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Growth and Opportunities in Development of Infrastructure of India: A Roadmap to Developed India by 2020

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Abstract

India has emerged as a strong economy over the years. The recent global financial and economic crisis had an impact on India's economic growth momentum during FY-09. However, the economy has been remarkably resilient against shocks such as turmoil in the global domestic financial markets, severe drought conditions and hardening international crude oil prices, sustaining its GDP growth, It has managed to escape relatively unscathed* from the global economic turmoil owing to strong fundamentals, which would continue to drive its growth.

Thus, it is important to undertake integrated efforts to further strengthen these fundamentals and fulfil the aspiration of achieving a strong growth in future. This paper seeks to identify the potential drivers that could stimulate growth and take the Indian economy on a high and sustainable path. It is found that substantial investments in physical, social and agricultural infrastructure are the key growth drivers which will enable the economy to achieve 'inclusive growth'** and will also provide a required leverage to help India to become a developed economy by 2020.

The research paper is based on descriptive and analytical approach and secondary sources are used to retrieve the applied and related data.

Keywords:- Infrastructure Development, Economic Growth, Urbanization, Public-Private Partnership (PPP), Smart Cities, Sustainable Development, Transport and Connectivity, Energy and Power Sector, Digital Infrastructure, Make in India Initiative

*Not harmed or damaged in anyway
**A concept which advances equitable opportunities for economic participants during the process of economic growth with benefits incurred by every section of society.

Introduction

India has emerged as a strong economy over the years. The recent global financial and economic crisis had an impact on India's economic growth momentum during FY09. However, the economy has been remarkably resilient against shocks such as turmoil in the global and domestic financial markets, severe drought conditions and hardening international crude oil prices, sustaining its GDP growth. Thus, it is important to undertake integrated efforts to further strengthen these fundamentals and fulfill the aspiration of achieving a strong growth in future.

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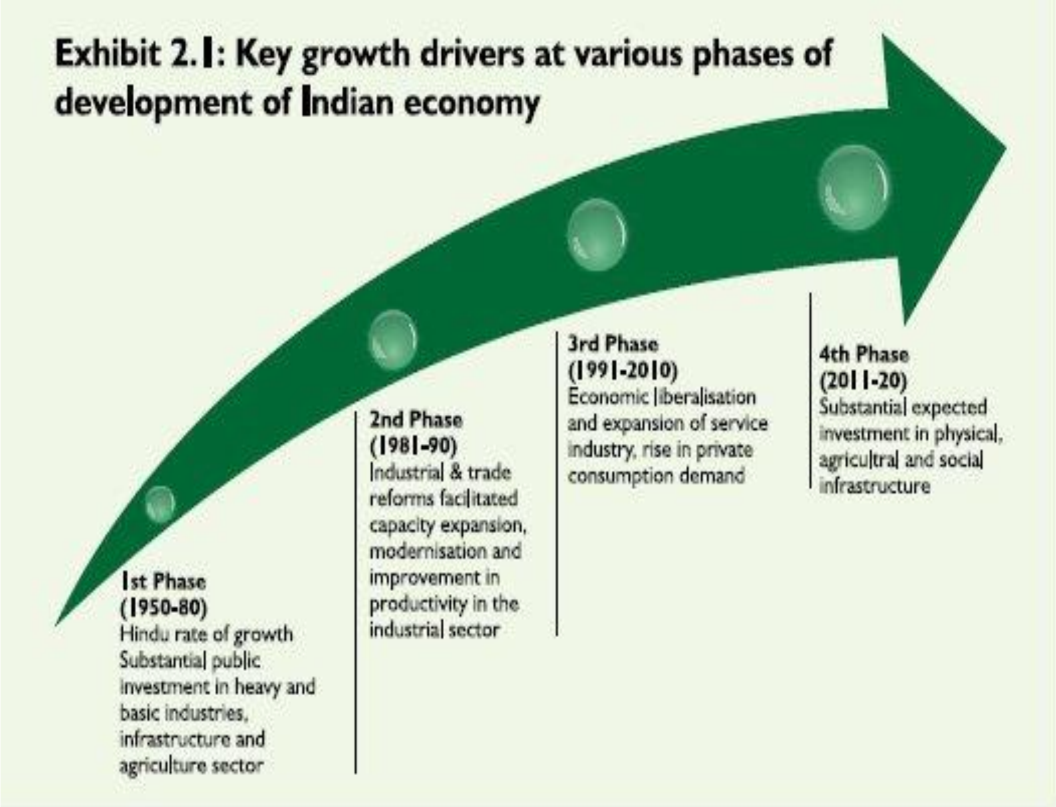

Source: Planning Commission, D&B India

Strong growth can only be achieved through realisation of full-growth potential of some key growth areas. Although we expect these three factors to contribute significantly in India's growth story during the current decade (2011-20), the role of other factors (such as technological progress, improvement in productivity and India's young demography, etc) should not be underrated. Further, Government of India (GoI) and the private sector need to undertake necessary integrated efforts to strengthen these growth drivers and achieve high GDP growth. The following section elucidates future growth drivers of India's economic growth.

2. Objective

To identify the potential drivers that could stimulate growth and take the Indian economy on a high and sustainable path. It is found that substantial investments in physical, social and agricultural infrastructure are the key growth drivers which will enable the economy to achieve 'inclusive growth'.

3. Research Methodology

The research paper is based on analytical and descriptive approach and secondary sources of data obtained from various genuine sources like govt websites and reports and research reports of various private agencies.

4.0 Analytical study of Infrastructural Investment

4.1. Investment in physical infrastructure:

Sustained increase in infrastructure is expected to be one of the crucial factors for sustaining strong growth during the current decade. Significant investment in physical infrastructure will also lead to employment generation, increased production efficiency, reduction in cost of doing business and improved standard of living.

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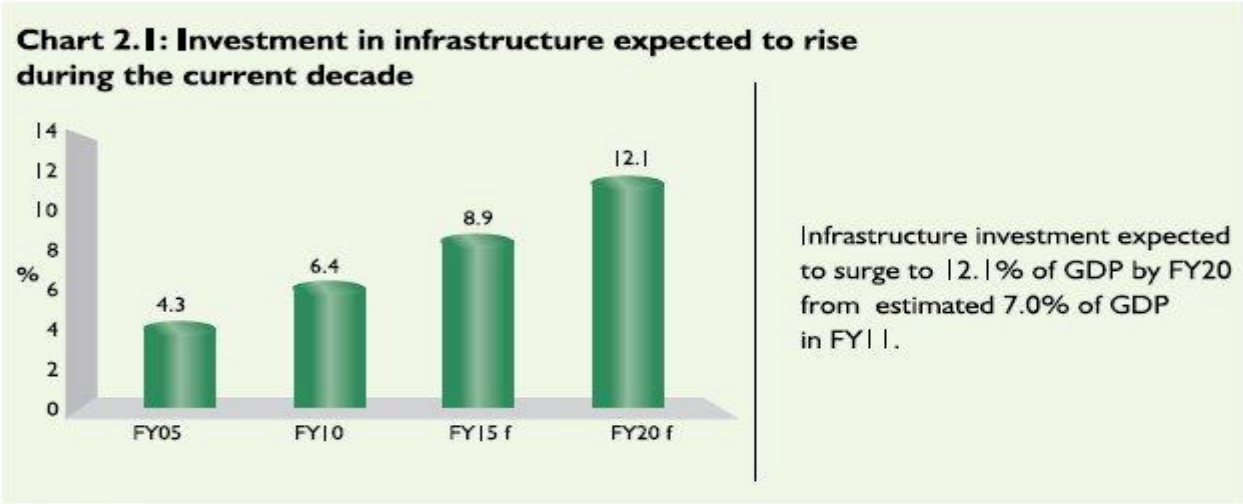
According to D&B's estimates, infrastructure investment (as measured by Gross Fixed Capital Formation) is expected to surge to 12.1% of GDP by FY20 from 7.0% of GDP in FY11.



f: D&B forecasts
Source: Planning Commission, D&B India

Apart from development of infrastructure facilities in existing cities/towns, increased focus is expected on infrastructure development in new townships/rural areas. Regional-urban development plans will be made to identify new growth corridors..

4.2. Sectoral Analysis of infrastructure investment in 2020

A detailed breakdown of infrastructure investment by sectors reveals that electricity (including non-conventional energy) and construction of roads and bridges will continue to account for the largest share in total infrastructure investments during the current decade.

4.2.1. Electricity Or Power

- More than 78,000 MW of additional power generation capacity has been planned in the current decade, including setting-up of nine Ultra Mega Power Projects with power generation capacity of 4000 MW each.
- According to D&B forecasts, infrastructure investment in the electricity sector is estimated to grow at CAGR of around 20.0% during FY11-FY20 and would account for 4.3% of GDP during FY20.

In view of the rapid growth in urbanisation and industrialisation, total demand for power is expected to increase substantially during the current decade. This will require substantial increase in the power generation capacity and in turn infrastructure investments in this segment.

4.2.2. Oil & Gas

Demand for oil is expected to increase substantially by 2020, primarily driven by the transportation and industrial sectors. On the other hand, the growing requirement of gas for the domestic power and fertilizer sectors is expected to raise demand for gas during the current decade. Domestic production of oil & gas is expected to increase considerably by 2020, given the recent exploration and development efforts underway in the country. However, it might not be able to meet the entire requirement in the country, which implies need for a huge amount of oil & gas imports.

4.2.3. Road

With a growing population in India, demand for road transport would increase further by 2020. While state highways are expected to link most districts in the country, all-weather rural roads are expected to provide access to the furthest outlying villages. This, along with Ministry of Road Transport and Highway's decision to accelerate implementation of National Highways to achieve a completion rate of 20 kms of highways/day will require substantial investment in road infrastructure. However, substantial investments for creation and/or improvement in mass/public transport systems could help reduce the use of vehicles on roads in major metro cities. Moreover, internal generation of resources by transport services is likely to increase by 2020 (Central Institute of Road Transport, Pune, Pre-Feasibility Studies of Expressways in India, 1988)[7].

Table 2.1: NHDP Projects as on November 2010

NHDP component	Total length (km)	Completed 4/6 lanes (km)	Under implementation		Balance for award of civil work (km)
			Length (km)	No of contracts	
Golden Quadrilateral	5,846	5,809	37	10	-
North South-East West Corridor	7,142	5385	1,332	106	425
Port	380	291	83	6	6
Other	1383	926	437	7	20
Special Accelerated Road Development Programme in the NE Region	388	-	112	2	276
NHDP Phase III	12109	1922	5,207	73	4,980
NHDP Phase IV	20000		486	4	19514
NHDP Phase V	6500	407	1,893	16	4,200
NHDP Phase VI	1000			-	1000
NHDP Phase VII	700		41	2	659
Total	55,448	14,740	9,628	226	31,080

Note: data updated up until Nov-10
Source: Economic survey 2010-11

Key initiatives of GoI to attract private investments in road infrastructure projects include the following:

- It intends to carry out all preparatory work including land acquisition and utility removal.
- National Highway Authority of India (NHAI) or GoI would provide capital grants of up to 40% of project cost to enhance viability on a case-to-case basis.
- Issue of ₹ 300 bn tax free bond to develop the overall infrastructure including ₹ 100 bn to NHAI.
- 100% tax exemption for five years and 30% relief for next five years may be availed of in the next 20 years.
- Concession period would be allowed up to 30 years.
- Arbitration and Conciliation Act 1996 based on UNICITRAL provisions.
- Exemption of basic custom duty on bio asphalt and other machinery used for construction of highways.
- In BOT projects, private participants are allowed to collect and retain tolls.
- Duty free import of specified modern high capacity equipment for highway construction.
- Set-up of special purpose vehicles.

Source: National Highway Authority of India

4.2.4. Rail

Rapid urbanisation along with increased domestic industrial activity is expected to accelerate growth of Indian railways during the current decade. According to the Ministry of Railways' estimates, demand for passenger and freight services would surge, which would require expansion of 25,000 kms of new lines by 2020.

The Ministry of Railway has already initiated rail connectivity projects in north eastern states and Jammu & Kashmir at an estimated cost of ₹ 280 bn. With the railway network spread to the furthest regions of the country (especially in north eastern parts), rail freight traffic is expected to increase substantially during the current decade. Manufactured products would account for a larger share in bulk cargo while a larger proportion of liquids would be transported through pipelines.

Table 2.2: India Vision: 2020 Broad Physical Targets

No.	Broad category	Short-term Target (FY11-FY12)	Long-term Target (FY13-FY20)	Total Target
1	Doubling (Including DFC)	1,000 kms	11,000 Kms	12,000 Kms
2	Gauge conversion	2,500 Kms	9,500 Kms	12,000 Kms
3	New Line	1,000 Kms	24,000 Kms	25,000 Kms
4	Electrification	2,000 kms	12,000 Kms	14,000 Kms
5	Procurement of Wagons	33,909	2,55,227	2,89,136
6	Procurement of Diesel Locomotives	690	4644	5334
7	Procurement of electric locomotives	555	3726	4281
8	Procurement of passenger coaches	6912	43968	50880
9	World class stations (bid-out/concession)	12 Stations	38 stations	50 stations
10	High speed corridors	--	2,000 Kms	2,000 Kms

Source: Ministry of Railways

Table 2.3: Investment in capacity enhancement and modernisation works

No.	Broad category	Short-term Target (₹ bn) (FY11-FY12)	Long-term Target (₹ bn) (FY13-FY20)	Total Target
1	Bottleneck removal	30	200	230
2	Capacity Augmentation	342.5	3,838.00	4,180.50
3	Rolling stock	455.63	3,461.75	3,917.38
4	Service Improvements	208	748	956
5	Technological upgrade and safety	272.35	983.19	1,255.54
6	High speed corridor	-	2,000.00	2,000.00
7	Others	99	990	1,089.00
8	Total	1,407.48	12,470.94	13,878.42

Source: Ministry of Railways

As per the estimates of Ministry of Railway, achieving the goals of Vision 2020 will require around ₹ 14,000 bn of investments during the current decade. While a major portion of investments is expected to be financed internally through surpluses and support from GoI, public-private participation would also play a

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role in: construction of dedicated freight corridors (DFCs), development of world-class railway stations, manufacture of locomotives, coaches and wagons, high speed rail corridors, operation of container trains and special freight trains, port and other connectivity works, and elevated suburban rail corridor in Mumbai.

4.3 Investment in social infrastructure

While physical infrastructure is expected to play a vital role in maintaining the strong growth momentum during the current decade, improvement in social infrastructure (especially health and sanitation and education) will help the country to move toward inclusive growth. Social infrastructure mainly encompasses the health and education system.

4.3.1 Health and sanitation

Improvement in health and sanitation facilities can be achieved through improvement in access to and utilisation of health, family welfare and nutrition services with special focus on under-served and underprivileged population (Rao, M. Govinda Mita Chaudhary (2008)[4]. It is expected that during the current decade as well, the responsibility of implementing healthcare and sanitation programmes will mainly lie with the state government and local bodies while financial assistance will be provided by the central government and external agencies.(Rawat Deepa, Kalpna Aggarwal and Manish Dev, (2006)[5].

4.3.2 Education

f: D&B forecasts
Source: Budget Document, D&B India

Although literacy rates in India have increased considerably, from 18.0% in 1951 to 65.0% in 2001 and 74.0% in 2011, they are far below the UMI (upper-middle income) reference level of 95% and vary substantially among males and females as well as urban and rural regions. Nonetheless, the projected increase in per capita income, government schemes such as mid-day meals, availability of schools within habitation and incentives for attending school (like providing textbooks and uniform, etc) are expected to result in a higher enrolment ratio, especially in case of girls, and in turn help increase the literacy rates by 2020 (Ahmad Md. Firdos and Rabi Shankar Bhakta (2006))[2]. Moreover, dropout rate at primary level are expected to decline further.

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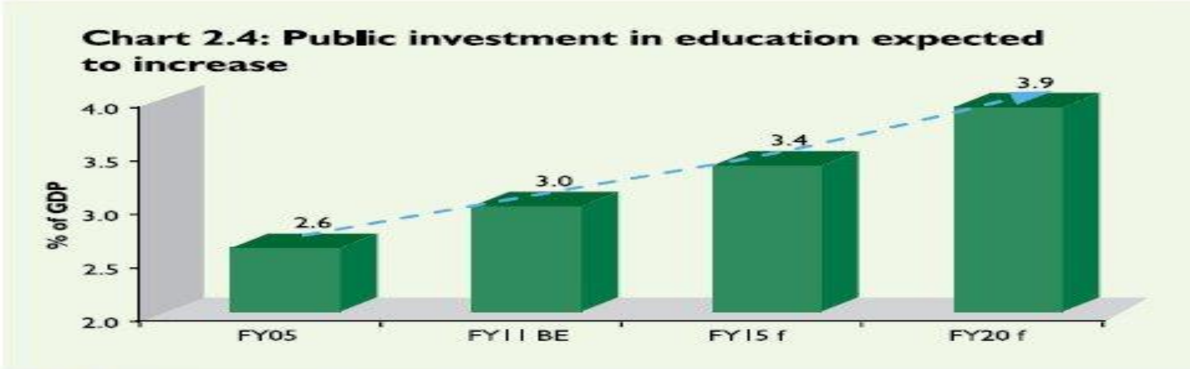
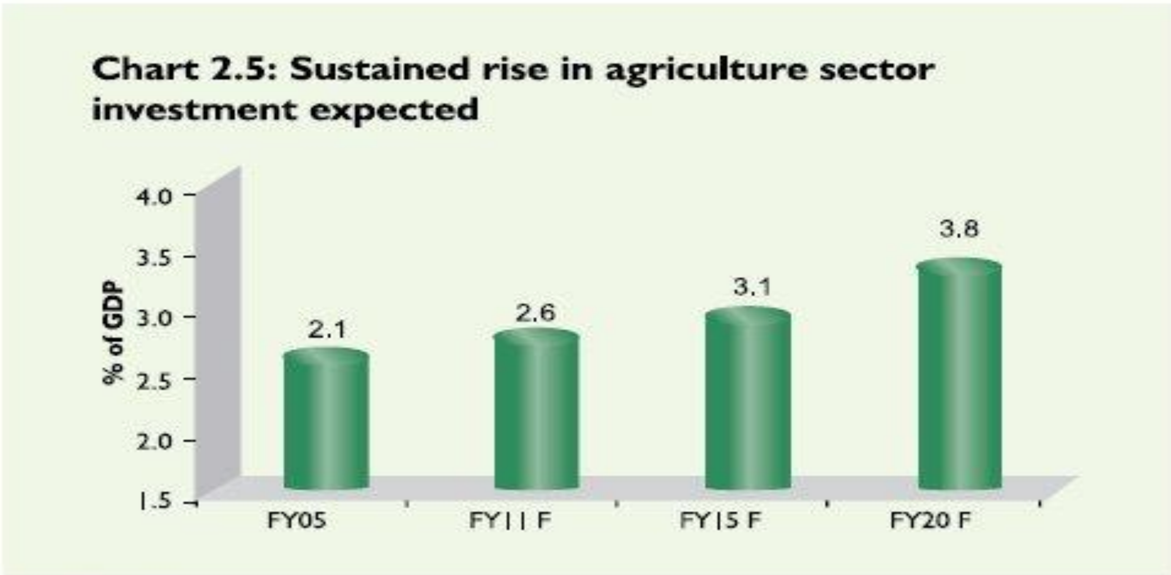


f: D&B forecasts
Source: Budget Document, D&B India

4.4 Investment in infrastructure for the agriculture sector

Although the share of agriculture sector in GDP is expected to decline further to around 9.2% by FY20, its significance in sustaining India's growth momentum is expected to remain unchanged. (Garg Charu, C and Anup K Karan (2009)[3], Going forward, growth in agriculture needs to be sustained not only for ensuring national food security but also for achieving the government's key objective of inclusive growth.



f: D&B forecasts
Source: CSO, RBI, D&B India

As per D&B's estimates, the agriculture sector is expected to record 4.3% growth during FY11-FY20, facilitated by growth in agriculture sector investments. Investment in agriculture sector is expected to grow to around 3.8% of GDP by FY20 as against 2.6% (E) of GDP in FY11.

4.4.1 Irrigation

Although considerable progress has been made in terms of irrigation, substantial investments in irrigation projects will be required to accelerate growth in the agriculture sector. Availability of adequate, timely and assured irrigation for crops will help shield the sector from the vagaries of monsoons, in turn leading to enhancement of land productivity in dry and rain-fed regions. Development of irrigation facilities will largely be funded through public investments, while private investment in irrigation will continue to be in wells, overhead tanks, check dams, ponds and water lifting devices as these have short gestation periods.

According to the Eleventh Five Year Plan, out of 69 MH net irrigated area in the country, only 0.5 MH is under drip irrigation and sprinkler accounts for 0.7 MH. This indicates potential for expansion of various micro irrigation systems in the form of sprinklers and drip irrigation in low rainfall areas.

In recent years, some states are seeing depletion in the water table, in turn leading to rise in investments for digging as well as deepening of existing wells. Further, lowering of the water table leads to rise in operating costs such as electricity and maintenance of water lifting devices.

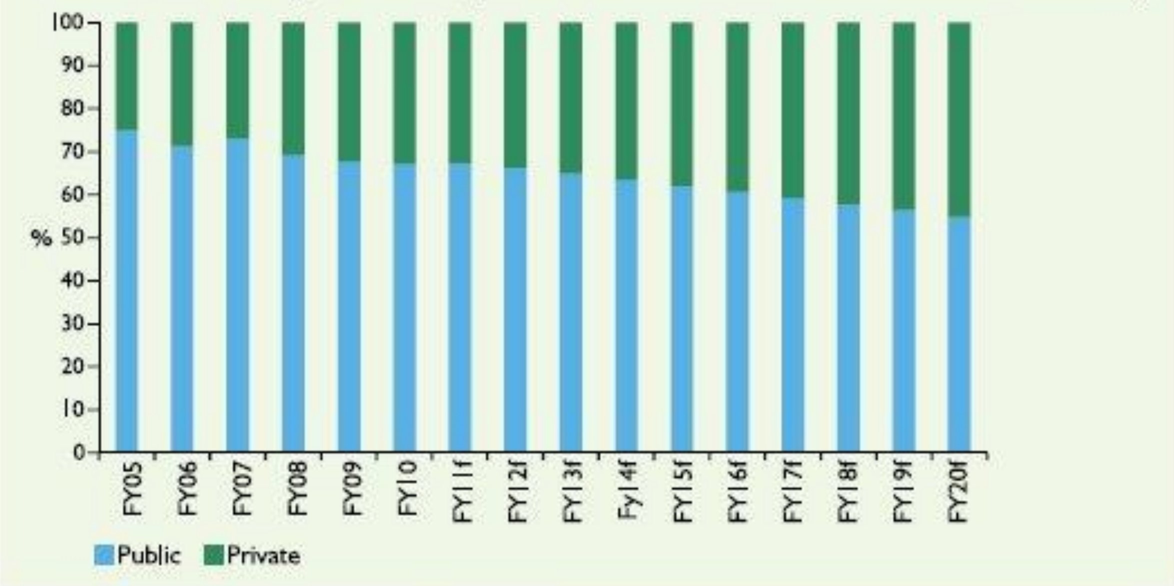
4.4.2 Technology and research & development

In addition to development of irrigation facilities, increased investment in technology, especially information and communication technology (ICT), will help drive agriculture growth. The adoption of ICT is expected to facilitate agricultural advisory services round the clock. It will help farmers secure various kinds of information viz. land use; planning based on integrated information on soil, water, fertilizer and pest management models; where and how to get good quality seeds/plants; and prevailing prices of farm equipments and agricultural produce.

5. Infrastructure financing

Over the years, financing of infrastructure projects has been considered the responsibility of the government. However, given budgetary constraints and other priorities, although public investment continues to account for a larger share in infrastructure financing, it has decelerated since the past few years. As a result, the share of the private sector in infrastructure financing gradually increased from a mere 25.1% in FY05 to 32.7% in FY10 (E) and is expected to increase further to 45.2% in FY20.

Chart 2.2: Rising share of private sector in infrastructure financing



Note: Figures from FY11 to FY20 are D&B forecasts
Source: CSO, D&B India

During the current decade, private investment in the form of Public Private Partnership (PPP) is expected to emerge as the preferred mode of investment in commercially-viable infrastructure projects, especially in sectors such as highways, airports, ports, railways and urban transit systems.

Key GoI initiatives that are expected to help promote PPP projects in the infrastructure sector include the following:

- Viability Gap Funding: Under this scheme, supplementary grants are provided by the central government to PPP projects to reduce capital costs and make them commercially viable and attractive to private investors. The implementation of the scheme is expected to help overcome resource constraints and promote techno-managerial efficiencies.
- Financial institutions such as India Infrastructure Finance Corporation Limited (IIFCL) and Infrastructure Development Finance Corporation (IDFC) are expected to play a key role in disbursing longer-term loans for financing infrastructure projects that typically involve long gestation periods.
- Availing advisory services and tax incentives such as duty free import of road building equipment and machinery should encourage private sector participation. Moreover, 100% exemption on income tax is available to eligible infrastructure projects for 10 years.

6. Conclusion

India has a vast potential for infrastructural development. It requires the huge financial resources to continue the growth in infrastructure creation. The PPP model has emerged as a hope to develop the infrastructure by a mutual contribution by private and public sector. Alone government resources are not enough to fuel the growth of nation. The investment in infrastructure will also generate the employment for rural and urban youths which will improve per capita income and standard of living and will foster a inclusive growth of rural India. As a agricultural based economy, it is required to increase the total investments in agriculture and allied activities, which is currently below 3.0 % of total GDP of India.

A array of continuous infrastructural development projects in Highway roads development has been a key factor in mobilising the business pan India, cutting the transportation cost and delivery time. Agriculture sector has been using ICT in land use; planning based on integrated information on soil, water, fertilizer and pest management models; where and how to get good quality seeds/plants; and prevailing prices of farm equipments and agricultural produce.

But PPP model in railways is still, in its infantry stage, and could not achieve the set objectives and targets, which needs address a fresh. The participation of private investments in high speed train between Mumbai and Ahmedabad is still in anticipation. The Harsh reality is PPP model is most talked about in last decade, but could not proved fruitful. We need to find the new avenues and horizons to widen the scope of roadmap of Developed India by 202

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