Chapter I: Introduction

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Relevance of the Study

Infrastructure is a very important need. While agriculture and industry are considered as the body and bones of an economy, infrastructure is its lifeline. Adequate, quantitative and qualitative infrastructural service is a prerequisite for accelerated economic development, especially in the context of Structural Adjustment Programme (SAP) and the concomitant Liberalisation, Privatisation and Globalisation (LPG). India which is basically rural and occupationally agrarian, needs to acknowledge the two-fold advantage of focusing on infrastructural development – one the contribution of infrastructure *per se* in terms of employment and output; and second, being of the nature of ‘permissive’ to investment, and having linkage effects, they lead to host of indirect yet significant productive activity in the economy. However, the precise linkage between infrastructure and economic development is subject to debate (even in India). Equally important is the issue of differences in accessibility of such facilities across states, regions, classes, groups etc. Such being the case there is going to be “backwash effects” on some and “spread effects” on the others. Therefore, there is a need to analyze the impact of the infrastructure in development of the different regions and classes – both at the macro and micro-levels.

Going by the demographic definition of the economy, India still lives its villages but the share of rural areas in the national income has been declining at a faster rate than their share in population. The village in India is not at all idyllic. One disturbing feature in the development since the 1990s is the widening gap between rural and urban income growth. So have been the disparities in consumption expenditure, household assets and production capital etc. Socio-economic disparity however, is only a preface. We have to go into the phenomenon and it requires a deeper analysis of factors leading to the disparities, before arriving at policy measures to reduce the gap. Inadequate infrastructure, research and extension, and capital formation have compelled a widening disparity
between the rural areas in consumption, production, distribution and livelihood. The research problem at hand therefore, is 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 teeming rural people and make rural development possible in an integrated and sustainable manner.

The important link between infrastructure development and sustaining rapid growth and economic development, thus, cannot be overstated. *World Development Report 1994* – the seventeenth in this series by the World Bank Development – with its sub title ‘Infrastructure for Development’ came as an eye-opener with a clear message on pervasive impact of infrastructure on economic development and human welfare. Subsequent Reports have carried forward the legacy in one form or the other. Infrastructure is today the biggest challenge and the biggest opportunity to the stakeholders of development. Governments around the world – rich and poor alike – confront the problem of how to ensure their people have access to efficient, reliable, safe and affordable infrastructure services. This challenge is particularly acute in developing countries, with many low income households and communities and where density, distance and resource availability often conspire to increase costs. Governments and stakeholders have been addressing the problem in different ways, providing a rich body of experience with policy responses to this problem. Technology and economic thinking continue to evolve, opening up new policy options and opportunities for addressing the challenge of improving access, and thereby new areas of research.

Rural Asia is undergoing unprecedented changes through increased intra-country and global interconnectivity, through media, migration, trade, and tourism. Because of these changes, rural poverty requires new policy responses. We need studies that seek to identify what and how an individual/institution can do best to contribute to on-going efforts in rural poverty reduction. Some of the earlier studies have
identified some of the key causes for the persistence of rural poverty: (i) low or stagnant economic growth in rural areas; (ii) inadequate investment in human capital, agricultural technology and infrastructure; (iii) inadequacies in institutional mechanisms that address the needs of the rural poor.

The Ninth Five Year Plan document, released in March 1999, forcefully brought to light the need for attaining ‘growth with social justice and equity’ in the era of economic reforms. This calls needs to be seen in the light of previous guidelines given by the World Bank in its Development Report of 1994 to the developing countries, including India:

“Infrastructure can deliver major benefits in economic growth, poverty alleviation and environmental sustainability – but only when it provides services that respond to effective demand and does so efficiently. Service is the goal and measure of development in infrastructure. Major investments have been made in infrastructure stocks, but in too many developing countries these assets are not generating the quantity or the quality of services demanded. The costs of this waste – in forgone economic growth and lost opportunities for poverty reduction and environmental improvement – are high and unacceptable ….. In addition to taking steps to improve the performance of infrastructure provision under their direct control… governments are responsible for developing legal and regulatory frameworks to support private involvement in the provision of infrastructure services”.  

Those concerned with development issues and process of economic development in general and of rural development in particular are emphasising the need for infrastructural development. In fact ‘infrastructure’ is the major development theme today in the developing countries. For a rural predominant and developing country like India, therefore, infrastructural deficit is the most glaring deficit. Development debates on infrastructure are alive even in the era of reforms thereby making reforms endurable and sustainable.
There is an increasing awareness among development thinkers and planners and entrepreneurs regarding the urgent and ubiquitous need for infrastructural development. This is evident in the emerging discussions, deliberations and documents on the topic. But this positive trend has largely been confined to Urban (although some efforts such as Bharat Nirman Project, National Rural Employment Guarantee Act 2005 have come about in recent years to improve rural poor’s access to basic services. There is always some point of discussion or reference or policy initiative – both in the public and private domain – regarding urban infrastructure. So we see, hear or read about sky-buses, multiplexes, mega cities, mega projects and so on – all for making urban life more and more comfortable. Modern development seems to have bypassed the rural areas. This lacuna is reflected in literature too. Not many studies have been conducted regarding the infrastructural problems of rural areas in a holistic manner. Even some of the available literature on the subject is limited in scope and content for want of focus on accessibility parameter of development. The present study, therefore, makes an attempt to fill the research gaps in this field of inquiry.

Symbolising the overlapping interest in the social and economic aspects of Rural Development and the role of infrastructure in it, the present research entitled, "Infrastructure for Rural Development – A Comparative Study in D.K. District" is undertaken.

The present study has taken Karnataka State as the universe. Karnataka the only state where gold was mined is celebrating its Golden Jubilee Year of its formation ("Suvarna Karnataka"). Karnataka is one of the fastest growing Indian states today but is still poor state. Poverty ratio in 1999-2000 was 22.7 per cent (Deaton-Dreze estimates). The state is predominantly rural economy with a declining trend in rural poverty. According to 2001 census, about 348 lakhs of its people, out of a total population of 448 lakhs live in these rural habitations. That constitutes about 69 per cent of the State’s population.
While the exodus of rural population to urban areas is going on there is also a structural change from traditional farming to modern farming and from farming to non-farming activities in general. Today therefore, the pressure on resources and services is not just that of quantity and utility, but also that of quality and diversity. From agri-infrastructure to rural infrastructure – there is a rise in demand in the rural areas whereas the supply is inadequate. Globalisation has impacted a positive growth in Karnataka but the sheer weight of rural backwardness is making development difficult. The development trap is attributable to lack of adequate infrastructure and high cost of basic services. Karnataka is known for its diverse regions, rich cultural heritage, and landmark achievements in the fields of land reforms and decentralisation, its pioneering performance in IT and IT related services. Its economic boom is visible clearly alongside agrarian crisis. It has marked regional disparities in levels of human development and infrastructural development.\textsuperscript{3} The study therefore, has chosen Karnataka as an avenue for rethinking the rural development paradigm and possibly come out with alternatives that give most rural Indians access to facilities and infrastructure that they have an economic use for. From the policy angle this also means reprioritizing our goals. Ultimately two things will have been simultaneously achieved: a disincentive for dislocation and an incentive for relocation, both for the sake of real rural development.

In the context of rural development needs and progress of India in general and Karnataka in particular, this study tries to focus on the present position of infrastructure in Karnataka and one its districts viz., Dakshina Kannada (D.K.). In fact it is a comparative study in D.K. District. The two areas chosen for field study are Belthangadi and Mangalore taluks of D.K. District. In the light of various theories of economic development and of rural development the different policies and programmes of building infrastructure and their impact on the standard of living of the rural people is analysed by obtaining field-data. Unlike some other studies pertaining to
rural development in India, the present study analyses the role performance of infrastructure both as a means and an end considering the criticality of diverse socio-economic factors. It is expected that such a study would not only be informative but also indicative of a general trend in development programmes enabling high-status leaders take a genuine interest in the welfare and development of the rural poor.

Knowledge on infrastructure for rural development based on country-experience will make ‘economics of infrastructure’ emerge as an important area of research. Research in the discipline of infrastructure economics not only increases the value of the discipline itself – this especially through sophistication and ingenuity of empirical estimation – but also has the capacity to draw the attention of scientists in other disciplines. Infrastructure economics could gain much by building bridges between disciplines and between disciplines and development. Even in a simple research as ascertaining how many problems of a village are amenable to treatment by modern infrastructural facilities, if and when such facilities are available would be a gain not merely in terms of academic knowledge but also in terms of providing solutions to developmental problems in rural economies.

Thus, the present study assumes importance in the light of the following facts.

1. Most of the earlier studies on the relationship between economic resources and rural development have emphasised either urban infrastructure exclusively or only one or the other infrastructure in rural areas such as rural transport and rural schooling. Overall impact studies are lacking.

2. Being a region-specific study, on the one hand it helps in ascertaining the specific region’s position and problems with regards to variables under study, and on the other it helps in highlighting and underscoring the macro-level findings.
3. Earlier approach to rural development was “need-based”. The present study tries to draw our attention another dimension viz., mode of development.

4. It is necessary to revisit the theories and models of rural development in the modern concept of global village and emerging issues and trends like agribusiness, contract farming, precision farming, economics of climate etc.

5. The study juxtaposes the percolation effect and the participative effect of rural development programmes, with special reference to the study areas.

6. The present study is a significant move from that of availability to accessibility, taking into account not only the rural area per se but also the rural-urban continuum.

7. Poor and non-poor categories of rural households are considered in a single study. This helps in discussing user charges principle – the issue of open access infrastructure versus limited access infrastructure.

8. For a change the stress in not on the much debated erstwhile anti-poverty programmes but on RD projects in operation and those planned for the future.

9. Even qualitative data and their analysis are incorporated. For instance what the ruralites feel, what they prefer and why is taken into account.

10. Albeit briefly, the study looks into the avenues of people’s participation in the decision-making processes at the grassroots level (which are expanding thanks mainly to decentralisation and people’s institutions). Has decentralised democracy had any significant impact on infrastructural development – in making, managing and monitoring?
The time has come to rethink rural infrastructure and to factor in access to infrastructural services and technological changes. Rural infrastructure services can not simply be about village level infrastructure. And the evidence is that in many locations such a rethinking has begun - for example, Brazil and South Africa. The journey that began from 'creation' passed to 'provision' to 'managing' and has now reached the point of 'access'.

The state of Karnataka has rural development as one of its agenda of development and strategy of economic welfare. But the district level picture of progress is interesting from the point of infrastructure development. Even the village level experiences and results are rewarding.

Objectives

The basic objective of the present study is to attempt at contributing to the understanding of the relationship between infrastructure and rural development in the context of modern economic growth, with a particular focus on the access of infrastructural facilities to villagers at the local level. Taking into account the varying rates and patterns of economic growth between regions and between time periods, the cognizable impact of infrastructure on economic conditions of a community – rural or urban – can be understood better by attempting a micro-economic analysis. Such a micro study would provide both a theoretical framework of analysis and an empirical foundation for theoretical explanation and policy-making. Hence, the specific objectives of the study are:

1) to explore 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;
2) to assess the quantity, quality and accessibility of infrastructural facilities with reference to the variables under study, namely education,
irrigation, marketing, transport and health in our study area (i.e.,
Mangalore and Belthangadi taluks);

3) to identify the causes and consequences of regional variations and
imbalance in the levels of accessibility and profitability of the
infrastructural facilities among the rural households in case of either a
particular facility or components of facilities;

4) to investigate the complementary character of infrastructural facilities in
the context of whole-village development;

5) to find out factors that deter or determine the optimum utilization of
infrastructural facilities for sustainable growth;

6) to trace the patterns of rural development through infrastructure
development in the present context of privatization and globalisation
with a focus on user-provider framework of analysis;

7) to document the growth of infrastructure in the village economies
during a period of 10 years, particularly from 1995-2005; and

8) to project trends of future growth and changes in infrastructure for rural
development in the light of the success and/or failures of specific
projects and programmes of economic development in the rural areas.

The focus of the study is on the parameter of “accessibility”.

Hypotheses

The present study raises the following hypotheses.

1. There is a positive correlation between infrastructural facilities and
rural development, in terms of inputs and output.

2. Rural development is impeded by the under-utilization of existing
infrastructure, with regards to quantity and quality.

3. Expansion of infrastructural facility without a corresponding
improvement in its accessibility leads to sub-optimal utilization of
services associated with the facility.
4. Growth of and accessibility to infrastructural facilities determine the mobility of agents of economic change both occupationally and regionally.

5. Due to high indivisibilities and low import intensities of infrastructure, a high initial investment must precede directly productive activities.

6. Attitudes of users and providers of basic services affect the degree and direction of delivery of service, during a period of time.

7. No region is equally developed or under-developed with respect to all the types of infrastructure. Uneven access to, and benefits from, infrastructural facilities between regions are visible.

8. 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.

Scope of the Study

While the link of development with infrastructure is inextricable, as infrastructural facilities are provided by the public sector, private sector and cooperative sector, the study takes into account all the three sectors not only from the supply-side (providers/financiers/developers) but also from the demand-side (people’s choice preference scale). However, the study limits itself to the role played by all the sectors in general and in a comparative manner but not specifically. It means to say that neither of the three sectors or their components (e.g. NGOs) has been considered separately in any of the villages studied, though one cannot belittle such contributions.

The scope of this study can be visualized in the context of some of the objectives and targets of the 11th five-year plan of Karnataka too. The two important targets are to reduce poverty by 10 per cent and to increase
agricultural growth rate to 4 per cent. The state government has already initiated the 'Suvarna Gramodaya programme. According to the 73rd Amendment to the Constitution 29 subjects have been transferred to Rural Development. But something more than devolution and decentralization is being thought of.\textsuperscript{4, 5} With the need to plan from the base for a golden era in the state, removal of poverty and disparities becomes primary. The present study takes into consideration the need for and implications of infrastructure development for achieving this objective on hand.

The study has chosen the infrastructural development in the Dakshina Kannada (D.K.) District of Karnataka, formerly called the South Kanara. The district has been chosen not only for this researcher's familiarity with it by birth but also due to its peculiar features (e.g. only one of the two coastal districts of the state, a distinct culture from that of mainland Karnataka, the hub of banking and maritime activities), and the mixed experience of development process through infrastructure. D.K. is the fifth largest district of the state in terms of population (19 lakhs). In terms of growth the district seems to be placed in a high position as compared to other districts. It ranks first in the state in health and education indices. The role and contributions of the D.K. economy is quite large in making Karnataka a vibrant economy with substantial rates of literacy and education, employment, exports and income growth. The malnad (rain-belt) taluks Belthangadi and Mangalore have close ties with each other, though economically the former is considered as a backward taluk.

While it is clear that the success of the district so far in the socio-economic spheres has not been entirely due to infrastructural development (in the physical sense), what makes it interesting is to predict its future growth if the district had no infrastructural bottlenecks at all.
Material and Methodology

The study objectives have been analysed with the help of both primary data and secondary data. Primary data was collected through field work – by conducting direct interviews and by using schedules. The secondary data was collected from published and unpublished sources – official, semi-official and private. The sources of secondary data comprise the following.

1. Various publications of World Bank, IMF and UNDP.
2. Plan documents at the Union and State levels.
3. Budget documents at the Union, State, and Local levels.
4. Publications of Reserve Bank of India, NCAER.
5. Records from the Offices of the Zilla Parishad, Taluk Panchayat and Village Panchayat.
6. Reports and Records from various institutions and organisations such as schools, hospitals, and NGOs.
7. India Infrastructure Reports.
10. HDR Reports of Karnataka.
12. Periodicals of various organisations related to rural development.
14. Various studies by individual researchers.

The universe for the study comprises of individuals and institutions in Belthangadi Taluk and Mangalore Taluk, both in D.K. District of Karnataka. Although we visited more than 20 villages we concentrated only on 10 villages during our survey. These villages were chosen after discussions with the village representatives to ensure the fulfilment of the objectives of our study therein. Care was taken to see that in both the
taluks the chosen villages are at varying distances from each other and from the taluk headquarters. Since each of the 20 villages are located in the north, south, east and west directions of the respective taluks we could gain a lot from covering these villages, literally and figuratively. Comprehensive data for intensive study was what we preferred. The study was undertaken during 2000-2007 although the field data was collected from 2004-05 to 2005-06. The respondents (households) were randomly through stratified random sampling method. The study is mainly based on the primary data from the rural areas of D.K. District. The sampling frame for the primary data collection from respondents consists of two-stage random sampling plus cluster sampling technique. The primary data was collected by conducting a field survey during 2004-2006 and data was compiled for 10 villages in Belthangadi Taluk and 10 villages in Mangalore Taluk. A pilot study was conducted prior to this. The list of villages surveyed and studied for the present research is given in Table 1.1.

Table 1.1 Villages of Dakshina Kannada chosen for Study

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Belthangadi Taluk</th>
<th>Mangalore Taluk</th>
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<tbody>
<tr>
<td>1.</td>
<td>Aladangadi</td>
<td>Bala</td>
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<tr>
<td>2.</td>
<td>Balanja</td>
<td>Chelaru</td>
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<td>3.</td>
<td>Kokkada</td>
<td>Harekala</td>
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<tr>
<td>4.</td>
<td>Marodi-Parodi</td>
<td>Kolambe</td>
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<tr>
<td>5.</td>
<td>Mogru (Bandaru)</td>
<td>Kompadavu</td>
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<tr>
<td>6.</td>
<td>Naravi</td>
<td>Konaje</td>
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<td>7.</td>
<td>Neriya</td>
<td>Moodushedde</td>
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<td>8.</td>
<td>Shishila</td>
<td>Munnuru</td>
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<tr>
<td>9.</td>
<td>Shirlalu</td>
<td>Swamilapadavu</td>
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<td>10</td>
<td>Ujire</td>
<td>Thokuru</td>
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Two types of interview schedules were employed in the rural surveys: one for interviewing the people at household levels (Kannada version was used), and the other for field (rural) level officers, workers and assistants. Another vernacular, viz., Tulu was also profusely used to familiarise with the respondents. In almost all the villages the local leaders and elders were met and discussions were also held with them.

The respondents ranged in age from 18-60 years and included dropped out and/or self-employed youth, teachers in schools, single female heads of households (even a widow in one case), men and women, village leaders, village elders, persons working on farms, shops, hospitals, offices, NGOs etc. The interviews were individual interviews, couple (husband and wife), family (husband, wife and children), and in groups of 2-4 people (same sex and mixed sex). The research design consists of the nature of the sample, and methods of data collection and analysis. Stratified random sampling has been used.

The interview schedules generated information about the village, the farmer/worker, rural activities engaged, assets, income and expenditure and infrastructural facilities/projects being used and developed, both at the household level and the village level. Further it had queries on the overall impact of infrastructural development on one’s own family and his/her village as well as specific constraints in accessibility. Their valuable opinions and suggestions on the issues and the present study were also collected.

The above information was used to measure the interrelationship between the level and accessibility of infrastructure and the rate of economic development in the region by comparing the net returns realised and by analysing the factors for less or non-utilization of facilities in some cases. We have used different tools to analyze the data. The main tools used by us for analyzing primary data are Regression Analysis for Categorical Data and Chi-square test.
A SWOT analysis is also incorporated for measuring the potential of infrastructural facilities in the area particularly in the choice frame-work (say between public goods and private goods), with reference to the chosen variables.

**Limitations of the Study**

We, however, are aware that a study of this type will have some limitations such as difference in apparatus used by sociologists, anthropologists and economists, procedural gaps that arise in constantly reviewing programmes of development, particularly, at the implementation level, and so on. Such as awareness would be a plus point in taking cognizance of the essential and beneficial role of infrastructure in rural development, which several of the existing literature on Rural Development fail to do. While infrastructure is the basic and critical input needed for rural transformation, greater understanding is needed of the social, cultural and economic constraints on the poor imposed by the lack of it. After all, orderly development, in rural or urban areas has to start with the knowledge of facilities and resources and that development is possible only if dependable conditions of physical and material security exist.  

The foremost limitation of the study is that the analysis is restricted to the primary data gathered exclusively in and from the villages where the status and progress of infrastructural facilities were to be measured and not also from the urban headquarters/centres which either planned/administered the scheme and structure of infrastructural programmes of the rural areas (this is an uneasy phenomenon despite the working of panchayat system) or had a resource transfer relationship with the former. The reasons for this are (i) the assumption that the impact of the facilities on the rural life and environment are the chief criteria for gauging the success or otherwise of rural development; and (ii) just as it is said that “first impression is the best impression” it was felt that the first-hand information from the villagers was considered ideal for this study.
The data limitations at the official sources at the district, taluk and (village) panchayat levels were tremendous. Often the data was disjointed in the sense that there is nothing called “all under one roof” in Indian villages except in the case of some joint families. In many a department the researcher found a point of no return. In fact the lacuna of basic data in many cases and/or poor maintenance and dissemination of development-related information were making the study cumbersome in the Age of Information Technology. The system of maintaining data related to infrastructure at all points of reference needs to be overhauled. Proper mechanism for managing vital statistics of rural development is vital for rural development.

It is also a limitation that the study chose only one district in the state, viz., Dakshina Kannada with the high level of development. In order to make the comparative study more pertinent, the study should have chosen a medium developed and a less developed district also. Similarly a few more taluks and villages could have been added to the list to derive trends of similarities and dissimilarities – in development perspective – for a wide range of geographical area. Due to time and other resource constraints such an analysis is not attempted in the present study. Given the small sample size, the data and findings from this research cannot be generalized to a larger population nor be considered conclusive.
Notes and References

1. Coping with infrastructure’s future challenges is different in more than one respect. Firstly, it involves, more than just numbers game of drawing up inventories of infrastructure stocks and plotting needed investments on the basis of past patterns; it involves tackling inefficiency and waste – both in investment and in delivering services. Secondly, it entails responding more effectively to user demand – the question of accessibility comes uppermost. Thus, on the one hand we need to correct deficiencies in past investment priorities and patterns and make a shift from ‘growth’ to ‘development’ and on the other and more important side, make innovations in the means – technological, social and administrative – of delivering infrastructure services to every region and every community of people.

It is against this background that the World Development Report 1994 considers new ways of meeting public needs for services from infrastructure (‘Overview’, World Development Report 1994, p. 1).

2. Ibid. at 2.


