Introduction:

The infrastructure development of any country includes both economic infrastructure development that is the development of various sectors and also the social infrastructures. Development of economic infrastructure cannot usher in overall development at the desired level if the social infrastructure is not simultaneously developed. The capacities and technical refinement of the economic infrastructure like roads, sewers, electricity, open spaces, gardens and the evolving requirements of social infrastructures like shopping complexes, restaurants, medical facility zones, schools etc, are clearly delineated. Education, Health, social security, water supply, shelter and sanitation etc, has to be developed to ensure proper social infrastructure. In this sense both economic and social infrastructure are interconnected and interdependent and in these terms and perspectives both economic and social infrastructures are crucial element for development of an economy and even growth is linked to infrastructure as infrastructure is linked to growth. Hence, the development of India is incomplete without social development and that would require focus on the infrastructure strategy for social research in India.
Social infrastructure is defined as building strong communities through the continuing development and delivery of activities, resources and support to strengthen the skills and confidence of people and community groups to enable them to take effective action and leading roles. It is made up of a number of components; community or residents group, grants for start up and development of community and voluntary organizations, community learning or leadership development, and volunteer development.

The term ‘Social sector’ refers to the factors, which contribute to human capital formation and human development. Social development is recognized not only as a means to economic development, but also an end in itself, in terms of expanded individual opportunities, capabilities and freedom. Improvements in the social sector pave the way for equity and in turn for economic development. In fact, effective human development and economic development itself depend on the development of social infrastructure. Thus importance of social infrastructure hardly needs any elaboration.

In the context of economics, educated and healthy people build a healthy nation with a healthy growth rate. Yet social infrastructure in India is not receiving the much needed attention. Social infrastructure of a nation not only presents the human face of the economic growth process, but represents the very essence of well rounded progress. Moreover, it reflects how the society cares for the underprivileged and provides hope and opportunities to economically weaker sections of the society in improving the lot of their next generation.
The governments, both at Centre and State, have been increasingly providing public goods in crucial areas such as education, health, sanitation, housing, etc. and also the governments both at centre and state are spending huge amounts on the expansion and development of social infrastructural facilities, which are directly or indirectly associated with the development of the study area.

**Meaning, Definitions and Background:**

Infrastructure is a broad concept linked to every facet of the economy and human life. There is no clear definition of infrastructure according to current usage of the term in India. But it is necessary to narrow down the few definitions and meaning of infrastructure and background.

The term infrastructure has been used since 1927 to refer collectively to the roads, bridges, rail lines and similar public works that are required for industrial economy to function. However, in The English dictionary\(^1\) the term did not find any mention until 1950s. In late 80s and 90s the word became very prominent and was discussed in almost every forum. However, in spite of being extensively discussed, there is no standard definition of infrastructure. Although it is now well recognized that infrastructure impacts the economic growth of a country, there is no unique concept in scientific literature for defining infrastructure and determining its components. It is usually considered as basic public infrastructure that facilitates the economy and society to operate. The expanded definition of infrastructure includes transport, public utilities, public services, national services along with ‘soft infrastructure ‘denotes institutions that maintain the health and cultural standards of
the population. In economics, the term “infrastructural capital” at times includes skilled manpower.

Other sources, such as the Oxford English Dictionary, trace the word's origins to earlier usage, originally applied in a military sense. The word was imported from French, where it means sub grade, the native material underneath a constructed pavement or railway. The word is a combination of the Latin prefix "infra", meaning "below" and "structure". The military sense of the word was probably first used in France, and imported into English around the time of the First World War. The military use of the term achieved currency in the United States after the formation of NATO in the 1940s, and was then adopted by urban planners in its modern civilian sense by 1970.

However, the term itself has not been defined very rigorously with result that one is not always sure as to what services are to be included in infrastructure. According to Albert O. Hirschman², “Social overhead capital (infrastructure) is usually defined as comprising those basic services without which primary, secondary and tertiary productive activities cannot function. In its wider sense, it includes all public services from law and order through education and public health to transportation, communications, power and water supply, as well as such agricultural overhead capital as irrigation and drainage systems. The hard core of the concept can probably be restricted transport and power.

Infrastructure is defined by Webster’s New Collegiate Dictionary³ as “the underlying foundation or basic framework (as a system of organization)."
Elsewhere, it has been defined as “The system which supports the operation of an organization”. In developed countries the term could well relate to air, road and rail networks, water supply systems, communications networks, education and health delivery systems and more.

Further, The American Heritage Dictionary\textsuperscript{4} defines the term “infrastructure” as The basic facilities, services, and installations needed for the functioning of a community or society, such as transportation and communications systems, water and power lines, and public institutions including schools, post offices, and prisons. This definition, however, and others like it, are broad and subject to interpretation. As a practical matter, what is considered to be infrastructure depends heavily upon the context in which the term is used.

The American Council of State Planning Agencies\textsuperscript{5} defined “Infrastructure” as “a wide array of public facilities and equipment required providing social services and supporting private sector economic activity”. This report says, infrastructure included roads, bridges, water and sewer systems, airports, ports, and public buildings, and might also include schools, health facilities, jails, recreation facilities, electric power production, fire safety, waste disposal, and communications services. In a 1983 report of the U.S. Congressional Budget Office (CBO)\textsuperscript{6} defined “Infrastructure” as facilities with “the common characteristics of capital intensiveness and high public investment at all levels of government. They are, moreover, directly critical to activity in the nation’s economy”. This report (CBO) included highways, public transit systems, waste water treatment works, water
resources, air traffic control, airports, and municipal water supply in this category. Further, this report noted that the concept of infrastructure could be “applied broadly to include such social facilities as schools, hospitals, and prisons, and it often includes industrial capacity, as well”.

In Wikipedia encyclopedia, the term “infrastructure” can be defined as the basic physical and organizational structures needed for the operation of a society or enterprise, or the services and facilities necessary for an economy to function. The term typically refers to the technical structures that support a society, such as roads, water supply, sewers, power grids, telecommunications, and so forth. Viewed functionally, infrastructure facilitates the production of goods and services. In some contexts, the term may also include basic social services such as schools and hospitals. Further, The Economic Survey considers power, urban services, telecommunications, posts, roads, ports, civil aviations and railways under infrastructure sector. According to World Bank the infrastructure included power, water supply, sewerage, communication, roads and bridges, ports airports, railways, housing, urban services, oil gas production and mining sectors.

World Bank report (2004) mentions infrastructure as an umbrella term for many activities. Due to various descriptions it becomes difficult to analyse infrastructure in a comparable way and draw meaningful conclusions. Economists and urban planners distinguish two types of infrastructure: economic infrastructure and social infrastructure. Economic infrastructure is defined as the infrastructure that promotes economic activity, such as roads, highways, railroads, airports, sea ports,
electricity, telecommunications, water supply and sanitation. Social infrastructure (such as schools, libraries, universities, clinics, hospitals, courts, museums, theatres, playgrounds, parks, fountains and statues) is defined as the infrastructure that promotes the health, education and cultural standards of the population – activities that have both direct and indirect impact on the welfare.

World Development Report (1994)\(^{11}\) divides infrastructure stock into economic or physical infrastructure and social infrastructure. Former includes services such as electricity, transport, roads, water system, communications, irrigation etc, while latter includes education and health facilities. Other forms of infrastructure may be identified as institutional infrastructure as banking and civil administration.

In India the notion of infrastructure was discussed extensively by the Rangarajan Commission\(^ {12}\) while examining the statistical system of India. Infrastructure is important in determining the availability of inputs that are crucial to a wide variety of productive activities. Its non-availability will act as a severe constraint on the productive capacities of the economy. The Rangarajan Commission in its report submitted in 2001 stated that infrastructure is an important input for industrial and overall economic development of a country. However, there is no clear cut definition of infrastructure nor its characteristics defined which can differentiate infrastructure sector from other sectors. Based on the necessity of infrastructure activities like power, transport, telecommunication, water, sanitation, disposal of waste etc., are central to the activities of household and economic
production; one could view these activities as essential inputs to the economic system.

Ministry of Finance, Department of Economic Affairs,\textsuperscript{13} on the directions of Prime Minister’s office, to resolve the issue of uniform definition of infrastructure, has prepared a concept paper to guide the selection of sub sectors to be classified as infrastructure. This concept paper has defined “Infrastructure” as an essential input to the economic system. To draw an indicative set of infrastructure sub sectors, the broad framework developed by Rangarajan Commission has been employed. The list of sub sectors identified earlier by Rangarajan Commission has been further extended by including sectors that merit inclusion on account of their importance to the scheme of economic development or their ability to contribute to human capital or the specific circumstances under which these are developed in India. To finalize this list opinion of concerned Ministries/ Departments, Regulatory bodies like RBI, SEBI, IRDA, PFRDA and other stakeholders like Confederation of Indian Industry (CII) and Federation of Indian Chamber of Commerce and Industry (FICCI) was also obtained. The identified infrastructure sub-sectors have been classified, for the sake of convenience, under five broad categories. These are: Transport; Energy; Water and Sanitation; Communication; Social and Commercial Infrastructure.

The Insurance Regulatory and Development Authority (IRDA)\textsuperscript{14} defines infrastructure to include road, high bridges, airport, port, railways including BOLT, road transport system, water supply project, water treatment system, solid waste management system, irrigation project, industrial parks, sanitation and sewerage
system, generation-transmission-distribution of power, telecom, project for housing. Further, the Rakesh Mohan Committee (1996)\textsuperscript{15} in its “India Infrastructure Report”, provides a comprehensive definition of infrastructure: the infrastructure sector covers the distinct components which could be applied generally to include electricity, gas, water supply, roads, telecom, railways, ports, airports, urban infrastructure and storage as infrastructure.

The concept of social infrastructure has extensively used in the economic development, yet it has not been explained explicitly in an accepted manner. A number of inter changeable terms such as social overhead, economic overheads, overhead capital, basic economic facilities, minimum needs to economic development, etc. are generally denoted with infrastructure. But the common bunch of services essential to promote the development of directly productive activities.

Kindalbergar, (1958)\textsuperscript{16} identified the difference between social and economic basic facilities, education, public health etc., are called as social productive value capital and railway, roads, electricity, pipelines, transmission lines, communication, government buildings, police protection facilities etc., are called as economic productive value capital.

The famous economist like Nurkse (1962)\textsuperscript{17} also elaborated the concept of infrastructure. According to him, ‘social overhead capital forms an essential basis for small scale private investments in miscellaneous industries’. Hirschman (1958)\textsuperscript{18} has used the concept of ‘social overhead capital’ in the more general sense. He has defined it as, ‘comprising those basic services without which primary, secondary
and tertiary activities cannot function’. In this wider sense the term includes all public services from health to transportation, power, drinking water supply, education, as well as such agricultural overhead capital as irrigation and drainage system.

Specialized Report of South Australia\textsuperscript{19} says, Social infrastructure includes a wide range of services and facilities that meet community needs for education, health, social support, recreation, cultural expression, social interaction and community development. Social infrastructure (including schools, community centres, libraries, community health centres and recreation facilities) is an essential feature of holistically planned communities and contributes to overall community wellbeing.

British Property Foundation (2010),\textsuperscript{20} ‘Planning for Social Infrastructure in Development Projects: A Guide to tackling the key challenges’, in this report mentions Social infrastructure provision is integral to the creation of sustainable communities as it contributes much of the glue that holds communities together, providing services and facilities that meets the needs of residents, promote social interaction and enhance the overall quality of life within a community.

Putnam (1993)\textsuperscript{21} says, ‘Social infrastructure’ describes the features of social organisation, such as trust, norms and networks that can improve the efficiency of society by facilitating coordinated actions.

The definition of social infrastructure adopted by the Queensland Government, Department of Infrastructure and planning,\textsuperscript{22} is as follows:
Social infrastructure refers to the community facilities, services and networks that help individuals, families, groups and communities meet their social needs, maximize their potential for development, and enhance community wellbeing.

**Social infrastructure includes:**

- universal facilities and services such as education, training, health, welfare, social services, open space, recreation and sport, safety and emergency services, learning, religious, arts and cultural facilities, civic and democratic institutions, and community meeting places.

- Lifecycle-targeted facilities and services, such as those for children, young people and older people e.g. early childhood centres and retirement villages.

- Targeted facilities and services for groups with special needs, such as families, people with disabilities and people from culturally diverse backgrounds.

Just as economic infrastructure, such as roads, energy and ports supports the economy; social infrastructure supports the wellbeing of families and communities. Social infrastructure provides the vehicle for a range of important functions for people and communities, including:

- Sense of identity – from libraries, marae, and other arts and cultural institutions.
Sense of belonging and inclusion – achieved from both the presence of the facilities and the activities that occur within them e.g. community centres, parks, public art and open space.

Educated community and workforce – preschools, primary, intermediate and secondary education and tertiary education.

Networking and community interaction – from events, local networks and activities.

Democratic participation and citizenship – voting, taking part in civic affairs and standing for election

Physical and mental health – from health service provision to the facilities that encourage physical activity and/or social interaction e.g. reserves, halls, action and community centres

Spiritual and cultural wellbeing – from faith based, cultural and spiritual organisations, networks and facilities

Creative expression – through arts and cultural institutions

Pomeroy, S.\textsuperscript{23} in his Working Paper-1, ‘Social Infrastructure for Competitive Cities’, opines, Infrastructure refers to an underlying substructure of a system, and has traditionally been understood to refer to physical infrastructure such as roads and transport networks, telecommunications, water systems, bridges, sewers and waste disposal facilities.

The term “education” is derived from the Latin word “educare”, which means bringing up a child, both physically and mentally. In a broader sense, education is
conceived as a group process by which culture or the knowledge storehouse is transmitted from generation to another.

According to National Human Development Report 2001, the process of education and attainments thereof has an impact on all aspects of life. It captures capability of acquiring knowledge, communication, and participation in community life.

Health is one of those which most people find it difficult to define although they are confident of its meaning. Therefore many definitions of health have been offered from time to time, including the following:

According to Webster Dictionary, “Health is the condition of being sound in body, mind or spirit, especially freedom from physical disease or pain”

Oxford English Dictionary, defined Health as “soundness of good body or mind; that condition in which its functions are duly and efficiently discharged”

According to Perkins, “Health is a state of relative equilibrium of body forms and function which results from its successful dynamic adjustment to forces tending to disturb it. It is not substance and force impinging upon it but an active response of body to forces working toward readjustment.”

According to World Health Organization (WHO) (1948), “Health is a state of complete physical, mental and social well-being and not merely an absence of diseases or infirmity”. This definition in merely accepted a definition of Health
universally. In recent years, this statement has been amplified to include the ability to lead a socially productive life.

**Components of Infrastructure:**

The eminent Indian economist, professor V.K.R.V.Rao has classified the items of infrastructure in to the following nine broad categories.

1. Transport:
   a. Railways
   b. Roads
   c. Shipping ports and harbours
   d. Airports
   e. Transport Equipment.

2. Communication:
   a. Posts
   b. Telegraphs
   c. Telephones
   d. Radio
   e. Television
   f. Cinema.
3. Energy:

a. Coal
b. Electricity (Hydrel, Thermal, Nuclear)
c. Wind Power
d. Solar power
e. Oil
f. Gas
g. Biogas.

4. Intermediate Goods output:

a. Minerals
b. Steel
c. Metals other than steel
d. Basic Chemicals
e. Fertilizers and Pesticides
f. Machinery and Machine tools.

5. Increasing Productivity of Natural Resources:

a. Reclamation of land
b. Irrigation (Major, Medium and Minor)
c. Drainage
d. Control building and land reshaping

e. Consolidation of holdings

f. High yielding bovine varieties

g. Fishing Boats

h. Fishing equipments and refrigeration

i. Afforestation and development of Commercial Forests.

6. Science and Technology:

a. Teaching

b. Basic and Applied research

c. National laboratories

d. Liaison with production units.

7. Information system:

a. Mass media

b. Libraries and Museums

c. Fairs and Exhibitions

d. Books and Journals.
8. Finance and Banking:

   a. Saving Institutions (Public, Private and Cooperative Sectors)
   
   b. Credit and lending institutions (Public, Private and Co-operative Sector)
   
   d. Capital Market.

9. Social Infrastructure:

   a. Health
   
   b. Drinking water
   
   c. Disease eradication
   
   d. Public hygiene
   
   e. Family planning
   
   f. Medical facilities
   
   g. Education – Literacy
   
   h. Schools, Colleges and Universities
   
   i. Professional education
   
   j. Technical and industrial schools
   
   k. Development disciplines.
The Purpose of Social Infrastructure:

Generally, the purpose of social infrastructure is based on some key objectives. These are that social infrastructure should:

- Be targeted to local needs and reflective of community priorities to ensure they are tailored to the particular social needs of the area they serve. Understanding and responding to the unique and individual circumstances of each area increases the utilization of facilities and ensures that they address the needs and interests of the local population.

- Contribute to the health, wellbeing and quality of life of members of the community through a range of services, activities and programs that support the lifestyle needs, foster social networks and social interaction between different groups, contribute to social cohesion and social inclusion and build the skills and capacity of individuals and groups.

Other general objectives of social infrastructure include that it should:

- Ensure equitable access for all members of the community to a range of community spaces

- Provide access to affordable programs, activities, services and events to the community

- Promote strategic priorities such as community wellbeing, lifelong learning and social inclusion
- Provide life skills, health, recreation, leisure and learning programs which build skills and address community interests
- Provide space for a range of both formal and informal activities that promote social connectivity and sense of community
- Ensure the efficient use of resources to ensure maximum community benefit is obtained within available resources
- Involve a range of measures to involve community members in planning, programming, operation and management so as to build community capacity and ownership.
- Provide volunteering opportunities to build skills, confidence and enhance community members’ wellbeing and sense of belonging
- Be designed and managed in a flexible way to ensure they are able to respond to changing to community needs
- Promote sustainability through the integration of social infrastructure with public transport networks and through energy efficient building design
- Ensure accountability and the delivery of community benefits by monitoring and evaluating the social outcomes produced by social infrastructure and ensuring they are meeting identified community needs.

**Comparing Social Infrastructure with other forms:**

Infrastructure refers to an underlying substructure of a system, and has traditionally been understood to refer to physical infrastructure such as roads and
transport networks, telecommunications, water systems, bridges, sewers and waste disposal facilities.

One way of considering social infrastructure is to view it in relation to other key forms of infrastructure. The categorization is to some degree arbitrary; transport for example could be placed within social, environmental or economic infrastructure, depending on the way in which transport is used. The examples under each form are indicative rather than an exhaustive list.

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<th>Social and cultural infrastructure:</th>
<th>Economic infrastructure:</th>
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<td>Arts and culture</td>
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<td>Recreation – parks, open space</td>
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<td>Civic, democratic, governance –</td>
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<td>Water, storm water, wastewater, irrigation, flood control</td>
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**Economics of Infrastructure and its Requirement:**

Economics is a very developing social, which have many branches and sub-branches. Economic of Infrastructure should be treated as a separate modern branch of economics. It directly concerns with development. It consists with all the modern development sectors. Development process is based on infrastructure. In
contemporary scenario not only industrial development but development of primary sector and service sector also based on infrastructure. Therefore, there is an urgent need of separate study of economics of infrastructure.

The economics of infrastructure has two schools of thought, namely, Economic and Social Infrastructure. The former have important segment like energy, road, transportation, communication, water-supply, sewerage, banking, insurance, etc. The latter consisting of services and amenities like education, medical and health services, housing etc.

The functions of economic sectors are to generate employment, income and output. The economics of infrastructure is provided environment for this. It is not to analyze for only physical development but also human development. Because Human Resource Development is based on social infrastructure. Thus, economics of infrastructure deals with economic, social and human development. It is connected with any sectoral development.

**Economic and Social Infrastructure:**

Given the overall scarcity of resources, the very first choice arises as to which items to select for investment. Normally, the planners show a preference for economic infrastructure covering the hardcore of power, transport and irrigation. There is normally an acute scarcity of these facilities and they are regarded as directly linked to development of productive activities. Moreover, these are often associated with eye catching gigantic projects for which planners have a liking and
for which international aid is more readily available. Thus, investment in social infrastructure tends to get neglected.

However, there is now a growing realization that the social services, like health and education, are not merely to be treated as welfare activities but are essentially in the form of investment in human capital. Hence, investment in social infrastructure is also directly related to the aims of increasing productivity and promoting growth. Thus, investment in human capital is as important as investment in material or physical capital. Recognizing the complementarity of the two types of infrastructure, it is important that development of social infrastructure is planned with similar priority.

**Economics of Planning:**

Planning is considered as a panacea for all economic ills. Economic development of country is closely linked with economic planning. Although the idea of planning is over 2400 years and old having its first reference and formulation by Plato in his ‘Republic’. But the same idea attained a systematic shape and support after the end of world war second for the rehabilitation and reconstruction of war divested economics as well as for the rapid economic development of under developed economies then. Planning is sine qua non of progress. Planning consists of totality of arrangement decided upon so as to carry out project related economic activity, planning is definable by two elements: i) it is a project that is an end with one proposed to achieve, and. ii) the arrangements decided upon in order so that end may be achieved which indicates the determination of means. There can be plan for
production, allotment or distribution investment which can be considered as a partial plan, but in full sense, the term economic plan is a plan the concept of economic planning, there is lack of unanimity. It is quite difficult to give a precise definition of economic planning. Various definitions of planning have already been afferent to economists and writers. According to Levy,\textsuperscript{27} “Economic planning, securing a better balance between demand and supply by a conscious and thoughtful control either on production or distribution or of both, rather than leaving this balance to affected by automatically working, invisible and uncontrollable forces”

Some economists think that planning is a complete departure from the policy of laissez-faire. Accordingly “Prof. H. D. Dickinson” defined economic planning as, “The making to major economic decision about what and how much to be produced and to be allocated by the conscious decision of a determinate authority on the basis of a comprehensive survey of the economic system as a whole”

Thus broadly speaking, economic planning is an organised and co-ordinated effort to achieve certain pre defined objectives within a fixed time frame through optimum utilisation of community’s resources so as to promote its general well being.

**Educational Planning:**

The Constitution of India places Education in The concurrent list. The NPE 1986 explains the concept of concurrency as a meaningful partnership involving “a new sharing of responsibility between the Union Government and the States in
respect of this vital area of national life. This concept enables the Centre and the States to make concerted efforts for the development of education maintaining a broad uniformity in standards and structures.

Educational planning in the country is essentially the joint endeavour of the Central and the State Governments. The Planning Commission at the Centre and the State Planning Departments decide the policy and approach to be adopted. At the Central level a planning and monitoring division in the Department of Education (DOE) works in close liaison with the education division of the Planning Commission.

Actions related to education at the national level including Planning and policy-making are guided and coordinated by the Central Advisory Board of Education (CABE), the members of which include Ministers of Education of all States and Union Territories and leading educationists of the country. A few national level institutions specializing in particular aspects of education assist and advise the Central and State Governments in the formulation and implementation of policies and programmes in their respective areas. Special mention may be made in this regard, of organizations such as the National Institute of educational Planning Administration, the National Council of educational Research and Training and the University Grants Commission.
National Policy on Education:

The National policy on Education adopted in 1968 led to considerable expansion of the educational facilities all over the country. Several prominent educational institutions were established in different parts of the country. Attention was also paid to the creation of basic educational facilities in rural areas. Efforts were also made to adopt a common structure of education having a common scheme of studies at the school level.

No doubt these achievements were impressive by themselves, but the general formulation incorporated in the 1968 policy did not, however, get translated into a detailed strategy of implementation, accompanied by the assignment of specific responsibilities and financial and organizational support. Problems of access, quality, relevance and financial outlay accumulated over the years remained untouched in many parts of the country including Delhi. It was due to this reason that the new National Policy on Education (NPE) was propagated by the Government of India in May, 1986. The policy laid great emphasis on the elimination of disparities in the educational system and provision of greater facilities through qualitative interventions. It did propose to decentralize the educational administration with the objective of making it more result oriented. In this context, it called for the establishment of new local educational bodies at the village, district and the state levels which would ensure people’s participation at each level of planning, implementation and monitoring.
The new policy also provided guidelines for the empowerment of women, access of education to backward classes, minorities and the disabled. The policy gave of non-formal education. It also provided incentives to voluntary agencies for running of the centers. It also resolved to achieve the universalisation of elementary education. In order to nurture rural talent, the new Education proposed to establish Navodaya Vidyalaya Schools (model schools) with residential facilities. At the same time it called for greater rigour and discipline in academic pursuits, accountability, experimentation and innovation, nurturance of excellence and modernization of processes at different levels of education. The policy document also suggested appraisals to ascertain the progress of its various parameters from time to time at short intervals as well as five yearly reviews.

On the basis of periodic implementation of reports from the field and the view of the perceptions of the new leadership, a Review Committee was set up in May, 1990 to assess and take cognizance of the developments since the enunciation of the policy. Apart from this, monitor the progress of the programmes and accordingly priorities the goals and strategies of educational programmes were also its objectives.

The review Committee thoroughly reviewed the National Policy on Education, 1986 while keeping in mind three objectives i.e., employment, reduction of disparities and national integration. The Review Committee had set up six groups for making suggestions for the changes. These groups relate to:

- Access, Equity and universal Education
• Education and Right to Work
• Quality and standard of Education
• Education and National Unity
• Education Resource and Management
• Rural Education

The first group concerning Access, Equity and universal Education Dealt with elementary education, non-formal and adult education and education of women, the Scheduled Castes, Scheduled Tribes, Minorities and the handicapped. It also looked into the matter concerning regional imbalances in education. However, the task of second group relating education and Right to work, shouldered the responsibility to study vocationalisation and skill training. Apart from this, it also examined the possibilities of linkages between schools and productive establishments, such as agriculture and industry. The third group on Quality and standard covered education from the primary to higher levels. It made recommendations to strengthen teacher examination reforms and research.

The fourth group on Education and National Unity considered value based education, character building and goals for achieving national integrity and harmony. The Education Resource and Management group studied ways in which the decentralization in administration of education, role of voluntary organizations could be attained and the problems of students and teachers be taken care of. It has also dealt with issues relating to resource allocation for the education sector. The last group on Rural Education considered establishment of rural universities and
imparting knowledge for the promotion and success of Panchayati Raj Institutions. The Review Committee after going through the suggestions made by the respective groups submitted its report in 1991.

In July, 1991, another Committee (Central Advisory Board of Education) on Policy, under the chairmanship of Chief Minister of Andhra Pradesh was constituted. It had fourteen members such as six Education Ministers of Various states and eight educationists. Its main objective was to review the implementation of the various parameters of NPE. It took into consideration the report of the Review Committee and other relevant developments. The committee submitted its report in January, 1992. It concluded that the Programme of Action (POA) needed to be revised considerably.

The programme of Action, 1992 was evolved in the similar manner as the policy was reviewed. Twenty-two task forces were constituted on the different subjects comprising of educationists and officials of union and state governments. At the same time, Steering Committee was also set up. The valuable suggestions made by the State Education ministers and educationists as also the state secretaries and Directors of Education during the Conference held in August, 1992 were considered by the Central Advisory Board of Education (CABE) in finalizing the document Programme of Action 1992.

The review of policy has established that the policy framework of the NPE, can guide the educational development of the country for a sufficiently long time. The best example of this exercise is adult literacy programme. Similarly, The other
programmes/schemes launched were Operational Black Board, Restructuring and Reorganization of Teachers, Mahila Samakhya. The Total Literacy Campaign Approach is a post POA innovation which has emerged as a viable model and has transformed the perception of universal adult literacy as an achievable prospect. Similar programmes and scheme implemented are District Primary Education Programme (1994), Mid-day Meal scheme (1995) and Sarva Shiksha Abhiyan (2002) etc.

**Health Planning:**

During the last four decades or so, there has been a sharp decline in the death rates in many parts of the world, including India. This decline was brought about largely by advances made in therapeutic and preventive medicine than by any significant rise in the standard of living. With the present knowledge of medicine and public health it has been possible to effectively neutralize the environment to some extent.

Health planning in India is an integral part of national socio-economic planning. The guide lines for national health planning were provided by a number of committees dating back to the Bhore committee in 1946. These committees were appointed by the Government of India (GOI) from time to time to review the existing health situation and recommended measures for further action. The Alma-Ata Declaration (A.D) on primary health care and the National Health Policy of the government gave a new direction to health planning in India, making primary health care’s the central function and main focus of its national health system. The goal of
national health planning in India was to attain health for all by the year 2000, since the genesis, evolution, growth and diversification of primary health system in India is the outcome of expert committees.

**Economics of Education:**

Education economists analyze both what determines or creates education and what impact education has on individuals and the societies and economies in which they live. Historically at the World Bank a great deal of emphasis has been placed on determining outcomes to educational investment and the creation of human capital. The primary mission of the economics of education group is to identify opportunities for improved efficiency, equity, and quality of education and promote effective education reform processes; to help improve, among both World Bank staff and clients, knowledge of what drives education outcomes and results; to better understanding how to strengthen the links of education systems with the labor market; and to build and support a network of education economists and build bridges to all those who are interested in their work.

Education economics or the economics of education is the study of economic issues relating to education, including the demand for education and the financing and provision of education. From early works on the relationship between schooling and labour market outcomes for individuals, the field of the economics of education has grown rapidly to cover virtually all areas with linkages to education. It has become a very vibrant area for research by young researchers, and it has led to four separate Handbook volumes covering both theoretical and empirical issues.
Health Economics:

Health economics is a branch of economics, concerns with the allocation of scarce resources that have alternative uses to produce various commodities and distribute them for consumption, now or in the future, among various people and groups in society. It analyses the costs and benefits of improving patterns of resource allocation. Health economics is the application of the theories, concepts and techniques, of economics to the health sector. It is concerned with such matter as the allocation of resources between health promoting activities, the quantity of resources used in health service delivery, the organization and funding of health service institutions, the efficiency with which resources are allocated and used for health purposes and the effects of preventive, curative and rehabilitation health services on individuals and society.

The scope of health economics is vast as well as narrow, depending on how health is defined and its determination and roles are viewed. In such a case, its determination include expenditures, not only on medical and public health but also expenditures on education, housing, nutrition, environment etc. It tends to be philosophical and transcends economic and social barriers. Health also may be defined in terms of life expectancy at birth (LEB) or in terms of infant mortality rate (IMR) or in terms of crude death rate (CDR) or in terms of mortality, morbidity and health related limitations. Simultaneously by weighing years of life according to illness and disability or in terms of disability adjusted life years (DALY), a measure
that combines healthy life years lost because of premature mortality with those lost as a result of disability or in terms of quality adjusted life years.

Confining to a selected areas only, some economists consider expenditure on (a) Medical and public health, (b) Family Welfare, (c) Water supply and sanitation, (d) Nutrition, (e) Child and handicapped welfare as health care expenditure.

Health is multi-dimensional. It can be used as a dependant variable as well as an independent variable although casualty runs in both directions. As a dependent variable, it can be studied as a function of medical care. It can be studied as function of medical care, income, calculation, age, sex, race, marital status, environmental function and personal behavior such as cigarette smoking, diet and exercise etc. The studies that make health the dependent variable take a production function approach with health depending on income, medical care, education and other inputs. As an independent variable, it can be used to explain wages productivity, school performance, fertility and the demand for medical care.

A general survey of some of the definitions suggests that health economics is the discipline that determines the price and the quantity of limited financial and non financial resources devoted to the care of the sick and promotion of health. It covers the medical industry as a whole and extends to such fields as the economic analysis of the cost of diseases of health programmes and returns from investment in medical education, training and research. The aim of economics applied to health field or health economics is to quantify over time the resources used in health service delivery and to organize, allocate and manage them in such a way that they are used
for health proposes with maximum efficiency in preventive, curative and rehabilitative health services, so that to achieve maximal individual and national productivity.

The health needs are infinite whereas, the resources are definitely limited and hence welfare governments.

The demand for health and medical care in strict economic sense is a function of consumer’s income, the price of medical care relative and try to obtain best of health out of the resources to the prices of other goods, and tastes and preferences of consumers, including their perceptions about health and health care, Mere expressions of health needs and wants do not become demand or effective demands, unless they are backed or supported by willingness our ability to pay for those needs and wants. The ability to pay and sacrifice for securing health services may be viewed in monetary as well as non monetary terms. When services are provided by the government, these should not be considered in strict economic sense, free or without cost.

**Education and Health: Two Basic Ingredients of Human Development:**

Although educational attainment and health status of the people of a nation constitute the basic ingredients of human development or say human capital formation, these two donot fully capture the human capital process. Even the Nobel laureate Gunnar Myrdal has accepted the fact in these words “the two basic elements in this human development are health and education. In our premise of the
Interlocking circles of development, we hold that to improve his economic and social life a man must also improve his health and his education”. Indian Nobel laureate Amartya Sen has repeatedly pointed out that no country has developed with an illiterate and unhealthy population. In fact, both the ingredients education and health are equally important and closely interdependent. For instance, it is health, which permits a child’s ability to take full advantage of the schooling and adult’s abilities to use the knowledge and skills, which they have acquired. Likewise it is people’s knowledge of and attitude towards hygiene, which permits health conditions to be improved. Of course, neither education nor health can be dealt with in isolation. In fact, having independent values both are instrumental in the development process in that they affect other social and economic conditions. One need not forget the fact that of all the factors of production, only human beings have the latent qualities that flower to full potential under the favourable environment and so deficiency in investment in these two basic ingredients results in low productivity and ultimately less economic growth. Becker has explained this beautifully through the household production function. If the income of the household increases, the income of the nation increases. If the income of the household is to increase, education and health of the household should increase. Modern economic growth has been inspired by a rapid and persistent upgradation of technology and scientific knowledge for which human capital formation through enhancing educational and health status is most desirable and unavoidable. For “Paul Streeten” better education, nutrition and health are beneficial in reducing fertility and raising labour productivity, enhancing people’s adaptability and capacity for change and creating
suitable social and political environment for stable government. Basic education, for example, improves the impact of health services and better health enables children to benefit from education. The effects of investment in sanitation facilities on health status depends on educational levels and these in turn will promote human capabilities to yield a return to the society no less than the return from physical capital. Of course, in India the qualitative aspects of human capabilities leave much to be desired as there has been rapid quantitative addition to the population on the one hand, and widespread poverty, illiteracy, unemployment and underemployment, low standard of living and low per capita productivity on the other hand. India, today is a society in transition with respect to its economies and there is an emerging need for catching up with the World, which is fast changing. Our capacity to meet the challenges will depend on how best and fast we respond to these changes and for this strategies and development policies will have to be interwoven into a pattern which fits into the World trends and at the same time tackle problems unique to this country where a large population has not even hand the fruits of development till now. According to World Development Report, 1996 entitled ‘From Plan To Market’, “A well-educated healthy workforce is essential for economic growth. Here the transition economics have a strong foundation on which to build. As the education and health care were two of the proudest achievements of central planning yet, the health care and education systems that transition governments inherited were built to fit the rigid environment of a command economy, not the, more flexible and ever changing demands of freely competitive markets. Reform of education is therefore needed both to give workers more transferable, marketable skill and to
develop informed citizens, capable of participating actively in civil society. Reform of health care system is needed to raise life expectancy and to reduce the burden of disease and injuries, contributing both to productivity and the quality of life. The trick for governments will be to reshape health care and education to meet the demands of a new economic system without throwing away the achievements of the old.

**Need for the Study:**

Development of various social infrastructure facilities has been well considered to be an important and instrumental measure for the diversification of different economic activities and achieving economic development. Its importance is also quite significantly attached with bringing qualitative improvement in the standard of living and life style of population. The availability of infrastructure may lead to growth and the growth in turn generates sufficient demand for better availability of infrastructure in future. In this sense, social infrastructure development is most essential in developing countries especially in India.

Several studies have been conducted on infrastructure development at both national and state levels. But very few studies are available pertaining to social infrastructure particularly on education and health. Hence, the present study gains relevance.
Research Gap:

The study throws light on the development of social infrastructure particularly on education and health. Moreover, a fairly elaborative review of literature in the field brought to light that no comprehensive study has been made particularly on the development of social infrastructure in the study area and elsewhere in general. In these studies only few indicators have been taken. As such the present study is made more comprehensive by making use of many more indicators in respect of education and health.

Objectives of the study:

The present study has been undertaken with the following objectives.

1. To review the trends in the social infrastructure development with special reference to education and health across all the districts in the state of Karnataka.
2. To analyze the development of educational infrastructure across different taluks in the study area.
3. To examine the development of health infrastructure across different taluks in the study area.
4. To measure the inter-taluk disparities in respect of Education and Health in study area.
5. To draw various conclusions in regard to study area and to make suitable suggestions for future improvements.
**Hypotheses:**

The following hypotheses are developed and verified in the context of present study.

1. Increased educational infrastructure facilities will raise literacy rate of the region.
2. There is balanced growth in the health infrastructural facilities among the taluks of the study area in the study periods.

**Research Design and Methodology:**

The following methodology has been adopted for present study.

**Selection of the Study Area:**

According to Karnataka Human Development Report 2005, among the 27 districts of the state, Gadag held 8th position in respect of Education Index and 23rd position in respect of Health Index. With regard to Education Index, Gadag was one among the top ten districts, while as in regard to Health Index, it was one among the bottom ten districts of the state. To probe deeper into this discrepancy, Gadag district was selected for the purpose of this study. Since Gadag is a recently formed district, no studies have been conducted on this district pertaining to education and health. This was another reason which prompted the selection of Gadag district.
Sources of Data:

In this study, mainly secondary data is used regarding education and health. The data is collected from various sources such as, Various Publications of Directorate of Health and Family Welfare Reports, Health Information of India, National Health Profile (various years), Karnataka Public Health Abstract 2011-12, Selected Educational Statistics (Various years), Karnataka Statistical Abstract (Various years), Karnataka Socio-Economic Indicators 1991-92, Karnataka Development Report-2007, Karnataka Human Development Report-1999, Karnataka Human Development Report-2005, Economic Survey of Karnataka of various years, Karnataka at a Glance, Directorate of Economics and Statistics, (Various years), Census Reports, Gadag District at a Glance, District Statistical Office, Gadag, Health reports, Department of Health and Family Welfare, Gadag, Office of the Deputy Director of Public Instruction, Gadag, D.M. Nanjundappa Report etc. Further, Reports, Articles, Research papers, books, and journals have been used to strengthen the Statistical and information bases of the study.

Tools of Analysis:

The simple statistical tools such as, Percentages, Average, Ranking, Mean, Standard Deviation, Coefficient of Variation (C.V.), Rank Correlation etc., have been used in order to interpret the data and conclusions have been drawn. Besides, to know the educational and health development of each region, in the present study the Composite Index Method has been used. For this purpose, the technique of
Factor Analysis is applied. Important findings are also presented in the form of charts and diagrams.

**Construction of Composite Index:**

To derive a composite index from a set of variables, a wide variety of multivariate statistical techniques are available. In this study the Method of Composite Index has been used. For this purpose, the technique of Factor Analysis has been applied to determine the objective weights (Factor Loading) for the selected package of variables. The factor loadings or weightages of different indicators have been derived from the matrix of inter-correlations between the indicators through the application of diagonal method of factor analysis.

Composite index has been obtained through the following formula.

\[
C_i = \sum_{j=1}^{n} F_{ij} R_{ij}
\]

Where;

\[
i = 1, 2, 3, 4, 5, \ldots \ldots \ldots \ldots n, \text{ the number of spatial units (Regions)}
\]

\[
j = 1, 2, 3, 4, 5, \ldots \ldots \ldots \ldots n, \text{ the number of indicators}
\]

\[
C_i = \text{Composite index of educational and health development of ‘}i^{th}\text{’ region.}
\]

\[
F_{ij} = \text{the factor loading of region ‘}i^{th}\text{’ on indicator ‘}j\text{’}
\]

\[
R_{ij} = \text{the rank of region ‘}i^{th}\text{’ on indicator ‘}j\text{’}
\]
After computing the composite index of educational and health development, the simple statistical variations tests i.e., computed values of Standard Deviation (S.D) and Mean (\( \bar{X} \)) are applied to these composite indices, then by using these two values, all the districts of state and taluks of the Gadag district are classified into four groups i.e., highly developed, developed, backward and highly backward.

**Area and Scope of the Study:**

The present study is confined to the discussion of education and health of the state of Karnataka and the Gadag district. The district consists of five talukas and the study covers all the taluks of the district, viz., Gadag, Mundargi, Naragund, Ron and Shirahatti.

The Educational and Health Development Index has been constructed for the districts and taluks level. For the construction of Educational Development Index for the state of Karnataka ten indicators and for the district of Gadag nine indicators have been used. In respect of Health Development Index, ten indicators for the state and eleven indicators for the district have been used.

**Selection of the Indicators:**

In this study, a number of indicators have been used in relation to the proportion of population, geographical area and number of villages. Following is the sector-wise list of indicators.
Educational Indicators:

The Education Development Index for Karnataka state is a composite of following ten indicators:

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Educational Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Number of Primary Schools per lakh of Population - $X_1$</td>
</tr>
<tr>
<td>2</td>
<td>Number of Primary Schools per 100 Sq.Kms of area - $X_2$</td>
</tr>
<tr>
<td>3</td>
<td>Number of Secondary Schools per lakh of Population - $X_3$</td>
</tr>
<tr>
<td>4</td>
<td>Number of Secondary Schools per 100 Sq.Kms of area - $X_4$</td>
</tr>
<tr>
<td>5</td>
<td>Number of Pre-University Colleges per lakh of Population - $X_5$</td>
</tr>
<tr>
<td>6</td>
<td>Number of Pre-University Colleges per 100 Sq.Kms of area - $X_6$</td>
</tr>
<tr>
<td>7</td>
<td>Gross Enrolment Ratio (Primary and higher primary) - $X_7$</td>
</tr>
<tr>
<td>8</td>
<td>Pupil-Teacher Ratio in Primary Schools - $X_8$</td>
</tr>
<tr>
<td>9</td>
<td>Pupil-Teacher Ratio in Secondary Schools - $X_9$</td>
</tr>
<tr>
<td>10</td>
<td>Literacy Rate (In Percentage) - $X_{10}$</td>
</tr>
</tbody>
</table>

For the district of Gadag the following nine indicators have been used to construct the Educational Development Index:

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Educational Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Number of Primary Schools per 10,000 Population - $X_1$</td>
</tr>
<tr>
<td>2</td>
<td>Number of Primary Schools per 100 Sq.Kms of area - $X_2$</td>
</tr>
<tr>
<td>3</td>
<td>Number of Secondary Schools per 10,000 Population - $X_3$</td>
</tr>
<tr>
<td>4</td>
<td>Number of Secondary Schools per 100 Sq.Kms of area - $X_4$</td>
</tr>
<tr>
<td>5</td>
<td>Number of Pre-University Colleges per 10,000 Population - $X_5$</td>
</tr>
<tr>
<td>6</td>
<td>Number of Pre-University Colleges per 100 Sq.Kms of area - $X_6$</td>
</tr>
</tbody>
</table>
7 Gross Enrolment Ratio (Primary and higher primary) - $X_7$
8 Pupil-Teacher Ratio in Schools - $X_8$
9 Literacy Rate (In Percentage) - $X_9$

**Health Indicators:**

The Health Development Index for Karnataka state is a composite of following ten indicators:

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Health Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Number of Hospitals per lakh of population – $X_1$</td>
</tr>
<tr>
<td>2</td>
<td>Number of Hospitals per 1000 Sq. Kms. of Area – $X_2$</td>
</tr>
<tr>
<td>3</td>
<td>Number of Hospital’s beds per lakh of population – $X_3$</td>
</tr>
<tr>
<td>4</td>
<td>Number of PHCs and PHUs per lakh of population – $X_4$</td>
</tr>
<tr>
<td>5</td>
<td>Number of PHCs and PHUs per 1000 Sq. Kms. of Area – $X_5$</td>
</tr>
<tr>
<td>6</td>
<td>Number of Sub-Centres per 10 Villages – $X_6$</td>
</tr>
<tr>
<td>7</td>
<td>Number of Doctors per lakh of population – $X_7$</td>
</tr>
<tr>
<td>8</td>
<td>Crude Birth Rate (CBR) – $X_8$</td>
</tr>
<tr>
<td>9</td>
<td>Crude Death Rate (CDR) – $X_9$</td>
</tr>
<tr>
<td>10</td>
<td>Infant Mortality Rate (IMR) - $X_{10}$</td>
</tr>
</tbody>
</table>

For the district of Gadag the following eleven indicators have been used to construct the Health Development Index:

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Health Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Number of hospitals per 10,000 population – $X_1$</td>
</tr>
<tr>
<td>2</td>
<td>Number of hospitals per 100 Sq. Kms. of Area – $X_2$</td>
</tr>
<tr>
<td>3</td>
<td>Number of hospital Beds per 10,000 population – $X_3$</td>
</tr>
</tbody>
</table>
4 Number of PHCs per lakh of population – $X_4$

5 Number of PHCs per 100 Sq. Kms. of Area – $X_5$

6 Number of health Sub-Centres per 10 Villages – $X_6$

7 Number of health Sub-Centres per 10,000 Rural population – $X_7$

8 Number of Doctors per 10,000 population – $X_8$

9 Crude Birth Rate (CBR) – $X_9$

10 Crude Death Rate (CDR) - $X_{10}$

11 Infant Mortality Rate (IMR) – $X_{11}$

**Time period:**

The study is restricted to the three decade period (three census years) i.e., 1990-91, 2000-01 and 2010-11 for the state of Karnataka. But for the Gadag district the duration period is restricted to only two decades i.e., the decade of 2000-01 and 2010-11. This is because of the fact that Gadag district was a part of undivided Dharwad district during 1990-91 and it was created in the year 1997.

**Limitations of the Study:**

The following are the major limitations of this study.

1. The study is based on only the secondary data. Hence, the conclusions arrived in this study are subject to the veracity and the limitations of those data that have been used.

2. Primary data has not been used in the present study.

3. For the district of Gadag only two time periods i.e., 2000-01 and 2010-11 have been taken.
Chapter Scheme of the study:

The thesis has been organized in six chapters.

Chapter one deals with the Meaning, Definitions and Background, Components of Infrastructure, the Purpose of Social Infrastructure, Comparing Social Infrastructure with other forms, Research Gap, Need for the study, Objectives of the study, Hypotheses, Research Design and Methodology, Selection of the Study Area, Sources of Data, Tools of Analysis, Area and Scope of the study, Selection of indicators and Limitations of the study along with the Chapter Scheme of the study.

The second chapter is devoted to the Theoretical Framework: Strategies of Development. It includes some of the theoretical analysis of Social Infrastructure, Infrastructure and Economic Development and Review of Literature.

Chapter third gives a detailed picture about different components of Educational and Health infrastructure in Karnataka.

The fourth Chapter provides the general information about study area. Throws light on the development of educational infrastructure in Gadag District. It covers Literacy rate, No. of Educational Institutions, Gross Enrolment Ratio and No. of Teachers.

In the fifth chapter, taluk-wise data has been presented concerning the health infrastructural facilities in Gadag District.

The chapter six presents the summary of the findings along with some suggestions and conclusions emerging out of the study.
REFERENCES:

1. Definition and Background provided by the *Answers Corporation*. (www.answers.com).


