

From Farmers First to Labourers First: Why do we still know so little?¹

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Way back in 1980, while searching for a framework to communicate with the farmers and labourers, combination of communication (one way, two way, no way) and power (one way, two way, no way) seemed to provide a way forward. Ideally, two way communications with two way power (akin to the mass line concept of Mao Tse Tung) and Gram Swaraj of Gandhi could have been one viable approach. Power of farmers and labourers to determine or define the agenda of the scientists has not really grown a great deal in most parts of the world ever since. The willingness of the scientists to demonstrate how many research programmes have been started, discontinued or modified according to the feedback from the farmers has not increased much. I had asked these three indicators to be monitored while taking leave after a year long stay at Bangladesh Agriculture Research Council and the Institute in 1986. I discovered the work of Paul Richards in early 80's. We first exchanged ideas while sitting at the stairs outside youth hostel in London. Our methods were different but purpose seemed similar; how to build upon the capacity of farmers to do research on their own, particularly in high risk environments. It took me a while to rediscover what I should have known much earlier, the work pioneered by Prof. Y.P.Singh at Haryana Agricultural University (then Punjab Agricultural University) in mid 60's. He guided, perhaps the first two theses on indigenous knowledge in 1965-67. When the examiner of one of his students did not consider learning from people as a valid approach to pursue extension (which required taking research findings from lab to land), he was quite discouraged. He asked rhetorically whether the indigenous knowledge was still relevant and demonstrated the evidence which would have required farmers first movement to begin may be two decades earlier. Many good ideas do not necessarily spread only on the strength of their intellectual content. Institutions governing recognition of ideas and their diffusion are guided by several larger agendas, the well-being of people may be a small part of it. Deviant Research, (New Scientist, Sept 22, 2007:56) notwithstanding³. When I coined this phrase, little did I know that for long, this will remain an orphan phrase, the *deviant research* by people who were on the margin advocating the creativity and innovation by marginalised creative communities and individuals.

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³ I had referred to this in 1984-85 as follows:

Sponsoring deviant research: Very often a dilemma which a research manager faces is about a particular problem on which the concerned scientist may be extremely keen or hopeful whereas most others might disapprove of the concern. The problems become further serious if the scientist involved is of the rank S-1 i.e. the junior most. It will be useful to make an inventory of research ideas that scientists at the level of S-1 and S-2 have but they cannot pursue either because facilities are not available or because the ideas are not considered worthwhile by their superiors. Perhaps on an experimental basis few of the scientists having such ideas could be allowed go ahead with what we are calling, in absence of a better word, "deviant research".

In 1984, I pursued a study on matching farmers concerns with breeders'/scientists' objectives and discovered that there were significant differences in the respective priorities. The harvest index in modern millet varieties was almost one (the grain and the straw component were almost equal or nearly so whereas in traditional varieties, it was 1:3). ICRISAT discovered this later after lot of sittings with the farmers and millions of dollars of expenditure. Likewise, coming from a pink tradition (left of the centre) I expected class dimension to overshadow other aspects of technological choice. The findings did not support that bias. The ecological factors seemed to weigh more than economic class specific factors in choice of several technologies. In Bangladesh, this finding became sharper. Cultivation of sweet potato on char lands (islands in the river) was eco-specific choice. The rich and the poor both pursued it. On highlands and homestead lands, it was a class specific choice, i.e., only by the very poor people (economically poor, that is)⁴ who could not afford to consume rice at least in part of the year.

A joint paper on disentangling class and ecological factors in choice of technologies was presented in the farming systems research conference at Michigan. What is important here is the relative weight scholars gave to the hardcore issues of research heuristics learnt from farmers and labourers vis-à-vis celebration of so-called methods which tried to legitimise (in my view completely unsuccessfully) the shortcut approach to learning without empirical substance or rigour. The result is after 20 years of farmers' first conference organised in a networked cooperative manner at Sussex, leaving aside Honey Bee Network (and some studies by Paul Richards and his students, some were presented at Ruth's Conference at IPGRI), we do not have too many examples of systematic studies of innovations, experiments and explorations by farmers and labourers. It is amazing that empirical content on farmers' and farm workers' innovations on the web is so little. What is even more distressing is that such content in local languages, which people understand is even lesser. Apparently, the ethics of knowledge extraction/assimilation and dissemination discussed in literature for a long time has not yet become a subject of mainstream dialogue on participatory research. There is a lot of literature on farmers' participation in research designs developed by scientists. Therefore, we know how to elicit farmers' choice among various advanced lines (and sometimes landraces) provided by the scientists. But, we do not know enough about how to recognise, respect, and reward the varieties bred by farmers on their own without any intervention or input from the scientists directly⁵.

⁴ Another failure of mine has been not to have been able to persuade many people not to use the term, "resource poor" farmers. As if 'knowledge' was not a resource or economically poor people were poor in knowledge resource too. **Sapir-Whorf hypothesis (SWH)** draws our attention to this problem by suggesting that language shapes the habits of thought—a point Amartya Sen stressed in his paper on Description as a Choice (Oxford Economic Papers, 1981). Thus the phrases make a difference. Farmers first makes labourers the second or even last, we are all guilty of that bias to varying degrees. Also see excellent historical account of neglected labourer by Stuart McDonald (I am grateful to Riya Sinha, former CIO, NIF and a PhD scholar with Paul Richards and Haro Matt and member, governing board, SRISTI and editorial advisor, honey bee newsletter) to bring this reference to my notice, *Agri History Review*, 81, 1975?

⁵ Indian national Protection of Plant Variety and Farmers Rights Authority has begun to take note of this slowly. Numerous examples of farmer breeders (and other grassroots innovators) honoured by National Innovation Foundation at the hands of former President Of India, Dr Abdul P J Kalam, are available at www.Nifindia.org. The local language databases at www.sristi.org provides thousands of examples of such kind.

Before I go into the genesis of Honey Bee Network and its public policy impact at national, regional, and international level, I should also mention some of the failures. These failures are also partly personal. The present conference, therefore, is an important moment in our collective struggle to make science more accountable, accessible and blendable with people's technologies and scientific understanding. I hope that the principles that Honey Bee Network has evolved would be slowly and slowly adopted with necessary modifications by the mainstream academics and the researchers.

Should the cause be not more important than the conduits? The problem is that the conduits or the means have a bearing on the sustainability of the ends.

Now, my failures.

- a. The tool view of science: Why methods are important but not so important!
- b. The rapid methods of learning and the (il)legitimacy of shortcuts
- c. Linguistic appropriation of participatory paradigm: Why does bureaucracy world over love shortcut methods?
- d. The problem of neglect of persistent, painstaking research in learning from people's knowledge systems
- e. Ethical values underlying engagement with local knowledge holders becoming casualty while pursuing the need to get things done

I will not elaborate these failures too much. Simply because these are tactical failures. The strategy of learning from people is slowly gaining ground and Honey Bee Network philosophy and process are delivering results. Too much emphasis on methods and so-called tools deflected our attention from deeper underlying structures of local knowledge and creative/positive deviance in it. A new industry of experts emerged who knew how to perform these methods. Somehow the focus was on rituals rather than the outcomes. What was most interesting was a wholesale adoption of these methods by the public bureaucracies. It is obvious that one could not claim that public bureaucracies had suddenly become more pervious to people's ideas and innovations. The methods gave, generally an insensitive bureaucracy an excuse to avoid serious engagement with different social segments trying to find solutions to local problems. Ultimately, the creative people continued to suffer indifference from formal R&D system.

It is in this context that we should understand the contribution of Honey Bee Network to the philosophy and practice of action research with outstanding traditional knowledge holders and grassroots innovators.

From *Learning to lessons*:

I would enumerate a few examples which describe my own learning journey and in some sense evolution of the Honey Bee Network philosophy.

1. **Comprehending climatic uncertainty through ecological indicators:** Ram Nivas of Janjariawas village of then Mahendragarh district, Haryana, North India described how in a draught prone region, he took recourse to using proxy variables for anticipating rain and crop performance. The

flowering on the weeds such as *calotropis* was assumed to be correlated with the yield of millet and other crops. In an uncertain environment, recourse to indicators is quite understandable. This triggered a longer investigation on ecological indicators. In the wake of climate change discussions, attention to such indicators can become a very meaningful tool of dealing with complexity.

2. **Doing right things for wrong reasons:** During a field study in the same district, a community practice was discovered in which coriander was grown around a chick pea field, ostensibly to repel the pests. Michele Pimbert was requested to comment on this practice. He did on-station research and found that coriander did help but not by repelling the pests but by attracting the predators. The outcome was same, the causality was not. Many times, farmers' functional knowledge has been discounted because of seemingly illogical or untenable explanations. Modern science has known many practices in which functional relationship was valid without knowing the causality. The effect of aspirin on headache is one example. For long, we did not know how exactly aspirin worked on headache. The absence of causal explanation should not be considered a valid ground for rejecting people's knowledge so long as functionality could be established. Why don't we have more examples of this kind?

3. **Extending the frontiers of science: The tail has begun to wag the dog:**

Bhohgilal Rajwadia and some other farmers from Bharuch found a unique way of repelling the pests by crushing a particular insect and the leaves of a creeper. About ten labourers moved in the windward direction carrying this crushed material in hand, and the pests were repelled. Perhaps, some alarm pheromones were generated through this novel chemistry. This kind of chemistry has not been tried in any study on pest control. Likewise, a traditional knowledge of ripening fruits by using leaves of a particular plant in Orissa is being evaluated at Central Food Technology Research Institute (CFTRI) for developing possibly world's first herbal fruit ripener. Recently, under a joint research program between CSIR(Council of Scientific and Industrial Research) and National Innovation Foundation, 200 plant protection practices developed by the farmers were taken up for screening and trial at IHBT, a leading lab for Himalayan region. What did a young scientist, D Tewari find: the combination of neem with another plant made the content of neem stable under light, some thing that hadnot been known so far(stability was indeed achieved by W R Grace co and many other scientists by changing the chemistry but not by adding a herbal constituent). He also found that among various combinations that he tried through permutation and combinations, farmers discovered exactly the same ration which was just the optimal. How did farmers discover optimal ratio, what heuristics did they use, how did their trial and error system work, what methods farmers use to eliminate suboptimal combinations, how did they stumble on this property of amended plant? There are many such questions which need to be asked, May be in the next decade, such questions would gain prominence so that science of farmers' innovations

come to fore. At least in India, this is certainly going to happen, MOUs with Indian Council of Medical Research and CSIR are just the pointers in this direction.

4. **Redefining breeding priorities: Learning from farmers' selection criteria** : A large number of farmer breeders have developed varieties which in many cases have diffused widely. Even in the cases where diffusion is limited, these varieties have solved problems of specific region or sub-region. When the paddy variety, viz., HMT developed by Mr. Khobragade, became a national reference/benchmark for thinness of grain, the point had been made. *Farmers don't merely solve problems, they also create new benchmarks.* This variety has diffused over a million hectares in at least five states of India (Sinha, 2007). Thakershibhai developed a groundnut variety which had strong peg and smooth surface i.e., no ridges on the pod. The taste was sweeter than existing varieties and oil content was also very high. Like HMT and many other farmers' varieties, this was also rejected by the institutional scientists. But farmers continued to grow it. Varieties of cardamom, pepper, wheat, chilly, cauliflower, sesame and many other crops have been developed by farmers. However, there is no mechanisms to generate data through public institutions for protection of their intellectual property claims. Why should there be so much consistency in institutional behaviour (or indifference) towards such varieties.
5. **Machines, mind and meaningful manual work:** Fabricating farm machinery for local needs: A wide range of farm machineries have been innovated by blacksmiths, carpenters and other mechanics. In fact, farm machineries is one area in which the technologies developed by small entrepreneurs, roadside mechanics, farmers and artisans, etc., have far outpaced the technology developed by formal system. The conceptual as well as empirical contribution in terms of design features or their functionality have not been adequately appreciated. The Enfield Company in England may have never imagined that the motorcycles manufactured by them would ever be used for performing farm operations. The motorcycle based multi purpose tool bar has provided extremely useful service for a segment of farmers who could neither afford bullocks nor tractors. Why don't we focus on artisans who contribute so vitally to farmers' productivity? Tree climber by Appachan in Kerala finds application in Boston and Florida. A professor uses it for doing research on insect diversity on tree tops for which she and her students had to build costly and big structures. An entrepreneur in Florida wants to use it to harvest coconuts—after all, a culture which could send man on moon, needed Appachan's help for taking him to the top of the tree. Appachan makes it in usd 50 and Mushtaq in Kashmir, a young innovator makes another tree climber and also a pole climber(for electric poles) in five usd. Once the labourers climbing trees (and poles) around the world get such climbers, their productivity would go up and so may be, their wages. Grassroots to Global (G2G) may become the new mantra. New way of

looking at the globalization would imply, small farmers and artisans and labourers vying for space in global markets.

6. **Institutionalising the learning from farmers and labourers: mainstreaming the discourse on informal science in formal scientific meetings:** The process of having a session dedicated to learning from farmer innovators was started in 1988 in the international Plant Physiology Congress. A session on survival under stress was organised. Subsequently, in International Agronomy, Crop Science and Soil Science Conferences, similar sessions were organised. Idea was to expose natural scientists to the range of informal innovations so that they may begin to notice and respond to the grassroots urges. However, this process has to continue. Such sessions have not yet become a regular part of scientific discourse.
7. **Embedding people's knowledge in under graduate and postgraduate curricula: A long way to go:** Most agricultural universities around the world have continued to ignore this subject. Unless students get exposed to the potential of farmers' innovations at an early age, for them to appreciate these later, when they join public or private bureaucracies as the leaders is not going to be easy. To influence the leaders who will lead our societies in next ten to twenty years, we have to work with the young people now. In a study of postgraduate thesis for over five years in more than two dozen universities and colleges in five disciplines, it was noticed in agronomy for instance, that majority of the theses were on fertiliser use. Three fourth of these were concerned with only chemical fertilisers. Hardly a few dealt with conjunctive use of organic and inorganic fertiliser (something that most wise farmers invariably did). The incorporation of insights from creative farmers in the postgraduate and under graduate curriculum is a challenge that remains to be addressed.
8. **Lateral learning among creative farmers: creating /reinforcing knowledge networks:** Knowledge network among innovative farmers need to be strengthened so as to stimulate more and more creative efforts for solving local problems in a sustainable manner. This requires local language communication system relying on traditional or folkloric modes of communication. Literature in local language on the subject itself is quite scanty. In multiple languages, even lesser. Multimedia, multi language databases help in overcoming barriers of literacy, localism and language. Thus, a farmer can learn in his/her own language, even if illiterate and not only from the local but also distant farmers. If we don't find such databases, does not it tell us something about our priorities. If people to people learning has to suffer, what is the point in pursuing various methods and approaches of learning in the first place.
9. **Blending formal and informal science:** It will be naïve to think that people can solve all problems or most problems. If such was the case, there should not have been any need for external intervention. The need for blending formal science remains and perhaps will always remain (it will take place differently in various cultures, such as Cuba, China or Mali). In

the first fifteen years of Honey Bee Network, we could not get even fifteen experiments in the formal scientific lab on people's knowledge. However, of late, after setting up of National Innovation Foundation (NIF) in February 2000, and signing of agreements between NIF and CSIR (Council of Scientific and Industrial Research) and NIF and ICMR (Indian Council of Medical Research), the process of blending has started though slowly. If after twenty years of Farmers' First Conference, there are so few examples, there obviously are some major institutional constraints. Overcoming these constraints will require not only reforming existing institutions but also creating new ones. A small natural product lab (Sadbhav SRISTI Sanshodhan) has licensed and commercialised more than nine products including herbal pesticides, veterinary medicine and human medicine in the last two years. Substantial benefits are flowing towards the knowledge providers, their communities, natural conservation, etc. Shouldn't there be a large network of labs completely dedicated to the cause of people's knowledge.

10. **Feedback of people's knowledge into international treaties** on conservation of germplasm as well as protection of intellectual property rights in traditional knowledge, genetic resources and cultural knowledge. A farmer member of the Honey Bee Network along with the self had the opportunity to present their viewpoint in the inaugural session of the second conference of the treaty at FAO, Rome. One of the major gaps identified in the gene banks related to the passport information or what is also called as descriptors. In none of the descriptors used at different gene banks, there was not any column for recording people's knowledge for food processing or other related matters. The implications of the gap are obvious. With increasing demand for processed food, conservators of landraces are not able to benefit because the databases of their varieties in gene banks do not have their own knowledge on the subject included in the descriptors or passport data sheets.
11. **prior Informed Consent as a guiding principle of engagement between formal and informal science:**
12. **grassroots to global(g2g) can grassroots thinkers and actors influence the global markets, minds and meandering institutions**

There are large number of other lessons that follow from the study of farmers' innovations and people's knowledge systems. For example, farmers in Bangladesh's Tangail district, cut sweet potato roots before planting cut vines in the ground to make the vegetables rounder, with thicker skin. Consumers prefer round potatoes and the thick skin lengthens their shelf life, allowing farmers to keep their crops until they can get the better price for them. Such integration of consumer preference in farmer women's knowledge system demonstrates the potential of how much more one can learn by working closely with creative communities and individuals.

Honey Bee Network:

In 1986-87, after spending a year in Bangladesh, questions began to arise about role of the intellectuals in dealing with people's knowledge in a fair and just manner. It became obvious that the behaviour of academics like myself who was not different from other exploiters in the society. They exploited in land, labour and capital market. I exploited in the idea market. What was the difference? Once such a question arises, it is not easy to cheat oneself, even if one wanted to. The dilemma has to be resolved constructively. Thus evolved the philosophy of the Honey Bee Network. Knowledge of people should not be taken without their acknowledgement, i.e., proper attribution, reciprocity and feedback. Knowledge providers should not remain anonymous. People to people communication should be encouraged through local language exchange. Any surplus arising out of people's knowledge used with or without value addition should be shared with them in a reasonable and fair manner.

Once such a framework evolved, there was a light. Slowly and slowly network has evolved. In 1993, SRISTI was set up to provide some backup support for the network. In 1997, as a follow up of the ICCIG (International Conference on Creativity and Innovation at Grassroots) held at IIMA, first Grassroots Innovation Augmentation Network (GIAN) was set up as an incubator to convert innovations into enterprises. In February 2000, National Innovation Foundation (NIF) was set up by Department of Science and Technology, Government of India. In 2003, first Micro Venture Innovation Fund (MVIF) was set up to provide risk capital for supporting grassroots innovations. In May 2007, Tianjin Declaration was issued to create a Global GIAN to essentially provide an online and offline incubation platform for grassroots innovations.

Summing up:

Recent workshops in Philippines, Malaysia, Indonesia, Sri Lanka, China and India on scouting and documentation of innovations have revealed tremendous potential of promoting grassroots innovations by farmers, artisans, pastoralists and others. In China, Honey Bee Network has made significant progress. If Mehtar Hussain, a small farmer cum labourer in Assam develops a windmill of bamboo to pump water in 100 USD, another farmer in Vietnam develops a windmill under 25 USD. This is a new revolution in the making. Distributed knowledge management by creative people throughout the world could herald a new way of sustainable development. People to people learning across the world is becoming possible. Should we therefore, restrict to only farmers domain. The role of labourers in improving productivity and performing most of the drudgery filled tasks has remained less recognised. Those labourers who contribute new insights about efficient agriculture or non-farm activities deserve to be respected as co-researchers. They notice the need for slow and fast irrigation at different stages of the crop so that the roots of the plants are not affected or exposed⁶. They develop sickles, which have sandwich blade and that too on two sides. The labourers visit more farms than farmers. They observe much greater diversity. Their knowledge, insights and innovations deserve a chance. Should not we move from farmers first to labourers first and ensure that

⁶ Walla, discussions with a farm labourer by Riya Sinha as a part of her thesis.

mediating institutions will emphasise less on method, more on ethics and still more on authenticity in engagement. I have no doubt that Gandhian belief in building upon the local best practices could once again provide a way of revitalising the science and technological knowledge systems in formal and informal sectors.

There are many unresolved goals of the last two decade of farmers first. The next two decades will help hopefully meeting those goals and engage with the mission of labourers first.

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