erri and Mathmari. A detailed nutritional analysis of each of the grains was made and this information was provided to the consumers. Minor millets included bavto (Eleusine coracana), kodi (Paspalum scrobiculatum), and kang (Setaria italica). There were many enquiries about availability of these different varieties and many consumers expressed an interest in buying them.

The festival not only provided an opportunity for the farmers to directly sell their produce and eliminate the middlemen, but also gave them an exposure to urban markets, the demands of urban consumers and the market potential for organic products. According to Arvind Paramar of Kuchch Sajiv Kheti Manch, who had brought 18 farmers to the festival, “All the grains were sold and we also got a lot of contacts..."
Inviting Ideas

Another interesting feature of the food festival was the idea contest, conducted by GIAN and NIF for all the visitors. The contest encouraged all the visitors to come up with innovative ideas and solutions for day-to-day problems and share it with us. Through the contest we have been able to generate some interesting ideas. One idea, given by Ashish Gajjar, was for the installation of mini-speakers in helmets, to make driving more pleasurable. Tusharbindu Tapuldhar suggested that tooth-brushes be made of small length which can be fixed to the fingers. This not only helps us get a better grip while brushing, but also saves on the usage of plastic, which would otherwise be used to make a longer grip. Narendra Vansjatra suggests that copper coils can be attached to the bottom of cooking pans, so that water can be heated, even as the cooking is in progress.

Another idea for institutional improvement was the creation of a sarpanch network among villages, to promote organic farming and the cultivation of traditional varieties. The idea was suggested by Hemchandre Barat. Shashikant Gupta suggested that a directory of all organic farmers be prepared, so that people have easier access to them.

Alabhai, a farmer from Kutch, who had put up five stalls at the festival is also extremely happy with his business. “We got to see for ourselves the demand for organic products in urban areas. All our products are organic, but when we sell them through outlets in the city, we don’t make such profits. Through this festival, we got to see how much profit we can actually make. There needs to be more transparency in the outlets which sell organic produce in the urban areas. The farmers, urban outlets and consumers should come together on a common platform and we must try to ensure that farmers get a fair share of the profits.” According to Mukesh Ravel from YUVA, who brought four farmers to the festival, “Such opportunities are definitely needed for farmers to get to know how to sell their products without any middlemen. If the festival was organized over a longer period of time, the farmers can also bear some of the cost of the festival. Khimjibhai, a farmer, adds, “The festival has provided an opportunity for me to understand the market for organic produce. I have used this knowledge and set up a shop for organic produce in the village. Not only do I sell my produce, but I also procure from other farmers and sell it if the demand is high. The festival has helped me become an entrepreneur.”

Many non-governmental organizations had bought farmers and women’s groups to sell their products. The festival proved to be an income generating opportunity for them. According to Tanuben, from Gudala, who is part of a self-help group which has been selling pudina sharbet during the festival, “We have been able to get a lot of money. Some of it will cover our costs in coming here, the remaining, we will deposit in the bank and use for our childrens’ education or for some health emergencies.”

The festival also provided a platform for Gantar, an NGO working in Gujarat, to display some of their innovative teaching material, which aims to teach children without using books. The innovative toys include spelling games, umbrellas to teach astronomy and mathematics and math games.

The festival not only promotes the consumption of organic food, but also provides ways of growing organic food. Many herbal growth promoters with pesticidal properties, developed by the Sadbhav SRISTI Sansodhan Laboratory were displayed and sold. The purpose was to promote organic cultivation not only in farms, but also in kitchen gardens. The SRISTI stall also sold literature on indigenous knowledge and practices, organic farming etc.

The festival also had its share of attractive practices for the children. Quiz competitions and antakshari ensured that children not only enjoyed the occasion but also went home with attractive prizes.
Can you give us a picture about survival conditions in Ladakh?

People often call Ladakh, the moonland. We Ladakhis feel very proud about it, but it is not only the beauty of the moon. It is also just like the moon. It is a trans-Himalayan mountain desert, where almost nothing grows on its own, at least nothing for human consumption. If you see Ladakhi villages, they are like oasis in the desert. This is one place, where human beings have contributed to vegetation rather than degrading it.

What are the cultural institutions which have helped survival in such difficult conditions?

There are two ways of coping: One is by having more resources, the other by needing less resources. In Ladakh, we need less resources. Nothing is ever wasted there. For instance, a Ladakhi woolen dress goes through five different stages. First, it is used only for formal occasions. As it gets more older, it is used in the fields to make the sluice gates for the canals. Finally, it disintegrates and becomes manure in the field.

In farming, we have an institution called langde. A calendar is made during the farming season. The farm at the lowest end of the village is chosen first. On a specific day, all the families which have langde relationship with this family come to the farm with their animals and get involved in the activity. Once, it is over on one farm, they move to the next farm. In this way, we benefit from the other’s labour also as well as the animals which the others own.

There are other cultural survival strategies. Our summers are comfortable, but winters can be harsh. So our forefathers kept a lot of festivals for the winter. Children do not mourn the harshness of winter when they look forward to the colors of the festivals. A few years ago, when Ladakh was open to tourists. The monks in the monastery decided that if the festivals were shifted to summer, then the tourists will come and there will be more income. Suddenly there was nothing to look forward to in winter. And the Ladakhis did not attend the festivals in summer because they had to work on the farms. The tourists also stopped attending the festivals or regretted that they attended them, when they realized that the locals were not present. So gradually, the festivals shifted back to the winters.

Farming itself takes place in a village picnic kind of atmosphere. The west might have invented the tractor, but we have invented our own inner resources. We have a song for every activity. And everyone in the village is involved in the activity. Farming with tractors can still be drudgery, farming without tractors can still be fun.

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We also have an interesting tradition of keeping water sources clean. It is believed that if you dirty the water, you will get some diseases. As a child, I always questioned this idea. Now, we have a lot of people who came from the plains, they did not grow up with these stories. And they started dirtying the water. Obviously nothing

SECMOL can be contacted at P O Box 4194101, Leh, Ladakh. Ph : 91-1982-226115 e-mail secmol@rediffmail.com
happened to them. But the people downstream started getting all sorts of diseases.

Are memberships in these institutions voluntary or ancestral?

It is ancestral. Sometimes, when a family moves or ancestral?

Are memberships in these institutions voluntary

started getting all sorts of diseases happened to them. But the people downstream

Our buildings combine both these systems.

They are stressed, but in some cases, interestingly, they have resurrected. In cities like Leh, you will not have institutions like langde but they do flourish in the villages. And phaspuns are also quite strong.

Can you tell us something about creativity among children in Ladakh?

In Ladakh, the children also have the capacity to be satisfied with whatever little that they have. One American lady was simply amazed when she saw a child playing with her handkerchief. She said her nephew in the US would need at least four or five toys to keep himself occupied at any point of time.

We have a system of medicine, based on the Tibetan system of medicine. It is also a fairly popular system and even the district hospital in Leh has a department for this system of medicine. The training was initially through apprenticeship, but now we also have some institutes offering training. It is my belief that we can progress only with a synthesis of the old and the new. If you take construction for instance, the design and aesthetics and some materials used in the olden time was very effective, but they never thought of harnessing solar energy, with the use of glass. Our buildings combine both these systems.

How do you think these systems of knowledge should be integrated, so that children learn them in formal schooling systems?

Children have to learn them despite formal schooling systems. Formal school can only teach about half of what you need to know. And in Ladakh, it was only teaching about a quarter of that half. Parents stopped getting involved in their children's education, because they felt that they could learn nothing new from their uneducated parents. But parents can actually teach children a lot. Sometimes, the only way the school can contribute to education is by remaining shut. For instance, the schools stay open in the summer season, when there is so much that the children can learn from the farms. The way to ensure that children learn about agriculture is not by starting agriculture classes for them, but just to remain closed for a month in the summer, when the children can automatically learn from the fields.

How much has SECMOL managed to achieve in the seventeen years of its existence?

We started giving tuition classes to children to make them pass. But we realized that the problem was systemic. Ladakhi children were forced to study in Urdu, a language alien to them till Class 8 and then switch to English, another alien language. The teachers were themselves not trained properly. In most cases, they were not locals and regarded Ladakhis as primitive people. The text-books were not relevant. Imagine teaching F for fan, when the temperature is -20 degrees Celsius. Is it any wonder then that 95% of them failed. The wonder is how the 5% passed.

We didn’t start with radical demands. We demanded that children be instructed in English itself, rather than Urdu and then English. We started forming Village Education Committees to get the community involved in education. This is recommended in the New Education Policy of the Indian Government, but no one had actually bothered to implement it. With the help of the Ladakhi Hill Council, we were able to launch Operation New Hope. We started with teacher training and capacity building, the redesigning of text books to make them more relevant and the involvement of the community in the school. Previously, the only involvement of the community was in stealing the doors and windows of the school. Now, a government residential school in Dubruk was built entirely by the community members. Each person had to contribute at least one day’s voluntary labour for the building. So the results are not only in terms of an increased pass percentage but in terms of greater community ownership of the school.

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What were the problems faced in mobilizing funds for SECMOL?

When we started SECMOL, we were just a bunch of college graduates. We did not know what to do. We made, what could be called a brave or a foolish decision. We borrowed about 40,000 rupees at a very high rate of interest. And then, we went about putting up cultural performances for the tourists in Ladakh. Within four months, we were able to repay the 40,000 and we also had an additional one lakh rupees.

In recent years, with the Ladakhi separatist movement, we have had fewer tourists. So we can’t generate funds only from there. So we had to get funds from donors. But we have never compromised on our ideas for the sake of funds and we have never been put in such a situation either, which is lucky for us. We of course would not take money from the Government, because if you are trying to reform a system, you cannot take money from the system.
**16401 Increasing Milk Production**

Mr. Krishnan was the owner of a jersey cross bred cow, which yielded 8 liters per day. After it was afflicted with fever, the cow refused to take feed and the yield fell to 1 1/2 litres. Mr. Krishnan consulted Mr. Vivekanandan, the regional collaborator of the Honey Bee network, to find a solution to the problem.

Mr. Vivekanandan came up with a formulation based on his knowledge of local practices followed in Palamedu village in Madurai District. *Chinni* (*Acalypha fruticosa*), a pinch of salt, dry ginger (10 g) and pulp taken from sheath of *Sottrukatralai* (*Aloe vera*) is ground together to form a bolus. The bolus was administered orally twice a day. Within two days, the cow started feeding and the yield of milk increased to four liters per day. Within a week, the yield was back to normal. When the remedy was tried on another cow, it improved within two days.

*Acalypha fruticosa* is commonly used to treat indigestion. It is ground together with *Kuttivelanthalai* (*Limonia acidissima*) and used for bathing new born children as it gives immunity against diseases and also to protects the skin from fungal diseases.

**16403 Biogas through Cow Urine**

George David Raj has been using the gas emanating from cow urine for cooking purposes for the last three years. George stumbled on this idea when he was constructing a bio-gas plant. He made a pit to drain the cow urine and covered it with a cement slab to avoid the odour and insect breeding. When he opened the pit, he felt strong odor. At that time he was smoking and put the cigarette butt along with paddy straw over the pit. The straw burst into flame. This suggested the possibility of using cow’s urine as cooking fuel.

Cow urine is directly drained from the yard into a 11 feet deep tank. When the tank is nine feet full, the excess urine is let off through the two outlet tanks on either side into the garden, where it is used as manure. The gas formed from the urine is stored in the extra space in the tank and is conveyed through a regulated valve mechanism, directly into the kitchen.

**16404 Mobile Tailor Shops**

Mr. Arumugam and Mr. Siva are tailors, who take the sewing machines to the doorstep of the community. It is usually difficult to transport the leg operated sewing machine from place to place and the smaller hand operated machine is also not convenient. So they fixed the sewing machine to a bicycle.

An iron strip is fitted to the triangular section of the bicycle. The sewing machine is attached to the iron strip... on page 17
Combating worms in crops and cattle

His father was also a bhagat and he learnt this practice from him.

16407 Combating aphids in fruits and vegetables.

Aphids cause extensive damage to fruits and vegetables, specially during the flowering stages. They suck out the sap from the flowers and cause them to dry up. Mohanbhai Lalabhai Jala uses the tender leaves of kerda (Capparis decidua) to overcome this problem. Five kgs of tender leaves of kerda is boiled in seven litres of water. The mixture is sprayed on the crop three to four times. The mixture is effective, not only against aphids, but also other sucking pests.

Mohanbhai came across this practice when he visited Nashik eight years ago. He has since then been using it in his own fields with good results.

Mohanbhai Lalabhai Jala, At Kalasar, Post Zaravat, Taluka Mahmedabad, Dist. Kheda.

16408 Combating worms in cattle

Worms can cause serious problem to the cattle, particularly to the calves in the monsoon. It causes weakness, debility, enlargement of the stomach and constipation. If not attended to immediately, it can lead to death of the cattle.

About 500 gm of kowcha (Mucuna pruriens) seeds and 50 gms of the roots of ingoria (Balanites roxburghii) are mixed together in 200 gms of water. The mixture is fed to the cattle once a day for three days. The worms are killed and passed out from the body.

This practive was shared with us by Late Bojabhai Rajabhai Dhabhi. When we visited the area again in March 2005 to verify the practice, Bojabhai was no more. His son Ramjibhai told us that he was also using this practice and has also tried it out with good results on other cattle in the area.

Late Bojabhai Rajabhai Dhabhi, Vill. Dhantra, Tal. Kedbrahma, Sabarkantha


Ingoria is also used in veterinary medicine in parts of India. Singh, A and Kohli JD (1956) : A plea for research into Indigenous Drug employed in Veterinary Practice. Indian Vet J 32 : 271-280 

According to traditional knowledge of the tribal people in Dang district, the branches of Banyan tree (Ficus benghalensis) promote flowering in plants. Tulasyabhai Somabhai Bagul has adopted this practice. About 500 gms of tender branches of banyan is mixed with two liters of water. This mixture is sprayed on the plant using a sprayer, during the flowering stages. He has been practicing this in his fields for urad and paddy crops. Tulasyabhai is known as a bhagat in the village. He also has knowledge of veterinary practices.

Banyan Braches to promote flowering.

According to traditional knowledge of the tribal people in Dang district, the branches of Banyan tree (Ficus benghalensis) promote flowering in plants. Tulasyabhai Somabhai Bagul has adopted this practice. About 500 gms of tender branches of banyan is mixed with two liters of water. This mixture is sprayed on the plant using a sprayer, during the flowering stages. He has been practicing this in his fields for urad and paddy crops. Tulasyabhai is known as a bhagat in the village. He also has knowledge of veterinary practices.

16405 Control of worms in cotton, brinjal, sesame, and chilli.

Nagjibhai Jagobhai Bharvad was facing a problem with worms in his crops, specially during the monsoons. Since chemical pesticides were not effective in overcoming the problem, he developed a herbal formulation. 20 kg of congress grass (Parthenium hysterophorus), 5 kg of aakda (Calotropis procera), 5 kg of arni (Clerodendrum phlomidis), 250 g of neem leaves (Azadirachta indica) and 250 gms of datura (Datura metel) leaves are mixed together in 200 liters of water. The mixture is left for 24 hours and then sprinkled on the fields. It is sprinkled again after a four day interval. He reports a 70 to 80% control of worms through this method.

Nagjibhai is known as a herbal healer in the village and has some knowledge of Ayurveda also. He tried out this remedy for the first time in 1997 when he had a problem with whitefly in his black sesame fields. He found it to be successful and then tried it with the other crops also.

Nagjibhai Jagobhai Bharvad, Vill. Sagwa, Tal. Modasa, Dist. Sabarkantha


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Will you stand by the IPRs of peasants ?
16409 'Trolleying' across mountain rivers and streams

Narayana Bhat, a retired teacher and his brother Mahalingeshwar Bhat have developed an indigenous trolley to cross rivers and streams in hilly areas. The innovators were finding it difficult to cross the streams near their house during the rainy season. One had to use a boat or a manual bridge. To overcome this problem they designed a trolley.

The trolley consists of wire ropes of 2-3.75 inches thick, a pulley and four wheels. A rotator can move the trolley. As the user rotates the rotator, the pulley causes the wheels to move forward, and helps the user cross the river. Around 25 families in the area are using this trolley.

Mahalingeshvara Bhat & Narayan Bhat, Nandhrodu Urmbudi House, Kumbdhaje Village, Yethadka (P), Via Perdala Kasaragod –671551

16410 A new medium for paddy cultivation

Mahalingeshwar Bhat, has been cultivating aromatic paddy in his houseyard, using the medium of paddy husk, arecanut husk and soil. He came up with this idea because there was a lot of space in the back yard of his house which was used only while processing paddy.

A two inch layer of arecanut husk is spread on the field. A mixture of urea, potash, sheep manure and paddy husk is mixed with soil at a ratio of 1:3 and applied over the arecanut husk. The seeds are sown directly in this medium. There is no transplantation The yield obtained through this method is 160 kg/7 guntas (12 quintal per acre). This method can be used by farmers to fulfill their domestic requirements.

Nandhrodu Mahalingeshwara Bhat, Nandhrodu House, Kumbdhaje Village, Yethadka (P), Via Perdala Kasaragod –671551

16411 Pepper grafting to combat root rot

In order to overcome the root rot disease in pepper, Ravishankar Amdalu has grafted the normal pepper plant to *Piper longum* (hippali) plant. While normal pepper is very prone to this disease, *Piper longum* shows more resistance. The pepper thus acquires the resistant characteristics of *Piper longum*. This method avoids the use of chemicals to combat the root rot disease.

Ravishankar Amdala, Madanthayaru (post), Belthangady (Tq), Dakshina Kannada (Dist)

Root rot of common pepper (*Piper nigrum*) is caused by *Phytophthora capsici*. *Piper longum* has shown antifungal effect but efficacy against *Phytophthora capsici* has not been reported. (Ke Hta, Aijun Dong, Hongwei Liu, Huisheng Feng, Qishi Sun, Xinxheng Yao.1999. Bioactivity of Traditional Chinese Herbal Medicines Against Pyricularia oryzae. Pharmaceutical Biology (Formerly International Journal of Pharmacognosy), 37(3): 225-230).

16412 A new variety of sugarcane

Mahaveer Annasaheb Udhgave, has developed a new variety of sugarcane, which is disease free and high yielding. He had encountered a problem with mite in the regular variety of sugarcane. He had observed that a wild plant *garaga* growing by the riverside had good resistance to both floods and dry weather and was also free from diseases. He grafted this plant to the high yielding variety of sugarcane.

The CO-671-80/1 feet is crossed with *garaga*. The newly developed variety ‘Chandraprabhu’ gives a yield of 120 to 140 tonnes per acre. The innovator has been using it for the last four years. He has been growing this variety for the last four years. He has grown 282 plants which are 100 feet and 1120 plants which are 400 feet.

Mahaveer Annasaheb Udhgave, Sadhalaga (Post), Chikkodi (Tq), Belgam (District)
Arthritis is a common problem encountered by people after the age of forty. It is caused due to the hardening of elastic tissue or the deposition of uric acid in the knee joint. Villagers in Orissa use the Sujana plant (Moringa oleifera) to treat arthritis. The leaves are removed from the tender branches, and the branches are cut into small pieces. These pieces are boiled in water till the water is reduced to half its original volume. Generally about 50 gms of the green branches is boiled in 500 ml of water. This water is then cooled. One glass of this water is taken continuously for 10 days and is effective against arthritis.

Sanatan Mahanta, Village R.M Sahi, District Keonjhar

Moringa oleifera is used as a source of vitamin C, colds, boils, fever, joint pain, gout. (http://www.niam.com/corp-web/medipat.htm). It is used to cure arthritis and sore throat among Gonds and Bharias of Patalkot valley. (http://www.selfgrowth.com/articles/Acharya12.html).

Traditional tooth therapy

The bark of Bakula (Mimusops elengi) is used by farmers to treat toothache. The bark is collected, dried and powdered. About 40 gms of this powder is added to 300 to 400 ml of water. About 10 to 15 gms of alum is added to it. This mixture is then used to wash the mouth. The bark can also be made into a paste and applied with alum around the gums.

Biswanath Pradhan Village Jakeikala Banaiagarh Block.

Mimusops elengi is an active ingredient of many Ayurvedic oral care products. It is used for the treatment of dental problems and maintaining oral hygiene. Mimusops elengi solution is effective against toothache, as well as in cases of Ozena and for healing wounds. (Dixit, R.S., M.R. Uniyal and O.H. Mishra (1976) - Keshar and kunkum in Ayurveda and their identity, JRIM 11, 2, 121-124.) (Mitra, C.R. and G. Misra (1967) - Constituents of fruit and seed of Mimusops elengi, Phytochemistry 6, 453.) A powder of Mimusops elengi along with alum and common salt is also effective against pyorrhea. http://www.chakrapaniayurveda.com/bakula.html

Will you stand by the IPRs of peasants?
News from the GIANs

The different units of Grassroots Innovation Augmentation Network (GIAN) have been actively bridging the gap between innovation, investment and entrepreneurship. There have been numerous enquiries from entrepreneurs across the country and even from abroad for the grassroots technologies taken for incubation.

GIAN West

Mr. Vinod Gajjar has been awarded a design patent for his innovative tongs to hold heavy vessels. The tong was initially developed by Mr. Arvindbhai Patel for holding hot and heavy vessels and was further modified by Mr. Gajjar.

An entrepreneur from Hyderabad who is planning to set up an oil extraction unit in Andhra Pradesh was interested in the oil expeller, and has placed an order for three machines. The innovator has been able to implement some of the modifications made in the prototype and deliver a more efficient machine.

The bicycle hoe technology has been transferred to an entrepreneur Mr. Subash Jagtap, who has sold 150 units of the product. GIAN is helping the innovator develop a motorized version of the machine.

Mr. Paresh Panchal of Ahmedabad has modified the bamboo splint making machine developed by Usman Shekhani, by attaching a hand operated driving wheel. This increases the cutting capacity to 5000 splints per hour. A motorized version of the same was further developed having a capacity of 50,000 splints per hour. GIAN NE is looking into the possibility of diffusion of this technology in the North East, where most of the bamboo splint making takes place.

The Defense Research Development Organization (DRDO), Kanpur has enquired about a manually operated washing machine, with minimal use of water. GIAN has identified an innovator, Kamal Kumar Agrawal, from Raipur, who has minimized the use of water by using compressed air, and is currently trying to integrate this design with the cycle-operated washing machine developed by Remya Jose.

GIAN North

The Rajasthan Government Department of Science and Technology has shown interest in various technologies and have acquired samples for showcasing in different villages, to facilitate technology diffusion. These innovations include Tile Making Machine, Manual Wood Cutting Machine, Bamboo Fan, Manual Milking Machine, Bicycle Sprayers, Innovative Tong, Low Cost Egg Incubator, Unique Handi cutter, Septic Tank Baffle System and hand pump with additional outlet for animal water tank.

Texas Instruments has shown interest in the Mobile Phone Operated Switch for Irrigation systems developed by Prem Singh Ambala after watching it featured in NDTV. Texno Industries in Coimbatore are also interested in this technology and in the groundnut trench digging machine.

Mr. CV Rao, Convenor of the Energy Conservation Mission at the Institute of Engineers, Hyderabad has shown interest in low cost power generator based on cycle and GIAN (West) is currently co-ordinating with him for design modifications.

A leading fire-cracker manufacturer from Gujarat, Ambica Trading Co. has ordered custom made pieces for the remote operated Electrical Device for igniting fire crackers developed by Balaram Saini. The order has been delivered. M/S Naveen Gram from Jodhpur have shown an interest in marketing the improved multi-crop thrasher in Rajasthan. They are also interested in setting up a formal company in partnership with the innovator.

GIAN NE

GIAN North East has been receiving enquiries from abroad for different technologies. There were enquiries from France and England for the beauty care umbrella for UV protection, from Ghana, Sierra Leone, and Cameroon for the tapioca peeling machine, Singapore and Chile for the areca nut peeling machine, and from Turkey, Israel and Egypt for the pomegranate de-seeder. One unit of the cassava peeling machine has been sold in Kenya and there have been enquiries from other African countries.

GIAN NE is in the final stages of negotiating the technology transfer of areca nut peeling machine and paddy thrasher. The bamboo splint making machine has been sold NGOs and Self-help groups. Fourteen kits of the treadle press have been sold in Assam. The dual alarm system has been installed in ONGC fields and the innovator has received an order to install 40 more such systems in the field. NIF and GIAN are supporting him in this venture through the Micro-Venture Innovation Fund.

Honoring Innovative Teachers

The Second Sir Ratan Tata Trust Educational Innovations Conference was held in Madurai, on 16 and 17 of December, 2005. The conference was organized by Ravi J Mathai Center for Educational Innovation, IIM A, in collaboration with SEVA, Madurai. Sixty seven innovative primary school teachers, from Government run Primary schools, spread across Tamil Nadu, Kerala, Gujarat, Maharasthra, Assam, Chattisgarh, Rajasthan and Uttar Pradesh were honored during the conference. These teachers have developed innovative approaches to solving local problems related to education. The innovations include classroom tools for better understanding of subjects, raising donations for improving school infrastructure, increasing enrollment and attendance in schools and truing to solve conflicts in local communities.

These awards are given annually to teachers who have tried novel ways of teaching children, making education more inclusive, or improving relations between the school and the community.

The third National Search for Educational Innovations of Primary School Teachers is on and the entries should reach Prof. Vijaya Sherry Chand, at Indian Institute of Management, Vastrapur, Ahmedabad.
IndiaInnovates.com is a one-stop portal to involve professionals, students and other volunteers in the value chain of developing grassroots innovations into successful business ventures. The mission is to mobilise volunteers from around the world to harness the innovative potential of grassroots innovators, by providing a one-stop platform for technology incubation, Intellectual Property Rights protection, financial and marketing support.

IndiaInnovates aims to develop an online community of like minded stakeholders, who are willing to share their professional expertise, on terms suitable to them, in order to serve grassroots innovations.

How you can help?

If you are a management, financial, technical, design or legal expert, you can share your expertise in value addition, commercialization and diffusion of grassroots technologies. If you are an entrepreneur or venture capitalist, you can help us convert innovations into enterprises. If you are none of these, your enthusiasm can still help our cause. If you have the passion, we provide the platform.

Join us in this movement to make India Innovative.

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**NATIONAL INNOVATION FOUNDATION, INDIA**

**The Fifth National Biennial Competition for Recognising and Rewarding Green Grassroots Unaided Technological Innovations & Traditional Knowledge**

National Innovation Foundation, constituted by the Department of Science and Technology, Government of India, aims to recognise, respect and reward grassroots technological innovators and outstanding traditional knowledge experts.

**The competition:** NIF solicits entries about unaided technological innovations and traditional knowledge developed by individuals or groups comprising farmers, artisans, fishermen and women, slum dwellers, workshop mechanics, students, local communities etc., for managing natural and/or other resources. Innovations can be machines, gadgets, implements, or processes for farm operations, household utility, transportation which enhance efficiency, conserve or generate energy and reduce drudgery, make creative use of biodiversity and plant varieties, generate herbal remedies for human or animal health or develop other new low cost, sustainable green technology related to various aspects of survival in urban and rural areas. Creative ideas for innovative technologies are also welcome. Communities developing People’s Biodiversity Register (PBR) or People’s knowledge Register (PKR) are encouraged to register/link their knowledge base with the National Register at NIF.

**The awards:** The best three innovations and traditional knowledge practices will be awarded Rs 1, 00,000, Rs 50,000 and Rs 25,000 each in different categories. In addition, individuals and/or organizations that make extraordinary contributions in scouting grassroots innovations and traditional knowledge may also get awards worth Rs 50,000, 25,000 and 15,000 respectively. Other contributions will also be acknowledged. There will be several consolation prizes of Rs 10,000 each in different categories depending upon the number of entries and incremental inventiveness and potential social and environmental impact. Special awards will be given for innovations and outstanding traditional knowledge of/for women. There will be special prizes to recognize outstanding innovations by/for people with physical disabilities. Three most outstanding innovative ideas may be given prizes of Rs 50,000, 25,000 and 15,000 in addition to consolation prizes of Rs 5,000 each. The outstanding entries will also be widely publicized in the Honey Bee Newsletter and through other media. Summary and/or details of the selected innovative practices and traditional knowledge practices included in the Register will be displayed at the websites of NIF with the Prior Informed Consent (unless such knowledge is already in the public domain) of the innovators/knowledge providers.

**Students:** Young inventors and innovators are invited to send their ideas or innovations for a special category of awards for them. These should be unsupervised, an outcome of their own creativity, without any support from their teachers or outsiders. Students are also encouraged to join SCAI at grassroots (Student Club for Augmenting Innovations) to help other innovators (scai@nifindia.org). Supervised project from engineering or other professional colleges will not be accepted except under professional category. There will be prizes worth Rs 15,000, 10,000 and Rs 7,500 for the best three entries and several consolation prizes of Rs 5,000 each in this category.

**How to participate?**

Individuals or groups may send as many entries as possible on plain paper providing a) genesis of innovation, and b) background of innovation and innovators. We will appreciate if every entry is accompanied by full postal address, photograph and/or video of the innovator and innovation. Herbal entries may be accompanied by dried plant samples to enable proper identification. The last date of sending entries for the Fifth Biennial Competition is December 31, 2006.

The Sixth Biennial competition will be held during January 2007 to December 2009.

**Where to send entries?**

National Coordinator, National Innovation Foundation, Bungalow No. 1 Satellite Complex, Premchand Nagar Road, Ahmedabad 380015, Gujarat

Fax: (079)-2673-1903 email: campaign@nifindia.org, www.nifindia.org

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**Our Regional Collaborators:** Various organizations and individuals across the country assist us in recognizing grassroots innovators and traditional knowledge holders. Our regional collaborators are P Vivekanandan from SEVA, Tamil Nadu, T N Prakash from PRITVI, Karnataka, Balaram Sahu from Innovations Club, Orissa, T J James from PDS, Kerala, Ranjan Mahapatra from SRISHTI, Orissa, Arun Chandan from Mahik, Himachal Pradesh, Sundaram Verma from Rajasthan, Ramesh Mahajan from Maharashtra and Kamal Jeet from New Delhi and Uttarakhand.

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Subscription Form for *Honey Bee*

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5. Period of subscription : 1 Year   Life

6. Amount of subscription and mode of payment : Rs/$   Money Order   Demand Draft

7. What are your areas of activity/ research/ social concerns? : 

8. Please indicate the kind of information, ideas or facilities, if any, you can offer to other members of the Honey Bee Network. : 

9. Support, ideas and help that you need from other members of the Honey Bee Network. : 

10. Do you have any suggestions for making the Honey Bee Network stronger and more purposeful? : 

11. How did you come to know about *Honey Bee*? : 

12. Would you like to collaborate/ assume voluntary responsibility towards research, bringing out a local language edition, surveying innovations, etc.? : 

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Lessons from India’s Children

Mary E. Clark

This article was written for the special issue of Honey Bee on children’s creativity and innovations. We were not able to carry it in the previous issue.

I have been fortunate to visit India twice. After my second visit in 1995, I returned to the US on Christmas Eve. On arriving at my nephew’s home, I experienced a tsunami of cultural shock. I could barely walk across the front room, so covered was the carpet with toys, all belonging to just two tiny children! Jake, aged 2, and Tess, 6 months old, lived in a sea of gaudy plastic objects!

I had just returned from two months at a Ashram Shala in rural Gujarat, where each child, wore on a string round her neck, a key. This key opened a small metal box – not much bigger than a laptop computer – which contained all her worldly possessions: one change of clothes, a workbook or two, pencils, scraps of coloured paper, a few pictures torn from magazines, and two or three precious treasures – such as a polished stone, or perhaps a brightly-coloured bird feather, a special gift from someone dear.

Despite all their toys, my great nephew and niece were bored. If the television wasn’t on, they were restless; without attention from someone, they fretted. My friends in India were never bored. They lived in a community comprising mostly children and some nearby adults. They invented things to do. Older girls carried younger children around with them. There were no life-threatening dangers in or around the Ashram. Even the nearby road had only an occasional car – unable to speed, owing to the abundance of potholes.

The physical lives of these children would not be easy. But their psychological lives would likely be far more stable and secure than those of these American children. Rural village life might demand hard labour and offer few tangible pleasures, such as hot and cold running water, electricity, and a personal automobile. But it would be full of companionship, conversation, and mutual caring, and lots of spontaneous creative games among both children and adults.

That indelible culture-shock reminded me of another — not unlike the first, which took place in a single moment in Vadodara in Gujarat. The main avenues there are quite broad, often having six- to eight-foot unpaved verges on each side of the traffic lanes. Some of these “sidewalks” became parking places for vendors’ pushcarts. But some of these areas were semi-permanent homes of the poorest of the poor. While walking along such a street, I passed one such abode – a gunny-sack “roof” supported on three or four poles. Its rear side abutted the six-foot concrete wall of a nearby mansion. From the slightly raised pavement, I could see over the wall into the spacious garden. On the lawn, a pair of young siblings played on their hobby-horses and other expensive amusements – isolated from the world outside.

My attention turned to the scene on the pavement. I noticed a toddler, about two, wandering beyond the edges of her burlap home to an area of dried grass beside the road. There, she gathered several handfuls of the fuel, carrying it triumphantly back to her parents as her contribution to the fire that would cook the evening meal. I glanced at her parents. There was a look of intense adoration on their faces. This tiny baby already was making her contribution to the survival of her family. She had a gift to give and her gift brought, for her, love, respect, and appreciation.

Which of these children were luckier?

In the first case, the “gifts” were from parent to children, in order that the children be “amused” and feel – what? Loved? Satisfied? Pacified? In the second, the “gift” was from child to parent. The child’s “reward” was the triumph of being able to contribute to the good of the family.

Each time I recall this story, I realize that showering gifts on children has a very different psychological consequence from that of affording each child meaningful opportunities to contribute to the welfare of others.

The point is, that “consumption” offers but a shallow reward. The permanent, long-lasting rewards come from active participation, from feeling appreciated for one’s spontaneous contribution to the welfare of those around us. It is present in any shared endeavour, from the cooperative game-hunting of our ancestors, to playing together in a symphony orchestra or in a play.

Compassion and consumption are at opposite poles in the “reward centers” of the human brain – the first, like a secure rock of joy – the second, mere candy-floss. We should be grateful that some children, in some cultures, are still given the opportunity to experience the first of these rewards, through meaningful engagement with the people nearest to them.

Keeping the child in us alive and kicking

Here are some thought provoking questions posed by children. Please write back to us if you can answer these questions and satisfy the curiosity of a child. These questions were shared with us by primary school teachers during the Second Sir Ratan Tata Trust Educational Innovations Conference, held in Madurai, in December, 2005.

Can people who are blind from birth see dreams in colour?

Do animals feel they have brothers and sisters? If they do not have them, how do they take care of each other in difficult times?

Questions shared by Akhtar Mehdi Rizvi, a primary school teacher from Rajasthan.
Privileged to help

This is Sapana Gupta. I am placed in Mumbai currently, where I work in marketing field. I happened to come in touch with SRISTI, when I was doing my MBA, and was reintroduced to Honey Bee and its purpose lately in a newspaper article. I think it is a commendable initiative and if I could help/volunteer in any manner, I will be highly obliged.

I work with a company called eBay (Baazee.com). The company is involved in facilitating online trading. I think some of the products that are available for licensing (hair oil, umbrella etc) have a good potential in retail market. The makers of such products can themselves list their products on eBay.

(You can certainly volunteer, rather you are most keenly invited to help. Our innovators certainly deserve you. Why not make an ecommerce platform for SRISTI and NIF or may be develop business strategies marketing some of the innovations abroad. Ed.)

Enquiry about herbal mosquito repellent

gskane@vsnl.net

I read on p.15 of the September issue of Honeybee about two girls investigating plants used for JAG in Assam and then developing a mosquito repellent. I would like to get more complete information about the plants and so on.

Please send me the or give me a contact [ e-mail, tel address] for further contact.

(Your interest in the work of two of our young awardees, Leena Talukdar and Sushanta Mahanta is heartening. They were aware of the practice of burning plants in JAG and decided to investigate the properties of the plants which used in JAG, to understand their usefulness. They conducted experiments to investigate the mosquito repellent properties of the different plants. They concluded that Flemisia strobilifera plant is very effective in repelling mosquitoes and is comparable to the repellents that are currently sold in the market. Their address is Leena Talukdar and Sushanta Mahanta, C/O Mr. Munin Mahanta Rajagaon, Ward No. 4, Morigaon - 782 105, Assam. Ed.)

Information on Grassroots Innovation and Traditional Knowledge

D. P. Misra
misradp@gmail.com

I read an article in Divya Bhaskar, about some traditional menus which will be shown during the presentation to be held on 10-11th of December. In the article it is also mentioned that knowledge about some 10000 innovations can be found on internet/computer. I shall appreciate if you could just let me know some link of the site.

(You can find the necessary information at the site www.sristi.org/wsa. You will have access not only to grassroots innovation from around the country, but also traditional knowledge practices. You can also visit the site nifindia.org, Ed)

Idea for company by innovators

Rinsy Ansalam
rznsy.ansalam@dmcc.ae

I am quite amazed and thrilled with your efforts to move the rural India. I am a finance professional with about 9 years experience especially in commodities markets and wants to get into farming as a profession in a couple of years. I am a strong believer that no professions can be as satisfying as farming. I am trying to accumulate enough capital for this venture.

I have an idea on handling the IPR issues related to the inventions and innovations of rural India. We can form of a company that can register all the patents in its name wherein the equity holders (in proportion to the value of the patent) will be original innovators. This company can also get into production in association with bulk manufacturers.

(What an irony! Morarka invited Bhanj bhai to develop this dam, not the other way round. Bhanjibhai, a four class drop out, did what came to him best-innovate. His extension of principle of arches used in a railway bridge, in totally unrelated context became the basis of his innovation. Will it not be wonderful, if his technological innovation helps you in saving your shores from hurricane. Ed.)

Interested in Check Dam

akmparikh@hotmail.com

I came across an article in Rediff. It happens in India: “Meet India’s rustic Knowledge providers” - by Aarti Menon Carroll - December 17, 2005. I am interested in the innovation done by Mr. Bhanjibhai Mathukaya about the check dam that contains water by the strength of the dam. At present, we are trying to build up our levees (dams) to protect the city from the ravages of hurricanes. I think they can use the technology that was used by the Morarka Foundation at Siapuri in Rajasthan. I will appreciate it if you could get me in touch with some one at the Morarka Foundation.

Interaction with Honey Bee Network

Vivek Varma
bvvarma@gmail.com

I’m working with the organization named Honeywell Technology Solutions Lab (HTSL) at Madurai (Tamil Nadu). We are the Indian arm of Honeywell Inc US. We regularly invite people from various organizations either in or around Madurai to share with us some of their learnings & experiences. During the same session some of the folks from within HTSL also share key learnings from the work they are doing.

I was wondering whether there are any individuals or organizations that
work with the Honeybee network/GIAN either in or around Madurai and if yes maybe we at Honeywell could invite them to talk about the Honeybee network, it’s activities. Also if there are any individual innovators that have been successful contributors/participants in the Honeybee network we’d love to have them visit us too.

In fact the current coordinator of Honey Bee Network is situated in Madurai. You can contact Vivekanand at seva madurai and also seek his help to invite some of the innovators from nearby region. The innovators will also love to meet the technological minds of your company and may be the interaction will be mutually useful.Ed.)

Volunteer for NIF

I volunteered for NIF early this year. I thought I will get in touch with you because I wish to get involved in the activities and deliver some useful results, which will keep me motivated. Also there were a few people, mostly business school graduates in US and some IT professionals in India, who were interested in contributing to NIF’s initiatives after I had interacted with them during my business development activities. It would be good we could bring in volunteers from various locations and backgrounds to help us.

(I will be very happy to draw upon your spirit and time and skills and social network and capital. Please let me know specific tasks in the business value chain which you and your colleague can help us in and we will start with the specific tasks. Ed.)

Interested in Loksarvani

Ashwinbhai R Ajudia
Jamkandorana (Gokuldam), District Rajkot.

I came across Loksarvani while travelling in a bus. I read the magazine and for the last one year have been regular reader. I am a school principal in Dudhivadar taluka and during vacation I also interact with farmers and encourage them to read Loksarvani. Farmers have tried out many of these practices in their fields and the results have been good. After all building a new road takes time. We have now formed a group of farmers who read Loksarvani and share the practises and use them ontheir farms. I am interested in promoting organic farming and volunteering for SRISTI.

(I am very greatful that you have understood the value of Loksarvani and SRISTI and your letter is very encouraging. Please give us the names and addresses of the farmers who are experimenting with practices published in Loksarvani in their farms and the results of these experiments. Ed.)

Problem with innovation

I am a mango farmer who read about Mr. Zafar Ahmed’s idea of shaking the branches of the mango tree to rid them of larvae. The mango hopper is a flying pest which cannot be prevented from reaching the branches again after it is shaken off. Secondly, considering the size of the mango tree, the suggestion seems impractical. Such ideas can misinform and misdirect the readers.

(The farmer has suggested that the larvae be shaken off when they are black. The suggestion is technically right, although the labour involved will be enormous. Thank you for sharing your thoughts with us and please continue to do so. Ed)

A problem in search of a solution

PK Tiwari
Manager, MCID - Bihar Regional Office, NABARD, Patna
nabpat@sancharnet.in

There is a need for an innovation to reduce drudgery during the processing of Makhana. Makhana is a dry fruit widely used in North India, during religious fasting. It is found in Madhubani, Darbhanga, Purnea, Supaul and Sitamarhi districts of Bihar.

The whole process right from planting the seeds to harvesting and final roasting and splitting is highly labor intensive not at all economical in terms of man hours spent vis a vis output obtained. The harvesting is done manually by fishermen, who dive under water and take out the seeds. Many of the fishermen get addicted to alcohol, to counter the intense cold. The roasting and splitting of Makhana seeds is very tedious and back breaking work. The hot seeds are placed on a platter for splitting, for hours together, which damages the left palm of the worker. The whole process, right from planting to roasting, needs to be re-engineered to not only bring relief to the workers but also increase productivity.

(We request all our readers to ponder over this problem. Your ideas can be critical in alleviating the drudgery of many workers.Ed.)

Response to ‘A problem in search of a solution’, published in dialogue column HB 16 (2).

P P Joshi
Lata Kung Building, Block No. 1, Near Zaobawadi Muni Garden, Thakurdwar, Mumbai 400002

P Vichare, of Ratnagiri desires to have a solution for repairing a roof of RCC to make it water proof. Cashew Nut Shell Liquid (CNSL) may be available in Ratnagiri area. Paint based on CNSL are used for painting the wooden surfaces of fishermen’s boats. A phenolic paint made from CNSL is water proof. Another method is the use of black coal tar mixed with ten per cent of old used motor car or cycle rubber tubes. The rubber in the tubes not only makes it water proof, but also crack resistant. Kindly send my letter to him and request him to write to me about the outcome. Another paint material is Bhilawan Nut shell Liquid, which is used in making indelible ink. I would also like to know if any ne is interested in developing wood charcoal gas from wild Acasia ferniciana. The wild acacia trees grow near the sea coast.

(We thank Mr. Joshi for sharing this solution with us and hope it would be useful to Mr. Vichare.Ed.)

Will you stand by the IPRs of peasants?
Answer the following questions and win attractive prizes. The names of the winners of this quiz will be published in the next issue of Honey Bee.

From this issue onwards, Honey Bee will be featuring a regular quiz about the activities of Honey Bee Network. This will help you in understanding Honey Bee and its activities.

How many Shodh Yatras have been held so far?

- a. 15
- b. 16
- c. 13
- d. 12

Which year was the first Shodh Yatra held?

- a. 1996
- b. 1997
- c. 1998
- d. 1999

Which route did the first Shodh Yatra follow?

- a. Bhikampura to Nilkanth
- b. Mohandari to Duldra
- c. Kumily to Kattappana
- d. Gir to Gadhada

Send us the answers with your name, postal address, e-mail id and phone number (preferably mobile phone number).

The responses must be addressed to Honey Bee, c/o Prof. Anil Gupta, Wing 13, Indian Institute of Management, Vastrapur, Ahmedabad 380015.

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*Includes: India, Nepal, Bhutan, Bangladesh, Pakistan, Sri Lanka and the Maldives.

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