Chapter VII: Summary and Conclusions

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Significance

Our study began on the premise that in the context of rural development present there is the need of removing the infrastructural bottlenecks to investment and employment activities in the rural areas so as to bridge time, money and other resources at the disposal of teeming rural people and make rural development possible in an integrated and sustainable manner. In fact this was the research problem before us.

In India we acknowledge the the two-fold advantage of focusing on infrastructural development – one the contribution of infrastructure in terms of employment and output; and second, the linkage effects, through which it leads to host of indirect yet significant gains in the economy. While the precise linkage between infrastructure and economic development is itself a vast area for research, our research focussed on the main issue of differences in accessibility of such facilities across states, regions, classes, groups etc. The significance of our research should be understood not only in terms of the legacy of rural development theory and practice in the country but also in the context of the call for renewed focus on rural transformation for inclusive growth. Therefore, while the new programmes like PURA, NREGP etc., show that rural development has not its lost charm even in the era of globalization and growing number of Special Economic Zones (SEZs), there is also the need for looking at alternative strategies for rural development. In a small but sure way our study was an indication of the emerging area of study and research viz economics of infrastructure, specifically rural. Such a research would be unique when it covers people who gained from infrastructural development and people who missed out due to lack of accessibility to such facilities.\(^1\), \(^2\)

We wanted to juxtapose the percolation effect and the participative effect of rural development programmes, with special reference to the study areas. The research problem therefore, was one of removing the (infrastructural) bottlenecks to investment and employment activities in the
rural areas so as to bridge time, money and other resources at the disposal of the rural people. Our basic objective was to identify the causes and consequences of regional variations and imbalances in the levels of accessibility and profitability of the infrastructural facilities among the rural households in case of a single facility or components of facilities. We also intended to investigate the causes and effects of diverse or complementary character of infrastructural facilities in the context of whole-village development. Therefore two of our hypotheses were: (i) there is a positive correlation between infrastructural facilities and rural development, in terms of inputs and output, and (ii) growth of and accessibility to infrastructural facilities determine the mobility of agents of economic change both occupationally and regionally.

The scope of our study was drawn in the framework of the targets of economic growth and poverty reduction, both at the national and state levels. The objectives and hypothesis of our study were analyzed with the help of both primary data and secondary data, being aware of their limitations.

**Summary**

The study – purported to be micro (economic) analysis in character – was intended to find the reasons for varying rates and patterns of economic growth between regions and between time periods, and the cognizable impact of infrastructure on economic conditions of rural communities vis-à-vis community urban communities. Basically we wanted to find the ways in which access to infrastructure promotes economic development in the rural areas with a focus on the complementarity of inputs and linkages between sectors. This, we felt, was required because the pace and pattern of rural development can be influenced and altered significantly by and through infrastructure development in the present
context of privatization and globalisation in the user-provider framework of production and distribution.

For the purpose of focussed attention for research, Dakshina Kannada (D.K.) District of Karnataka was chosen for gathering information on “infrastructure for rural development”. Two taluks from the district, viz. Belthangadi and Mangalore were randomly chosen for micro studies. Ten villages each from the two taluks were identified and surveyed for primary data. After stating the objectives and raising the hypotheses of the present study we also discussed its scope, source, methodology, relevance and limitations (Chapter I).

Being a region-specific study, this research has helped us in ascertaining the specific region’s position and problems with regards to variables under study. It has also helped in highlighting and underscoring the macro-level findings of some earlier studies. This made us concentrate more on ‘mode’ of development rather than ‘speed’ of development. Since we also took into account and incorporated their analysis into our study, we could understand ‘what the rural people feel, what they prefer and why’ in the relationship between infrastructure and rural development. While the district level picture of progress was interesting from the point of infrastructure development, even the village level experiences and results were rewarding.

In Chapter II We tried to conceptualize ‘development’, ‘infrastructural development’ and ‘rural development’ with the help of various theories and models propounded by different economists, including those specialized in regional economics. By examining the indicators, determinants and constraints we tried to know how rural development is integrated with economic development both as a process and product, and thereafter to locate infrastructure in the theory and practice of rural development. Diversified literature was reviewed following a socio-economic approach to research. We saw how in New Economics development of infrastructure could be viewed as an indicator of economic
development, particularly in the context of geographical dualism of which rural-urban disparities are a subset. Studies conducted in low income countries like India have revealed that most of these countries are rich in natural resources but remain largely passive. They pinpoint that one of the causes of the passivity is rigidities due to inadequacy and/or inefficiency of infrastructure sector, particularly for rural development. Nobody, for instance, can deny that agriculture which is the mainstay of the people, suffers from low productivity due to infrastructural inadequacies such as poor transport and market systems, shortage of power etc. Development thinkers have, therefore, discussed the strategies that can be adopted to achieve rapid economic development. One such strategy is the Public-Private Partnership (PPP) model, which is doing rounds today. One of the outcomes from the literature review was that there are many angles and arguments regarding the relationship between infrastructure and rural development. The short-term and long-term concerns are not necessarily parallel to one another.

New themes and concepts are evolving (e.g. inclusive growth), making the arguments, inconclusive. The silver lining however, is the trend towards cohesion: transdisciplinary and multidisciplinary approaches to the study; combined efforts by academicians and practitioners of rural development; multipronged strategies; and cooperative efforts by Governments and NGOs; leading towards a holistic approach to infrastructure for rural development. This convergence is a positive and joint contribution of the many stakeholders of rural development for understanding the crucial parameter of infrastructural development, viz. accessibility. In India for instance, such knowledge can help in mitigating rural poverty and preventing rural exodus and capital diversion to towns and cities, caused from underutilization of infrastructural facilities in the rural areas. Thus, theoretically and practically, ‘accessibility’ is a decisive factor in infrastructure for economic development, both for the urban areas and rural areas. Accessibility parameter can at one stroke integrate the
‘area development approach’ and the ‘beneficiary oriented approach’ (i.e. ‘people development approach’).

Having discussed the research problem – conceptually and theoretically – in general, we wanted to analyze the position and possibilities of infrastructural facilities in regions experiencing development. Hence in Chapter III we made a study of the nature and significance of infrastructure as an input and an indicator of rural development with particular reference to the Indian economy. Practically, infrastructure refers to power, water supply, irrigation, roads and buildings, transport etc. In the theory of public expenditure, infrastructure has been categorized as ‘public goods’ that have to be determined by the government or state (Rajagopal). In its widest sense ‘infrastructure’ includes all types of services, amenities and accessories, which – directly or indirectly – help the structure of the basic productive sectors of the economy of a region viz. agriculture, allied activities and non-agriculture (Sadhu and Falendra). Infrastructure is an umbrella term for many activities referred to as ‘social overhead capital’ and has both technical and economic features (World Bank). We have also noted the succinct distinction between physical infrastructure and social infrastructure.

The reporting of data in India, so far, seems to equate basic industry with infrastructure, a relic from the planning era. The approach we proposed is one that first seeks to theoretically set out what constitutes infrastructure and then identifies specific facilities, which provide infrastructure services. Today infrastructure activities, such as power, transport, telecommunications, provision of water, and sanitation and safe disposal of waste, are central to the activities of an average rural household and to economic production. Without them economic production as well the quality of life will deteriorate. We therefore, have viewed these activities as essential inputs to the rural economic system. But we found that the reporting statistical data in India itself is inadequate
and low in accessibility. This is problematic for researchers. Moreover, there is no official infrastructure index at the moment. Attempts to construct development indices based on infrastructural variables are few and far between. This makes direct measurement of impact of infrastructure on economic development that much difficult.

If measurement is one difficulty in infrastructure, management and maintenance are the other. This fact is amply borne in case of electricity infrastructure in the rural areas of India. Thus, the importance of infrastructure in rural India is realized both in positive sense and negative sense. At this juncture we deemed it fit to discuss the highlights of some case studies – conducted in different states of India – too. A careful examination of these studies by us has brought out the nexus between infrastructure and regional development in the form of a causal reasoning: existence of regional/human poverty- low income - low activity- low infrastructural development. We found that underdevelopment (or poverty) is due to underutilization of resources and facilities. It means that infrastructure is not less important but it is relatively less available and/or accessible over time, between persons and between regions.

Thus, we have come out with strong evidence of positive relationship between infrastructure and rural development. Even if somewhere there is a relatively unchanged situation in infrastructural development between two or more than two time periods, the possibility of perceived changes within and between the infrastructural variables cannot be ruled out. Moreover, between time periods not only the key infrastructural variables change but also the way they are handled, change. Variations in public and private preferences, priorities and polices regarding the infrastructural facilities, notwithstanding the impact of infrastructure development on rural development is tangible and far-reaching. But as Parikh says, Indian economy is plagued by inadequate infrastructure. This statement is indicative of the many failures in planning
for rural development, a task that is largely characterized by perplexed priorities and missed opportunities.

The inference for us is that the status and strategies of rural infrastructure in India need to be discussed in the light of certain facts, viz. its crucial linkages with the country’s economic growth, poverty alleviation and human development, the poor availability and accessibility of rural infrastructure in India and the need for its reform and development. Our argument, in other words, was that improving the accessibility to infrastructure for all the villagers virtually means making rural development inclusive and visible. This point led us to the most relevant topic of PPP for infrastructure development, a change for the government from providing public goods itself to provisioning the goods. India’s experiences in PPP are already visible in various states, including Karnataka.

In Karnataka the shift was always in the offing what with the recommendations of the Nanjundappa High Power Committee Report for Redressal of Regional Imbalances (2002), the crux of the matter being “how to make infrastructure, affordable, accessible and acceptable” to rural people in the state. Accessibility is the working arm of the modern approach to designing, developing and delivering infrastructural facilities for attaining rural development, quicker, yet smoother. We have underlined accessibility parameter also because it sets the tone and tenor and tone of balanced economic development even in a developed state like Karnataka suffering from the ills of disparity. Accessibility will soon become the decisive factor for infrastructural projects in rural Karnataka. Nay, it already has.

We have devoted a separate chapter, i.e. Chapter IV for describing our study areas. The profiles of Karnataka State, Dakshina Kannada District, Belthangadi Taluk and Mangalore Taluk have been provided therein. Care was taken to seen that we do not simply examine the general features of the study areas but throw light on the scope for
infrastructure development in them. For example we have analyzed the strengths of Karnataka in decentralized administration, IT and BT, of Dakshina Kannada in banking and education, in SHGs of Belthangadi, and in cooperative societies of Mangalore. We recognise them as developmental forces rather than mere institutions in action. At the same time – using secondary data – we have listed the major weak points in our study areas viz. slow decline in poverty, relatively low human development and unhealthy combination of rural vulnerability and rural disparity. These and other features speak of the difficulty faced by the consumers, producers and administrators in coming to terms with infrastructure for rural development. While the infrastructure and public facility backlog in some parts of the study areas are enormous, and will remain a challenge for the foreseeable future, in many it is its ‘inaccessibility’ that is causing concern. Therefore, we had to relook at these areas not so much in terms of their resources as their infrastructure framework and requirements.

The strengths and weaknesses of Dakshina Kannada and its development experience have much to do with infrastructural facilities, our concern in the present study. The need for a strong network of infrastructure in the district as a whole and in rural areas particularly, is increasing with the changes in the size and structure of the district’s population, changes in natural environment, occupational pattern and lifestyle of the people etc. Infrastructural bottlenecks with regards to drinking water, irrigation and power etc., have already emerged in the district. In the light of futuristic plans for developing agricultural, industrial and tertiary activities in the district (e.g. tourism sector), these bottlenecks have to be removed at the earliest, without ignoring the villages.

Juxtaposing the information on Belthangadi Taluk and Mangalore Taluk has helped us draw useful insights for our study on the relationship between infrastructure on rural development. Mangalore has the largest number of villages in the district, followed by Belthangadi. The two taluks together have 46 per cent of the villages in the district. The profiles of the
20 villages of these taluks selected by us give their distinct rural characteristics for the sake of comparison. Rural activities are so brisk in Belthangadi taluk that there is always a need for the best of infrastructure. The villages of Mangalore are so close to the city both in terms of geography and exchange relations that they are more rurban compared to the villages of Belthangadi. This contrast has caught our researcher’s attention at the first instance. Similarities and dissimilarities between the two taluks, and how they respond to the increasing demands for infrastructure made an interesting study in rural development.

In Chapter V we have analyzed the available census data regarding the status of infrastructure for rural development at the national, state and district level in order to assess the potential, performance and factors of development. For the sake of intensive study, in our analysis of census data we have focussed on only five key facilities, (called by us as infrastructural variables), viz. education, irrigation, marketing, transport and health. We have discussed the state of rural infrastructure – in the stated five variables – particularly in relation to accessibility to infrastructure. Growing gaps both in coverage and required investments in the five infrastructure sectors at the national level are revealed. It is a fact that acute power crisis, lack of accessible roads, poor sanitary conditions etc. The fact is supported by figures provided by public and private agencies. The general trend is that the quantity and quality of infrastructure services are much lower in the country’s rural areas than in its urban areas (NCAER).

As far as the state of Karnataka is concerned, it is presently a developed state with visible impact of infrastructure on production and income. But the impact could have been more if along with increase in investment on infrastructure there was increase in accessibility and utilization also. Resourceful Karnataka with a higher average state per capita income than the neighbouring Karnataka has a lower Infrastructural Development Index (IDI) (9) than Kerala (3). If a state like Karnataka
which has an IDI higher than the national average still has substantial rural poverty, there is much to read from its infrastructural development. To give one example, Karnataka’s agricultural markets lack many basic facilities.

From the analysis of data on infrastructure in Dakshina Kannada District we understand that Belthangadi lags behind Mangalore in many of the infrastructural facilities in the rural areas. One such area is education infrastructure. Even though the district is brimming with academic activities and knowledge diffusion, there are low levels of literacy in many parts the former taluk, and we note that Belthangadi Taluk has the lowest literacy rate fact the lowest in the district. In case of irrigation infrastructure also we see similar disparities. Belthangadi has twice the cultivable area of Taluk, but irrigation facilities are largely inaccessible in Belthangadi. Complementary inputs like electricity are grossly inadequate in the villages of Belthangadi Taluk compared to the villages of Mangalore Taluk. Therefore, water use efficiency is lower in Belthangadi compared to Mangalore. Similar distortions are found in market and transport infrastructures also. For example, Belthangadi has very small length of APMC roads compared to Mangalore and a small percentage of asphalted/metalled rural roads, whereas in Mangalore that proportion of rural roads is very high. In health infrastructure also Belthangadi leaves much to be desired vis-à-vis Mangalore. Even though health centres are available in the villages they are not wholly accessible for want of doctors, drugs, blood, beds etc. This is not to state that Mangalore Taluk is in the pink of health as far as health infrastructure is concerned. There are intra taluk differences here. In Bala village for instance, there are no health centres. But whatever is lacking in terms of public provision of infrastructural facilities is being made good to by private distribution. This tendency however, is stronger in Mangalore.

Thus, our analysis of census data brought out certain inter state, intra state, inter district, intra district, inter taluk and intra taluk differences and deficiencies in the progress and accessibility of infrastructural
facilities. Belthangadi Taluk has lagged behind Mangalore and Udupi taluks in infrastructural development. Rural development in this taluk as in the case of the other taluks, will be determined to a large extent by the existence of varied infrastructure and its utilization. The level of utilization in turn will be shaped largely by people’s access to infrastructural services in the village and its vicinity.

Having derived the analytical strength from secondary data we took up the task of analyzing the primary data collected by us during field investigations in the study taluks. This gave us the much needed micro picture of infrastructure development in our study villages as the data were directly collected from village households. The whole exercise of collecting primary data was richly rewarding not merely for giving the present study an empirical base, but also giving us an opportunity to live and interact with villagers and to know the pulse of the people.

A large amount of data was collected and analyzed. Here we also tested the research hypotheses made. Data that we found to be statistically more significant and relevant in view of the objectives of our study have been presented in tabular form followed by their descriptive analysis in Chapter VI. In this chapter initially we examined the nature and sources of the data. Then we examined the baseline information from the households surveyed. From the pooled data we correlated each of the five infrastructure-variables chosen to the economic development in the rural areas. We also measured the overall impact of infrastructural facilities on rural development. Finally we developed a simple model of infrastructure for rural development encompassing the key variables studied. All through the analytical exercise the ‘accessibility’ parameter of infrastructure utilization and development was kept uppermost. Since ours is essentially a comparative study (of two taluks) in the district, we deliberately avoided direct comparison of inter-village trends within each taluk.

In both the taluks agriculture is the main occupation. While facilities for education and occupation are present even in Belthangadi the actual
performance is not commensurate the potential due mainly to lack of accessibility. Yet we found a descending order of illiteracy in Belthangadi as well as Managlore. What this indicates is that an upward movement in educational levels and standards has an important bearing on income. As the rural people got better access to education they moved out of the poverty circle in a slow but steady manner. In Belthangadi the coefficient value has increased substantially when households moved from primary to high school and very sharply when they moved further to PUC and degree whereas in Mangalore it is substantial for movement from primary to high school. Thus, our hypothesis that there is a positive correlation between infrastructural facilities and rural economic development was proved.

With respect to irrigation infrastructure, we found that full users of this infrastructure is more in Mangalore Taluk compared to Belthangadi Taluk and partial users are marginally more in Belthangadi compared to Mangalore. More than 50 per cent of poor households in both the taluks had no access to irrigation infrastructure at all. This is another indication of the vulnerability of the poor to missing opportunities of development due to poor accessibility to infrastructure. At the same time we found that as households moved up from poverty level (say BPL) to higher income level they were in a better position with regards to availability and accessibility of irrigation infrastructure. Belthangadi’s water scarcity was less acute, understandably due to relatively less rainfall as well as perennial pressure from non-agricultural uses of water in Mangalore Taluk. In Belthangadi Taluk, however, poor supply of power is still a big problem.

Of the total number of partial-utilizing households the largest proportion is in the low income group and the lowest is in the high income. We found proof to our hypothesis that rural development is impeded by the under-utilization of existing infrastructure, with regards to quantity and quality. A major reason for low accessibility of irrigation is the problem of electricity supply. The problem of power shortage is affecting rural
development very badly in Belthangadi Taluk compared to Mangalore Taluk. We have proved the hypothesis that the expansion of infrastructural facility without a corresponding improvement in its accessibility leads to sub-optimal utilization of services associated with the facility.

We saw that planning for production and distribution of electricity and alternative sources of energy (e.g. solar power) are slow and ineffective, even neglecting the high indivisibilities and low import intensities involved in such projects as of now. This validated our hypothesis that due to high indivisibilities and low import intensities of infrastructure, a high initial investment must precede directly productive activities. The poor access to electricity indicated towards inhibitive factors such as implicit costs.

As far as market infrastructure is concerned we found a correlation between market accessibility and income level of the households, this largely through the means of transportation. Here again, it is Belthangadi that is suffering from more than Mangalore from poor accessibility. Among the various reasons or difficulties for market access faced by the sellers in Belthangadi Taluk, the biggest problem for the BPL group is that of transportation, for the low income group it is financial constraint, and for the middle income group it is transportation. In Mangalore, the biggest problem for the BPL group is that of transportation. For the low income group also it is the transportation problem whether taken separately or along with the price factor. The main problem faced by the middle income group of sellers is again that of transportation. When we clubbed the BPL and low income groups we found that the main factor that deters them from going to distant markets is that of inadequacy and inaccessibility of co-operant factors like that of storage, handling etc. This is true both for Belthangadi and Mangalore. Markets are expanding but accessibility to them is still a problem. Therefore, our hypothesis that expansion of an infrastructural facility without a corresponding improvement in its
accessibility leads to sub-optimal functioning of services associated with has been proved.

Another variable of our study viz. transport infrastructure for rural development in our study was examined by considering the condition of village roads, accessibility to these roads, availability of fuel, training facilities for drivers, bus shelters etc. Roads and road transport have very much affected growth and development in our study taluks. In Belthangadi when roads improved from ‘moderate’ to ‘good’ the proportions of households in the BPL group and low income group have declined considerably. In Mangalore, the relationship, however, does not appear so strong. In Belthangadi there is a significant fall in the proportion of BPL and low income households when road and transport facilities improve from moderate to good.

Health infrastructure was also analyzed by us. We found that preventive care in Belthangadi was at a very low level (one percent) compared to Mangalore. Lack of medicines, manpower and equipment speak of poor accessibility. We also found a correlation between income and type of hospital, with people with relatively higher income opting private hospitals even the remote ones. Among the rural poor in Belthangadi, local-government health service comes first. We got a public-private mix picture here. Hence our hypothesis that neither governmental initiatives nor private participation alone ensures effectiveness of rural infrastructure but an appropriate public-private partnership in investment and management makes infrastructure projects cost-effective while protecting the interests of the consumers and sustainability of the environment, was proved.

The overall impact, to be precise was that better access to infrastructure had made visible impact on rural development, seen not merely in a rise in income, but also a progressive change in crop pattern (single to multiple and mixed), acquisition of tangible assets such as land, house etc., and expenditure pattern due to better accessibility to
infrastructural facilities. Many households had bought additional or new lands due to improvement in their income levels. The economic conditions of the majority who bought land had further improved, with the improvement in Mangalore, however, being greater than that in Belthangadi because of better accessibility to complementary resources. This was the proof to our hypothesis that the growth of and accessibility to infrastructural facilities determine the mobility of agents of economic change both occupationally and regionally.

Another phenomenon occurring due to better accessibility to socio-economic infrastructure is the decline in the proportion of agricultural labourers, and corresponding increase in the number of land owners, entrepreneurs etc., the decline being very large in case of Belthangadi. Infrastructure is becoming more and more permissible and accommodative. The rural-urban relations in these two taluks have been one of reciprocity, compatible with the overall economic development pattern.

We also observed and measured some qualitative variables of development. In Belthangadi 76 per cent of the respondents and in Mangalore 85 per cent of the respondents were found to possess moderate to high level of ‘awareness’ about economic issues related to infrastructural development. Their responsiveness and responsibilities had helped them to be active participation in rural development and in accessing the facilities in a better way. Our hypothesis that the attitudes of users and providers of basic services affect the degree and direction of delivery of service, during a period of time had thus been proved.

Further the need for and knowledge of infrastructure is creating a silent revolution in the countryside, combining physical, financial and human resources innovatively. New opportunities and businesses emerged. To use such opportunities many villagers had to remain in the villages. Infrastructure development is making them stay in the villages and promote rural development without creating pressures on the urban
This shows that the latitudinal and longitudinal growth of rural infrastructure also makes the process of urbanization more compatible with the overall economic development pattern.

Of the five variables we have studied, education has had the strongest influence on development in the rural areas and its strength in Mangalore Taluk is greater in Mangalore. The better impact of education in Belthangadi seems to have made up for the poor accessibility to market, transport, and irrigation although they are not substitutes to one another. Health infrastructure is stronger in Mangalore compared to Belthangadi. Thereby, our hypothesis that no region is equally developed or under developed with respect to all the variables was validated.

Thus, the access to education, irrigation, transport, marketing and health has had positive relationship with rural development. Statistically the strength of the relationship is 34.9 per cent in Belthangadi Taluk, 30.4 per cent in Mangalore Taluk, and 23.2 per cent for the combined data of the taluks. In other words, Belthangadi Taluk is more developed than Mangalore Taluk in terms of infrastructure and rural development and its main cause is the better accessibility in the former compared to the latter.

We have concluded the chapter on primary data with our own model of rural development in relation to infrastructural development. The model shows that rural resources, rural activities, rural projects and rural planning are engulfed in investment on and development of infrastructure.

**Major Findings**

Some of the important findings of our study on infrastructure for rural development are as follows.

1. The study region continues to be largely rural despite strong influences of urbanization and modernization.

2. There are strong linkages between progress in infrastructural facilities and sustained output. Villages with larger facilities and better availability have improved levels of productivity, production,
employment and quality of growth. People having better access to infrastructure have gained: improved efficiency, profitability and entrepreneurship.

3. Villages having value of agricultural output above the average are better placed in terms of rural infrastructure (irrigation, roads, school facility) than the other villages.

4. Disparities in the amount of the facilities – availability and accessibility – were observed at the intra-district level, intra-taluk level and inter-village level.

5. It is found that Mangalore taluk has better access to infrastructural facilities due to strong complementary inputs. Right “infrastructure-mix” also matters.

6. Belthangadi is better organised in rural development activities and the people are more responsive about their needs and roles. The role of NGOs is noteworthy here.

7. People have their choice preferences regarding providers (ownership) of infrastructural facilities: public and private. But the precise linkages between ownership and output growth remain debatable.

8. Having schools and colleges far way from homes was not as intolerable as not having roads, water and health facilities at close proximity for the households.

9. In the case of market infrastructure, distance and prices were more significant than godown facilities.

10. Gains from infrastructural development have been reinforcing in that people have gone for subsidiary occupations, and new ventures. The shift from traditional agriculture to modern agriculture or from primary activity to tertiary activity reiterates the need for more and varied infrastructure in the rural areas.
11. Although there is some relationship between the levels of participation and progress of facilities, the level of participation itself is low.

12. People are politically active but general discontentment about lack of political consensus in the case of developmental works is evident.

13. The villagers have the quality of inquisitiveness. They want to know about the polices and programmes on the anvil and also about the need for this type of studies. This is most encouraging for the researcher.

14. In the development field since 1990s infrastructure is an institution by itself.

15. Development (including utilization) of infrastructural facilities is evolving as an important indicator of economic development although in a less coherent manner at present. In the context of rural development attempts at devising and applying infrastructural indices have been to say the least, meagre.

Thus, a positive relationship between infrastructure and rural development is evident. But low accessibility often obstructs the favourable impact of infrastructure on income and welfare of the rural people. There is a need for a rural development model or mechanism to have ‘first things first agenda’: foundation is infrastructure. The thrust should be on improving accessibility. This will ensure that growth will be not only being extensive and intensive but also inclusive.

**Observations and Conclusions**

Infrastructure’s role in rural development is receiving renewed attention in research and developmental programmes. This is our primary observation. There is evidence for strong linkages between infrastructural
facilities and income generation of the people utilizing the services of infrastructure, which has led to their socio-economic development over the years.

In our study the strongest linkage was observed between education infrastructure and economic development, in the study taluks Belthangadi and Mangalore, with the latter being in a better position than the former. Since education is a vital component of human and social capital we infer that its development in turn can influence other factors and forces of development in the rural areas. The linkages of irrigation, market, and transport and health infrastructure have been found to be relatively less in our study areas. That does not mean they are less important. It is only that at present their services are less affordable and accessible to the rural people. Time, money and space (distance) are posing challenges to users of infrastructural services. Sometimes the quality of services is also much below the desired levels. Another reason for low accessibility of facilities is poor management of infrastructure. Pricing and distribution of services and ill managed, as we have observed in the case of electricity and irrigation.

We observed that poverty is still the main problem in rural areas but what is striking even in the developing areas is that inaccessibility to infrastructural services is its main cause. While urban infrastructure development got all the attention in the wake of modernization through LPG, rural infrastructure received scant academic attention and planned allocation of funds. Major gaps in research coverage, data base and investments are very disturbing as we observed during our study.

Another observation is with regards the nature of supply (providers) of infrastructural services. Where public sector initiatives have been low or slow, private sector has stepped in to fill the void. Privatization is the in-thing. Corporatization appears to be the next step. Even the conservatives are today less sceptical about the role of private sector in infrastructure supply and management of the rural areas. Yet public sector seems to
hold sway among certain categories of households (users). Therefore, PPP principle has many takers.

Besides the rate of economic growth, the composition of growth also matters. We got to know the aspirations of villagers. They want the provisioning of infrastructural facilities to be broad-based and free from exploitative forces. Future plans and programmes of infrastructure for rural development have to give due consideration to user-provider exchange relations and preferences too.

We also observed that the pay-off from better infrastructure services goes beyond technical and financial economies. The rural people who have been closely related to natural environment vis-à-vis are now exhibiting such a trait even in relating to infrastructure. In other words, villagers’ perception of a ‘resource’ psychologically and socially is influencing infrastructural facilities also. This is the real strength of rural areas. Hence in Dakshina Kannada and more specifically in Belthangadi Taluk the concept of division of labour has graduated to the concept of cooperative labour. The cause of difference in the levels of economic development, therefore, lies not much on attitude than on aptitude. The difference, sadly has led to economic disparities due to bottlenecks in facilities. ‘Accessibility’ to infrastructural resources and services, therefore, holds the key to development of the under developed rural areas today.

**Suggestions**

While examining the relationship between key ‘infrastructural variables’ and ‘economic development’ we have discussed various issues including problems and their causes. We therefore, deem it necessary to offer a few suggestions in the light of our findings and observations. They are as follows.

1. Since rural poverty and wide disparities, have persisted despite various developmental plans and programmes, we need to look for some lasting solutions. Our study has established statistically a
strong and positive relationship between infrastructure and rural development through productivity increases. Hence we recommend that infrastructure development be the core plan for rural development in future. Education infrastructure is found to have had greater impact on income generation than health, market, irrigation and transport. But this does not mean that health, market, irrigation and transport are less important in rural development. On the contrary their availability and accessibility should be improved for achieving balanced economic development.

2. Wherever infrastructural facilities do exist in some form and size, the under development is mainly because of their inaccessibility. Therefore, we suggest removal of barriers to utilization of infrastructure which is critical to poverty reduction and sustainable economic development rather than availability of some infrastructure in isolation.

3. Many an infrastructure project of rural areas has suffered from a-Sympathy or adhocism. This trend must end. Allocation of funds to this path of rural development should be prioritized and streamlined on the basis of justice, equity and security of rural people. Apart from venture funds, vulture funds (i.e. distress asset funds) should also be made available for rural infrastructure projects.

4. The stakeholders of infrastructure projects should strike a balance between Open Access Projects and Limited Access Projects. One alternative that we suggest for overcoming monolithic and monopoly structure is that of Community Infrastructure Projects’. Such projects ensure more participation at the grassroots level and help reduce disparities by good governance. In fact projects which are small and simple in design but big on social dividends need to be given importance.

5. Management of infrastructural projects and services need to be fine tuned. We need no go far to search for good managers. There are
many rural entrepreneurs and institutions that are doing well in their present ventures. They need to be promoted and encouraged to seize the opportunities to empower rural people through asset creation from infrastructural development. An integrated approach is required to develop rural entrepreneurship and infrastructure.

6. Rural human resources also should be developed to foster effective decision-making, handling of externalities and market forces.

7. An appropriate 'rights-duties mechanism' should be set up in the village society/polity to act as a check against social and political forces that may disrupt the development and management of infrastructural projects. Social and economic overheads when properly managed are by themselves effective tools to deal with forces that create disparities.

8. There is a felt need for strengthening the data base regarding infrastructure development in the rural areas. Adequate and timely data on the various infrastructure projects and the flow of services there from would go a long way in identifying bottlenecks and initiating policy measures to achieve rural development through infrastructural development.

To conclude, our micro study using both secondary and primary data related to five infrastructure variables revealed that infrastructural facilities, particularly education, irrigation, market, transport and healthcare play an important role in reducing rural poverty, directly and indirectly (i.e. through diversification of activities and increase in productivity). We have supported our arguments by cases studies, data analysis, SWOT analysis and model building. The specific of the study have thus, been adequately fulfilled. Our primary data although limited two taluks of one district in Karnataka, has the feature of diversity because the villages we visited were widely dispersed geographically and varied in the levels of development. The bringing together of five different variables in one study
implies that further studies in this area could develop and use composite use indices of infrastructural development. The approach and the results of this study with all their limitations, could justify the emphasis placed on improving rural infrastructure. A healthy debate on the lines indicated by us may follow. In the meantime we call for increased interest and investment in infrastructure for rural development.
Notes and References

1. Commerce and Industry Minister Kamal Nath has said that it is important to make India’s growth story more relevant for the people in rural areas. While the growth rate of the economy was impressive, there was need for a course of action that the rural sector did not get excluded. With new challenges, new needs and opportunities emerging in the rural areas, a real transformation of the rural economy is possible (The ET Finance, “Kamal Nath plays rural chord on eco growth”, The Economic Times, Tuesday 9, October, 2007, p. 13).

2. If at any time optimum accessibility of infrastructural facilities is not attainable due to financial constraints of the users, the problem needs to be worked out in terms of financial infrastructure too.
   
   On October 9, 2007, the Central Government said that it will set up two funds – Financial Inclusion Fund and Financial Inclusion Technology Fund – of Rs.500 crore each to facilitate easy credit availability to the poor. This is based on the interim report of the Financial Inclusion committee chaired by Dr.C. Rangarajan. The Centre has already set up a Rs.100 - crore fund to contribute to equity in microfinance institutions. In this regard, the Finance Minister Mr.Chidambaram, speaking on the occasion of the 4th annual edition of Microfinance India Conference conducted by Access Development Services, has emphasized the SHG-bank linkages due to features such as low transaction costs, near-zero Non Productive Assets (NPAs) and access to rural clientele (The ET Finance, “Govt to set up two Rs.500-cr funds to help poor citizens”, The Economic Times, Wednesday 10, October, 2007, p.13.).

3. Programmes like PURA, NREGP discussed earlier in our study should be compared and contrasted with the Nurksian and Lewsian theories of surplus-labour utilization. While these theories suggest radical shift in rural demography for the absorption of rural surplus labour in urban capitalist sector, the main feature of the programmes mentioned is the creation of employment for rural people in the villages itself.
   
   Diversified and value–added agriculture with export-orientation is another avenue for rural prosperity without uprooting rural populace. In DK for instance, floriculture, apiculture etc., need to be emphasized with this angle.
   
   With better infrastructural facilities like that of communication, the opportunities for appreciating the commercial value of floriculture can be tapped to a larger extent than at present (Kiran Kumar P., Jayasheela and V. Basil Hans, “Commercial Floriculture in India: Opportunities for Cut Flower Development”, Southern Economist, Vol. 46, No. 11, October 1, 2007, p. 18).