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**GLOBAL GIAN:**  
Online and off line incubation of grassroots innovations  
and traditional knowledge: Towards Tianjin Declaration

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**Abstract**

*The forces of globalisation are known to squeeze space for local initiatives, ventures and sometimes even innovations. The markets are dominated by large players whose scale of economy makes it difficult for new entrants, even with better products and services to survive. At the same time, there are certain sectoral and regional niches and need segments in society which remain unfilled even by the forces of globalisation. The growth thus does not become inclusive. India, China and Brazil among three major countries in the world are facing this challenge to varying degree. There are certain needs of small farmers, artisans, urban vendors, mechanics and other self-employed people or small and tiny firms which are not met by the local R&D and design institutions in public or private sector. When these needs remain unfulfilled for long time, they may give rise to either apathy, adjustment or even dissatisfaction. Sometimes, this dissatisfaction may evolve into social disaffection leading to tensions, feeling of deprivation and exclusion.*

*An international conference was organised at Tianjin University of Finance and Economics (TUFE), Tianjin, China to bring together the partners from China and Brazil besides representatives of 15 other countries. Tianjin declaration was issued at the end of the conference to invite stakeholders from all around the world to join this movement (see annexure 1). It is hoped that academics, industry associations, entrepreneurs, designers and technologists will join hands to strengthen the resolve of grassroots innovators to reach global markets. We have to ensure that disadvantaged people around the world are not deprived of opportunities of learning from creative people in different countries. The barriers of language, literacy and localism will have to be overcome.*

**GLOBAL GIAN:  
Online and off line incubation of grassroots innovations and traditional  
knowledge: Towards Tianjin Declaration<sup>1</sup>**

*Anil K Gupta<sup>2</sup>*

The forces of globalisation are known to squeeze space for local initiatives, ventures and sometimes even innovations. The markets are dominated by large players whose scale of economy makes it difficult for new entrants, even with better products and services to survive. At the same time, there are certain sectoral and regional niches and need segments in society which remain unfilled even by the forces of globalisation. The growth thus does not become inclusive. India, China and Brazil among three major countries in the world are facing this challenge to varying degree. There are certain needs of small farmers, artisans, urban vendors, mechanics and other self-employed people or small and tiny firms which are not met by the local R&D and design institutions in public or private sector. When these needs remain unfulfilled for long time, they may give rise to either apathy, adjustment or even dissatisfaction. Sometimes, this dissatisfaction may evolve into social disaffection leading to tensions, feeling of deprivation and exclusion.

From the point of view of grassroots innovators and traditional knowledge holders, situation is no less grim. When they develop or discover solutions to the problems that they have lived with for long time, many of them want to share these solutions with other needy people in their community as well as outside. Some of them want to make money out of these innovations by treating these as proprietary technologies. Still others want to combine the features of open source and proprietary/protected technologies. They would not mind if these innovations are used by other individuals for improving their own livelihood without any obligation or reciprocity. But they would not like others who are commercialising these innovations to do so without prior permission and sharing of benefits. It is similar to a general-purpose licence under Linux regime.

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<sup>1</sup> Paper presented at the International Workshop on GLOBAL GIAN: Building Global Value Chain around Green Grassroots Innovations and Traditional Knowledge, Tianjin - China, May 31-June 2, 2007

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Honey Bee Network over the last two decades has tried to bring grassroots innovators and traditional knowledge holders together to learn from each other, and add value wherever possible through knowledge network to different ideas and innovations. The network believes that knowledge rights of each knowledge holder/provider should be acknowledged. The findings of any study based on such knowledge should be shared with them in local language. The Prior Informed Consent (PIC) of the knowledge providers should be taken before disseminating the knowledge, if such knowledge has proprietary elements. Any benefits that accrue from the commercial or non-commercial of this knowledge/innovation should be shared with the knowledge providers in a just and fair manner. While evolving these principles, Honey Bee Network brought lot of volunteers together who share the vision of supporting creative problem solvers at grassroots in various aspects of value chain development. However, this process so far was quite random, somewhat disjointed and perhaps not sufficiently optimised.

SRISTI (Society for Research and Initiatives for Sustainable Technologies and Institutions) set up about fourteen years ago has emerged as an institutional support system for the Honey Bee Network in addition to the other collaborators who contribute towards the cause. SRISTI helps in building a multimedia - multi language database of grassroots innovations and traditional knowledge; common property institutions and innovations in primary education; contributes towards conservation of biodiversity and associated knowledge systems; organises workshops of innovators, supports healers and herbalists in developing new products with or without pooling best practises of knowledge holders; files patents on behalf of the innovators in India and abroad; and develops models of benefit sharing with the knowledge holders. In addition, SRISTI has organised 19 Shodh Yatras (walks through the villages to explore local knowledge) every summer and winter in different parts of the country. Having walked for more than 3300 kms., to honour outstanding knowledge holders and innovators at their doorstep, Honey Bee Network members are able to relate to the emerging aspirations of knowledge rich, economically poor people. We are convinced that grassroots innovations need to diffuse. We also realise that existing channels may not do it very well. We have to develop new ways of reducing distance among such people who are excluded by the current developmental impulses.

Tianjin University of Finance and Economics is one of the leading Chinese institutions providing education, research and consultancy services in aid of economic growth in China. They have extended invaluable support by hosting the conference and facilitating participation of a large number of international scholars and practitioners. There is no doubt that a joint International Centre for Grassroots Innovation will eventually emerge to synergise the efforts of India and China in aid of other developing countries. AASTIHK (Academy for Augmenting Sustainable Technological Inventions, Innovations and traditional Knowledge) at SRISTI would provide an international centre for excellence for building capacity in various aspects of Honey Bee Network activities and also support the international centre.

The entire effort is aimed at empowering knowledge rich, economically poor people.

Some of the key challenges in this process are:

- a. How to enable and encourage traditional knowledge holders (individuals/communities) around the world to learn from each other in their own mother tongue?
- b. How do we protect the rights of knowledge providers so that the incentives for sharing this knowledge are enhanced?
- c. What are the mechanisms so that people facing similar problems do not have to rediscover the wheel? What kind of tools and platforms be created which enable the communities/individuals get access to partial and complete solutions developed elsewhere?
- d. Many of these solutions may not be usable as such in another context. How to create an online design, incubation and mentoring platform which connects (i) mentors (ii) designers, (iii) R&D professionals, (iv) other innovators, (v) policy makers, (vi) investors, (vii) entrepreneurs, (viii) fabricators, (ix) distributors and retailers (x) any other agent in the supply chain with the innovators whose technologies need to be valorised.

- e. The potential users in, say, China of an innovation or traditional knowledge based product developed in India or Brazil or South Africa may like to adapt the form, features and functions of the technology according to their needs. What are the intermediary steps, which will help ascertain the preferences of potential users not having access to internet and communicate the same to various other stakeholders in the product design and delivery, cycle.
- f. Not everybody may like the entire process of development and design of his or her technology in open source. How does one generate a trust and NDA (Non-Disclosure Agreement) based participation of third party mentors in the product development process.
- g. The licensing of many of the incubated technologies may take place on non-exclusive or exclusive basis or on non-commercial self-use basis. Creating a protocol which is accepted around the world for such transactions poses tremendous challenge in operational and ethical terms. What kind of international treaty be developed which can protect the rights of the people and accordingly legitimately resolve or help in resolving disputes that may arise in the process.
- h. How to involve young students from various disciplines from around the world in doing research for the innovators so that they can help refine the technologies for which the formal institutions in public and private sector may not offer help or if they offer, the terms may or may not be affordable by the innovators.
- i. There are hardly any laboratories / workshops dedicated to add value to grassroots knowledge and innovations. SRISTI has a natural product lab, viz., Sadbhav SRISTI Sanshodhan which tries to do so with very limited resources. How to create a network of labs around the world completely dedicated to add value to peoples' knowledge within the Honey Bee framework.
- j. Support of public institutions is very vital for disseminating socially useful technological innovations developed by people. However, mobilising support

of public institutions is not always easy. How to create an ethical and accountable framework for partnership between not just public and private but also civil society institutions and individuals/innovators?

- k. Education and media play a very important role in influencing the mindset of the people and their respect for local knowledge and innovations. However, most media networks allocate paltry time and space, if at all, towards promotion of grassroots innovations. How to involve grassroots journalists in articulating their creativity such that media helps in creating awareness?

Many of these questions would require much more time than we have in this conference. However, some of these questions are at the heart of this conference and need to be discussed and debated thoroughly.

#### **Agenda of the conference:**

We have to look at different ways in which innovators in one country can learn from innovations in another country. Since many of them will not have internet access, it will become necessary for a network of volunteers to emerge to bridge this gap. Some of these volunteers may get professionally involved as things evolve. Not every society provides space for voluntarism in the same way. The experiment at Tianjin University of Finance and Economics steered by Dr.Zhang Wei and Prof. Liyan Zhang has demonstrated that SRISTI's strategy of involving students in scouting process works in different cultural environments. Having covered large parts of rural and urban China, the students have also shown great sensitivity in learning about the process of scouting. In Brazil, the social innovation network has joined hands with a network of incubators (ANPROTEC) in similar search for innovations. During a recent workshop on developing strategies for scouting, several creative channels were suggested. For instance, the health workers, postman, and other similar institutional channels, which have a very wide network, were suggested as possible means to learn more about grassroots knowledge and innovations. A few innovations and traditional knowledge practices were explored in the slums around Rio de Janeiro.

Conceptually, there does not seem to be any problem in recognising the role of youth in discovering the genius of grassroots innovators and traditional knowledge holders. However, operationally there are issues that need to be addressed. The formal curriculum in different disciplines does not require scouting of innovators or interaction with them or building upon their knowledge. This conference will try to identify a set of conditions that will facilitate involvement of youth.

The objectives are:

1. To create a cross cultural framework for cooperation primarily among three participating countries but also to include others interested in joining the GLOBAL GIAN within Honey Bee Network.
2. To build a partnership with international development agencies and national policy institutions in support of grassroots innovators and traditional knowledge holders.
3. To mobilise technological, fabrication, communication and other skills and tools to empower grassroots innovators, preferably in an open source framework.
4. To build online incubation platform to enable mentors, designers, investors and entrepreneurs to join the value chain so as to convert innovations into commercial or social enterprises.
5. To provide multi language, multimedia interface for people to people networking and lateral learning.
6. To ensure protection of the knowledge rights of innovators through an international registry of innovations based at SRISTI but coordinated by various partners and international organisations.



**Conceptual framework:**

The *ex ante* and *ex post* transaction costs of scattered and small innovators and traditional knowledge holders in accessing mentoring support are enormous. These costs get compounded when the formal institutions lack avenues for linkage with informal sector. The risk averse nature of both demand and supply side will never led them meet. The Honey Bee Network tries to reduce these costs on both the sides.

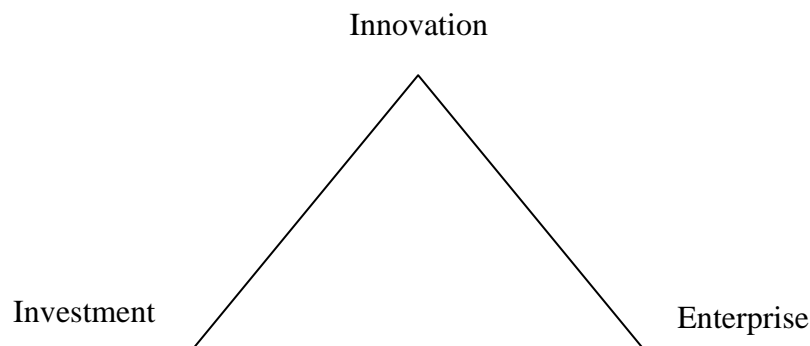


Fig. 1

The golden triangle for rewarding creativity (fig 1) implies an organic linkage between innovation, investment and enterprise. In the absence of international registry, it will be very difficult for investors, say in China or UK to locate an innovation in Brazil and set up an enterprise in India or South Africa. The globalisation paradigm has to be reversed. It should be possible for grassroots innovators to harness global capital as well as entrepreneurial opportunities through the knowledge network being strengthened in this initiative. Similarly, the knowledge rights of people in one country will have to be respected in another. In the absence of any international treaty recognising such rights under WIPO or WTO, we will have to rely on goodwill agreements, and conventional patent systems wherever possible or applicable.

The open source technologies will face, paradoxically enough even more difficulty than the commercial technologies. Who would train people to use any particular machines or a practice or provide fabrication facilities? Even when things can be done oneself, some demonstration or familiarisation may be necessary. Of course, in a few cases, just awareness is enough. The catalogue of open source technologies by

itself may not lead to widespread diffusion. How-to-do-it guidelines may be useful. The public extension agencies seldom provide support for people led technological innovations. The knowledge network of the potential users and experimenters will have to be created for diffusion of such technologies.

The conference will provide opportunities for learning from the experience of SRISTI and NIF in building the value chain around these innovations. At the same time, other experiences from around the world would be drawn upon to strengthen the capacity of Honey Bee Network to serve the creative people.

### **The tasks ahead:**

One of the major groups of participants in Tianjin conference includes Chinese students. Their ability to scout innovators, learn from them and sustain their motivation will determine the future of Chinese Innovation Network (CHIN). In addition, the scholars and policy makers will also have to play a major role in strengthening linkage between formal institutions and informal networks.

One of the important characteristics of an innovation-based economy is frequent disruption of ongoing businesses or ways of doing business. Planning for obsolescence requires humility but also courage for admitting the need for constant improvement, learning and innovation. The fuzzy boundaries of Honey Bee Network, informal as it is, create lot of stress on those who are used to working under well-defined roles and boundaries. Learning across fuzzy boundaries, is easier. However, that requires people with boundary spanning skills and who can build bridges across disciplines. The conference has to identify such actors who will perform this function. Current coordinators in China and Brazil have developed enormous capacity to deal with ambiguity and develop leadership in taking the goal forward by innovatively overcoming various constraints. Therefore, other countries who are interested in joining the GLOBAL GIAN may like to absorb the lessons from the way initial difficulties were overcome.

The international actors bring their social capital and also large networks. The conference will facilitate their networking with national partners. The social

innovation exchange may enable access to a larger pool of people who may volunteer in due course. Similarly, students at MIT might join in the discussion groups on online technology incubation. Similarly, fab labs may provide unique opportunity to innovators to blend modern design tools with conventional tools.

Ultimately, the success of conference will depend upon durable relationships, collaborative partnerships and emergence of humble and frugal learning networks of innovators and others.

*Annexure one***Tianjin Declaration for Promoting Green Grassroots Innovation for Harmonious Development**

Building the bridge between formal and informal science at grassroots level will unfold hitherto unexplored opportunities for socio-economic development of common people excluded from economic growth processes around the world. Creativity and innovation at grassroots and dynamic traditional knowledge systems have in past helped in solving many problems. But many have remained unsolved. Honey Bee network has facilitated over last two decades people to people learning to learn from existing solutions and explore collaborative solutions to the ones not solved as yet. These grassroots innovations developed by common people unaided from outside, can extend the frontiers of science in some cases and make new applications apparent which may have been ignored for long. Honey bee network has also insisted that whenever any wealth is generated from value addition in local knowledge, innovations or practices or otherwise, fair share of benefits should accrue to the knowledge providers. It has thus advocated the need for acknowledging the contributions of grassroots innovators and traditional knowledge holders, protecting their knowledge rights, and ensuring their dignified participation in the global value chain for valorizing their knowledge systems.

The solidarity among academic institutions, civil society organizations, national and international support organizations and eventually of the national governments around the issue of empowerment of grassroots innovators and traditional knowledge holders will unfold their entrepreneurial potential for improving their lives and conserving environment. We have to ensure that grand children of our children today, that is at least hundred years hence will be able to draw upon the knowledge and innovation traditions for solving problems of future. We can not allow the traditional knowledge developed over centuries to erode and be lost for ever. We can not conserve the resources without conserving associated knowledge systems. Without incentives to valorize their knowledge, young people in our communities may not have incentives to conserve experiment and innovate. The grassroots scientists and technologists have to be enabled to articulate their excellence, experimental and conservation ethics and educational pedagogies for achieving equitable, empathetic and efficient allocation of resources and opportunities in society. Incubation of grassroots innovations and outstanding traditional knowledge in a distributed, decentralized and social democratic manner provides an opportunity to address global concern for providing solutions to persistent social problems.

Participants of the International Conference on Global GIAN (Grassroots Innovation Augmentation Network) from Asia, Africa, Latin America, Europe, Canada and America met at Tianjin, May31-2, 2007 to launch an online platform to recognize, respect and reward green grassroots innovators and traditional knowledge holders.

It was realized that many economies which are growing faster than most parts of the world provide a valuable opportunity for generating market based avenues for social development. However, it was also recognized that process of market led growth is not always inclusive and thus leaves many regions, people and sectors out of the purview of the development process. Tianjin Declaration stresses that for pursuit of harmonious and balanced social and economic development, Green Grassroots Innovations and

Traditional knowledge provide a very valuable opportunity. The cooperation between SRISTI (Society for Research and Initiatives for Sustainable Technologies and Institutions) and Tianjin University of Finance and Economics provides a model for international cooperation in support of building a value chain around grassroots innovations and traditional knowledge. India, China and Brazil have come together in this initiative to provide an online platform for incubating green grassroots innovations and traditional knowledge to protect knowledge rights of local communities and individuals, alleviate poverty, generate employment, reduce drudgery, and conservation of environment.

In order to operationalise the Global GIAN (Grassroots Innovation Augmentation Network), the Tianjin declaration endorses following recommendations:

- a) To commemorate the international solidarity for harmonious and inclusive development through support to grassroots scientific, technological and institutional innovations and traditional knowledge, May 31 be celebrated as Grassroots To Global (G 2 G) day for recognizing, respecting and rewarding creativity and innovation at grassroots all over the world.
- b) To develop an international registry/bank of open source as well as proprietary grassroots innovations and traditional knowledge after taking Prior Informed Consent (PIC) of the knowledge providers so that communities and individuals struggling with similar problems around the world are able to access affordable solutions.
- c) To invigorate the promotion of grassroots innovations and traditional knowledge, at least four kinds of gaps have to be filled: (i) creation of mechanism at national and international levels to scout and document the grassroots innovations and traditional knowledge in national and international registry, and to give awards as well as to provide support for value addition through design and technological and product/service development, ii) provision of Micro-Venture capital investment to convert grassroots innovations and traditional knowledge into economic and social enterprises, iii) arrangements for diffusion of social technologies developed by grassroots innovations and traditional knowledge. It may help to create a global innovation commons so that relevant proprietary technologies developed by grassroots innovations and traditional knowledge holders are acquired for licensing these at no, or very low cost to small artisans and farmers, pastoralists and others producers around the world; and iv) enabling and empowering the grassroots innovators with modern tools of fabrication so as to enhance their capacity to do R & D and innovate through an international network of Fab Labs run and managed by grassroots innovators.
- d) To pursue creation of an international treaty to protect the rights of the grassroots innovators and traditional knowledge holders around the world through new instruments, mechanisms and by blending the relevant features of existing IPR systems with lessons of open source movement.
- e) To persuade every national government to create a national body dedicated to scout and document, add value, provide risk capital, protect their rights and diffuse these green grassroots unaided solutions developed by people without any outside help through commercial as well as non commercial channels. Honey bee network will facilitate lateral learning among such national foundations so that global pool of affordable green solutions to persistent social problems increases. Grassroots innovations and traditional knowledge should thus become part of the

national innovation systems and global guidelines for the purpose should be appropriately modified.

- f) Strengthening multi-language multi media Online and off- line Incubation Platform for incubation of grassroots innovations and traditional knowledge launched at the conference to reduce the transaction costs of innovators, investors, entrepreneurs, designers, scientists and mentors from all around the world.
- g) Need to make special efforts to highlight, recognize and reward the creativity and innovation of Women. The science underlying the knowledge domains in which they excel should be brought with in the purview of R & D studies and policies and not treated with lesser attention and respect as has been the tradition so far.
- h) To persuade science and technology academies to have dedicated sessions in their annual research conferences to explore ways of engaging with local creative communities and individuals to humanize the science and also empower knowledge rich-economically poor people.

The Tianjin Declaration resolves that the cause of grassroots innovators and traditional knowledge holders will be pursued to widen the real options of creative and innovative people at grassroots around the world. These people should not remain poor because they share their traditional knowledge and contemporary innovations generously with the outsiders. Their spirit of sharing and community solidarity must be preserved and universalized through blend between formal and informal knowledge systems, institutions and networks. We have to recognize that such people are not at the bottom of innovation, ethical and value pyramid, even if many of them happen to be at bottom of economic pyramid. Tip of their creative iceberg has to be recognized, respected and rewarded through monetary and non monetary incentives aimed at individuals and communities by involving youth in this global grassroots innovation movement so that future generations continue to care for each other and the environment and share their innovations with others generously.