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Mobilizing from appropriate technologies to sustainable technologies based on grassroots innovations



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ABSTRACT

The paper focuses on the evolution of Appropriate Technology (AT) movement in India touching upon its ideological contours developed by thinkers like M.K. Gandhi, E.F. Schumacher, JC Kumarappa and others. It stresses that AT movement as a discursive one is not about mobilizing activities and people but is about academic discourses on AT. Hence it articulates the AT movement in India in the framework of 'Mobilization to Institutionalization'. And the paper presents an empirical case study of a social movement organization named Honey Bee Network, emergent of the said movement that does not represent the original discourse of the movement any more rather represents the later turning point of the discourse, i.e. the drift toward sustainable technologies in India. Noteworthy, that this case study of the Honey Bee Network at Ahmedabad is in fact a network of three organizations namely, Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI), National Innovation Foundation (NIF), and Grassroots Innovation and Augmentation Network (GIAN) which are to scout, document, register, and incubate the grassroots innovations that are based on traditional and indigenous knowledge systems and lastly to transform these grassroots innovations into commercialized technologies. The Honey Bee Network as a social movement organization has been analyzed from the vantage of the well known resource mobilization theory of social movements. Lastly the paper brings out the socio-cultural embedded character of the grassroots innovations and their resultant technologies. And it is further argued that, this bottom-up approach of technological development is to pave the way for sustainable technologies.

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1. Introduction

The arrival of the 20th century heralded great optimism for mankind that technology and science would provide solutions to almost all human problems, particularly those associated with poverty. However, these optimistic expectations had already begun to be undermined in the mid-20th century due to the long term adverse effects of technological innovations—for example, the introduction of

extensive and capital intensive agriculture causing soil degradation, water scarcity, etc and indiscriminate industrialization causing ecological degradation and climate change, use of labor intensive technologies and use of steam engines causing environmental pollution, etc. The technology which has benefited us with the marbles of economic development and comfort is being countered by its own misgivings, i.e. by unleashing serious ecological crisis, environmental degradation, value crisis and economic inequalities. Great technologies have failed to provide solutions to many of world's major problems in particular to mass poverty. The global attempts to alleviate poverty in the developing world, which houses 75% of the

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global population, also facilitated a shift in the global thought process towards emergence of appropriate technologies. It had been natural to suppose at the outset that the best way to bring economic development was to facilitate in developing countries the kind of technologies that had led to the development of the developed countries. But in due course of time owing to the inaccessibility of developing countries to developed technologies and the built in dependencies there as well as growing unemployment and income disparities in developing countries led to the emergence of concepts like appropriate, intermediate, and alternative technologies to be taken with increasing seriousness to solve human problems in a more human manner. India like other developing countries has experienced the rise of this great intellectual debate in the context of its development.

Hence in this context, we take the opportunity to put forward a new epistemic strategy, as a development alternative which is in a way futuristic. The AT movement in India has gradually been transformed into a movement of sustainable technologies which is now catching-up. Two fine examples of this are; (1) Centre for Sustainable Technologies (CST) at the IISc, Bangalore (which is a transformation of the Unit for Application for Science and Technology to Rural Areas, ASTRA) and (2) the HBN. The HBN is being empirically studied here to represent this new epistemic strategy. The grassroots innovations that the HBN indulges in are often based on the informal knowledge/practices of creatively potent ordinary people (craftsmen/artisans, etc.) the non-formal innovators. That apart these grassroots, innovations are also often based on traditional knowledge systems and traditional practices that represent alternative epistemology to modern western science and technology. These two bases of the indigenous knowledge systems never acquired formal status, continued as folk/ethnic sciences and survived through informal practices of communities, but always required a touch of formality of modern science and technology to get recognition. May be such knowledge systems were not as developed as the modern western science and technology, of course because of historic reasons and their epistemic limitations (bound by socio-cultural embeddedness and limited amount of objectivity in the sense of transpersonal replicability). But such knowledge systems before facing extinction, could always be called upon to supplement the modern technological regime, that is making development un-sustainable, particularly in developing countries, in many ways.

1.1. Objectives of the paper

The objectives of this paper are: First, to understand the conceptual framework, debates on AT both from the standpoints of developing and developed countries; Second, to bring out the intellectual heritage and historical antecedents of the AT movement in India; Third, to study empirically a social movement organization, i.e. case study of the Honey Bee Network (HBN): Ahmedabad (which subsumes three organizations, such as the, SRISTI, NIF and GIAN) and to articulate the shifting thrust of the AT movement in India.

1.2. Methodology

The study is based on both (empirical) primary and secondary data. In order to study empirically the organization, the relevant information regarding the functioning of the network were collected through interviews among a few of their personnel. And secondary data were collected from various sources like, annual reports, documents, and publications of the network. HBN although believes in the Gandhian philosophy of technology is a more recent organization with nuance, where grassroots innovations are registered and at times developed into sustainable technologies, which are also some sorts of appropriate technologies, as these are often socially and culturally embedded and based on local resources & skills. Never the less HBN is a unique organization of its own kind that represents the emerging new thrust of the movement shifting toward sustainable technologies.

2. Appropriate technology (AT): a concept

AT is a concept that denotes a set of ideas or a framework within which we are to think and act for the development of society. The aim of this concept is to provide a basis and method for the choice of technology. It is intimately connected with the concept of development whereby development meant development of people. It has led sociologists, economists, philosophers, technologists, planners and environmentalists to contribute towards its definitive descriptions. It is directly linked to major developmental issues like unemployment, population growth, rising inequality in society, urbanization, environmental pollution, ecological degradation, etc. in many ways. The concept of AT hence endeavors to eliminate the adverse effects of modern technology by devising the same to retain its organic link between man and nature and to sustain growth by making units as small as possible. It also tries to change the life-style of the world by bringing mankind back to a life of simplicity which is in harmony with nature. The concept of AT is also closer to the operation of small scale industries. It advocates for smaller technologies dispersed in various areas with a bias against sophisticated large scale capital-intensive technologies. The concept can be used in terms of engineering designs and consultancy groups that have the necessary socioeconomic-cum-engineering expertise and have familiarity with the situation in the country [35]. The concept of AT reminds us that alternative technologies are available or could be developed for many tasks. AT as a concept, is a set of diverse and engaging explorations of the linkages between technological choices and social values [19]. Hence AT as a line of thought and action is being increasingly accepted and diffused due to the fact that it offers solutions to a world facing serious problems of inequality, injustice through loss of livelihood and resource crises because of resource intensive character of modern industrial technologies as well as their capital intensive character [2]. The best can be said that it is about the appropriateness of the technology which is the touchstone of the concept. And the appropriateness is defined in terms of environmental and climatic suitability, capital or labor

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