Harnessing innovative potential of youth in formal and informal sector of IDB member countries: Lessons of Honey Bee Network[1]

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The spirit of creativity, collaboration and compassion pervades in all religions. However, while designing institutions for inclusive governance, we often fail to draw upon the wisdom inherent in the time-tested traditional knowledge as well as contemporary creativity. This is true for most societies and hence the chasm between what our spirit guides and what our formal institutions prescribe.

The Honey Bee Network has succeeded in transforming the definition of National Innovation System [NIS] in one of the largest democracies of our times. Indian national innovation system draws upon the ideas, knowledge and innovations of the informal sector. It therefore, overcomes the limitations pointed out by many scholars and practitioners on the subject [Naim, 2012]. Holy Quran [Surat an-Nahl (The Bee), 68-69] provides guidance in terms of the role the honeybees play in our life. It is also implied that they not only cross-pollinate and collect nectar from different parts of the nature but also don't keep all the honey for themselves. They share with us and provide sustenance to other living beings.

Similar philosophy guided the emergence of the Network with added principles such as: No creative person should remain anonymous and her identity should be protected in addition to her knowledge rights. Whenever we take the knowledge of the people for dissemination among others, due credit should be given to knowledge provider and cross-pollination should be done to fertilise the imagination of all concerned. The knowledge provider should know what has been done with the knowledge she shared. If any wealth is generated with or without value addition, a reasonable share should go to the knowledge providing community or individual as well as to other stakeholders including nature.

The realization that IDB countries should have a more inclusive innovation eco system is very fortuitous. The innovations indeed are imperative and the policies, incentives, institutions, indicators and impacts have to be aligned to generate maximum synergy in minimum time.

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I share the key challenges facing IDB countries in sourcing and sinking innovations in part one. Provide examples from Indian experience in part two and suggest some more creative approaches waiting to be tried in part three. Honey Bee Network is committed to support the efforts of IDB countries in every possible way and thus looks forward to a longer-term engagement.

Part I - Emerging challenges for inclusive innovation system:

The experience of last 30 years has shown us that innovations and outstanding traditional knowledge do not walk on their own into our door. We have to go out and search for them. Whichever countries have relied on waiting for innovators to apply for recognition and support have not gone generally beyond 500 applications. Even in India, that is the experience of most organizations which solicit ideas from the people using print or internet media.

First challenge is to develop a network of students, volunteers and other stakeholders to search for creative people and build regional and national database for the purpose.

Second challenge is to sift and sort the knowledge received to identify the unique ideas as well as determine the priorities for taking ideas forward. The prior art search and benchmarking are necessary for this purpose. Honey Bee Network can extend support in this regard.

Third challenge is to counsel those innovators who are not aware of what others have done in this regard and thus may feel diffident in accepting that their ideas may not be novel. The innovation support system has to recognize its role differently. Innovation foundation is not a patent office. Its role is to identify, support, disseminate and of course, do so to commercial and non-commercial channels. The prior art search is important to assess novelty but the standards of novelty may vary. Sometimes, conceptual novelty may be less but operational novelty may be higher. The affordability may be a more important discriminator than just the novelty.

Fourth challenge is to provide a range of financial services for creative individuals and communities. This is one area where innovations are required the most. The journey of an idea to proof of concept, prototype, product and utility is a long one. Earlier the stage in the value chain, higher is the risk and greater are the chances of exclusion because of lack of sufficient tangibility of idea or even the absence of much collateral. The funnel becomes more constrictive as one moves towards final stages. The answer for missing links has to be provided with the assumption that micro finance is completely different from micro venture finance. The former is useful for the product and services for which market exists. The latter is useful when market does not exist.

Fifth challenge is to reduce *ex-ante* and *ex-post* transaction costs of making innovator, investor and entrepreneur meet. One needs different kinds of incubation models for different markets, innovator segments and sectoral domains.

Sixth challenge is to design supply chains for distributed value addition, manufacturing and consumption. When demand is small, scattered and seasonal, emergence of supply chains becomes the challenge.

Seventh challenge is to build capacity of user segments to absorb innovative products and services and provide portfolio finance or line of credit, which does not distinguish between essential consumption and necessary production needs. For poor people, whose major earning is through labour, their consumption requirement is essentially the production expenditure.

Eighth challenge is to create market whether at niche level or mass level in localized or decentralized and distributed manner.

There are challenges in sustainable waste disposal, environmental care, gender balance and keeping harmony between individual and community needs.

Part II – Agenda for action

Society for Research and Initiatives for Technologies and Institutions [SRISTI], Grassroots Innovation Augmentation Network [GIAN] and National Innovation Foundation [NIF] have created an eco-system for cultural, educational, institutional and technological creativity and innovations. NIF is a part of Department of Science and Technology, while the other two are voluntary organizations. There are five functions that NIF performs:

Scouting and Documentation, Validation and Value addition and Research and Development, Business Development and Micro Venture Fund, Intellectual Property Rights Protection, Database Development and Dissemination [www.nifindia.org]

SRISTI is an incubator of institutions and has generated various models some of which have been institutionalized at national level. SRISTI has also created a portal, techpedia.in.

Engaging technology youth for solving social problems and augmenting grassroots innovations: The creativity of students needs to be harnessed in a systematic manner Society for Research and Initiatives for Technologies and Institutions [SRISTI], a voluntary organization set up to support Honey Bee Network in 1993 has organized a platform viz., techpedia.in. It already has summaries of 150,000 projects pursued by 450,000 students from over 500 colleges and institutions. Last year, Dr.R.A.Mashelkar, Chairperson, NIF and a mentor of techpedia.in gave Gandhian Young Technological Innovation awards in the month of May 2012. These awards can be seen at http://www.techpedia.in/award/. Many of these ideas have the potential to change the industries standards and help in conserving energy, reduce drudgery and improve efficiency. There are more than a million students in our country and theoretically every student is capable of being an innovator. During the last year, many of the student teams from Gujarat Technical University mapped the problems of MSME during summer. The University gave them credit not only for identifying the problem but also for trying to solve the same. Hundreds of solutions were developed by the student teams in close cooperation with their faculty and MSME entrepreneurs. Many of the entrepreneurs gave them recognition for their contribution. Every

country has this huge untapped potential of young technology students, which unfortunately has remained unexplored for such a long time. The educationists around the world must question this inertia urgently. A technology platform of this kind can address several other challenges: [a] encourage collaborative learning among the students from different colleges and cities, [b] an idea developed to some extent at one place or institution can be taken up for further value addition elsewhere in the form of what we call as *kho-kho model* or *relay approach* to problem solving, [c] the current levels of energy, material and waste management in different MSME units can be benchmarked and eventually improved, [d] the unsolved social problems can be put on the agenda of the students for their resolution as final year project and [e] the grassroots innovation and outstanding traditional knowledge practices can be taken up for validation and value addition and possible entrepreneurial development.

The creativity of children also needs to be harnessed and an inverted model of innovation has been developed in which children imagine or invent, engineers fabricate, and companies commercialise. Our former President, Dr. A.P.J.Abdul Kalam gives the awards every year. Our current President, Shri. Pranab Mukherjee will give biennial awards for outstanding grassroots innovations.

SRISTI honours creative teachers, celebrates the outstanding folk art and recognizes community institutions for managing common property resources in a sustainable manner. SRISTI also organizes Shodhyatras [learning walk] twice a year to celebrate the creativity at grassroots by honouring outstanding traditional knowledge holders and other innovators at their doorstep.

GIAN acts as an incubator for innovative technologies and tries to connect innovators with entrepreneurs and investors.

Part III - Recommendations for Islamic Development Bank to strengthen innovation eco system:

1. The search for innovations in formal as well as informal sector must be mounted through various personalized means using different media. Waiting for the ideas may not help very much. The students in senior school or college can also help by going out during their summer vacation to search creative people in rural and urban areas. Once interesting leads are obtained, these can be documented more thoroughly with the help of professionals or postgraduate students or extension workers.

2. Every person whose ideas are documented must be assured that whatever activity takes place in connection with their ideas will be informed to them in their language and further value addition or business development if feasible will be pursued with their prior informed consent.

3. IDB would develop a system of grants, loans, equity investments and bank guarantees for meeting the risk involved in taking ideas to various stages such as proof of concept, prototype, product, certification and testing and final conversion

into utility by providing design, packaging and other last mile inputs. Risk being higher at the early stages, the net will have to be cast wider. Given the high transaction costs, a dedicated team with a distributed network of angels or public-spirited scientists or teachers will provide support at the doorstep of selected ideators. As refinement continues, the need for linkages with other institutions, whether science and technology or culture, education or governance will be felt. Forging these links is a full time activity and providing handholding support is imperative if further development of value chain has to take place.

4. Mentoring and monitoring of various investments would require a transparent, collegial and compassionate system. By disclosing all major transactions on the web, one can generate tremendous confidence among various stakeholders.

5. The linkage between innovators and science and technology institutions has to be tracked at higher level. Given respective mandates and pressure of ongoing activities, most institutions may not pay much attention to the needs of creative people in formal and informal sector. Leaving people to their own fate for building partnership would almost imply systematic inclusion.

6. Creating e-commerce platforms for small producers will enable grassroots communities to harness the potential of global demand. The g2G [Grassroots to Global] model is a powerful one and its full potential has not yet been harnessed anywhere.

7. Engaging technology students with the unsolved problem of society as a part of their curriculum is a powerful way of building an empathetic society and get problems of small enterprises solved in a time-bound manner and often without any cost. Most countries including India did not pay attention to this potential till recently.

8. A national fund for testing and certification must be created to ensure that all the products and services coming out of blended innovation systems of the country meet highest quality norms. Most startups, farmers, artisans and others may not be able to meet these costs to certify the quality of their products. This will affect their market, eventual growth and thus the employment in the economy.

9. An educated workforce is the best guarantee for developing a skilled society. Production and distribution of open source multimedia, multi-language content is required for encouraging children and young people to pursue excellence in respective fields of education. Even if one does not have sufficient number of motivated teachers, availability of content will trigger more innovative ways of peer learning.

10. Recognition of innovations and traditional knowledge practices at different levels in society will create awareness about the endogenous capacity to solve problems without looking at western models all the time.

There is a lot more that can be done and must be done to strengthen indigenous capacity for benchmarking the problems and exploring the solutions by blending formal and informal science, technology and institutions. My contention is that despite variety of economic conditions in different Islamic countries and communities, innovative models of investing in peoples own ability to solve the problems have not evolved. If we want to harness the energy of the youth, often unemployed despite education, then entrepreneurial opportunities will have to be expanded.

Since eco systems for innovations may require more inclusive approaches, in several areas, the services should cover various communities inhabiting a region. This will generate mutuality of interests and at the same time, a collaborative culture can also evolve. Promoting innovations for inclusive development is imperative. But without institutional, cultural and technological synergy, inclusion will not take place. Banking system acts like a nerve center of an economy. But, given various asymmetries in information, access and the ability of the people, a large number of people remain excluded from the conventional banking system. Thus, we need new models of development banking to support innovation by individuals and communities in formal and informal sector.