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Sustainable Rural Development Through Science and Technology
India lives in its villages - Mahatma Gandhi

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ABSTRACT

India is land of villages. Majority of the population has been residing in the rural areas and they depend on agriculture for their livelihood security. The economic and social condition of the rural people is not good. There are problems that greatly affect the social welfare of the people. In this situation promoting social welfare among the public is a prime duty. Increasing social welfare of the people requires a more equitable distribution of developmental benefits along with the better environment. For India to become a developed nation it is absolutely essential to provide the rural population the same quality of life education, opportunities, employment, besides adequate access to energy and quality water is enjoyed by people living in urban areas so that there is equitable distribution. In the absence of these, the cascading effects of poverty, unemployment, poor and inadequate infrastructure in rural areas is reflected in urban centers eventually due to migration of population. In view of this, there is a need for equitable rural development providing economic growth, improvement in the living standard of rural people by providing adequate and quality social services and basic needs. With this backdrop the present paper made an attempt to explain the role the of science and technology in the rural development.

KEYWORDS: Science and Technology, Rural Development, Rural and Urban

INTRODUCTION

The ultimate objective of the rural development planning is human development or social welfare and wellbeing of the rural people. Increasing social welfare of the people requires a more equitable distribution of developmental benefits along with the better environment. For India to become a developed nation it is absolutely essential to provide the rural population the same quality of life education, opportunities, employment, besides adequate access to energy and quality water is enjoyed by people living in urban areas so that there is equitable distribution. In the absence of these, the cascading effects of poverty, unemployment, poor and inadequate infrastructure in rural areas is reflected in urban centers eventually due to migration of population. In view of this, there is a need for equitable rural development providing economic growth, improvement in the living standard of rural people by providing adequate and quality social services and basic needs.

Now-a-days the science and technology is being used in all fields. It also plays amazing role for the betterment of the concerned field, in the same manner; the rural development could be achieved by utilizing science and technology properly. Such kind of activities is being carried out by various ways. They are explaining as follows

PURA (Providing Urban Amenities to Rural Areas)

The concept of PURA was given by our former president Dr.A.P.J.ABDULKALAM. Its aim is, using science and technology for realizing the goals of transforming the villages by providing improved connectivity in terms of Trans port, power, electronic, knowledge, market and provision of drinking water and health facilities. The aim should be to achieve the creation of livelihoods with infrastructure development in the rural sectors. Simultaneously delivery of key infrastructure in villages, provision of fund for operations and maintenance in rural areas almost at par with urban areas enforcement of services etc...

WATER TESTING KIT

The DRDO (Defense Research and Development Organization) has developed a water testing kit. This kit is provided with testing facilities for both physic-chemical and bacteriogical parameters. Potable water is a great issue in the rural sectors. Ascertaining the quality of drinking water is a basic requirement in order to get rid off water borne disease. Because majority of the disease are spreading through water, and it affects the health of the rural mass, with the help of this kit the rural mass can get potable water, through which their health will standardized otherwise it affects entire process of the rural life cycle.

HUMAN WASTE MANAGEMENT

Human waste is the big issues in the rural environment degradation. Through which lot of disease has spreading in the rural areas and affects the health of old people, children easily. In order to avoid this problem, the DRDO has developed a bio-digester. Biodigestor is a cylindrical structure of mild steel or fiber reinforced plastic with provision of inlet for human waste and outlets for effluent and biogas. Night soil degradation occurs through microbial reaction which converts into biogas. This is an eco friendly technology for the disposal of human waste at glacier, other low temperature areas and soil bound cold regions. The technology has been standardized for plains also. The bio digested developed by DRDO has been fitted in several trains run by the Indian railways. Above all during waste treatment, in the bio digester inflammable biogas is generated as a byproduct which can be used for various energy intensive activities like cooking, water and room heating.

DIAGNOSTIC KITS

The diagnostic kits for the rapid detection of dengue and chickungunya , laptosprosis, typhpid, plague, malaria have been developed which are low cost, easy to use and provide rapid results and can be used easily in rural areas. An attracticide developed for Dengue and Chickungunya vectors has also been developed which can be used for killing the vectors and a new multi insect repellent also has been developed and commercialized. Insecticide coated mosquito nets have been developed by DRDO that can be utilized in rural sector quite effectively for warding off mosquitoes. An herbal mosquito repellent that can be kept on the lantern has also been kept. It is quite effective and can be used in the open and would be very useful for villages and also urban areas since the operation is not energy – dependent.

BIODIESEL

The energy security of the nation is an important one in the present context, because, the world's economy is largely energy based. In order to sustain the growing population only if adequate energy is available. DRDO has developed technology for production of biodiesel from jatrhopha curcas which can grow on unutilized degraded land. Beside, another plant Camelina has also been shown to produce biodiesel. The biodiesel produced has been used for running Army vehicles. Such plants can help reduce the emission of green house gases in the atmosphere by absorbing CO2 from the atmosphere. This technology of growing Jatropha is available from DRDO and can be easily used by villages. This would enable them not only to prosper, but also help protect the environment. Use of one million hectares of degraded land for Jatropha cultivation can create jobs for 1.2 million people.

TELECONFERENCING

Information technology should not be only the property of the urban section. IT should reach the masses. There is a need for the rural popu-

lation to have access to the latest in information on weather patterns, forecasts, the impending disasters etc. so that they can ahead.

DRDO has developed a ruggerized telemedicine system through which it is possible to communicate with the advanced medical centers, which can offer medical advice even to primary health care facility where there are little facilities available. The system developed by DRDO is accepted by the Indian Navy. The Telemedicine system would be very useful for rendering expert advice to the rural doctors.

Educational institutions in the country can adopt the rural villages, where faculty/students can go on weekends to provide technical skills to the rural folk. This will also go a long way in alleviation of poverty in the villages. For this, the funds may be provided by the Central/State Government to adopting institution/university, which could send faculty/students to the rural villages. This model will ensure the utilization of funds for development through student participation approach. In addition, the institutions will help develop multi-skilled personnel within the villages, who could solve their day-today problems with agricultural equipment without having to rely on outside support. Besides, this would help in self-generated employment at local level.

The closest association with the environment today is that of the rural people. They can play a major role in environment protection. The conservation of biodiversity can be best taken care of by the people in the region can be cultivated and used for generating wealth and employment locally. The universities in the region can even partially train the youth and fund such projects so that the region can be developed.

AGRO-ANIMAL TECHNOLOGIES

The DRDO laboratory in Leh is mandated to develop agro-animal technologies and the developed low-cost agro-animal technologies are finding wide acceptance amongst local farmers. This has about a perceptible qualitative and quantitative change in agriculture and animal husbandry. Adoption of the technologies with the support from the Army has resulted in a revolution in food production in Ladakh.

For example, 30-40 years ago there were only a few vegetables available but today several varieties of large-sized vegetables are available due to DRDO's contribution. Innovation has been done and trench technology has made this possible. More than 5000 metric tonnes of vegetables are produced using DRDO technology resulting in economic development in remote regions of Ladakh.

The technology is being given to local population using Virgin Kisan Mela. In addition, to meet the meat requirement, Changthangi goats and Muzzafarnagri variety have been cross bred and now the technology has been given to the local entrepreneurs along with egg hatching and chick growing facilities. 25 per cent of milk requirements and 15 per cent of meat requirements of the Ladakh region is being met by the local production at Ladakh using DRDO technology.

Thus, various technologies which are developed through the Science and Technology mode have provided various benefits for the rural sector.

CONCLUSION

India is moving fast towards becoming a developed nation. The potential for science-based economy is huge and is the very reason why so many countries are eager and are coming forward to collaborate with us. The huge trained human resource in S&T is a boon for us and the advanced nations are relying heavily on them for development of new technologies and products. This human resource has to be tapped for sustainable rural development in the country.

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