Impact of Science and Technology on Indian Rural Society: A Sociological Study

Prof. Samata B. Deshmane
Professor in Sociology, Department of Sociology
Bangalore University, Bangalore-560056, Karnataka, India

Introduction
As in the case of developed countries Science & Technology can play a major role in bringing about social and economic transformation in our country, especially in the rural areas. This paper examines some important aspects of Science and technology which will help in making rural India shine. Firstly, it conceptualizes rural development and tries to present a more concrete definition of rural development as “it is utilization, protection and enhancement of the natural, physical and human resources needed to make long-term improvements in rural living conditions.

Though the importance of science and technology for rural India was appreciated in the 1930s by Gandhi, giving rise to the work of the Centre for Science for Villages, advanced institutions of education, science and technology turned their attention to this area only about 40 years later in the 1970s. The most well known of these efforts was from the Indian Institute of Science with its programme for the application of science and technology to rural areas known by its acronym ASTRA. ASTRA was based on a model of science-technology interactions in a “dual society” like India with a small affluent elite amidst a large economically deprived majority living primarily in rural areas. The model showed that inter alia an extension centre and a mission-oriented programme would be required to develop technologies to address the normally ignored felt needs of the rural population. While many crucial features of this initial ASTRA model have been validated, it also had several shortcomings that are described. An attempt has been made in this paper to indicate some directions along which the model should be updated taking into account the emphasis today on sustainable development. Special attention has been devoted to the failure modes in the generation, commercialisation and dissemination of rural technologies. Finally, the barriers to the commercialisation and dissemination of rural technologies are discussed.

Methodology
This study is based on secondary source. Evidence gathered for this review came from numerous sources. I first conducted a search of literature databases using the electronic library services of the London School of Economics and Political Science (LSE). These included Library, Information Science & Technology Abstracts, Communications & Mass Media Complete, and International Bibliography of Social Sciences. I conducted hand searches for policy documents and reports from, for example, the Government Digital Service, as well as quasi-public and third sector organizations such as reports, journals, newspapers,During the period of western industrialization India was, historically speaking, in decline. Her population had learned to live on a subsistence level. The support of religion, culture and spirituality preserved social contentment and traditional ways. Society lacked the impetus to grow and expand. Science as a social institution and organized way of life came to India only after independence. Here it did not arise naturally out of the existing social conditions but rather came as a decision by the national and government leaders to imitate the developmental achievements of the West.

CONCEPTUALIZING RURAL DEVELOPMENT
The nation of rural development has been conceived in diverse ways by researchers, ranging from thinking of it as a set of goals and programmes to a well-knit strategy, approach or even an ideology. If we read through the relevant literature, we will realize that its scope and content are vague and do not have well-accepted analytical boundaries. As has often been noted, however, this may be viewed both as a weakness as well as strength. A weakness because, apart from the issue of conceptual clarity, it also means, that the very operation of this idea is in a grey zone.

Rise of Science in the west
In the developed countries which passed through the Industrial Revolution, science has come to occupy its present position through successive
stages of natural social evolution. Among the conditions responsible for this development were the birth of democracy and political freedom, the spread of education, the rise of critical mental enquiry as a reaction to the dogmatism of Christianity and the vibrant expansion of human society through the opening of worldwide commerce.

Agriculture, industrial scientific development
Today the scientific community transcends national borders and social customs. It is truly international in outlook, exchange of knowledge, participation of members. A scientist draws inspiration in being recognized by the higher echelons of the international community. To this extent the scientist has become insulated from the social atmosphere of the country in which he lives. This is especially true in India where science was never integrated with its social base. The problem facing us is to propose ways and means to accomplish this social integration of scientific knowledge and the community of scientists in India.

The Scientific Policy Resolution adopted by the Government of India late in March 1958, had emphasized the powerful role of science and technology in the development of the country as indicated below: “The key to national prosperity, apart from the spirit of the people lies, in the modern age, in the effective combination of three factors, technology, raw materials and capital, of which the first Role of Science and Technology in Making Rural India Shine is perhaps the most important, since the creation and adoption of new scientific techniques can, in fact, make up for a deficiency in natural resources, and reduce the demands on capital. But technology can only grow out of the study of science and its application.” In the last decades there has been a major effort to implement the spirit of the Scientific Policy Resolution (SPR). However, due to various reasons, and particularly the large and continuing increase in population it has not been possible to truly bring about an impact of scientific advances on the life of the people to the extent expected, but the desire to do so has been there throughout.

Industrial development in India
Like science, the development of industry in India did not arise from the prevailing natural conditions in the country. Such a natural development presupposes
1. A national need in that direction
2. Capital
3. Enterprise
4. Scientific urge to acquire technology developed elsewhere
5. A natural setting for this effort in the social structure.

The growth of technology
From the beginning in the western nations, by far the greatest amount of research and innovation has been conducted by private industrial concerns motivated by the drive to produce new and better items for sale and to earn larger corporate profits. The field of scientific enquiry was directly linked to the field of commerce by the incentive of monetary reward.

Applications of science and Technology in shining rural India
It is intended to briefly give here some examples of technological developments which can have a direct impact on rural society. The key areas would include:

In the context of agriculture, there are five key services or functions that are very closely related to S&T:

- Access to information through different types of Agricultural Information Systems (AIS);
- monitoring the situation of natural resources and environmental impact through different Information Processing Tools (i.e. analysis of environment deterioration, soil erosion, deforestation, etc.);
- Education and Communication Technologies that are playing a very important role in generating new approaches to learning and knowledge management;
- Networking where S&T can contribute greatly to relating people/institutions among them and facilitating the emergence of ‘Virtual Communities of Stakeholders’ that generate and exchange information and knowledge among themselves. If well managed, networking is a first step in the direction of developing interactive knowledge development processes that may lead to learning networks; and
- Decision Support Systems (DSS) through which data and information provide relevant knowledge inputs for informed decision-making. These tools are playing an important role in converting information systems into knowledge systems.
Impact of globalization on Indian rural life

Rural development primarily concerned with uplifting people out of poverty. The impact of globalization on rural societies, there economy, environment must therefore be viewed through this perspective. The present paper, therefore, is an attempt to what impact globalization is having on rural areas. Major aspects of globalization that relate to rural life or its development which includes the commercialization of agriculture and expansion of agro-industries, the liberalization of international trade and marketing for food and other agricultural products, the intensification and internal labor migration, the increasing privatization of resources and services and the wider use of information and communication and technologies. Thus, the wave of globalization hit India at the end of the last century which results in all the spheres life. Labor migration to cities from rural areas in search of employment was a common phenomenon. This was for various reasons especially for luxurious life, handsome salary and for numerous job opportunities. Earlier there was a ‘minimum wage act’ and now equal wage for all is provided. Today the percentage of village people attending the call of nature in open fields is reduced. The good roads restrict make them successful to sale agricultural products from villages to goods markets in cities & towns. As a result they can earn good price of their product. Life in rural India was miserable due to non-availability of electricity. Several villages have been electrified. It is big benefit in rural development. Globalization is going to make much difference to rural life through electricity. If this is supplied uninterruptedly 10-12 hours per days to these villages then ultimately, the process of development in rural life will be rapid. Education is concerned, in villages school buildings are available in villages and numbers of teachers are appointed in primary schools so as to improve the primary education. The infrastructures like benches, boards and other facilities are of improved quality. There is, however, another positive development that girls are attending the schools in the villages. Also the number of students attending graduate and post graduate courses is increasing with awareness among students from rural areas. The technical education is providing to most of the students from rural areas to secure employment. Technology is trying to make use of it in villages and other communication infrastructure. People know about the internet. There exists number of small scale industries in villages to provide employment to educated youth. Government is trying to push the technological changes in the agriculture to make it a profitable venture. Efforts have resulted as success stories in selected cases. India’s real culture is still preserved in rural life even though the advancement of technology has much influence in rural areas. People still prefer to wear dresses of old fashion and celebrate festivals in old styles. Folk dances and folk songs are still popular among villagers. Meanwhile the villagers have awareness and culture is touched and affected by western influence. Thus Globalization has an impact on rural life as standards of living are good and migration of people is taking place and poor people are moving to urban areas in search of employment. But, as we know every coin has two sides there are numerous advantages of Globalization on the rural scale or the Indian Village. The impact of globalization has been felt by the Indian rural market as much as the urban counterpart. Hence, we can see that today changes are taking place rapidly in all walks of life and rural areas are no exception to this. Improved infrastructure facilities, economic liberalization, renewed emphasis on agribusiness and small industries, fast changing agricultural technology, scope for commercialization of agriculture, greater budgetary provision for rural people are few reasons to mention. Moreover, various socio-cultural, psychological and political aspects of rural life are also changing. The farmers in the Indian village now have access to the advanced equipments for agriculture, which leads them to better yields and in turn it helps the economy of the country. Globalization also provides better exposure to the agricultural produces and ensures the farmers that they get the correct value for the produces due to globalization.

Conclusion

Rural India faces a severe technology deficit. While there are other serious shortages power, water, health facilities, roads, etc, these are known and recognized. However, the role of technology in solving these and other problems is but barely acknowledged, and the actual availability of technology in rural areas is, at best, marginal. The so-called digital divide is widely spoken and written about; the technology divide is hardly mentioned. The backbone of the rural economy is agriculture, which also provides sustenance to over half the country's population. Science and research have played important roles in increasing yields. One would, however, like to differentiate the two. Technology generally (though not always) derives and draws from science, and often manifests itself...
in physical form for example, as a piece of hardware. Science, on the other hand, is knowledge

The task is not easy when one takes note of the highly variable socio-cultural patterns and complex problems. But it can be accomplished provided the scientific community is motivated and would accept the challenge, and if there is appropriate local involvement. As stated by our first Prime Minister, “It is Science alone that can solve the problems of hunger and poverty .....” We will have to work towards achieving this goal of harnessing science in all spheres of rural development, because ultimately the total national development would depend on the rapid progress of the rural areas. This will call for a joint effort of scientists, administrators, and local people with the full support of the political structures and non-governmental, voluntary organizations, but a key role in this would be of the scientists, and ‘challenge before the scientific community today’ is to accept and fulfill this task. Much attention is needed in order to make rural India ‘shine’ because India cannot ‘shine’ without the ‘shining’ of rural India.

REFERENCES