

The Role of Technology on Rural Development in India

Mohammad Rafiq Mokhles

Ex. Asst. Professor, Faculty of Economics

Kardan University, Kabul Afghanistan

Email: mrafiqm199185@yahoo.com

Abstract:

The present study is mainly concerned with the role of information technology in rural development. The positive transformation in living quality of the people living in rural areas is heavily influenced by the reach and implementation of technology. As a result of technological advancement, the productivity of the agriculture sector has considerably increased due to the use of soft (applications) and hard technological products such as chemicals fertilizers, etc. Technology has had its positive impact on the quality of life of the people in rural areas in terms of use of various technological outputs such as Mobile, Computer, Automobile, TV, Clean Water facility, construction, Train and Buses, employment and Education.

Key Words:

Technology, Rural development, and government schemes.

Introduction

The developing countries are economically reliant on the economic resources available in rural areas. Technological advancement and its application in rural areas will guarantee future national economic prosperity in less developed and developing economies. A common problem that approximately all LDCs and developing countries suffer from is the underutilization of productive economic resources, which could majorly be as a result of a lack of access of the people to technology.

Currently, more than 821 million people suffer from rising hunger in the world (FAO, 2018). And they mostly are the residents of rural areas, and worth mentioning that a major portion of the total number of people suffering from hunger are belonging to less developed and developing countries where agriculture is the main economic sector.

The world population is expected to have a positive trend from 7.6 billion based on the senses of 2018 to 9.6 billion in the year 2050. (UN DESA, 2019). As a result of population growth, there will critical need for rural development to ensure sustainable development.

The next period of growth in mobile connections is expected to come mainly from rural communities. Already, 70% of the poorest 20% in developing countries have access to mobile phones (World Bank, 2016).

Additionally, more than 40% of the global population has internet access and there are major initiatives to connect those in rural areas of developing countries (World Bank, 2016).

Technology may help in the transformation of living standards of the people, use of the potentials, creation of employment opportunities to economic resources, and increasing the contribution of the rural economy to the national economy of the country. The development of rural areas has been one of the key objectives of the governments, however, more than 50% of the population of the developing countries resides in rural areas.

In India, mostly the development in rural areas has taken place through science and technological factors; technical factors have a major role to play particularly in the development of rural areas. Within the rural areas, there have been various sectors such as agriculture, small-scale industries, houses, dwellings, buildings, medical facilities, education system, offices, and so forth. To develop these sectors, the significance of science and technology must be realized. It is only through science and technology

that major improvements can be made.

India has been predominantly a rural country with two-thirds of its population still residing in rural areas. India's 70% workforce still resides in rural areas. It is said that true India lives in her villages. The rural growth and development drive the overall growth and development of India as the rural economy of India constitutes around 50% of the national income of India. The rural economy of India has continuously been supporting and contributing to the economy of India. Studies show that even when there was a slowdown in the overall economy in India, the rural economy of India still showed growth and helped the economy in difficult times.

Thus, the rural economy of India is the backbone of the Indian economy. (DR. MD. SHAHNAWAZ ABDIN & RAHUL KUMAR, 2020).

India is predicted to be a rural country in the time to come and its 50% population is projected to be residing in the rural areas even by the year 2050. So, India is still going to be predominantly a rural country in the future. Thus the overall growth and development in India will majorly be driven by the growth and development of rural areas of India and growth of its population.

Objectives of the study:

The present study is mainly concerned with the achievement of the following objectives.

1. To evaluate the role of technology in the transformation of the living standard of people in rural areas.
2. To understand the structural trends in rural areas as a result of technological advancement.

Research Hypothesis:

Based on the pre-research observations the following hypothesis is made by the researcher.

1. The change in the living standard of people in rural areas in India is mainly due to technology reach.
2. The access of rural people to technological facilities is not to the optimum level.

Problem Statements:

Globalization is the key responsible factor for diffusion, utilization, and generation of technological output in less developed countries and developing countries in the world. India is among the leading economies of the world in terms of fast growth, despite being a rural economy and the second most populated country in the world after China. The major problem on which the entire scenario is surrounded are.

1. To understand, why technological advancement and its diffusion in rural areas of the country are considered the game changers in the process of economic growth?
2. What elements of the society got positively affected in rural areas in the country by technological advancement that has remained the focal point?

Research Methodology:

The main concern of this research is to identify the role of technology in rural development as a result of its advancement and accessibility to the people living in areas in India. Moreover, understanding and evaluating the trends in technological advancement and its diffusion among the rural societies in India are notable issues of this paper. Concerning the nature and requirements of the

study, the quantitative method is used for data analysis. Furthermore, the research is more relied on secondary data published by various authentic sources (Ministries of Rural development, ministry of Finance of India, RBI, World Bank, WTO, etc.).

The important role of science and technology in rural development

1. Science and Technology have been the drivers of the positive transformation and bringing a productive revolution in the living standard of the people, creation of employment opportunities to economic resources, generation of sources of income, spreading awareness, advancing cultivation techniques, improving health care facilities, alleviation/reduction of poverty, energy, and clean water and many more aspects of life.
2. Issues related to the environment such as air pollution, water pollution, changes in climatic conditions, stratospheric ozone depletion, loss of biological diversity, land degradation and desertification; these changes in the environment can adversely affect the incomes of the poor people who are dependent upon the environment for their livelihood, through air and water pollution human health can also be adversely affected. The key challenge is to recognize that local, regional and global environmental issues are interconnected and affect sustainable development. (Radhika Kapur*, 2019)
3. Growth of economy is a direct function of the growth of science and technology. Firstly, since the industrial revolution, rich as well as developed countries have had the most science and technical capacity and have grown at an increasing pace. From the past 1870 to the present, scientifically and technologically advanced countries have become increasingly prosperous, and their rates of growth have not diminished as this took place. Secondly, enhancements in research and development have been implemented in a consistently positive manner and high across virtually all the fields and the industries that have been taken into account, in the developed and the developing countries. Thirdly, source of income is a must for rural people; they would like to have some kind of employment so that they can earn a living for themselves and their families, generation of income has been considered to be essential for economic growth and science and technological factors have contributed in the generation of employment opportunities for the rural people not only in

agriculture but in also other areas such as industries, offices, educational institutions and so forth. (Radhika Kapur*, 2019)

4. Rural development is determined by a scientific assessment, conservation, and efficient utilization of the available resources available economic resources. Hence rural development is related to the development of science and technology. (Radhika Kapur*, 2019).

Technology's positive and revolutionized impact on Agriculture and Rural Development

There have been various revolutionary technological innovations that have had a changing role in the transformation economic environment in rural areas, mainly in the agriculture sector. A few examples are as follow:

1. EMA-I app animal health system support by FAO EMA-i is an early warning app developed by FOA to facilitate quality and real-time livestock disease reporting captured by animal health workers in the field. EMA- I is integrated with the FAO's global animal disease information system (EMPRES-i) where data are safely stored and used by countries. EMA-i is easily adaptable to countries existing livestock disease reporting systems. By supporting surveillance and real-time reporting capacities at a country level and improving communication between stakeholders, EMA-i contributes to enhancing early warning and response to animal disease occurrence with a high impact on food security and livelihood. EMA-I is currently used in six countries in Africa (Cote d'Ivoire, Ghana, Guinea, Lesotho, Tanzania, and Zimbabwe).
2. Dino AGROBOT for agriculture and viticulture the NAÏO technologies team developed an agricultural robot to improve working conditions and profitability for farmers. To help farmers tackle the increasing regulations on PHYTOSANITARY products, the growing concerns with pesticides, and the lack of workers in the agricultural sector, Dino provides a new and effective solution. The Dino weeding robot allows vegetable farmers to manage crop weeding with a high level of precision while helping them save time all through the season. Dino is highly effective to weed vegetables that are grown in the field, both in raised vegetable beds and in rows, such as lettuce, carrots, onions, etc.
<https://www.naio-technologies.com/en/agricultural-equipment/large-scale-vegetableweeding-robot/>

3. Precision Agriculture (PA) is an example of an application of the Internet of Things (IoT) in agriculture. The use of Guidance Systems during planting and fertilizer application can lead to cost savings in terms of seed, fertilizer, and tractor fuel, and can reduce working hours in the field. Variable Rate Technologies (VRT) and drones (UAV) can also reduce water and p

4. MYCROP, COMPLETE FARM, AND FARMER MANAGEMENT SYSTEM MYCROP is a technology- enabled initiative for farmers, which empowers them through delivering information, expertise, and resources, to increase productivity and profitability, hence improving the standard of living. It is a collaborative platform that strives to combine cutting-edge technology (Big Data, machine learning, smartphones/ tablets, etc.), an innovative business model (agriculture platform as a service), and focused human efforts (agriculture insights, products, and services) to serve smallholder farmers. MyCrop facilitates farmers in taking and executing optimum decisions by providing mapping, crop planning, individual farm plans, and farm automation customized for each farmer based on weather, soil, pest, and crop data on an almost real-time basis. MYRO is a sustainable data-driven, scalable, intelligent, self-learning, real-time collaborative AGRIFOOD system, which serves as a farm as well as farmer management solution, predictive analytics and monitoring tool, decision support system, and agriculture (buy/sales side) e-commerce platform.
<http://www.mycrop.tech>.

Rural Development Schemes in India

“Pradhan Mantri Gram Sadak Yojana (PMGSY): This is a scheme launched and fully sponsored by the Central Government of India. The main objective of the scheme is to connect all the habitations with more than 500 individuals residing there, in the rural areas by the means of weatherproof paved roads.

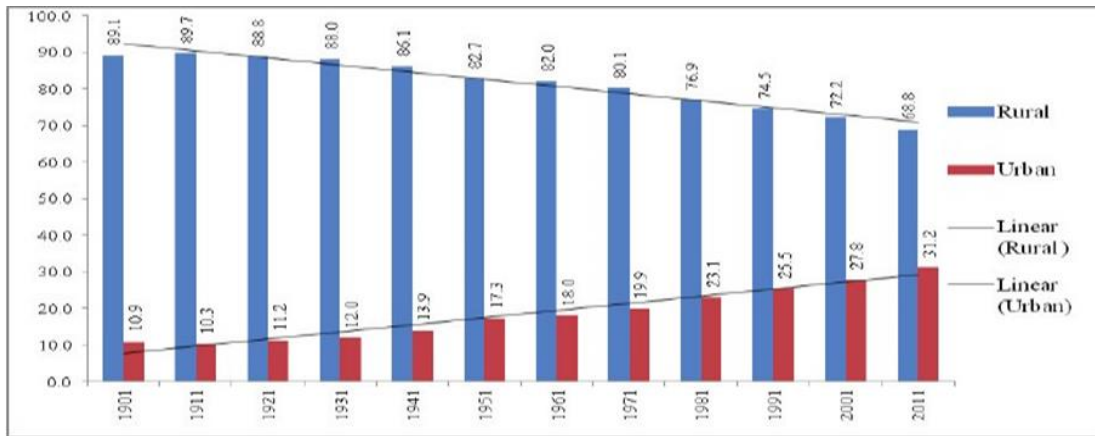
Swarnjayanti Gram Swarozgar Yojana (SGSY): This was implemented as a total package with all the characteristics of self-employment such as proper training, development of infrastructure, planning of activities, financial aid, credit from banks, organizing self-help groups, and subsidies.

Sampoorna Gramin Rozgar Yojana (SGRY): This scheme aims at increasing food protection by the means of wage employment in the rural areas which are affected by the calamities after the

appraisal of the state government and the appraisal is accepted by the Ministry of Agriculture.

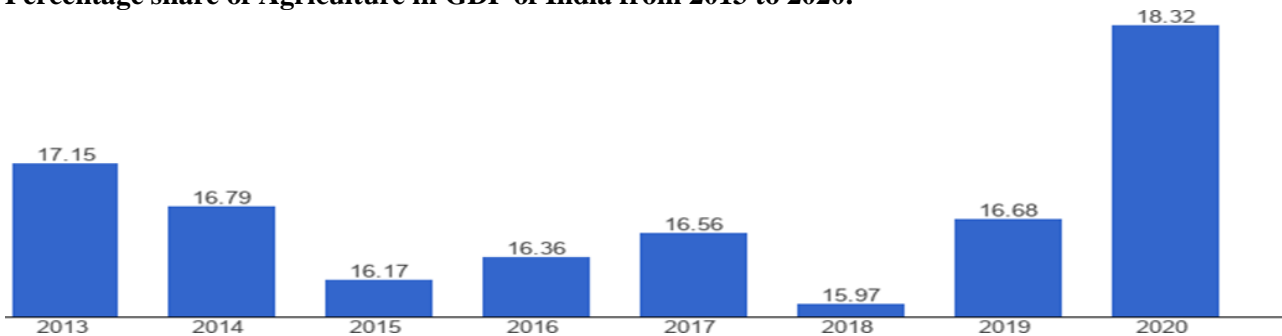
Indira Awaas Yojana (Rural Housing): This scheme emphasizes providing housing benefits all over the rural areas in the country.” Sushmita Mukherjee; November 2009.

Trends of percentage distribution of rural and urban population in India since 1901



(Source: Office of registrar general of India)

Percentage share of Agriculture in GDP of India from 2013 to 2020.



Source: The World Bank Group.

Table 1.4: Percentage share of Gross Value Added(GVA) at Current Prices

S.No.	Industry	2011-12	2012-13	2013-14	2014-15	2015-16*	2016-17#	2017-18@
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Agriculture, Forestry & Fishing	18.5	18.2	18.6	18.2	17.7	17.9	17.1
1.1	crops	12.1	11.8	12.1	11.2	10.6	11.1	
1.2	livestock	4.0	4.0	4.1	4.4	4.6	4.6	
1.3	forestry and logging	1.5	1.5	1.5	1.5	1.5	1.3	
1.4	fishing and aquaculture	0.8	0.9	0.9	1.0	1.0	1.0	
2	Industry	32.5	31.8	30.8	30.0	29.8	29.3	29.1
2.1	mining & quarrying	3.2	3.1	2.9	2.7	2.4	2.4	2.5
2.2	manufacturing	17.4	17.1	16.5	16.3	16.8	16.8	16.7
2.3	electricity, gas, water supply & other utility services	2.3	2.3	2.5	2.5	2.7	2.6	2.6
2.4	construction	9.6	9.2	8.9	8.5	7.9	7.4	7.4
3	Services	49.0	50.0	50.6	51.8	52.5	52.8	53.9
4	Gross Value Added at basic prices	100.0	100.0	100.0	100.0	100.0	100.0	100.0

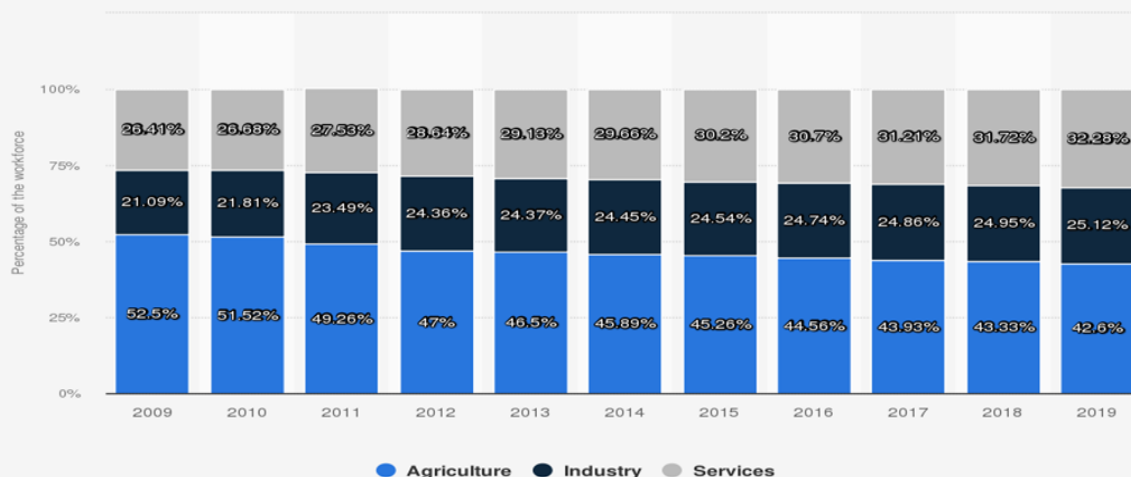
*: 2nd Revised Estimates (New Series)

#: 1st Revised Estimates (New Series) @: Provisional Estimates (New Series)

Source: Central Statistics Office

As the statistical evidence shows, the agriculture sector has had a high degree of consistency in its share in the GDP of the country.

India: Distribution of the workforce across economic sectors from 2009 to 2019



Source: World Bank, Statista, 2022

Hypothesis Test:

1. The change in the living standard of people in rural areas in India is mainly due to technology reach.
2. The access of rural people to technological facilities is not to the optimum level. Based on the findings the first Hypothesis is approved, but the second is rejected.

Discussion and Conclusion

Based on the shreds of evidence available, Rural development is a direct and key function of technological development. Rural development is considered a necessity and foremost priority rather than just being an objective to the government. As a result of the reach of technology to the rural areas the living standard of the rural people, agricultural productivity, social awareness, employment opportunities to underutilized economic resources, the share of the agriculture sector in GDP, and the quality of living environment have considerably improved since past three decades in India.

So that a country can utilize ICTs effectively for rural development, a strong policy framework is needed. The government shall encourage, promote and support the implementation of nationwide ICT systems for development. This includes the

modernization of agriculture to encourage rural development to achieve long- term growth in the agricultural sector and the economy as a whole.

References

1. Radhika Kapur*, *Pedagogy and Organizational Culture in Nursery Schools, Delhi University, New Delhi, India*
2. Sushmita Mukharjee, *Global Media Journal – Indian Edition/ISSN 2249-5835 Winter Issue / December 2011*
3. Rai N and Kumar V. “Role of Science and Technology in Making Rural India Shine”. *IJRDM 6.1 (2012): 59- 72.*
4. Narasimha R. “Science, Technology and the Economy: An Indian Perspective”. *Jawaharlal Nehru Center for Advanced Scientific Research Bangalore (2008).*
5. Watson R., et al. “Strategic Approaches to Science and Technology in Development” (2003).
6. Unit 4. *Science and Technology for Rural Development. (n.d.).*
7. Anupam Singh, *Nicolaus Copernicus University Poland*
8. <https://www.rbi.org.in/scripts/SearchResults.aspx?search=employment>