

Research and Development Impact on Socio-Economic Rural India, Case Study: Telangana

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Abstract: With vibrating Indian culture life style is changing in urban as well as rural India. Adapting changes with international standard India is growing economy in global market. Instead of diversity observed with culture, geological subgroups, languages and many more, people in India always ready to adapt new technology and research which makes life style human better each day. While urban India emerging with smart city programs, rural India is not at all losing the race. These development activities and adaptation makes Indian researcher and academician to address local problem and benefit the society. The new minds always striving to inculcate global and local research into technological development which will gradually improve human life. The improvement in the lifestyle can be majored with various parametric comparison, out of which societal improvement can be observed via socio-economic indices. Here case study of new state of India is proposed, which is analyzed though life cycle from data capturing to inference drawing. Such vital inference and finding will help government in policy making, problem finding and solving for local governance and sustainable solutions.

Keywords: Socio-Economic Indices, Data Analysis, Research, Development, Telangana

1. Introduction

In twenty first century economical growth is crossing the boundaries of state. These economic developments are always associated with human resources, natural resource, research and development. In the vibrating Indian communities, the people are typically divided in rural and urban parts. There is big gap in these two communities, in social, economic, technological and development. In twenty first century global market is shifted in south Asia and fast development is observed in the region. The research always contributes in development of various new technology. This helps to develop new opportunities in rural and urban population to bridge gap between them. These development flourishes market and impacts on local business. Hence, social economic impact is important to be calculated for investigating these research contributions in development.

Development based on knowledge is an evolutionary process that will continuously grow and change. Hence, there is necessity of research in new methods and approaches for development. This will be continued in developed and adaptation as academics and researchers strive to improve human life. Looking back at what works and why, is definitely a much more effective way of moving forward research directions and helped to find faults. In this spirit it is also necessary to understand many key research areas of concern related to the participatory approaches: understanding of their objectives, participatory methods in practice, importance of behavior and mindsets, role of the institutions in the participatory development and the issues of the relations and capabilities of the local people and outsiders.

Despite all these concerns, there is definitely a potential in research and development. This can be further achieved through the deployment of effective action/participatory research approaches. On the same line this research is proposed to link shared economy with rural sustainability from the perspective of social, economic and environmental development and research associated. Analysis on captured data used in investigations to reveal impacts on the development and research. This research is typically focusing on rural part of India especially Telangana state. This research majorly helps in finding R & D (Research and Development) development in rural Telangana on different aspects

2. Literature Survey

Literature survey observed different aspects considered in rural India to major socio-economic development described in table 1.

Table 1 Brief Literature Survey

Sr. no.	Research Article	Author	Findings
Government Policies and Awareness			
[1].	Sustained uptake of LPG as cleaner cooking fuel in rural India: Role of affordability, accessibility, and awareness	Praveen Kumara et al.	Impact of LPG policy for affordability, accessibility, and awareness
[2].	Government Spending, Growth and Poverty in Rural India	Shenggen Fan et al.	Discussed government policies for irrigation, soil and water conservation, health, and rural and community development
[3].	Impact of Solar Energy in Rural Development in India	Tarujyoti Buragohain	Government policies on renewable energy sources especially solar is discussed
[4].	Awareness and utilization of social security scheme and other government benefits by the elderly – A study in rural area of district Dehradun	Ashok Kumar Srivastava et al.	Elderly health programs are discussed with case studies
[5].	Affordability, Accessibility, and Awareness in the Adoption of Liquefied Petroleum Gas: A Case-Control Study in Rural India	Praveen Kumar et al.	Reduction in household air pollution using LPG and government scheme
[6].	Corporate Social Responsibility – Issues and Challenges in India	Nilesh R. Berad	CSR of private industry for rural India
[7].	Moving from sustainable management to sustainable governance of natural resources: The role of social learning processes in rural India, Bolivia and Mali	Stephan Rista et al.	Explore the potentials and limitations for broadening communicative
Role of R & D in rural development			
[8].	Live-in-Labs: Rapid Translational Research and Implementation-Based Program for Rural Development in India	Maneesha Vinodini Ramesh et al.	R& D Impact on rural society
[9].	Solar home systems for rural India: Survey evidence on awareness and willingness to pay from Uttar Pradesh	Johannes Urpelainen et al.	Solar home system beneficial alternative in case of power cut
[10].	Enabling ICT for Rural India	Rafiq Dossani et al.	Project report on ICT in rural area of India
[11].	Social Work Supervision an Exploration of the Current Challenges in a Rapidly Changing Social, Economic and Political Environment	Carolyn et al.	Identified a crisis in the probity of practice supervision which help in socio-economic development
[12].	Evaluating Performance and Costing of Ecological Sustainable Scientific Research and Institutional Building	Narender Kumar et al.	Sustainability, urbanization, eco-friendly buildings & Green Building for environment suitability
Health in Rural India			
[13].	Current Health Scenario in Rural India	Ashok Vikhe Patil et al.	Biomedical model to a sociocultural mode used and revised National health policy is implemented

[14].	Knowledge and awareness of diabetes in urban and rural India: The Indian Council of Medical Research India Diabetes Study (Phase I): Indian Council of Medical Research India Diabetes 4	M. Deepa et al.	43% of people has knowledge about diabetes, it varies around state to state based on their education system
[15].	The Systematic Medical Appraisal, Referral and Treatment (SMART) Mental Health Project: Development and Testing of Electronic Decision Support System and Formative Research to Understand Perceptions about Mental Health in Rural India	Pallab K Maulik et al.	Explained ICT with mental health improvement
[16].	SMARTHealth India: Development and Field Evaluation of a Mobile Clinical Decision Support System for Cardiovascular Diseases in Rural India	Devarsetty Praveen et al.	Explained ICT with cardio health improvement
[17].	The promise of a community-based approach to managing severe malnutrition: A case study from Ethiopia	Miriam S. Chaiken et al.	Community-based therapeutic care
[18].	Does Piped Water Reduce Diarrhea for Children in Rural India?	Jyotsna Jalan et al.	Children's health improves on average as a result of policy interventions that expand access to piped water in poorly Indian family
[19].	India Moves Towards Menstrual Hygiene: Subsidized Sanitary Napkins for Rural Adolescent Girls— Issues and Challenges	Rajesh Garg et al.	Woman health and empowerment awareness
Economy in Rural India			
[20].	Micro Enterprise Development and Rural Women Entrepreneurship: Way for Economic Empowerment	Dr. Ajay Sharma et al.	SHG improves and make self-dependent economy in rural areas
[21].	Smoothing Consumption by Smoothing Income: Hours-Of-Work Responses to Idiosyncratic Agricultural Shocks in Rural India	Anjini Kochar et al.	Weather dependent agriculture can be boosted with economic support
[22].	Perspective of Technology in Achieving Financial Inclusion in Rural India	Shashank Bansala et al.	Technological advancement for finance in rural India
[23].	Design Studies for a Financial Management System for Microcredit Groups in Rural India	Tapan Parikh	Semi-literate village women from local communities can be benefited from economic policies and community funding
[24].	Micro-Finance as an Anti-Poverty Vaccine for Rural India	Manish Kumar et al.	Statistical analysis of poverty in rural areas of India and microfinance as solution

[25].	Impact of Shared Economy on Urban Sustainability: from the Perspective of Social, Economic, and Environmental Sustainability	Xuemei Wua et al.	Effective design for regulation is needed with governance
[26].	Mobile banking and economic development: Linking adoption, impact, and use	Jonathan Donner	Identifies three crosscutting themes from the broader literature—amplification vs. change, simultaneous causality, and a multidimensional definition of trust—each of which can offer increased theoretical clarity to future research on m-banking/m-payments systems
[27].	Economic Analysis of Impact Assessment of Production Technology of Paddy Cultivation in Nasik Region of Maharashtra in India	Shekhar D Khade et al.	Economic impact on rural Maharashtra is discussed
[28].	Economic Impacts of Agricultural Research and Extension	Robert E. Evenson	Agricultural research and economical enhancement are discussed
Women Empowerment in Rural India			
[29].	Rural Women Empowerment and Entrepreneurship Development	Sathiabama K	Self-help groups are major help in woman empowerment with girl’s education improves empowerments in woman
[30].	Women Entrepreneurship and Economic Development	Sanjay Tiwari et al.	Given various problem for woman and associated policies and solutions
[31].	Women’s Empowerment and Economic Development	Esther Duflo	International policies for gender equalities and opportunities
[32].	Constructing Social Capital: Self-Help Groups and Rural Women’s Development in India	Kuntala Lahiri-Dutt et al.	Examines why some ‘self-help groups’ fail for woman improvement
[33].	ICT for Development in Rural India: A Longitudinal Study of Women’s Health Outcomes	Viswanath Venkatesh	ICT used in woman empowerment; case studies are presented
[34].	Gender culture and ICT in rural south India	Michael Best et al.	Awareness of social issues through ICT
[35].	ICT –Enabled Rural Education in India	Niraj Kumar Roy	Rural education programs and ICT impact is discussed
Education in Rural India			
[36].	Elementary Education in Rural India: A Grassroots View. Strategies for Human Development in India, Volume 2.	Vaidyanathan, A. et al.	Taken sample district and sample villages to understand elementary schooling in India at grassroot level
[37].	Post-elementary education, poverty and development in India	Jandhyala B.G.Tilak	Compared post elementary education with health, economy and life expectancy
Agriculture in Rural India			
[38].	Social capital and connectedness: Issues and implications for agriculture, rural development and natural resource management in countries	Jules Pretty	Review on agriculture to society

[39].	Biofuel production and implications for land use, food production and environment in India	N.H. Ravindranath et al.	Assessment of bio fuel and technological advancement and government policies
[40].	Agriculture, Rural Development, and Pro-poor Growth	Derek Byerlee	Report on agricultural impact on society and government policies
[41].	Information and Communication Technology in Agricultural Development: A Comparative Analysis of Three Projects from India	Shaik. N. et al.	ICT impact in agriculture in analyzed

3. Proposed Methodology

Based on literature survey, Socio-economic development of the rural India is defined as the sustainable development regulated by basic facilities; health and medical facilities; schools; transport and road connectivity; good sanitation and pure water; and many more. Socio-economic development comprises of economy growth and societal progress. The economic growth depends mainly on agriculture in rural areas of India and the sustainable agricultural growth can be achieved through technology enabled, awareness driven and non-conventional approaches of farming. To develop this MIS, we adopted the methodology as stated in the following flow chart

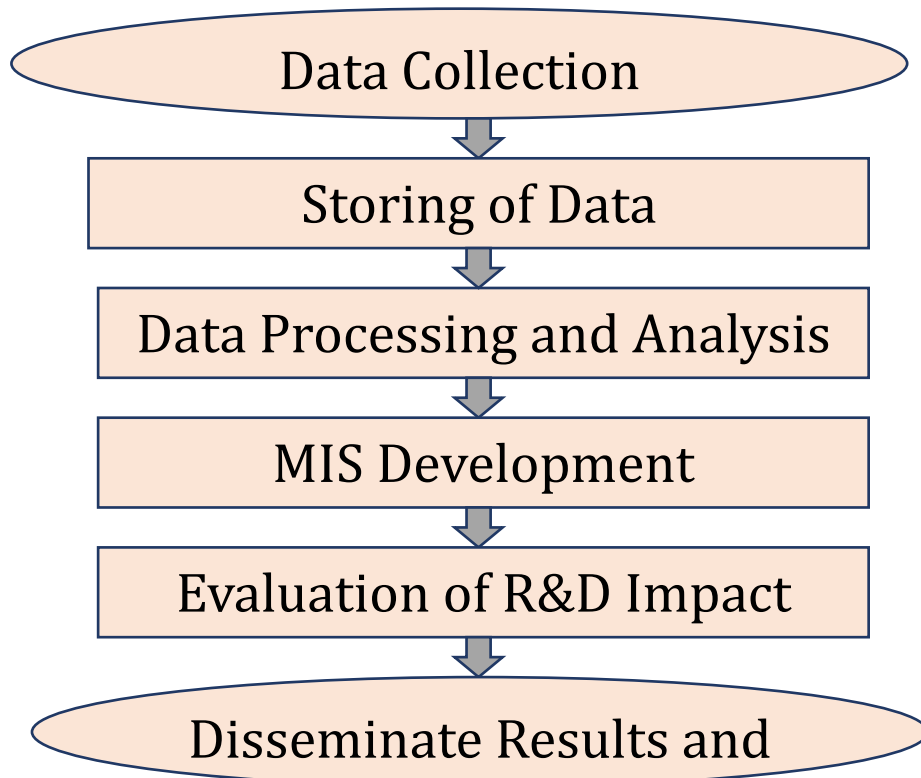


Fig 1 Methodology Flow Chart

Data captured for analysis via online medium in the form of question and answers. The questions are generated for different aspects considered for rural information gathering for R & D. They are given as below. As per the research requirement, the process has been finalized and identified some key areas and indicators related to study the impact of socio-economic status of rural areas limited to Telangana State. In this process we decided to do a survey for which we have chosen the following key indicators and parameters related to it are as follows.

1. Health:
 - a. Changes taken place of health for children, woman & others
 - b. Immunization
 - c. Simple disease to complex diseases
 - d. Blood Tests

- e. Modern Technology used by villagers
- f. Diagnostics etc...
- 2. Education:
 - a. Primary Education
 - b. Secondary Education
 - c. Higher Education
 - d. Job
- For all boys and girls, etc...
- 3. Women Empowerment:
 - a. Self Help Groups
 - b. Income generating activities
 - c. Gender Equality etc...
- 4. Agriculture
 - a. Productivity
 - b. Purchase inputs
 - c. Use of equipments etc...
- 5. Environment
 - a. Sensitization on protection of environment
 - b. Usage of firewood / gas etc...
- 6. Awareness on other
 - a. Social problem
 - b. Child marriage
 - c. Dowry
 - d. Equality of gender
 - e. Blind superstition etc...
- 7. Finance
 - a. Bank Account
 - b. Loans from Bank or other people
 - c. Transactions
 - d. Pension etc...
- 8. ICT Usage
 - a. Having Smart phone
 - b. Using of internet
 - c. Member of groups (SHG) / community
 - d. Information availability & Usage

4. Results and Discussion

After identifying the key indicatives, the survey was planned by creating a survey form with all the required parameters to collect the data from minimum of 100 villages of various districts of Telangana.

The process was initiated by creating a survey form with all these indicatives for development to collect data from 100 villages selected based on the population size of less than 1000 population, >1000 & < 2000 population, >2000 & < 5000 population or >5000 population of Adilabad, Nalgonda, Mahaboob Nagar, Karimnagar, Medak, Ranga Reddy, and Warangal Districts.

As the data collection being the major task in this project the same is started by collecting the data related to the key indicators as decided in coordination with LPAC members. This process is carried out in both online (through Google form) & offline (Field survey) modes related to R&D for socio-economic development of Rural India. Till date, data from 5-7 villages is collected and the same is analyzed by creating a data sheet from the collected data and developed a correlation matrix to analyze the impact on various parameters. Data collection is done with questionnaires and associated answer to them. Statistical data analysis is carried on data captured. Probabilistic correlation matrices are found to be best method for inference drawing. The results are shown in results section. Other statistical methods are also used to find correlation like set and graph theory, variances and co-variances of probability theory.

The results are shown in figure 2 and 3 after analyzing captured data. Correlation matrix explains relationship between data and feature weight. It is taken hear with probabilistic dependency matrix, that is with conditional probability value. In short major is probability value those features are dependent to each other, having any type of relationship with the data.

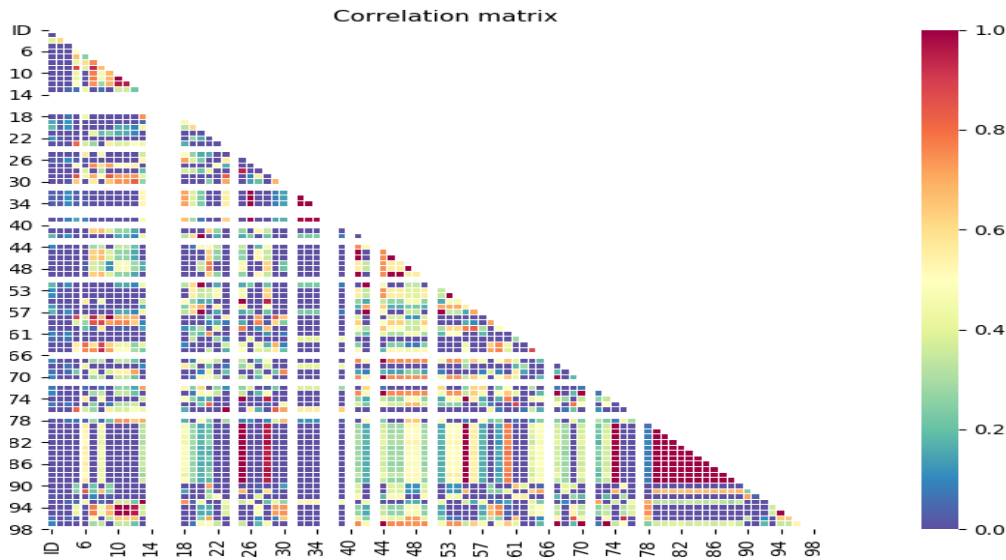


Fig 2: Overall Corellation Matrix

For overall we can easily detect feature set from 41 to 90 are dependent on 78 to 89. There also relationship may vary probabilistic values from 0 to 1 as shown in graph.

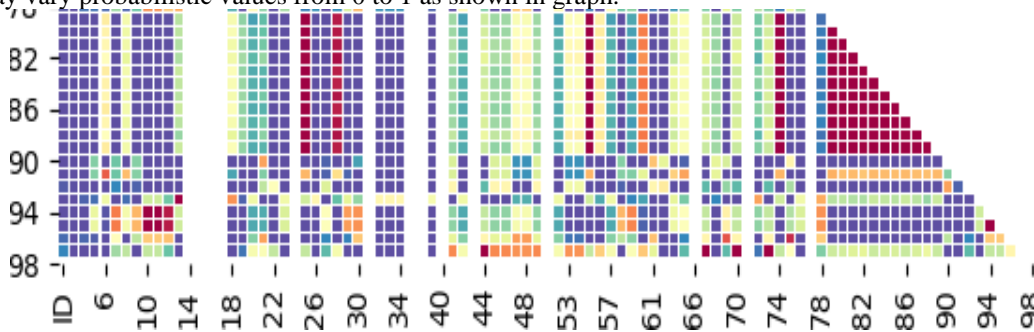


Fig. 3 : Snipet of corellation matrix

As we can see in section 11, data shows following features are having covariance 0 means they are dependent so we can reduce them. Features are

- 2. Roads within village
- 3. Availability of - Primary School
- 3. Availability of - Secondary School
- 3. Availability of - Intermediate School
- 3. Availability of -Degree College
- 4. Availability of - Hospital
- 4. Availability of - Health centers
- 4. Availability of - Clinics
- 5. Availability of - Police Location
- 5. Availability of - Library
- 5. Availability of - Markets
- 5. Availability of - Po1ice Office

Similar feature “Availability of road within village” doesn’t have any relation with others. It shows that if village have all government facilities listed above still, they are independent on roads availabilities.

Also, for section 3, following features are dependent

- 4. Availability of medical facilities in the village: Government Hospital
- 4. Availability of medical facilities in the village: Vaccination Facilities
- 4. Availability of medical facilities in the village: Medical Shop

It shows that if there is government hospital in village, they have vaccination facilities as well as medical shops too. Some of relative observations from data

a. There is separation in departmental activities, and development happens 360 degrees but some areas like road is typically lacking in the development

- b. Some of the data in relevant department, could not contribute at this stage of analysis, deep analysis will improve
- c. Classical methods are practiced for data collection as well as analysis, some of non-classical unsupervised analysis will also contributes in the analysis

Observations:

1. Clear indications of Urbanization on specific indicators like Agriculture, Education, Facilities in both positive and negative.
2. SHG are there but with less no of members.
3. Lack of knowledge in obtaining the information and help on various government schemes.

5. Conclusion

Research clearly indicates that improvement in life style due to research and development in India and outside world improved life style of woman, education and health with different parametric. There is still need for improvements in social culture especially for woman like dowry and other cultural issues. As diversified India and Telangana peer to peer association can be majored within family which needed to be different task. As Telangana is recently again divided in 33 districts, more segregation in data and peer analysis can improve in local policymaking and targeted development.

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