



Impact of Modern Science and Technology on Agriculture and Rural Society in India

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Abstract- *India lives in the villages. This adage which emphasised the agrarian character of the Indian economy and to which such pointed attention was drawn by Mahatma Gandhi. It continues to be true to this date, inspite of Industrial development that has taken place in the last seven decades since Independence. The fruits of modern science and technology are gradually percolating to the common man in the villages. Information and Communication technology has a vital role to play in development of agriculture and rural society in India. This paper analyses the role and impact of modern science and technology in the development of agriculture and rural society in India.*

Introduction- Agriculture in India is the core sector for food security, nutritional security, sustainable development and for poverty alleviation. It contributes approx.16-18% of GDP. Science and Modern Technology has played a big role in developing the agricultural industry. Green revolution, Evergreen revolution, Blue revolution, White revolution, Yellow revolution, Bio-Technology revolution, Information and Communication Technology revolution are some of the milestones in agriculture development in India. Our country has made progress in agriculture but productivity of our major agricultural crops is very low in comparison to other countries. Our agriculture is still technology deficit.

If we consider science, technology and innovation as the three wheels of a vehicle which is called development, then scientific temper would be the fourth significant wheel. Scientific temper is in fact a thinking process whereby a person takes rational decisions in his/her daily life through analysis. If people are devoid of such temperament, they will not be able to play their logical role in the development process. On the contrary, final development shall not be sustainable if a society of scientifically tempered people ignores human emotions, human rights, environment and animal welfare. Therefore, a balance between scientific temper and positive mentality having good value system in the background is needed for the sustainable development. We would not accept development at the cost of environment or inhumanity. This should be an essential part of the policy making in respect of any technology intervention.

The rapid strides made in the field of Science and Technology will have no meaning unless the fruits of progress reach the rural masses. Despite the availability of farming resources in the nearby areas, there always remains a lack of agricultural information related to seeds, farming practices, climate, diseases and pests, harvesting mechanisms, application of farm machinery, post-harvest strategies and finally proper marketing. Lack of information or untimely-given information, when coupled with other factors like environment leads to a huge loss in the crop produce or crop quality or sale price of the crops and ultimately farmer suffers heavily. New technologies are needed to push the yield frontiers further, utilize inputs more efficiently and diversify to more sustainable and higher value cropping patterns. These are all knowledge intensive technologies that require both a strong research and extension system and skilled farmers but also a reinvigorated interface where the emphasis is on mutual exchange of information bringing advantages to all. Utilization of resources, effectively, is the driving force behind the use of all agricultural technologies. In fact, our self sufficiency in production of food grains today is the result of technological interventions made in the agriculture in sixties, popularly known as 'green revolution'. Use of modern scientific tools and techniques increased agricultural productivity manifold. Today, we are among the top producers of milk, wheat, rice and sugarcane. Latest remote sensing technologies have made the resource mapping and planning

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very effective in agriculture and forestry. Other technologies like laser land levelling, drip and sprinkler irrigation improves water efficiency and reduce wastage of this precious resource.

There is urgent need to embrace new technologies like Biotechnology, Nanotechnology, high-tech protected cultivation and modern irrigation methods to accelerate agriculture production. Information Technology supports new methods for precision agriculture like computerized farm machinery that applies for fertilizers and pesticides. Farm animals are fed and monitored by electronic sensors and identification systems. Selling or buying online began to become popular in the world. However, its most important role remains communication and Internet has provided us with an ideal opportunity to do so.

With increased tele-density, Information and Communication Technology is making rapid inroads in rural India, revolutionising the connectivity and information flow. This has opened a plethora of opportunities. Now Information and Communication Technology is being leveraged to plug leakages in the public distribution system and for better targeting of subsidies by way of Aadhar linked direct benefit transfers. It is used in tele-medicine, online study courses, e-Payments, e-commerce etc.. e-Technology can be effectively leveraged to fulfill the information needs of the rural populace such as providing weather and market related information. It can also be a good platform for online marketing of the artifacts produced by village artisans. Since farmers in many parts of India are now becoming mobile and internet friendly much concerted efforts from Government, Non-government and Industry side is now required to make our farmers friendly to Information and Communication Technology, so that the benefits of fast developing technological advancements in farm production, storage and marketing can be equally shared among all communities and sectors of the rural society.

Information and Communication Technology can contribute immensely to the rural life in India. It's all such possible applications are as follows:

Agriculture- One of the challenges for farmers in rural India is their lack of access to market information. This creates an imbalance in bargaining power with urban buyers which are big companies that have the resources and information to influence the market. Other than market information, a farmer needs to know about weather on a day to day basis, about new technologies and various government schemes for farmer welfare. With the use of Information and Communication Technology, this information asymmetry can be solved effectively.

Resource Mapping: India is vast with abundant natural resources available across the length and the breadth of the country. Some of these resources like water are vital for agriculture. Remote sensing technology can be leveraged for their effective management. Using data from satellites, government agencies and institutions can plan their effective utilisation such as watershed management and development of fisheries.

Marketing Needs in Rural India- Information and Communication Technology in rural areas will provide unique opportunities to producers of rural products, agriculture/agro-processing products, rural handicrafts etc. to have direct access to markets. It can also be used to promote Village and heritage tourism. Many artifacts are made by the women in the villages which can be sold online to outer world. Information and Communication Technology has immense potential. If this potential is leveraged effectively, it can uplift the lives of the rural masses.

Effective Implementation of Welfare Schemes- Every year, government spends billions on the welfare of the poor. As around two-third of the total population and large number of the poor reside in rural areas, most of these welfare schemes are targeted at the rural populations. Use of Information and Communication Technology can improve the efficacy of these schemes, plug leakages and eradicate corruption.

Rural Education and Skill Training- Thanks to the relentless efforts by the government and



schemes like mid day meal, India has achieved universal enrolment at primary level. But the worrying fact is, that learning outcomes of enrolled children are very abysmal. Using Information and Communication Technology tools education can help improve the learning among the kids e.g. through projector and computer, teachers can make children understand complex concepts easily. But problem here would be to train the teachers in use of Information and Communication Technology tools so that their attitude towards teaching may be changed.

Impact on Rural Society- Modern Science and Technology is significantly impacting all aspects of rural life. It has varied effects on rural society in India.

Agriculture- The farmer feeds the society. He has grown grains for the mankind with his plough and bullocks and depended on the mercy of rain gods for centuries. But now he has embraced the tractor and cultivator instead of plough and bullocks. He has developed the irrigation system. The use of science and technology in agriculture has resulted in the cultivation of genetic crops which can grow fast and they can be resistant to many pests and diseases.

Culture- Science and technology has helped loosen Cultural rigidity. Printing press made books affordable and available to the villagers. This ushered in new ideas. Advent of print and electronic media further broadened the world view of the rural people. Due to newspapers, radio, television and internet, the old and diehard taboos are fading away and the society is once again becoming open and liberal. The effect of sorcery and witch craft has reduced. Earlier many diseases were seen as the impact of ghosts and ancestral anger and people, instead of going to a doctor, were often cheated by some lunatic sadhus, who brainwashed them and claimed to cure with some celestial powers.

Internet and television has also affected the dressing sense of the people in rural communities. Dress of a person is one of the most visible signs of his culture. Traditionally, every region of India has had its own unique dress depending on climatic and historical factors. But in today's internet connected world and online marketing, dressing sense all over India is overwhelmingly influenced by western fashion. Now jeans and T-shirts have become universal. Traditional dresses are mainly kept for special occasions such as marriages or festivals. Also, because of industrialization youth are migrating to cities, leaving behind the old parents lonely. Old age homes are on rise. Care and respect towards senior citizens have declined. Nuclear families have increased and joint family system is breaking down causing the emotional backlash resulting in suicides, depression, drug abuse etc.

Women Empowerment- Today, Science and Technology has made man's superior physical strength redundant. Machines have empowered women to do any arduous work with ease. But entrenched social prejudices and biases remain. Again here, technology is helping to break these stereotypes by bringing new ideas through TV, cinema, and social media. It can be said that women empowerment that we are witnessing today would not have been possible in the absence of these technological breakthroughs. Today, inter caste marriage and love marriages are on rise, leading to a very new cosmopolitan society.

Transportation- Technology has improved transportation. Now villages are well connected by roads and rail lines. It has provided mobility for people and goods and thus has spurred economic activity there. The tiresome journeys of miles on foot or by bullock-carts to meet their relatives and procuring and selling their crops in the towns have become the things of past. Now cycles, tractors, bikes are the norm of the day. But this fast transport has impacted rural social life in other ways too. Old social processes of rural society are giving way to tech driven socialising processes which are significantly different from old ones and often lack a personal touch.

Communication- The greatest visible impact of science and technology on villages, in recent times, has been on the communication system. Electronic media like radio, television, internet and social media have improved the information flow to rural society. Communication and transportation technology



is rapidly fading the unique and distinct identity of Indian villages. At individual level, communication has empowered the common villager by being his/her voice. Although it has also taken toll on his peaceful and leisure life with the inflow of mobiles and internet. Social media has helped village communities connect with outer world. This has benefitted them in many ways but socially it is throwing up many challenges. The technology, that was designed to bridge distances and facilitate communication, is ironically creating distances.

Education- Science and technology has improved education and learning process. Through technology, Indian education is spreading far and wide but at the same time, we can see a moral degradation in our education system. Though, more than technology, it has increased commercialisation of education that is responsible for this state of affairs. But technology has been an enabler in this. Second problem created by technology is information overload.

Health- With the advancement of medical science most of the fatal diseases have been either cured or contained. Medical facilities in rural areas have improved significantly, though they still lack far behind compared to urban areas. Further technological innovations like telemedicine would significantly bridge this gap in near future. This has overall positive impact on the health of rural people, increasing their life expectancy. Thus, the technology has reduced the tragedies and lessened the pain.

Environment- With the advent of new technologies to clean the forests, dam the rivers, hunt the animals, a commercial and consumerist approach towards nature has been gaining ground. This has prompted unmindful exploitation of the natural resources causing pollution, environmental degradation and ever increasing man-animal conflicts.

With this analysis, it can be concluded that Science and Technology has made an impact on rural society in India. Modern Science and Technological infusion in agriculture is required to accelerate the production so that food is accessible to the common man. It has been the best friend of human being through the history when used wisely, but turned the worst foe whenever misused.

REFERENCES-

1. Prasad,B.K.:Rural Development:Concept, Approach and Strategy, Sarup and Sons Publishers, 2003.
2. Desai,A.R.: Rural Sociology in India,Sage Publication,1959.
3. Mandelbaum,D.G: Society in India,South Asia Books,1970.
4. Sreedhar,Gand Rajasekhar,D.:Rural Development in India:Strategies and Processes,Concept Publishing Company,2014.
5. Manjunath,M.: ICT for Agriculture and Rural Development, Agri Biovet Press,2016.
