Chapter VII
Summary, Conclusions and Policy Implications

The issue of development among all issues, especially in Less Developed Countries (LDC’s) is the most important one. In the post second World war period, primary focus of world economic attention has been on ways to accelerate the overall development in general and economic growth in particular. The policy makers, economists and politicians, especially of developing countries, capitalist, socialist or mixed systems, have given utmost attention to achieve sustainable economic growth; for it was being increasingly felt that international economic and social order would remain a distant dream until the problem of poverty, unemployment and umbrella of all i.e. under development was solved. As, development is a multidimensional process involving major changes in social structure, popular attitudes and national institutions as well as the acceleration of economic growth, reduction of inequalities and eradication of poverty. In a technical sense development refers to qualitative and structural changes in the state of an economy. Growth as compared to development refers only to quantitative and tangible increase in the national income. It can take place owing to a spurt in the economy such as a rich harvest due to timely rains, changes in international market demands, price pattern, etc. But development refers to a relatively stable long range increase in real national income that is accompanied by a change in the attitudes of the people, their motivation, institutional set-up, high investment levels, stable unemployment and better production techniques. It has been realized that development is about people and their well-being, about people developing their capabilities to provide for their families, to act as stewards of the environment, to form civil societies that are just and orderly. The international consensus emerging around a set of development goals for the 21st century captures many constituents of well-being, current and future health status, educational attainment and freedom from extreme deprivation. (World Bank, 1998)

Infrastructure is a prerequisite for economic growth. It represents the ‘wheel’, if not the engine, of economic activity. For a rapidly growing economy, infrastructure availability of adequate quality, quantity and reliability is the key determinant. Infrastructure services are central to the activities of households and to economic production. Major infrastructure failures quickly and radically reduce quality of life.
and productivity. Conversely, improvement in infrastructure services enhances welfare and fosters economic growth. (World Bank, 1994) Further, the provision of quality and efficient infrastructure services is essential to realize the full potential of the growth impulses surging through the economy.

Infrastructure is generally defined as physical framework of facilities through which goods and services are provided to the public. Its linkages to the economy are multiple and complex because it affects production and consumption directly, creates positive and negative spillover effects and involves large inflow of expenditure. Infrastructure services include three basic services, namely transport, power and communication. The World Development Report, hereinafter WDR, includes the following in its definition of infrastructure services:

**Public Utilities**: Power, telecommunications, piped water supply, sanitation and sewerage, solid waste collection and disposal, and piped gas;

**Public Works**: Roads and major dam and canal works for irrigation and drainage; and

**Other Transport Sectors**: Urban and inter-urban railway, urban transport, ports and waterways and airports.

Infrastructure also includes social infrastructure, often encompassing of education and health care, which represent an equally important though different set of issues. (Dhaneja, 1997)

Infrastructure provision is dominated by the public sector. Because infrastructure investments are lumpy, it is difficult for planners to match the availability of supply of infrastructure with demand at all times. Moreover they are usually non-rival and non-excludable in nature, which implies that consumption of a service by one consumer does not exclude other from consuming it and nor does this consumption invokes rivalry on the basis of purchasing power or any other feature. The consumers do not voluntarily pay for these services and these necessarily become an “unpaid input”. However there arises the need of government investment in infrastructure as it is important for developing economies to compete with the developed world. (Goel, 2003) Nevertheless, infrastructure provision enhances the production and distribution network of key sectors in the economy and promotes overall economic growth. In the process they also tend to affect the cost structure and
productivity in these sectors, thereby promoting growth and development in each of these sectors in particular and overall economy in general.

Some characteristics of infrastructure are enlisted as:

1. Infrastructure includes basic facilities on which the super-structure of the economy depends. It is *sin-qua-non* for economic development.

2. It is a dynamic concept which includes those services and facilities which are multipurpose and multidimensional in nature and involves huge expenditure in its building up and maintenance with long gestation period between the investment and generation of benefits.

3. The basic rationale of investment in infrastructure does not lie in profitability in itself but in its external impacts on the economy.

4. The services supplied by this sector are so widely used and their effectiveness is so dependent on other sectors of economy that the full contribution to the economy of such a sector is difficult to identify and even more difficult to measure.

5. The services provided by this sector, by and large, cannot be imported and hence they have to be produced indigenously as it affects the income generation, and the production of economy through both demand and supply.

6. Most of the infrastructural facilities are either created or owned by the government or their construction and operation are closely regulated by the government.

7. It is a dynamic concept.

8. It plays an important role in reducing cost, increasing external economies, exploring new markets, minimizing regional imbalances and maintaining national economic unity.

9. This sector is a complementary sector to the other sectors, so the efficiency of this sector depends upon the utilization factor.

Infrastructure is an umbrella term for several activities and includes public works like railways, roads, major irrigation works etc., as also public utilities like power, telecommunication, tap water supply, sanitation and sewerage etc. Although diverse in their services, these activities share among themselves similar technical features, such as economies of scale and economic features like spillovers from users to non-users (i.e. the effects of these activities are beyond those who use them). These activities are of the nature of facilitating the working of an economy. It is for
this reason that infrastructure is defined as capital of a society that is embodied in such forms as help direct productive activities. Some widen the term to include facilities pertaining to health, education, skill-formation etc. In this widened form, it is called social overhead capital. These constituents have taken up as a part of the subject of human capital.

Hence, a proper planning for infrastructure along with other sectors of the economy is essential. Growth of infrastructure is linked with spillover effects on the economy which are also termed as externalities. Externalities are common in virtually every area of economic activity. They are defined as third party (or spill over) effects arising from the production and/or consumption of goods and services for which no appropriate compensation is paid. Most economic arguments for government intervention are based on the idea that the market place cannot provide public goods or handle externalities. Public health and welfare programs, education, roads, research and development, national and domestic security, and a clean environment all have been labeled public goods.

“Externalities occur when one person’s actions affect another person’s well-being and the relevant costs and benefits are not reflected in market prices.” It is something that, which does not monetarily affect the producer of a good, but does influence the standard of living of society as a whole. Externalities could be either positive or negative.

A positive externality is something that benefits society, but in such a way that the producer cannot fully enjoy profits from the gains made. Examples of positive externalities are environmental clean-up and research. A cleaner environment certainly benefits society, but does not increase profits for the company responsible for it. Likewise, research and new technological developments create gains in a way that the company responsible for them cannot fully capitalize. Governments are generally more concerned with negative externalities than positive ones. As our society has become more densely populated and as the production of energy, chemicals, and other materials increased, negative externalities have grown from little nuisances into major threats.

A negative externality arises when one person’s actions harm others. Pollution is a very common negative externality. A company that pollutes, loses no money in doing so, but society has to pay heavily to take care of the problem. The problem thus
created is because of the companies do not fully measure the economic costs of their actions. They do not have to subtract these costs from their revenues, which mean that profits inaccurately portray the company’s actions as positive. This can lead to inefficiency in the allocation of resources. India's ongoing population explosion has placed great strain on the country's environment. Deforestation, soil erosion, water pollution and land degradation continue to worsen and are hindering economic development in rural India, while the rapid industrialization and urbanization in India's booming metropolises are straining the limits of municipal services and causing serious air pollution problems.

Therefore, the present study is an attempt in this direction to workout infrastructure development and its externalities, with the following specific objectives:

1. To analyse the growth performance of infrastructure in India.
2. To measure the impact of infrastructure on industrial performance /Private Capital Productivity of India.
3. To analyse the relationship between infrastructure and growth of foreign direct investment.
4. To study the impact of infrastructure on pollution in India.
5. To study the impact of infrastructure on economic growth of India.
6. To draw some conclusions and policy implications from the study.

**Plan of the Study**

The study has been organized in seven chapters. First chapter introduces the concept and theoretical foundation for the requirement of infrastructure development in the process of economic growth. The second chapter reviews the available literature in the area of study. Third chapter throws a light on database, related theoretical concepts and methodology used in study for empirical estimation of infrastructure development and its spillover on economic growth in general and productivity, FDI inflows and pollution in particular. Fourth chapter examines the relationship between productivity of major manufacturing industries (two-digit classification) and infrastructure development in India. Moreover, externalities of infrastructure on industrial performance have been measured via increase in TFP growth, increase in capital intensity, increase (decrease) in technology gap in Indian manufacturing industries. Fifth chapter examines the cause and effect relationship on
long-run basis between FDI inflows and infrastructure. Further, there impact on gross capital formation has also been discussed in the same chapter. Sixth chapter attempts to discuss the nexus between infrastructure, economic growth and pollution in India. For the same the empirical investigation has been conducted with the application of Environment Kuznets Curve (EKC). The last and present chapter summarises the findings along with the conclusions and relevant policy implications.

In chapter fourth, the linear programming based technique of data envelopment analysis has been used to estimate the technical efficiency of the Indian manufacturing industry and to segregate into two mutually exclusive and non-additive components namely, pure efficiency and scale efficiency for the period 1990-91 to 2008-09. The total factor productivity growth in Indian manufacturing sector (major infrastructure industries at 2-digit classification) has been worked out with the help of Malmquist Productivity Index (MPI) which decomposed the productivity growth into two mutually exclusive and non-additive components, namely technical change (TCH) and efficiency change (ECH). The technical change reflects improvement in technological transfer that yields innovations and better technological adoptions among the firms whereas, technical efficiency change is a proxy of catching up which indicate the movement of a decision making unit towards best-practice production technology.

The calculation of Malmquist Productivity Index reveals that:

1. The productivity in Indian Manufacturing has been observed increasing at 6 percent approximately per annum.
2. The inter-industry analysis of TFP growth shows that the Metal and Metal Products industries have registered growth at 9.6 percent and 8.9 percent respectively, whereas transport sector registered 6 percent growth.
3. The TFP growth is slowest in food and beverages industry to the tune of 1.9 percent followed by the textile sector and non-metallic industries with 4.6 percent and 5.9 percent respectively.
4. In other industries the range of TFP growth lies in between 5 to 8 percent per annum. The increase in TFP growth has been found in almost all the major manufacturing industries.
5. This increase was led by machinery followed by Metal and Metal Products, transport and miscellaneous industries, thus forms the top tier industry group with
the fast growing TFP, while the second tier industry consists of non-metallic, chemical and textile industries with the food and beverages industry in tier third because of sluggish TFP growth.

6. It has also been observed that TFP growth showed a negative trend in early 1990’s. Such decline in TFP growth of manufacturing industries may be due to the immediate adverse effect of investment on productivity due to gestation lag. Further, based on the analysis of productivity for various industry groups it has been observed that the TFP has shown downward trend after 1995 i.e.post WTO period particularly in food beverage, chemical and non metal minerals industries. The opening of world markets with the slow catching-up with new technology given the less expenditure on R&D has been attributed for such fall in productivity of these industries. However, in case of textile industry the evidence is mixed one.

7. The decomposition of TFP growth into technical progress and efficiency change reveals that the manufacturing industries have a 6.6 percent technical progress from 1991-92 to 2008-09. The inter-industry analysis reveals that machinery industry has shown the highly technical progress about 11 percent in the entire study period. The metal and metal products have technical progress to the tune of 9.6 percent followed by transport industry with score of 7.5 percent. However, food and beverage industry remain at back with a small and significant score of 1.7 percent.

8. The efficiency change in major infrastructure industries in India reveals that machinery, transport are the front runner industries in catching up while metal and metal products industry followed by non-metallic industry and miscellaneous industry have shown significant progress in catching up. The decomposition of efficiency change into pure efficiency change and scale efficiency, reveals that all the major infrastructure industries have pure efficiency score either 1 or near to one. The direct connotation of this result is that entire catching up is reflected by scale efficiency change or alternatively the entire change in efficiency change is contributed by scale efficiency change. Therefore, the major manufacturing industries have tendency to realize there inefficiencies by ‘learning-by-doing’ process and thus, they may downsize or increase the scale of production accordingly in the next period.
9. The spillover effects of infrastructure across Indian manufacturing industries have been analyzed. The presence of externalities of infrastructure enable the domestic firm to use new channels of technology and the effect is present in the form of enhanced efficiency and total factor productivity growth. For the same, heterogeneous group mean panel co-integration statistics test has been utilized to estimate a long run relationship between endogenous variables and infrastructure index pertaining to infrastructure spillover across Indian manufacturing industries.

10. The impact of infrastructure on TFP has been tested on 8 major infrastructure industries. It has been estimated that infrastructure development has positive and significant impact on all the major manufacturing industries. The other variable which has significant impact on TFP growth is capital intensity. It has been observed that the availability of capital per unit of labour has positive impact on textile, chemicals, food and beverages, metal and metal products and in machinery industries on total factor productivity growth. Further, the variable research and development intensity defined as a percentage expenditure on R&D of net turnover, has positive impact on non-metallic minerals industry and metal and metal products industry. Most of the industries have not incurred much expenditure on R&D, thus it has no significant impact on TFP in food and beverage, transport equipment and Non metal mineral industries. It is pertinent to note that low expenditure on R&D might have led to late adoption of new channels of technology by the Indian industries particularly in chemical, machinery and metal and metal product industries, hence ultimately reduce the spillovers of infrastructure on Indian industries.

Therefore, a serious attention must be diverted towards the promotion of R&D among Indian industries. Moreover, the analysis pertaining to the impact of infrastructure on technical efficiency depicts that development of infrastructure have positive and significant impact on efficiency of all major infrastructure industries. The development of infrastructure in terms of roads, railways, airways, ports, power generation, etc. had led to greater mobilization of resources in the economy which in turn had positive impact on resource use in manufacturing industries. The addition of infrastructure stock in the economy enables the industries to explore the untapped markets and thereby expand increase in their scale of production. Therefore, the policy of development of infrastructure may be supported along with its effective
utilization to augment the total factor productivity growth among manufacturing industries in India.

Further, in order to assess the impact of spillovers of infrastructure on economic policy variables particularly foreign direct investment and gross capital formation, panel data co-integration analysis has been applied. The co-integration technique along with vector error correction mechanism has been applied for analyzing the cause and effect relationship between infrastructure development and foreign direct investment inflows in India. In addition, the long run relationship has been estimated between economic growth and infrastructure development index. Further, the data has been analyzed and results are interpreted accordingly to draw relevant policy implications.

In order to test the relationship among infrastructure index, Foreign Direct Investment and Gross Capital Formation, a cointegration technique has been utilized. Cointegration equations among the three variables have been explained which reveal the following:

1. Normalizing the vector with default restriction $\beta_{11}=1$ provides that a one percent increase in foreign direct investment will be accompanied by approximately 0.14 percent increase in Infrastructure index, that means FDI is positively contributing in economy by improving the infrastructure index.

2. It has been observed through the literature that infrastructure in terms of roads, ports, railways has particularly developed in those areas where FDI inflows are regular. Thus, the productive use of FDI can promote infrastructural development and thereby economic growth through infrastructural externalities.

3. Further, normalization of vector with restriction $\beta_{12}=1$ depicts the positive and statistically significant causal relationship between domestic investment and infrastructural development.

4. It has been found that 2.56 percent increase in GCF is required in order to increase infrastructure index by one percent which implies the GCF has positive impact on development of infrastructure facilities. The direct connotation of this result is that investment in directly productive activities increase the demand of infrastructure and thus, the study supports the theory of unbalanced growth.

5. The execution of restriction $\beta_{11}=1, \beta_{21}=1, \beta_{13}=0, \beta_{22}=0$ provides positive and significant elasticities of Log of Gross Capital Formation (LNGCF), Log of
Infrastructure Index (LNINFRA) with Log of Foreign Direct Investment (LNFDI) as a dependent variable. Hence, with the rise in FDI the infrastructure index is found to be improving, i.e. a one percent change in FDI improves the infrastructure index by 0.14 percent. The result thus supports the heavy inflow of FDI to develop infrastructure and thereby to promote economic growth through externalities of infrastructure.

6. As regards the long run relationship between FDI and gross capital formation, it has been observed that a one percent increase in FDI will increase GCF by 0.15 percent.

7. Alternatively, it has been found that one percent increase in GCF is accompanied by 6.44 percent increase in foreign direct investment which implies that FDI affects gross capital formation positively in long run.

In sum, FDI-led economic growth results in rapid development of infrastructure via strong external effects. Furthermore, the signs of both these variables are in consonance to a priori expectation.

8. The analysis of short run dynamics by using Granger Block Exogeneity Wald test reveals that there exists bidirectional causality between infrastructure and foreign direct investment. The broad conclusion of this result is that when infrastructure index is improved by developing rail, roads, cargo handling, ports, power, it will induce the foreign investors or organizations to invest more in India. On the other hand increase in foreign investment in directly productive activities increase the demand for infrastructure thereby further increase the investment levels in the country.

9. It has also been observed that infrastructure also has bidirectional causality with gross capital formation which implies that any improvement in infrastructure facilities will also accompany itself by an increase in gross capital formation.

10. However, foreign direct investment also causes gross capital formation as the observed value of $\chi^2$ - statistics for causality from foreign direct investment to gross capital formation is significant at 10 % level of significance. The direct connotation of the result is that in short run the FDI has direct vis-à-vis indirect impact on GCF. Under the direct impact FDI may crowd out domestic investment however under the indirect impact it may create conducive environment through developing infrastructure which ultimately encourages gross capital formation in
the economy. Therefore, overall impact of FDI on gross capital formation is ambiguous and uncertain in short run.

Therefore, we can conclude that there exists direct benefit of FDI on infrastructure in long run in terms of huge market size, availability of diversified resources, improved infrastructure, Public Private Partnerships etc. But in short run, FDI crowds out domestic investment in the sense that in developing economies due to lack of entrepreneurship skills and financial constraints majority of investors are marginal and small irrespect of huge market size availability. Hence, there is no scope of further investment by domestic investors.

Last chapter deals with the empirical evidence pertaining to infrastructure development and economic growth and also examines the relationship between major infrastructure variables and environmental variables with the help of Environment Kuznet Curve (EKC). In order to examine the relationship between economic growth and infrastructure development the technique of co-integration analysis (Engle and Granger, 1987) and (Johansen and Juselius, 1990) has been utilized. Following results have been analysed

11. Normalizing $\beta_{11} = 1$ reveals that a one percent increase in $\text{LNDEBT}$, will reduce the $\text{LNGDP}$ by 0.5 percent approximately. The increase in public debt for developing country means greater spending by the government on productive and development activities. The country like India where a lot of responsibilities lie with government to develop infrastructure, the increase in debt (if spent on productive activities) or alternatively public financing of public infrastructure have great importance and have positive and remarkable impact on output (GDP). The causal relationship between $\text{LNGDP}$ and $\text{LNGCF}$ reveals that one percent increase in gross capital formation will increase the gross domestic product by 0.08 percent. Although the change is very small, yet it is positive and statistically significant. Further, the relationship between employment and GDP reveals that one percent increase in employment reduces the GDP or output by 0.02 percent. The negative growth elasticity of employment in organized sector can be justified on the ground that either the involvement of excess manpower or lack of capital has resulted in decreasing returns to scale in organized sector over the study period.
12. Further, the normalization at $\beta_{22} = 1$ depicts that one percent increase in public debt increase the infrastructure by 0.22 percent, thus highlights the public financing of infrastructure in India. Further it has been observed that one percent change in infrastructure could lead to 9.8 percent ($=1/0.102$) decrease in GCF. The negative infrastructure elasticity of gross capital formation may be supported on the ground that excessive public financing of infrastructure may result in high tax rates in subsequent periods and increased rate of interest, because of selling of ‘Gilt Edge’ securities, may reduce the rate of return on private capital formation.

13. The infrastructure also has positive and significant causal relationship with employment. As the infrastructure roads, railways, ports, etc. particularly the soft infrastructure such as telecommunication, information technology develop, given the positive impact on education the growth of organized employment will find an increase. It has been estimated that one percent increase in infrastructure could result in 6.7 percent increase in employment in organized sector.

14. After using the normalizing restriction $\beta_{11} = 1, \beta_{21} = 1, \beta_{12} = 0, \beta_{22} = 0$, it has been observed that one percent increase in infrastructure index is accompanied by 1.07 percent increase in GDP. The development of infrastructure has a positive and significant impact on economic growth in long run. The result supports the hypothesis to invest more in infrastructure to achieve or maximize the economic growth in long run. As the infrastructure development has positive and significant impact on increase in output (GDP), domestic investment and organized employment thus the policy of increase in infrastructure is advocated on the ground of these externalities.

15. It has been observed that the error term in first co-integrating equation is negative and significant at 5 percent level of significance. The negative error correction term in the first co-integrating equation represents that the GDP in short run is below equilibrium (the disequilibrium is present) and any disequilibrium in gross domestic product will be corrected in 0.16 ($=1/6.178$) years period (if it is (-1) then it will be corrected in next period). Therefore, considering the long run error equation

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(LnGDP - 0.475LnDEBT - 0.084LnGCF + 0.0293LnEMPL - 8.532 = Error)
\]

in order to put GDP on equilibrium track, there is need to decrease GCF and debt and at the same time increase in employment because of same sign with error
term. However, it seems odd to reduce GCF in growing economy. As we know the GCF is stock and carry over concept therefore it cannot be reduced. It contributes to economic growth in both demand and supply side, therefore, it is important to increase its efficiency to increase economic growth of the country.

16. As regards infrastructure, it has been found that the error term in first equation is positive and significant which means infrastructure is above the equilibrium level and the disequilibrium will be corrected in period of 0.27 (1/3.649) years. It has been observed from the second equation that, the GDP will fall as the error term of second co-integrating equation is positive. It is interesting to note that, why the GDP falls despite the fact that GDP does not enter into the second equation. It is little convoluted as the error term is positive, it suggests that the infrastructure is above the equilibrium level and may decrease in stock as it remains unutilized. As the error term is positive and has negative sign with variable debt in long run it shows the debt is below equilibrium level and may increase as a consequence of this whereas it must fall to correct the equilibrium in accordance to the first equation.

17. Further the negative and significant effect of \( \text{LN}\text{GDP}_t \) on \( \text{LN}\text{INFRA}_{t-1} \) reveals that in short run increase in infrastructure in current period may result in fall in output in next period. The fall of output because of infrastructure in short run may be advocated on the ground that, given the constant saving rate, investment in infrastructure has diversion of capital from other type of investments and as a result of which the share of other investments and output may decrease which may reduce the saving and future investment and thereby economic growth. This could happen because of small dose of infrastructure investments which may have no long standing effect on output. However, if large investment in infrastructure takes place in short period then effect is positive and long lasted.

18. There arises the need to apply more public investment in infrastructure which is necessary to raise the GDP in developing economies. In fact, many policy makers, planners and economists may advocate this. But the extent to which GDP rises with additional investment in infrastructure depends upon how efficiently it is used. Moreover, the magnitude of increase in output also depends upon effectiveness of its use. It is pertinent to note that low effectiveness with public
investment in infrastructure may be detrimental to economy as it may reduce the output in short run because of crowding out effect of public spending.

The very important fact which cannot be denied is that there exists two way relationship between infrastructure development, economic growth and environmental deterioration in the sense that on one hand environmental degradation poses hurdles to the development path of a country and on the other hand economic growth pressurizes the environment quality through deforestation, affluent emissions and vehicular congestions.

Economists witness three types of patterns emerging how rising economic activity can cause environmental problems:

1. Income is the root cause of every problem. Many problems decline as income increases because increasing income provides the resources for public services such as sanitation and rural electricity. When individuals have no longer to worry about the day-to-day survival then they can devote their resources to the profitable investments in regards to conservation.

2. Increased income leads to the worsening of the environmental stress e.g. emissions of carbon dioxide and of nitrogen oxides, where the abatement is relatively expensive and the costs associated with the emissions and wastes are not yet perceived as high-often because they are borne by someone else.

3. Some problems initially worsen but then improve as income rise. Most forms of air and water pollution fit into this category (Meier and Rauch, 2007).

Third nature of relationship between the quality of environment and economic growth is termed as Environmental Kuznets Curve (EKC) Hypothesis which reveals the following results:

19. The variable motor vehicles used as proxy of development as the number of vehicles per 1000 people reflects the high standard of living. In order to accommodate the number of vehicles there is need to construct highways and expressways which may result in deforestation.

20. Therefore the presence of EKC hypothesis has been checked out between forest cover and motor vehicles per 1000, which is found to be absent. Moreover, the presence of inverted-U hypothesis is found between suspended particulate matter (a pollution variable) and energy use. The same can also be observed with motor vehicle, infrastructure index and GDP per capita.
Thus the above discussion comes to an end with a view that infrastructure is an important variable to augment economic growth. Investment in infrastructure can play a lead role through externalities to attract FDI inflows, expanding output, increasing employment opportunities. Since infrastructure and industrial productivity are directly related with each other, hence government should endeavor to improve infrastructure stock which will help to improve capital stock either through foreign direct investment or through capital formation within economy. An increase in capital stock per unit of labour will improve productivity and push the human capital formation on track because of increase in demand of skilled labour.

As infrastructure emerged as key determinant of economic growth in general and FDI inflows, therefore stress should be laid on removal of FDI cap in key industries like telecommunication, banks, insurance, manufacturing, etc. The recent move of government to increase the limit of foreign investment from 24 percent to 49 percent in telecom and insurance industry is positive step in FDI policy of country. Further, India should sign the agreement of double taxation treaties with other countries in order to increase bilateral trade. Therefore, there is an urgent need to adopt innovative policies and good corporate governance practices on par with international standards, by the Government of India, to attract more and more foreign capital in various sectors of the Indian economy.

However, a positive and significant relationship between infrastructure development and economic growth, also suggests that the government should make heavy investments in public infrastructure. In this context, the slackening of public investment in infrastructure development in a India, as a part of the structural adjustment is a matter of concern. In India, for instance, fiscal adjustment has been achieved by squeezing public investment rather than government consumption. Concerns have been raised about the declining budget for key infrastructure sectors such as energy, transport and communications not only in terms of proportion of national income but even in nominal terms. As private investment has not been able to substitute for public investment, the gap between demand and supply of infrastructural services is widening and is threatening to affect the future growth prospects besides discouraging FDI inflows. Therefore, government should make necessary arrangement in this regard.
The positive relationship between gross domestic capital formation and infrastructure development suggests that more stress should be laid on Public-Private Partnership (PPP) in infrastructure services such as construction of expressways, highways, development of energy and power, developing advance communication systems, improvement in transport sector. It (PPP) will help to increase the efficiency, early project delivery and better operation and management, besides helping the cash starved government with availability of funds.

With the rapid growing population and expansion of urbanization in India, the ever growing demand of development of infrastructure is continuously meeting at the cost of some of its negative externalities- pollution is one of them. As development of infrastructure is accompanied by deterioration of environment, thus government should take necessary steps to improve forest cover per capita, to develop green energy as future energy, and to develop public transportation systems to reduce pollution by private users. The government’s efforts to launch green mission, action plan on climate change, Jawaharlal national solar mission and Jawaharlal national urban renewal mission are praise worthy steps in India’s efforts toward achieving sustainable development.

However it has been stated that infrastructure development will only be helpful in the development process when there is effective utilization of it along with proper maintenance and care.