



RESEARCH ARTICLE

SOCIO-ECONOMIC STATUS OF RURAL FARMERS AND THEIR INVOLVEMENT IN IDENTIFICATION OF INFRASTRUCTURAL NEEDS: A STUDY OF HILL REGION, INDIA

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ABSTRACT

This Study analyses rural farmers' social and economic status and their involvement in the identification and prioritization of infrastructural needs for improvement in agricultural productivity in Kalimpong-I block in the Darjeeling district of the state of West Bengal, India. The study shows that farmers in the study area lacked the basic necessary rural infrastructures. The most needed rural infrastructure in order of priority as ranked by farmers include availability of water, good road networks, storage facilities, power supply, health care and educational facilities. Farmers' age, education and farm size were found to be significantly related to their willingness to contribute to infrastructural development. Government and non-Governmental Organizations should partner with farmers in the provision of rural infrastructural needs. This will help to improve agricultural output, increase rural income and reduce poverty.

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INTRODUCTION

India is an agricultural country and agriculture is practised here since time immemorial. It plays a vital role in the country's economy. Agriculture provides means of livelihood for about 80 percent people. Agriculture is also a major source of raw materials for agro-allied industries and also a source of foreign exchange. But the relative importance of agriculture has reduced considerably in recent years due to rapid development of other occupations like mining, manufacturing, transport and trade.

In India, majority of people live in rural areas. They are mainly dependent on agriculture and allied activities. These rural people are mostly illiterate or with low educational attainment. This low educational status of rural farmers and small land holdings affect adversely the agricultural production of the whole country. Despite high growth of population, India's agricultural sector has an impressive long-term record of taking the country out of serious food shortages. This was achieved through a positive relationship between rural infrastructures, technological advancement of the country, policy support and so on.

Infrastructural development has a positive impact on economic growth, poverty alleviation and human development. The provision of rural infrastructure is particularly relevant for India, which is predominantly rural. Thus improvement in rural infrastructure implies gradually improving physical proximity

for all to the sources of infrastructure services. This is very important feature in the development of hill region as topographical ruggedness is the prime adversity here.

study area

The study was conducted in four villages randomly selected in Kalimpong-I Community Development Block. It is located in the hilly northern part of the Darjeeling district of the state of West Bengal in Indian Union. Kalimpong-I block occupies a land area of about 321 sq km. The Kalimpong town is located at an altitude of about 1250 metres on the Darjeeling Himalayas. According to the 2001 census data, this block supports a population of about 110678 persons, out of which about 67680 persons live in rural areas. That is, in other words, about 61 percent of total population of the block is rural. This area is inhabited by mainly Nepali speaking people of Nepalese, Tibetan, Bhutanese origin. Among these rural people of the block, about 7 percent are scheduled castes while about 18 percent are of tribal origin. About 65 percent of them are literate with 71 percent rural male literacy and 58 percent of rural female literacy. Due to its mountainous character in whole Darjeeling district total cultivable land is about 52 percent of total land area, while about 38 percent falls under forest area (Statistical Abstract, 2001-2002).

Methodology: Data Collection And Data Analysis

Data were collected from four villages surrounding the

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Kalimpong municipality area namely, Lower Bong Gram Panchayat, Relli Gram Panchayat, Pudung Gram Panchayat and Bhalukhop Gram Panchayat. These villages were randomly selected. Total 256 respondents were surveyed during the data collection phase from 70 farmer families in these four villages. All of them were asked several questions regarding their socio-economic and cultural settings and their preferences to contribute to various rural infrastructures. Besides these, questionnaires were selected in order to assess their degree of satisfaction regarding present system of infrastructure available for agricultural purposes in these villages. Data were analyzed using frequency counts, percentages and ranking. Chi-squared techniques and correlation co-efficient techniques were used to analyse relationship between farmers' socio-economic-demographic characteristics and their preferences to contribute to rural infrastructural development in order to improve the agricultural productivity.

Objective of the study

Rural development is generally the process of developing and utilizing local resources both - natural and human. Besides these, the technology, each and every society possesses, is also responsible for the development of rural areas. We can say, these facilities stemming from infrastructure. This study deals with the local village people and their infrastructural facilities to develop farming operations leading to rural development in Darjeeling Himalayan Region. Major objectives of the study are-

- (a) to identify the infrastructural needs of farmers within the study area,
- (b) to determine the farmers' level of satisfaction with available infrastructure in the area,
- (c) to assess the relationship between socio-economic attributes of the farmers' and their willingness to contribute to infrastructural development of the area.

Rural Infrastructure: Present Scenerio in India

Having a rural economy India needs for Government intervention in taking appropriate initiative for improving access to infrastructure services. This is to improve the low per capita income of rural households and their low affordability. With a view to eventually moving towards achieving the objectives of universal coverage, development in rural infrastructural services definitely will help to eradicate poverty in rural corners of the country. Improvement in rural infrastructure helps rural people in two ways: firstly, it helps to increase income resulting into the promotion of economic growth and secondly it reduces the incidence of absolute poverty. There are some empirical studies which show the positive relationship between rural infrastructure and economic growth. However, in terms of economic growth, rural infrastructural development has a six fold impact- (a) providing more and more earning opportunities to the rural people, (b) providing access to previously inaccessible commodities and services, (c) better utilization of 'time' in productive activities through saving time in travelling and waiting for a service, (d) increasing production efficiency, (e) better health condition and (f) improvement in the standard of living of rural people.

Integrated Transport System is the most important aspect of rural infrastructure of India. Such a system comprises a number of distinct modes and services like railways, roads, ports, inland water transport, coastal shipping, airports and airlines. Though railways and roads are the dominant means of transport carrying more than 95 percent of total traffic generated in the country, but a good road network is the critical infrastructure requirement for rapid growth of the country. Despite its importance to the national economy, the road network is grossly inadequate in various respects. To boost the rural connectivity in India, a rural road programme, PMGSY was launched to provide all-weather roads by 2003 to habitations with a population of 1000 and above and by 2007 to those with population 500 and above. Another programme namely Bharat Nirman was launched to connect all 1000-plus habitations by 2009. Rural electrification through RGGVY is being completed in some states of India. In the Eleventh Plan, the objective is to bring large part of the cultivable area in these States under irrigation through electrified agricultural pump sets. This would be the key to the increase in agricultural production and food security in the country. The measures suggested for the Eleventh Plan address the whole range of issues concerning water management and irrigation.

RESULTS AND DISCUSSIONS

It is the physical framework of the region, which provides the basis for diversities in landforms and the ecological differences based on them. Within the macro-region of the mountainous character, differences exist in the physical as well as climatic characteristics, which contribute to the second order differentiation in the habitat and ecology. The long history of migration of people of different groups and with different customs and cultures in this region from different parts of Asia, mainly South-East Asia at different points of time results in different cultural groups distributed over the whole Kalimpong-I block depending on the ecological setting with their own primordial mode of economy. This contributed to the emergence of a cultural mosaic of great diversity in this block. The cultural history reveals that the diversities were rooted in the environmental setting of the region. It also shows that, people who came to settle in different regions also came with diverse cultural traditions. Improvements in rural infrastructure correspond to the mechanisms of raising incomes of rural people and hence economic growth can be facilitated. Such mechanisms thus tend to reduce the extent of absolute poverty. Rural infrastructure means the basic physical, socio-economic and institutional forms which enhance rural people's production, distribution and consumption activities and ultimately improve their quality of life as well as standard of living. These infrastructures include transportation, water availability, power supply, storage facilities, health facilities and other community services.

The demographic profiles of respondents as shown in Table 1 indicate that over 71 percent of farmers were males and remaining 29 percent are females. More than 78 percent of total respondents fall below 51 years of age, while about 59 percent respondents are of age group between 20 and 50. Farmers' level of education is generally low as 19 percent had no formal education and another 24 percent obtaining only primary education. About 25 percent are Class VIII passed while only

Table 1 Demographic Characteristics of Respondents

Variables	Categories	Frequency	Percentage
Gender	Male	183	71.48
	Female	73	28.52
	Total	256	100.00
Age (Years)	20-30	49	19.14
	30-40	77	30.08
	40-50	74	28.91
	50-60	29	11.33
	60-70	23	8.98
	Above 70	4	1.56
	Total	256	100.00

Source: Field Survey, 2011

about 21 percent fall in the category of Class IX-X of educational attainment (Table 2). Majority of them comes under General caste category (53 percent) which is followed by ST population (19 percent). Most respondents are Hindu believers (64 percent) followed by Buddhists (17 percent). Most respondents are small scale farmers with over 60 percent cultivating below 3 acres of cropland. Land area varies from 1 decimal to 8 acre in Lower Bong Gram Panchayat, from 1 decimal to 2 acre in Relli Gram Panchayat and from 1 decimal to 3 acre in Pudung and Bhalukhop Gram Panchayat. In about 41 percent of respondent families, family size falls between 5-7 which is followed by 26 percent in 3-5 family size category. About 43 percent of the respondents earn less than 5000 rupees as monthly income, while only 24 percent earn between 5000-7000 rupees (Table 2).

Table 2 Socio-Economic Characteristics of respondents

Variables	Categories	Frequency	Percentage
Caste Category (House hold)	General	37	52.85
	SC	12	17.14
	ST	13	18.57
	OBC	08	11.43
	Total	70	100.00
Religious Structure (House hold)	Hindu	45	64.29
	Muslim	05	7.14
	Buddhist	12	17.14
	Christian	08	11.43
	Total	70	100.00
Education	NIL	49	19.14
	Primary	61	23.83
	Class V-VIII	64	25.00
	Class IX-X	55	21.48
	Higher Secondary	20	7.81
	Under Graduate	07	2.73
	Total	256	100.00
Family Size	2	07	10.00
	3-5	18	25.71
	5-7	29	41.43
	7-9	10	14.29
	More than 9	06	8.57
	Total	70	100.00
Farm Size (Acres) (House hold)	< 1	20	28.57
	1-3	22	31.43
	2-5	10	14.29
	5-7	10	14.29
	>7	08	11.43
	Total	70	100.00
Monthly Income (House hold)	Less than 3000	22	31.43
	3000 - 5000	08	11.43
	5000 - 7000	17	24.29
	7000 - 9000	12	17.14
	9000 - 11000	08	11.43
	More than 11000	03	4.29
	Total	70	100.00

Source: Field Survey, 2011

It can be inferred from the foregoing analysis that the sampled farmers generally fall within the active farming age bracket but had low levels of education, small farm sizes and low farm incomes. Given these profiles, the availability of infrastructures might help to improve their farm output and productivity.

Table 3 identifies the infrastructure needs of farmers in order of priority. Permanent supply of water for drinking, irrigation and other domestic purposes are mostly needed (100 percent), followed by road network (82.25 percent), power supply (78 percent) and irrigation facilities (71 percent). Storage, Health Care, Education and Communication including telephone services, were in low demand in the study area.

Table 3 Preferred Infrastructure Needs of Respondents

Preferred Infrastructure	Percentage*	Rank (According to Importance) (Rank 1 is major while Rank 8 is minor)
Water Supply	100.00	1
Road Network	82.25	2
Power Supply	77.50	3
Irrigation Facility	71.00	4
Storage Facility	64.35	5
Health Care	62.07	6
Education	58.91	7
Communications	54.60	8

Source: - Field Survey, 2011

*Total observation is more than 100 per cent due to multiple responses

Table 4 assessed the degree of farmers' satisfaction with available rural infrastructures. Water supply and road network recorded zero satisfaction. This may be attributed to the poor condition of rural roads as well as the non-existence of permanent water supply in the entire region. In majority of Bhalukhop and Pudung areas, without water, kitchen gardening are not possible and people experience very painful condition during dry periods mainly during summer months. The farmers were also not satisfied with power supply, storage facilities, health care system and irrigation facilities. This may be because of the non-existence of modern storage and irrigation facilities as well as poor condition of the few available health clinics in the study area. However, farmers expressed satisfaction with the available number of nursery and primary schools. Some secondary schools are there in the study region, where children can study up to Tenth Standard. But for under graduate and above villagers have to go to the Kalimpong town.

Table 4 Degree of Satisfaction of Respondents regarding Infrastructural Services

Preferred Infrastructure	Degree of Satisfaction	Remarks*
Water Supply	0.00	Not Satisfied
Road Network	0.01	Not Satisfied
Power Supply	1.34	Not Satisfied
Irrigation Facility	1.20	Not Satisfied
Storage Facility	1.01	Not Satisfied
Health Care	1.98	Not Satisfied
Education	2.32	Not Satisfied
Communications	3.90	Satisfied

Source: - Field Survey, 2011

*Mean of 3.0 or above is taken as "Satisfied" while less than 3.0 was "Not Satisfied".

Results of chi-square test between selected socio-economic parameters of farmers' and their willingness to contribute to rural infrastructure show that the age, education, family size and

farm size of farmers had a significant relationship with their willingness to contribute to infrastructure development. The coefficient, which shows the strength of relationship, reveals that education and age had a strong association with farmers' willingness to participate in infrastructure development while gender and income had a little association. This result suggests that as farmers' age, education and farm size increases; their participation in infrastructure development also improve.

Water resource forms the most important natural wealth of any region and its proper utilization is a matter of great concern in each and every corner of the globe. Mountains form natural catchments of rain water. Due to its rugged character of terrain, there are only two sources of water and these are- natural stream and rain water. Like every hill areas, the study region also depends on these two sources of water for their drinking purpose, for domestic works and also for agriculture use. Women and men carry water for drinking and for domestic use from distant sources, i.e., from natural streams or locally called 'Dhara' or 'Jhora', but, it is not always possible to carry water for agricultural purpose also. Hence, as a result, the agricultural fields remain uncultivated during dry months. In this situation, rain water harvesting might take an important place. Rain water harvesting is the process of collection and store the rain water for future use. Each respondent was of the opinion that, Government should take initiative to construct storage structures for rain water harvesting. It would solve the problem for dry season agriculture in the study area.

A Centrally Sponsored Scheme (CSS) called Pradhan Mantri Gram Sadak Yojana (PMGSY) has been launched to provide connectivity all unconnected habitations in rural areas with a population of more than 500 persons through good all-weather roads by the end of the Tenth Plan period. In respect of hill regions, the objective would be to connect habitations with population of 250 persons and above. The progress made by PMGSY shows that though 24 percent of habitations were targeted to cover by this scheme under Tenth Five Year Plan, but only 21 percent has been achieved. Another programme namely Bharat Nirman Programme were initiated in 2005-2006 to connect all 500 plus habitations in rural areas for hilly regions.

Suggestions

There are several aspects in the sustainable development of Darjeeling Hill Area where some changes in rural infrastructures will definitely need to the overall regional development. Firstly, structural reform is necessary including introduction of competition into a sector and also providing entry to new players into the sector. Secondly, ownership reforms to some sectors from previously state owned enterprises to some degree of private sector ownership. Thirdly, operational reform plays vital role, where implementation and enforcement of an effective regulatory system covering areas like quality, pricing and access to rural people requires main concern. Fourthly, allocation reform is important which works through enhancing the influence of economic forces and participation of stakeholders in some special areas of infrastructural services.

Apart from all the above mentioned reforms, it is important to note that, regulations are necessary to some extent in the improvement and development in particular region. Certain principles should be maintained in aiming at the change in regulations, like as follows:-

- Any regulatory policy should focus the socio-cultural set-up of the target group,
- Regulations should be simple which help in increasing the accessibility to the rural folk,
- The choice of particular type of regulation should be based on cost-benefit analysis,
- Each and every regulatory policy should have a specific economic rationale,
- Regulations should be subject to careful scrutiny.

The study demonstrated the priority needs of farmers with regards to rural infrastructures, which were almost non-existent in the study area. Permanent source of water, good road networks, storage facilities, power supply and a good health care and educational institution were their most preferred infrastructure needs. Based on these findings, it is suggested that Government and Non-governmental Organizations (NGOs) should collaborate with farmers with a view to provide the needed infrastructures in order of their priorities. This might help farmers to produce higher output, increase their income and reduce rural poverty.

CONCLUSION

The quality of life may not improve despite the construction of new houses unless there is provision for infrastructure. There is a need to provide minimum level of infrastructure such as internal road, water supply, drainage, power supply and so on. The Rural Infrastructure Development Fund (RIDF) helps to solve infrastructure creation banks' shortfall in agricultural lending. Investment in National Rural Employment Guarantee Act (NREGA), Backward Regions Grant Fund (BRGF), Rural Infrastructure under Bharat Nirman etc would strengthen the agricultural sector of the country. The various schemes of MoRD for rainwater harvesting, watershed development and NREGA should be implemented in consultation with MoWR and Department of Drinking Water Supply (DoDWS). There is a need for PPP is strongly recommended by NWP, 2002. Hence, the modern technology regarding water resource development to the field is also needed to be applied in the irrigation command.

Reference

- Chaudhuri, S. (2011), 'Rain Water Harvesting as a Measure for Water Resource Management in Hilly Towns: A Key towards Sustainable Urban Development in India' in Asian Studies, Vol XXIX, No 2, July-December, 2011.
- Jha, U.M. and N. Jha, 'Economics of Rural Development', International Journal of Rural Studies, Vol 15, No 1, April 2008.
- Mondal, N., A.R. Khan, J. Chakma and G. Hossain (2009), 'Family Structure, Economic Security and Educational Status of Rural Chakma in CHT of Bangladesh', Journal of Social Science 19(3).
- Reddy, T. K. (2009), 'Progress of Human Development in India', Journal of Social Science, 18(1).