INFRASTRUCTURE

Infrastructure is the foundation for economic growth. It includes both the physical, natural and organizational structures which are the preconditions for sustainable economic development: roads, ports, airports, bridges, railways, water supply, sewers, power, telecommunications, irrigation etc.

Infrastructure facilitates the production of goods and services; distribution of final products to markets as well as basic social services such as schools and hospitals.

Infrastructure can be physical or social or natural. It can be hard or soft. "Hard" infrastructure refers to the large physical networks necessary for the functioning of a modern industrial nation, whereas "soft" infrastructure refers to all the institutions (organisations) which are required to maintain the economic system, health, and cultural and social standards of a country, such as the financial system, the education system, the health care system, the system of government, and law enforcement.

Various types of Infrastructure

Transport infrastructure

- Road and highway networks, including structures (bridges, tunnels, culverts)
- Mass transit systems (Commuter rail systems, subways, tramways, and bus transportation)
- Railways (rail track, railway stations), level crossings, signalling and communications systems
- Canals and navigable waterways (inland waterways)
- Seaports
- Airports

Adequate transportation infrastructure is a essential for economic development and growth. Apart from facilitating cheaper and more efficient movements of goods, people and thus enabling growth, it also helps in national integration. Transportation infrastructure impacts the distribution of economic activity and development across regions; helps business to multiply; consumer welfare; productivity enhancement; balanced regional development; employment; demand; and makes the government access higher levels of fiscal resources to direct and indirect taxes. It is seen in the case of Golden Quadrilateral and PMGSY- the latter accounting for benefits for agriculture too.

Energy infrastructure

- Electrical power network, including generation plants, electrical grid, substations, and local distribution.
- Natural gas pipelines, storage and distribution terminals
- Petroleum pipelines
- Specialized coal handling facilities for washing, storing, and transporting coal.
- Renewable energy infrastructure like wind, solar power , hydro power, geothermal power and biomass or biofuel facilities
- Coal mines, oil wells and natural gas wells (may also be classified as being part of the mining and industrial sector of the economy)

Water management infrastructure

- Drinking water supply
- Sewage collection, and disposal of waste water
- Drainage systems
- Major irrigation systems (reservoirs, irrigation canals)
- Major flood control systems

Communications infrastructure

- Postal service
- Telephone networks (land lines) including telephone exchange systems
- Mobile phone networks
- Television and radio transmission stations
- Cable television physical networks including receiving stations and cable distribution networks
- The Internet, including the internet backbone
- Communications satellites
- Undersea cables
- Major private, government or dedicated telecommunications networks, such as those used for internal communication and monitoring by major infrastructure companies, by governments, by the military or by emergency services, as well as national research and education networks

Solid waste management

- Municipal garbage and recyclables collection
- Solid waste landfills
- Solid waste incinerators and plasma gasification facilities (Plasma gasification is a process which converts organic matter into synthetic gas, electricity, and slag using plasma.)
- Materials recovery facilities
- Hazardous waste disposal facilities

Information technology (IT) infrastructure

IT components that are the foundation of an IT service- physical components (computer and networking hardware and facilities), various software and network components.

Soft infrastructure

Soft infrastructure means the body of rules and regulations governing the various systems, the financing of these systems, as well as the systems and organizations by which highly skilled and specialized professionals are trained, advance in their careers by acquiring experience, and are disciplined if required by professional associations (professional training, accreditation and discipline).

Unlike hard infrastructure, the essence of soft infrastructure is the delivery of specialized services to people.

Economic infrastructure

- The financial system, including the banking system, financial institutions, the payment system, exchanges, the money supply, financial regulations, as well as accounting standards and regulations

- Major business logistics facilities and systems, including warehouses as well as warehousing and shipping management systems
- Manufacturing infrastructure, including industrial parks and special economic zones, plus the public safety, zoning and environmental laws and regulations that govern and limit industrial activity, and standards organizations
- Agricultural, forestry and fisheries infrastructure, including specialized food and livestock transportation and storage facilities

Social infrastructure

- The health care system, including hospitals, the financing of health care, including health insurance,
- The educational and research system
- Skilling bodies
- Social welfare systems, including both government support and private charity for the poor, for people in distress or victims of abuse
- Sports and recreational infrastructure, such as parks, sports facilities, the system of sports leagues and associations
- Cultural infrastructure, such as museums, libraries, theatres, studios, and specialized training facilities
- Business travel and tourism infrastructure

Critical infrastructure

It consists of assets that are essential for the functioning of an economy:

- electricity generation, transmission and distribution;
- gas production, transport and distribution;
- oil and oil products production, transport and distribution;
- telecommunication;
- water supply (drinking water, waste water/sewage, stemming of surface water (e.g. dikes and sluices));
- agriculture, food production and distribution;
- public health (hospitals, ambulances);
- transportation systems (fuel supply, railway network, airports, harbours, inland shipping);
- financial services (banking, clearing);
- Security services (police, military).

National Critical Information Infrastructure Protection Centre (NCIPC)

NCIIPC is an organisation of the Government of India created under Sec 70A of the Information Technology Act, 2000 (amended 2008) in 2014. Based in New Delhi, India, it is designated as the National Nodal Agency in respect of Critical Information Infrastructure Protection.The Information Technology Act, 2000 defines Critical Information Infrastructure (CII) as "... those computer resource, the incapacitation or destruction of which, shall have debilitating impact on national security, economy, public health or safety" .NCIIPC broadly identified the following as 'Critical Sectors' :

- Power & Energy
- Banking, Financial Services & Insurance
- Telecom
- Transport

- Government
- Strategic & Public Enterprises

NCIIPC functions and duties

- National nodal agency for all measures to protect nation's critical information infrastructure.
- Protect and deliver advice that aims to reduce the vulnerabilities of critical information infrastructure, against cyber terrorism, cyber warfare and other threats.
- Identification of all critical information infrastructure elements for approval by the appropriate Government for notifying the same.
- Provide strategic leadership and coherence across Government to respond to cyber security threats against the identified critical information infrastructure.
- Coordinate, share, monitor, collect, analyze and forecast, national level threat to CII for policy guidance, expertise sharing and situational awareness for early warning or alerts. The basic responsibility for protecting CII system shall lie with the agency running that CII.
- Assisting in the development of appropriate plans, adoption of standards, sharing of best practices and refinement of procurement processes in respect of protection of Critical Information Infrastructure.
- Evolving protection strategies, policies, vulnerability assessment and auditing methodologies and plans for their dissemination and implementation for protection of Critical Information Infrastructure.
- Undertaking research and development and allied activities, providing funding (including grants-in-aid) for creating, collaborating and development of innovative future technology for developing and enabling the growth of skills, working closely with wider public sector industries, academia et al and with international partners for protection of Critical Information Infrastructure.
- Developing or organising training and awareness programs as also nurturing and development of audit and certification agencies for protection of Critical Information Infrastructure.
- Developing and executing national and international cooperation strategies for protection of Critical Information Infrastructure.
- Issuing guidelines, advisories and vulnerability or audit notes etc. relating to protection of critical information infrastructure and practices, procedures, prevention and response in consultation with the stake holders, in close coordination with Indian Computer Emergency Response Team and other organisations working in the field or related fields.
- Exchanging cyber incidents and other information relating to attacks and vulnerabilities with Indian Computer Emergency Response Team and other concerned organisations in the field.
- In the event of any threat to critical information infrastructure the National Critical Information Infrastructure Protection Centre may call for information and give directions to the critical sectors or persons serving or having a critical impact on Critical Information Infrastructure.

NCIIPC functions under the guidance of National Technical Research Organization (NTRO). NCIPC is the nodal agency which coordinates the cyber security operations related to critical infrastructures in India. NCIPC will set up sectoral Computer Emergency Response Teams (CERTs) and will also install sensors on critical systems for getting real-time information regarding cyber attack of any kind for preparing a quick response.

Urban infrastructure

Urban or municipal infrastructure refers to hard infrastructure systems owned and operated by municipalities, such as streets, water distribution, and sewers. It may also include some of the facilities associated with soft infrastructure, such as parks, public pools and libraries.

Green infrastructure

Green infrastructure is a concept that highlights the importance of the natural environment in decisions about land use planning. In particular there is an emphasis on the "life support" functions provided by a network of natural ecosystems, with an emphasis on interconnectivity to support long-term sustainability. Examples include green belts, wild life sanctuaries; eco sensitive regions, Tiger, lion, and elephant reserves; bird sanctuaries; western ghats being conserved etc.

Natural infrastructure

It may be used synonymously with green infrastructure. Natural infrastructures are planned and managed natural or semi-natural systems, which can provide benefits : forests, agricultural lands, estuaries, coastal landscapes and wetlands.These solutions comprises coastal ecosystem (mangroves, coral reefs) for coastline protection from storms; watershed restoration (by sustainable land management) for water quality regulation; afforestation for carbon sequestration; habitat restoration or conservation for pollination; phyto-remediation to rehabilitate contaminated soil and water. In India, about 800 million people were affected by around 288 weather-related disasters during 1995-2015. In order to avoid risk and damage, and to build resilience to these disasters, natural infrastructure solutions are increasingly being considered and implemented. It helps in achievement of Sustainable Development Goals (SDGs) and the Paris Climate Agreement targets Intended Nationally Determined Contributions (INDCs).

Financing Infrastructure

Investment in infrastructure is part of the capital accumulation required for economic development and has an impact on socioeconomic measures of welfare. Traditionally, infrastructure development used to occur through the public sector. However, given the scarcity of public resources and the need to shift scarce public resources into health and education, efforts have been made to induct private participation in the development of infrastructure.

Currently, the source of financing varies significantly across sectors. In India, some are monopoly: railways and nuclear power. Some sectors are dominated by government spending, others by overseas development aid (ODA) and yet others by private investors. PPP is emerging as the dominant model. Debt and equity are, like anywhere else, the ways of raising resources.

The total investment in infrastructure sectors in the Twelfth Plan(2012-17) is estimated to be Rs.55.7 lakh crore.The share of private investment in the total investment in infrastructure was 48 per cent during the Twelfth Plan .

Infrastructure may be owned and managed by governments or by private companies, such as sole public utility or railway companies. Or it can be a joint operation of construction, management and ownership (PPP) in which there are many models as we will see ahead.

PPPs

Governments in most developing countries face the challenge to meet the growing demand for new and better infrastructure services. As available funding from the traditional sources and capacity in the public sector to implement many projects at one time remain limited, governments have found that partnership with the private sector is an attractive alternative to increase and improve the supply of infrastructure services.

The partners in a PPP, usually through a legally binding contract or some other mechanism, agree to share responsibilities related to implementation and/or operation and management of an infrastructure project. This collaboration or partnership is built on the expertise of each partner that meets clearly defined public needs through the appropriate allocation of:

- Resources
- Risks
- Responsibilities, and
- Rewards

The availability of high-quality infrastructure and the overcoming of India's infrastructure deficit is crucial to attaining and sustaining rapid growth that generates the gainful jobs. It is urgently required for India to grow rapidly and generate a demographic dividend.The Government of India identified public–private partnerships (PPP) as a way of developing the country's infrastructure for its economic growth. PPPs in infrastructure represent a valuable instrument to speed up infrastructure development in India. Since first half of the 2000s, PPPs were successfully implemented. India offers today the world's largest market for PPPs.

PPPs have become attractive to governments for infrastructure development as:

- They can enhance the supply of much-needed infrastructure services.
- They may not require any immediate cash spending. They provide relief from the burden of the costs of design and construction.
- They allow transfer of many project risks to the private sector.
- They promise better project design, choice of technology, construction, operation and service delivery.
- Rationalize tariff for services like power and roads without any resistance from public

Kelkar Committee defines PPPs as : Public Private Partnerships (PPPs) in infrastructure refer to the provision of a public asset and service by a private partner who has been conceded the right (the "Concession") for the purpose, for a specified period of time, on the basis of marketdetermined revenue streams, that allow for commercial return on investment.

There are many models of PPPs being followed in India.

Build–operate–transfer (BOT) or build–own–operate–transfer (BOOT) is a form of project financing in which a private entity receives a concession from the private or public sector to finance, design, construct, own, and operate a facility stated in the concession contract. This enables the concessionaire to recover investment, operating and maintenance expenses in the project. Due to the long-term nature of the arrangement, the fees are usually raised during the concession period.

BOT has uses in infrastructure projects as a form of public–private partnership. In the BOT project, Government delegates to a private sector entity to design, build infrastructure and to operate and maintain these facilities for a certain period. During this period the private party is entitled to retain all revenues generated by the project. The facility will be then transferred to government at the end of the concession agreement.

V-BOT

In a BOT project, there are instances where the contractor realizes the investment and profit ahead of the contract period and there are cases where he does not realize even after the contract period is over. There should thus be flexibility.

The government is considering offering a "rolling contract" for road development that will have the above said flexibility. NHAI will reserve the right to take over the project to stem public opposition over "super profits". The model—variable build operate and transfer (V-BOT) .There have been several instances of protests in states including Delhi, UP and Maharashtra against the toll collection by the concessionaires for many more years than necessary. Under this model, the projects will be bid out on the basis of total cost (including construction, financing, operation and maintenance) for a defined contract period. The lowest bidder will get the project and will build, operate and collect toll. If toll collection increases beyond the projection due to high traffic growth, the contractor will recover the cost before the quoted period and NHAI will terminate the contract. NHAI will then collect toll to recover the land cost. When that amount is recovered, toll will be cut by 40%. All such projects will compulsorily have 100% electronic toll collection, installation of automatic traffic count and classifier system, video image detection and other systems.

Delhi-Noida Direct (DND) Flyway

Allahabad High Court in 2016 scrapped the toll levied on commuters using the Delhi-Noida Direct (DND) Flyway, a major traffic artery connecting southeast Delhi with Noida across the Yamuna in Uttar Pradesh. Noida Toll Bridge Company Ltd (NTBCL) is the special purpose vehicle to develop, construct, operate and maintain DND.The Allahabad High Court order was caused by a public interest petition filed by a body of Noida residents. The court considered several aspects of the case before ruling that NTBCL had "recovered all reasonable returns" on its investment, and was no longer entitled to collect toll.Supreme Court upheld the same in 2017.

Concession

A concession or concession agreement is a grant of rights, land or property by a government, local authority, corporation, individual or other legal entity.Public services such as roads, hospitals may be operated as a concession. In the case of a public service concession, a private company enters into an agreement with the government to have the exclusive right to operate, maintain and carry out investment in a public utility for a given number of years.

In concessions, payments can take place both ways: concessionaire pays to government for the concession rights and the government may pay the concessionaire, which it provides under the agreement to meet certain specific conditions. For example, hybrid annuity model or VGF. Usually, such payments by the government may be necessary to make projects commercially viableand/or reduce the level of commercial risk taken by the private sector, particularly in a developing or untested PPP market. Typical concession periods range between 5 to 50 years.

A BOOT structure differs from BOT in that the private entity owns the works. During the concession period the private company owns and operates the facility with the prime goal to

recover the costs of investment and maintenance while trying to achieve higher margin on project. The private entity has additional rights being owner- raise loans against it as collateral.

Hybrid-Annuity Model (HAM)

HAM was introduced in 2016 essentially for road infrastructure projects. About 30 highways projects have been awarded under HAM by the National Highway Authority of India (NHAI) at a total cost of about Rs.28,000 crore. Half the projects awarded in 2016- 17 were under HAM.

As per HAM model, 40% of the capital cost quoted is paid upfront by government while the remaining 60% of the cost will be paid over the life of the project as annuities. That is the meaning of "hybrid". It must be differentiated from VGF where the gap is given as grant. In HAM, the initial payment is adjusted from annuities.

HAM is a financial innovation in funding for infrastructure that emerged from a practical need. The BOT model was not considered viable by the private players to invest as the private player had to fully mobilise finances and bear the risk. Banks were unwilling to lend to these projects as they had burnt their fingers and accumulated NPAs. Risks were unevenly distributed getween government and private builder as developers had to take the entire risk of low passenger traffic. Projections on traffic go wrong affecting returns. Hence the reluctance to commit large sums of money in such models.

It helps by distributing the risk between developers and the Government. The annuity payment structure means that the developers aren not taking traffic risk all by themselves. From the Government's perspective, it starts road projects by investing a portion of the project cost.

Government has many incentives: builds roads, enables businesses, boosts tax buoyancy as it triggers economic growth, land prices go up in the vicinity that helps the owners etc. There is less traffic congestion. HAM projects are also being tested in urban infra developments such as metro rail projects.

In 2017, Hybrid Annuity based PPP model was adopted for the first time in the country in sewage management sector in two major cities in Ganga river basin - Varanasi and Haridwar.

TOT

The government approved a model under which toll highways operated by the National Highways Authority of India (NHAI) for over two years will be leased out to entities which will collect toll and operate the project for a specified duration, in a return for an upfront fee. The money raised will be used to invest in developing more highways.

GOI identified 75 national highway projects adding up to 4,500 km for the toll-operate-transfer (TOT) model. The overall annual toll collected from these projects is about Rs2,700 crore. Projects under the TOT model will be awarded through international competitive bidding where foreign funds can also take part.

TOT model will bring new investments to the highways sector. Under the TOT model, the investor will collect toll and be responsible for operation and maintenance of the project.

Proceeds from TOT auctions will free up valuable taxpayer capital and augment resources for new infrastructure projects.

The model is likely to help NHAI raise capital to fund road projects based on the engineering, procurement and construction (EPC) and hybrid annuity models. It will also be an opportunity for pension funds and infrastructure investors to invest in India's road sector profitably.

Swiss Challenge

Under the Swiss challenge method any party with credentials can submit a development proposal to the government. That proposal will be put online and a second party can suggest to improve and better that proposal.

In case the original proposer is able to match the more attractive and competing counter proposal, the project will be awarded to him. An expert committee will decide the best proposal. The Swiss challenge method is one that has been used in India by various states including Karnataka, Andhra Pradesh, Rajasthan, Madhya Pradesh, Bihar, Punjab and Gujarat for roads and housing projects.

This method can be applied to projects that are taken up on a PPP basis , EPC etc. The Union cabinet gave its approval to redevelop 400 railway stations using the Swiss challenge method. It helps in passenger service, modernization, mega investments, job creation etc.

The advocates of Swiss Challenge cite the following benefits: efficiency in the use of capital; good citizen services; transparency; genuine competition; cost saving fro the government ;speed up the process of awarding projects.

The critics of this method point to absence of real competition as in reality unsolicited bidder may not be in reality unsolicited because of the politics-business nexus.

In an age of crony capitalism, companies may employ questionable means to win mega projects. Thus this method has a potential to encourage large-scale corruption and erosion of precious public resources.

Effective legal and regulatory regime is necessary to make the most of the Swiss Challenge method.

Kelkar Committee report on 'Revisiting and Revitalising the PPP model of infrastructure development,' presented GOI in 2015 discouraged the government from following the 'Swiss Challenge' model of auctioning infrastructure projects.

Viability Gap Funding

The VGF Scheme was notified in 2006 to enhance the financial viability of competitively bid infrastructure projects, which are justified by economic returns, but do not pass the standard thresholds of financial returns- that is their commercial viability is not good to be taken up by the private parties Under the scheme, grant assistance of up to 20 per cent of capital costs is provided by the Central Government to PPP projects undertaken by any Central Ministry, State Government, statutory entity or local body, thus leveraging budgetary resources to access a larger

pool of private capital. An additional grant of up to 20 per cent of project costs may be provided by the sponsoring Ministry, State Government or project authority.

UDAN (Ude Desh ka Aam Naagrik) is an ambitious regional air connectivity scheme for which GOI set up a trust for disbursing viability gap funds to the participating airlines. Airports Authority of India (AAI) is the nodal agency for the scheme that aims to connect un-served as well as under-served airports and make flying affordable for the masses. As at least half of the seats in UDAN flights are to be offered at subsidised fares, the participating carriers would be provided a certain amount of Viability Gap Funding (VGF) -- an amount shared between the Centre and the state concerned.

Take out financing

Banks attract deposits whose average life is about 3-5 years and so can not be lent to finance infrastructure. But take out financing can be helpful as banks lend long term but after 3-5 years, a firm like India Infrastructure Finance Company Limited (IIFCL) takes out the account from the banks books. It pays the bank what the borrower owes it and collects the money from the borrower. It was introduced in 2009-10.Takeout financing is an accepted international practice of releasing long-term funds for financing infrastructure projects. It can be used to effectively address Asset-Liability mismatch of commercial banks arising out of financing infrastructure projects and also to free up capital for financing new projects.

Objectives of the Takeout Finance Scheme:

- To boost the availability of longer tenor debt finance for infrastructure projects.
- To address issues of asset-liability mismatch
- To expand sources of finance for infrastructure projects by facilitating participation of new entities i.e. medium / small sized banks, insurance companies and pension funds.

India Infrastructure Finance Company Limited (IIFCL)

IIFCL was incorporated in 2006 for providing long-term loans for financing infrastructure projects that typically involve long gestation periods. IIFCL provides financial assistance both through direct lending to project companies and by refinancing banks and financial institutions as also take out financing. IIFCL raises funds from both domestic and overseas markets on the strength of government guarantees.

IIFCL is a wholly-owned Government of India company.

The sectors eligible for financial assistance from IIFCL broadly include transportation, energy, water, sanitation, communication, social and commercial infrastructure.

IIFCL has been registered as a NBFC with RBI.

The authorized and paid up capital of the company (2017) stood at Rs 6,000 Crore and Rs 4,002 Crore, respectively.

By 2017, IIFCL made cumulative gross sanctions of Rs 77,000 Crore to 442 projects under direct lending and cumulative disbursements of Rs 56,000 Crore under Refinance and Takeout Finance.

Plug and play model

The Union Budget 2015-16 proposed a 'plug-and-play' model for big-ticket infrastructure projects such as power plants, airports and roads, where all regulatory clearances will be put in place before they are awarded to private developers through a transparent auction.

GOI announced plans to set up five ultramega power projects (UMPPs) of 4,000 mw each under the 'plug-andplay' model. This means winners of the contract can start implementing the project immediately, without worrying about all the regulatory clearances and coal or gas linkages — the causes for so many stalled projects in the country. This should unlock investments to the extent of Rs 1 lakh crore. Government will consider plug-and-play model for other projects such as roads, ports, rail lines and airports as well.

It will help the government attract foreign and domestic investments into much-needed infrastructure projects as it will significantly cut down project implementation time and cost and time overruns.

Infrastructure Debt Fund

Infrastructure projects are capital intensive and have long payback periods, and, therefore, require long-term funds at comparatively low costs. Infrastructure projects in India are financed mainly by commercial banks and NBFCs. The present bond market lacks depth to address the needs for a long-term debt. With a view to overcoming these shortcomings, Infrastructure Development Funds (IDFs) are being set up for channelising long-term debt from domestic and foreign pension and insurance funds, as well as from other sources. The Reserve Bank of India, and the Securities and Exchange Board of India have already laid down regulatory framework for the IDFs.

Setting up of Infrastructure Debt Funds (IDFs) was announced in the Union Budget for 2011-12. An IDF can be structured either as a company or as a trust. If set up as a trust, it would be regulated by SEBI under the Mutual Fund Regulations. If set up as a company, the IDF would be structured as a Non-Banking Finance Company (NBFC) and will be under the regulatory oversight of RBI. Guidelines with enabling provisions have already been issued by the Reserve Bank of India and SEBI. By 2017, three infra debt funds have been set up through the NBFC route and three through the MF route.

An IDF-NBFC would issue either rupee or dollar denominated bonds to mobilise money to be invested in infrastructure PPPs.

Establishment of Infrastructure Debt Fund through PPP model is gaining ground in India. Three IDFs set up through the NBFC route — L&T IDF, India Infradebt and IDFC IDF— have grown galloped from ₹600 crore about in 2015 to over ₹9,000 crore in 2017-18.

Infradebt Limited fund is jointly promoted by ICICI Bank, Bank of Baroda, Life Insurance Corporation (LIC) and Citicorp Finance (India).

Infrastructure Investment Trust (InvITs)

Infrastructure Investment Trust (InvITs) is like a mutual fund, which enables direct investment of small amounts of money from individual/institutional investors in infrastructure to earn income as

return. InvITs work like mutual funds or real estate investment trusts (REITs). InvITs can be treated as the modified version of REITs designed to suit the specific circumstances of the infrastructure sector. They are regulated by SEBI.

Masala Bonds

(discussed elsewhere)

Engineering, Procurement, Construction (EPC) Contract and Turnkey

Developed countries are preferring Engineering, Procurement and Construction (EPC) contracts where the contractor is responsible for design and construction on a turnkey basis and for a fixed price. Turnkey is a traditional public sector procurement model for infrastructure facilities. Generally, a private contractor is selected through a bidding process. The private contractor designs and builds a facility for a fixed payment. The contractor assumes risks involved in the design and construction phases. This type of private sector participation is also known as Design-Build.Both EPC and Turnkey projects for general purposes are similar.

Lease

In this category of arrangement, the operator (the leaseholder) is responsible for operating and maintaining the infrastructure facility (that already exists) and services, but generally the operator is not required to make any large investment. However, often this model is applied in combination with other models such as build- operate-transfer. Under a lease, the operator retains revenue collected from customers/users of the facility and makes a specified lease fee payment to the contracting authority. Generally, the government undertakes the responsibility for investment and thus bears investment risks. The operational risks are transferred to the operator.

Suitability and which model to select

Each model has its own pros and cons and can be suitable for achieving the major objectives of private-private partnership to a varying degree. Special characteristics of some sectors and their technological development, legal and regulatory regimes, and public perception about the services in a sector can also be important factors in deciding the suitability of a particular model of PPP.

There is no single PPP model that can satisfy all conditions.

A typical PPP structure can be quite complex involving contractual arrangements between a number of parties, including the government, project sponsor, project operator, financiers, suppliers, contractors, engineers and customers. The creation of a separate commercial venture called a Special Purpose/Project Vehicle (SPV) is a key feature of most PPPs. The SPV is a legal entity that undertakes a project and negotiates contract agreements with other parties including the government.

SPV has many advantages. Protected finance is available. A project may be too large and complicated to be undertaken by one single investor considering its investment size, management and operational skills required and risks involved. In such a case, the SPV mechanism allows joining hands with other investors who could invest, bring in technical and management capacity and share risks, as necessary.The government may also contribute to the long-term equity capital of the SPV in exchange of shares. For example, GSTN.

Sometimes, governments want to ensure a continued interest (with or without controlling authority) in the management and operations of infrastructure assets such as a port or an airport particularly those which have strategic importance, or in assets that require significant financial contribution from the government. In such a case, a joint venture may be established. A joint venture is an operating company owned by a government entity and a private company (or multiple companies including foreign companies if permitted by law), or a consortium of private companies.

Other than its strategic, financial and economic interest, the government may also like to directly participate in a PPP project. The main reasons for such direct involvement may include:

- To hold interest in strategic assets;
- To address political sensitivity and fulfil social obligations;
- To ensure commercial viability of the project;
- To provide greater confidence to lenders; and
- To have better insight to protect public interest.

PPP in Highways

The National Highway network of the country spans about 70,548 km. The National Highway Development Project (NHDP), covering a length of about 54,000 km of highways, is India's largest road development programme in its history. The government has encouraged increased private sector participation in upgrading the arterial road network of the country to world class standards. More than 60 per cent of the estimated investment requirement is expected to be financed through PPP. With several key projects on the anvil spanning a length of about 45,000 km (including six-laning of four-laned roads, expressways and port connectivity projects) and a large number of projects in States, there is great reliance on PPPs. Expressways are the highest class of roads in the Indian road network. They are six or eight-lane highways.Under Bharatmala project(2017), over 83,000 km of national highways will be constructed at an estimated investment of Rs 7 lakh crore by 2022.Private participation through public private partnership (PPP) of about Rs 1 lakh crores.

PPP in Civil Aviation

(Udaan given elsewhere)

PPP in Urban Infrastructure

Private sector participation needs to be encouraged in urban infrastructure sectors like water supply and sewerage and solid waste management. In urban transport, private sector can provide more efficient transport services, construct and maintain modern bus terminals with commercial complexes, over bridges, city roads and so on. PPP initiatives are also being undertaken to develop metro rail systems in Indian cities.

Hyderabad Metro Rail Project

Hyderabad Metro Rail Project on PPP mode, being developed on Design, Build, Finance, Operate and Transfer (DBFOT) mode. The project was awarded to the successful bidder for a VGF provided by the Central Government while the remaining investment will be made by the concessionaire. This is the single largest private investment in a PPP project in India. It is also one of the largest metro rail projects built and operated by a private entity anywhere in the world. The project demonstrates how large volumes of private capital can be deployed in public projects in a transparent, efficient and competitive manner. The concession has been awarded on the basis of the Model Concession Agreement for Urban Transit developed by GOI.

The Mumbai Monorail is a monorail system in the city of Mumbai. The project is being implemented by Mumbai Metropolitan Region Development Authority (MMRDA), with a consortium of Larsen & Toubro (L&T) and a Malaysian infrastructure firm Scomi Engineering. The system started commercial operation after partially opening its Phase 1 to the public in 2014. Upon the completion of entire Phase 1 in mid-2017, the Mumbai Monorail becomes the fifth-largest monorail system in the world.

PPP in Ports

The government has encouraged private sec- tor participation in port development and operations. Foreign direct investment up to 100 per cent is permitted under the automatic route for port development projects. Private investment has been envisaged on PPP basis in ports of Kolkata, Haldia, Paradip, Vizag, Ennore, Chennai, Tuticorin, Cochin, New Mangalore, Mormugao, Mumbai, JNPT and Kandla.

PPPs in Social Sectors

The Twelfth Plan (2012-17) lays special emphasis on the development of social sectors in view of their impact on human development and quality of life, especially of the underprivileged sections. The physical targets set in the Plan cannot be met out of public resources alone. It is, therefore, imperative that resources have to be attracted from the private sector to ensure that targets, in physical and financial terms, are met by the end of the Twelfth Plan period.

In the social sectors, it may not be possible to adopt the user-charge-based concessions, although they may not be completely ruled out. However, concessions which would provide reimbursement of service costs could attract considerable private investment. The main advantages of adopting the PPP approach in the social sectors would be enhanced investment, reduction in time and cost over-runs, improvement in efficiencies and better quality of performance.

PPP in Education

A scheme for setting up 2,500 schools under PPP mode was rolled out in the Twelfth Plan. The purpose of the scheme is to meet the government's objective of establishing world-class schools for providing quality education to underprivileged children who cannot afford to pay the tuition fee that good private schools charge. It is expected that the scheme will help in creating capacity for providing quality education to 40 lakh children, out of which 25 lakh will be from the underprivileged category.

The respective rights and obligations of the private entity and the government will be codified in an agreement with the former undertaking to deliver the agreed service on the payment of a charge by the government. Recurring tuition support would be provided for up to 1,000 students from under privileged categories at par with the amount that the Central Government spends on a student in Kendriya Vidyalaya. There would be no capital support and land would have to be procured by the private entity. Infrastructure support shall be made available by the government for the under- privileged students at the rate of 25 per cent of the recurring tuition support. The concession would be for a period of 10 years.

The scheme for 2,500 PPP schools should be viewed as an opportunity to evolve innovative ways to empower and enable non-government players to engage in providing world-class education, especially to children from low-income families. The objective should be to combine the respective strengths of the public and private sectors to complement each other in pursuit of the

shared goal of good education for all. In particular, adoption of the PPP mode would lead to rapid expansion of access to world-class education by low-income families.

In 2012, GOI approved a scheme for setting up 20 IITs in PPP mode with an overall outlay of Rs 2,800 crore.While land for the purpose was made available free of cost by state governments concerned, an IIT was established at a capital cost of Rs 128 crore each to be contributed in ratio of 50:35:15 by centre, state and industry partner respectively.

Areas that come under PPP might include almost every aspect of education, including evaluation and implementation, ownership, management, funding, running of institutions, academic aspects, special education programmes, like bridge courses, teacher training services, extra academic aspects, examinations, including entrance examinations, support services, hostels, healthcare, transport, maintenance, security, and so on, though policy formulation is normally considered as an exclusive prerogative of the state. In recent years several hybrid partnerships have also evolved, involving new combinations and permutations of state and non-state sectors engaged in a range of activities in education.

Criticism: Most partnerships of the recent period are based on market-oriented logic, while many models prevalent during earlier periods were not so, and they were also not described as PPP models. There is a main difference between the earlier models and the recent ones. The government was interested in PPP, when it proposed, for example, university-industry collaborations, essentially for academic reasons, to improve the relevance of curriculum, increase employability of graduates etc. Nowadays, the main objective of proposing PPP is to raise private funds and save public resources.

PPP models do not feel the need to view education, as a social good, a public good and a social merit good; as distinct from production of normal commercial goods and infrastructure. It is widely felt that as a result, PPP adversely influences the publicness of education. PPP then may lead to gradual or rapid shrinking of the state sector and an expansion of private sector which may eventually emerge as the sole player in education displacing public sector altogether.

In other words, public-private partnerships often end in favour of privatisation of Education and diminution of the role of thegovernment.

Table 1. PPP an Incompatible Partnership: Conflicting Interests of the Public and Private Players in Education

	State/Public	*Market/Private*
Nature & purpose of education	Social good	Individual gain
Motivation	Service	Profit
Main Concern	Knowledge	Skills
Area of interests	Generic	Specific
Duration of interest	Long term	Short term
Team effort	Rarely	Always
Research	Publish/public good	Strict confidential/private good
Time Schedule	Flexible	Rigid
Nature of Universities	Diversity	Uniformity
Relevance	Society	Market

Source: Jandhyala B G Tilak

PPP in Health Care Services

Several State Governments are experimenting with delivery of health services through different models. Planning Commission also considered a scheme for setting up secondary and tertiary care hospitals through PPPs at various District Headquarters. The principal objective of the scheme is to create a health care delivery mechanism comprising multi-specialty hospital to meet the growing health care needs of the poor, and for supplementing human resources in the sector by setting up nursing schools and medical colleges.

Niti Aayog: Public Private Partnership for Non-Communicable Diseases (NCDs) in District Hospitals: Draft Guidelines 2017

National Health Policy, 2017 advocates the case of increased role for private sector in the urban areas: "Given the large presence of private sector in urban areas, the policy recommends exploring the possibilities of developing sustainable models of partnership with for profit and not for profit sector for urban health care delivery."

Niti Aayog and the Union ministry for health and family welfare have proposed a model contract to increase the role of private hospitals in treating non-communicable diseases in urban India. The agreement, which has been shared with states for their comments, allows private hospitals to bid for 30-year leases over parts of district hospital buildings and land to set up 50- or 100-bed hospitals in towns other than India's eight largest metropolises.

According to the model contract, the district hospitals will need to share their back-end services such as blood banks and ambulance services with the private players. The state government could also provide part of the funds needed by these private players to set up the new hospitals. The district health administration will ensure referrals for treatment from primary health centres, community health centres, disease screening centres and other government health programmes and ventures are made to these private hospitals.The World Bank was engaged as "technical partner" to prepare the document. Under the model contract, these private hospitals will provide secondary and tertiary medical treatment for cancer, heart diseases and respiratory tract ailments at prices that are not higher than those prescribed under government health insurance schemes.

The rationale for coming up with this model is the fact that these three diseases do account for almost 35-40 per cent of total mortality in the country. So attention to them is not misplaced. It is also a fact that three-quarters of the specialists, equipment and beds are in the private sector. Partnership with them is therefore inevitable. Given below are the arguments of the proponents summarized by Amitabh Kant of Niti Aayog and opponents as presented by Sujata Rao , former Health Secretary,GOI.

Pros

The for the PPP is justified on the following grounds:

- rampant absenteeism of doctors — ranging from 28 per cent to 68 per cent in different states.
- The increase in government expenditure to 2-2.5 per cent of GDP for the expansion of public health services fails to fructify, and has hovered in the range of 0.9-1.3 per cent from1990 till date.
- Community Health Centres report a 65 per cent vacancy rate of specialists since governments are simply unable to attract and retain talent.

- private sector continues to grow at 15 per cent per annum, accounting for 58 per cent of rural and 68 per cent of urban in-patient care with 80-90 per cent of health facilities and a five-fold higher doctor density.
- Non-communicable diseases account for 60 per cent of the premature mortality in India and cardiovascular diseases, pulmonary diseases, cancer, as well as hypertension, diabetes and stroke are among the leading killers, accounting for four of the top five causes of death
- The aim is to ensure that district hospitals provide basic services for the diagnosis and treatment of NCDs at affordable rates or free of cost for those patients for whom the government chooses to cover such costs through insurance or through budgetary grants. This will help decongest tertiary level health facilities, help in the geographic dispersal of skills required for NCD care and provide quality care to people closer home at a lower cost.

Cons

- one-sidedness of the agreement, with the government bearing all the risk and the private partner having all the profits. Risk is unequally spread.
- The challenge in the Niti Aayog hybrid model is its implementation. How do public and private managements coexist in the same physical space? A hospital is a living institution that cannot be dismembered. Salary streams, motivation levels, working methods, prescription practices, monitoring and accountability systems, work expectations, all vary. Everyday, there are instances of patients being denied treatment in private hospitals till payment is made or preferring paying patients to the government insured ones or levying additional charges in addition to the sum reimbursed. Private hospitals are also known to overcharge devices like stents and drugs that are the key revenue earning centres. How, then, will the government operate its low-cost generics jan aushadhi pharmacies alongside the private entity pharmacies? In other words, in such a model how will conflicts of interest be managed?

(Primary healthcare is the first level of contact between patient with the health system: immunization, treatment of common diseases or injuries, provision of essential facilities, health education, provision of food and nutrition and adequate supply of safe drinking water.

Secondary Healthcare means patients from primary health care are referred to specialists in higher hospitals for treatment.

Tertiary Health care involves specialized consultative care provided on referral from primary and secondary medical care. Specialised Intensive Care Units, advanced diagnostic support services and specialized medical personnel on the key features of tertiary health care.)

PPP in Skill Development

As part of the government's initiative to augment the programmes for skill development, GOI announced setting up of 1,500 ITIs through PPP in unserved blocks. The objective is to create centres of excellence in vocational education especially for the youth from low-income families in order to improve their prospects of gainful employment. A major proportion of the costs incurred by an ITI are of a recurring nature, and GOI therefore, provides support for the recurring expenditure incurred by an ITI towards training students from underprivileged families. Further, GOI provides capital grant to meet a part of the cost of creating the infrastructure for setting up the ITIs. Under Phase 1 of Pradhan Mantri Kaushal Vikas Yojana (PMKVY), the government has trained millions More than 1,100 new industrial training institutes (ITIs) have been created in

2016. Cabinet approved a national apprenticeship promotion scheme under which five million people are to be trained by 2019-20 at a cost of Rs 10,000 crore.

In 2013 the Companies Act mandated all organizations with a minimum net worth of Rs 500 crores, a turnover of Rs 1,000 crores, and a net profit of at least Rs 5 crores, to spend at least 2% of their profits on CSR. Leading corporations have taken an active role in working with ITIs to strengthen them and improve the quality of learning outcomes from the institutions.

PPP in Digital India

Digital India is a campaign launched by the Government of India in 2015 which includes plans to connect rural areas withhigh-speed internet networks. Digital India consists of three core components. They are:

- Development of secure and stable Digital Infrastructure
- Delivering government services digitally
- Universal Digital Literacy

The BharatNet project, earlier National Optical Fibre Network or NOFN, seeks to bring high-speed broadband to all 2.5 lakh gram panchayats through optical fibre. It was approved by Cabinet in 2011.It is to be funded by Universal Service Obligation Fund (USOF). The project intends to enable the government of India to provide e-services and e-applications nationally.

Under BharatNet Phase I, Optical Fibre Cable (OFC) connectivity reached in over 1, 00, 000 Gram Panchayats (GPs) across different States in the country by November 2017. The second phase (BharatNet Phase 2) aims at covering the remaining 1.50 lakh GPS March 2019

(USOF The NTP of 1999 had Universal Service as one of its main objectives.The resources for meeting the Universal Service Obligation (USO) were to be generated through a Universal Access Levy (UAL), at a prescribed percentage of the revenue earned by the telecom licensees (telcos).)

TRAI said that "public-private-partnership" (PPP) model is best suited for this project. Under PPP model, private sector's capacity for delivery is combined with the government's role as an enabler and regulator to overcome market failures.Build-Own-Operate-Transfer (BOOT) model has potential to ensure long-term incentive and reduces risks. TRAI:'A PPP model that aligns private incentives with long term service delivery in the vein of the Build-Own-Operate-Transfer/Build-Operate-Transfer models of implementation be the preferred means of implementation.'

TRAI said that a project like BharatNet should be done by entities that have their own interests in monetisation of the network.

PPP in Swachh Bharat

Swachh Bharat Abhiyan (SBA) was started in 2014 with the objectives that include eliminating open defecation through the construction of household-owned and community-owned toilets and establishing an accountable mechanism of monitoring toilet use. It aims to achieve an Open-Defecation Free (ODF) India by 2 October 2019, the 150th anniversary of the birth of Mahatma Gandhi, by constructing 12 million toilets in rural India at a projected cost of ₹1.96 lakh crore.

It is India's largest cleanliness drive to date with 3 million government employees, school students, and college students from all parts of India participating in 4,041 statutory cities, towns and associated rural areas.

The mission contains two sub-missions: Swachh Bharat Abhiyan ("Gramin" or rural), which operates under the Ministry of Drinking Water and Sanitation; and Swachh Bharat Abhiyan (Urban), which operates under the Ministry of Housing and Urban Affairs.

The government has stressed on promoting PPP. Community cleanliness projects can be funded via the PPP model.

Waste-to-energy projects can be taken up by PPP model.Mumbai has the potential to set up a 120-MW power station based on garbage the city generates, fetching Rs.1,000 crore a year. The PPP model can also be brought in by roping in corporates in such power projects.

Swach Bharat is very important part of CSR and Public Private Partnership (PPP). The Government's commitment that every person should have access to safe drinking water, a toilet and a hygiene facility by 2019 needs CSR and PPP framework for funds as well as quality interventions and programs, which can maximize social impact and the focus on behavior change to influence positive behaviors.

Concerns

Resort to PPPs in the social sector often raises concerns about the commercialisation of services that are normally expected to be provided free or highly subsidised. These are important concerns but they can be addressed by well-drafted concession agreements and strict monitoring to ensure that PPP concessionaires abide by their commitments. This must be reinforced with penalties for non compliance.

While extending the concept of PPP to social and urban sector projects, the need for 'people's' participation in the design and monitoring of PPP schemes becomes crucial. Local citizens are direct stakeholders in such projects and therefore their support becomes crucial. Therefore, some cities and States have begun to shape PPPs in the social and urban sectors as People–Public–Private Partnerships (PPPPs). This is a valuable innovation which should be applauded.

Recommendations of Kelkar Committee 2015

Public Private Partnerships (PPPs) in infrastructure refer to the provision of a public asset and service by a private partner who has been conceded the right (the "Concession") for the purpose, for a specified period of time, on the basis of market determined revenue streams, that allow for commercial return on investment. PPPs in infrastructure represent a valuable instrument to speed up infrastructure development in India. This speeding up is urgently required for India to grow rapidly and generate a demographic dividend for itself and also to tap into the large pool of pension and institutional funds from aging populations in the developed countries.

India offers today the world's largest market for PPPs. It has accumulated a wealth of experience in getting to this premiere position. As the PPP market in infrastructure matures in India, new challenges and opportunities have emerged and will continue to emerge. Periodic review of PPPs, as in the present Committee's remit, are a must to help address issues before they become endemic and to mainstream innovations and foster new ones that improve the successful delivery of PPP projects.

India's success in deploying PPPs as an important instrument for creating infrastructure in India will depend on a change in attitude and in the mind-set of all authorities dealing with PPPs,

including public agencies partnering with the private sector, government departments supervising PPPs, and auditing and legislative institutions providing oversight of PPP's.

The Committee on Revisiting and Revitalizing the PPP model of Infrastructure Development headed by Dr. Vijay Kelkar submitted its report to the Finance Ministry in November 2015. The Committee was formed following the Finance Minister's announcemet on revising the Public Private Partnership (PPP) mode of infrastructure development in his budget speech, 2015-16.

Terms of reference of the Committee included: (i) reviewing the experience of PPP policy, including the variations in contracts and the difficulties experienced, (ii) analysing the risks involved in PPP projects in different sectors and the framework of risk sharing between the project developer and the government, (iii) proposing design modifications to the contractual arrangements of PPPs based on the above; and (iv) proposing measures to improve capacity building in government for effective implementation of PPP projects.

Recommendations

Revisiting PPPs: The Committee noted that, with the current demographic transition, and the consequent growing need for better infrastructure, it is important for India to improve its current model of PPPs. PPPs have the potential to deliver infrastructure projects better and faster. Currently, PPP contracts focus more on fiscal benefits. The Committee recommended that the focus should instead be on service delivery for citizens. Further, fiscal reporting practices and performance monitoring of PPPs should be improved.

The PPP model requires the involvement of a private partner to leverage financing and improve operational efficiencies. Therefore, state owned enterprises or public sector undertakings should not be allowed to bid for PPP projects. PPPs should not be used by the government to evade its responsibility of service delivery to citizens. This model should be adopted only after checking its viability for a project, in terms of costs and risks. Further, PPP structures should not be adopted for very small projects, since the benefits are not commensurate with the costs.

Risk allocation and management: The Committee noted that inefficient and inequitable allocation of risk can be a major factor leading to failure of PPPs. PPP contracts should ensure optimal risk allocation across all stakeholders by ensuring that it is allocated to the entity that is best suited to manage the risk. A generic risk monitoring and evaluation framework should be developed covering all aspects of a project's lifecycle. The Committee also recommended the guidelines for risk allocation.

Strengthening policy and governance: Ministry of Finance may develop a national PPP policy document, endorsed by Parliament. The Committee also recommended formulating a PPP law, if feasible. Further, the Prevention of Corruption Act, 1988 should be amended to distinguish between genuine errors in decision making and acts of corruption by public servants.

Strengthening institutional capacity: The capacity of all stakeholders including regulators, authorities, consultants, financing agencies, etc should be built up. A national level institution should be set up to support institutional capacity building activities, and encouraging private investments with regard to PPPs. Independent regulators must be set up in sectors that are going for PPPs. An Infrastructure PPP Project Review Committee may be set up to evaluate PPP projects. An Infrastructure PPP Adjudication Tribunal should also be constituted. A quick, efficient, and enforceable dispute resolution mechanism must be developed for PPP projects.

Strengthening contracts: Since infrastructure projects span over 20-30 years, a private developer may lose bargaining power because of abrupt changes in the economic or policy environment. The Committee recommended that the private sector must be protected against such loss of bargaining power. This could be ensured by amending the terms of the PPP contracts to allow for renegotiations. The decision on a renegotiated concession agreement must be based on (i) full disclosure of renegotiated costs, risks and benefits, (ii) comparison with the financial position of the government at the time of signing the agreement, and (iii) comparison with the existing financial position of the government just before renegotiation.

PPPs and Capacity Building in the States

The State Governments generally do not have dedicated staff resources for handling PPP projects or for building the requisite capacity. Such capacity is critical for conceptualising project proposals, engaging consultants, interacting with and supervising consultants, analysing and processing their advice for government approvals, interacting with prospective investors, executing the project documents and monitoring implementation.

SIA

Social impact assessment (SIA) assesses the social effects of infrastructure projects and other development interventions. The origin of SIA comes from the environmental impact assessment (EIA) model, which first emerged in the 1970s in the U.S. as a way to assess the impacts on environment (trees, soil, rivers and other water bodies, wild life etc) of certain development schemes and projects before they go ahead – for example, new roads, industrial facilities, mines, dams, ports, airports, and other infrastructure projects. It has been incorporated since into the formal planning and approval processes in several countries, in order to categorize and assess how major developments may affect populations, groups, and settlements.

Social impact assessment is also of increasing importance as a means to measure and monitor the social returns or social outputs of a project. Social impacts can be defined as the consequences to people of any proposed action that changes the way they live, work, relate to one another, organise themselves and function as individuals and members of society. This definition includes social-psychological changes, for example to people's values, attitudes and perceptions of themselves and their community and environment. Indeed, some SIA practitioners consider social impacts to be only 'as experienced' (e.g. stress, disruption, hunger) and differentiate these from the causal processes (e.g. over-crowding, infrastructure pressure, poverty). Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 makes SIA mandatory.

The main types of social impact that occur as a result of these project-related changes can be grouped into five overlapping categories:

- lifestyle impacts – on the way people behave and relate to family, friends and cohorts on a day-to-day basis;
- cultural impacts – on shared customs, obligations, values, language, religious belief and other elements which make a social or ethnic group distinct;
- community impacts – on infrastructure, services, voluntary organisations, activity networks and cohesion;
- amenity/quality of life impacts – on sense of place, aesthetics and heritage, perception of belonging, security and livability, and aspirations for the future; and

- health impacts – on mental, physical and social well being, although these aspects are also the subject of health impact assessment

The key points of the above discussion are that:

- social and biophysical impacts are interconnected and should be assessed together;
- SIA is understood to be concerned with the human consequences of development proposals, identifying all significant social impacts that arise in this context; and

National Investment & Manufacturing Zones (NIMZs)

Government notified the National Manufacturing Policy (NMP) on 4th November, 2011 with the objective of enhancing the share of manufacturing in GDP to 25% and creating 100 million jobs over a decade or so. National Investment and Manufacturing Zones (NIMZs) are one of the important instruments of the Policy to achieve its objectives. So far Government has granted 'in-principle' approval to the fourteen NIMZs (outside the DMIC region). These are:

- Nagpur in Maharashtra
- Prakasam in Andhra Pradesh
- Chittoor in Andhra Pradesh
- Medak in Telangana
- Hyderabad Pharma NIMZ at Rangareddy and Mahabubnagar Districts in Telangana.
- Tumkur in Karnataka
- Kolar in Karnataka
- Bidar in Karnataka
- Gulbarga in Karnataka
- Kalinganagar, Jajpur District in Odisha
- Ramanathapuram District of Tamil Nadu
- Ponneri Taluk, Thiruvallur District, Tamil Nadu
- Auraiya District in Uttar Pradesh and
- Jhansi District in Uttar Pradesh

Of these, the NIMZ at Prakasam in Andhra Pradesh; Medak in Telangana and Kalinganagar, Jajpur district in Odisha have been granted final approval.

Eight Investment Regions along the Delhi Mumbai Industrial Corridor (DMIC) project have also been announced as NIMZs. The details are as under:

- Ahmedabad-Dholera Investment Region, Gujarat
- Shendra-Bidkin Industrial Park city near Aurangabad, Maharashtra
- Manesar-Bawal Investment Region, Haryana
- Khushkhera-Bhiwadi-Neemrana Investment Region, Rajasthan
- Pithampur-Dhar-Mhow Investment Region, Madhya Pradesh
- Dadri-Noida-Ghaziabad Investment Region, Uttar Pradesh
- Dighi Port Industrial Area, Maharashtra ; and
- Jodhpur-Pali-Marwar Region in Rajasthan

The basic detail is as follows: State government selects the land and applies to the Central government to accept its proposal to set up an NIMZ. If the central government accepts, it notifies the same and sets up an SPV that manages it. State government owns it itself or makes any other arrangement of ownership. NIMZs are developed as green field industrial townships, benchmarked

with the best manufacturing hubs in the world. These NIMZs seek to address the infrastructural bottleneck which has been cited as a constraining factor for the growth of manufacturing".

The NMIZ functions as "a self-governing and autonomous body and will be declared by the State Governments as an Industrial Township under Art 243 Q (c) of the Constitution. They would be different from SEZs in terms of size, level of infrastructure planning, and governance structure related to regulatory procedures and exit policies". NIMZ may also have SEZs located in them. While SEZs mainly concentrated on exports, NIMZs have no such role, though they may export if they choose to. SEZs exist for the services sectors as well while NIMZ does not.

Thus, NIMZ is an all-inclusive gigantic structure combining production units, public utilities, logistics, environmental protection mechanisms, residential areas and administrative services. It may also include one or more Special Economic Zones (SEZs), Industrial Parks and Warehousing Zones, Export Oriented Units (EOUs) and Domestic Tariff Area (DTA) units.

NIMZ would have an area of at least 5000 hectares .As regards internal infrastructure of NMIZ, it will be provided by a Developer or a group of Co-developers, while external linkages will be provided by Govt. of India and the concerned State Govt. Thus, it requires Centre-State co-ordination.

While the Central Govt. will be responsible for notifying the NIMZ and issuing necessary clearances, the State Governments have many tasks to perform. Apart from selecting the land and acquiring if necessary: such as ensuring water requirements, power connectivity, infrastructure linkages, etc. Other functions of states government include, among other things,

- land,
- funding of initial cost of land,
- exploring funding arrangements, including from international funding institutions, long term tax free debentures, etc
- power connectivity,
- water requirements,
- state roads connectivity,
- sewerage and effluent treatment,
- health, safety and environmental issues, etc.

The preference will be for non-agricultural land with adequate water supply. If needed, the states may reserve a certain share of the land for MSMEs. Ownership of an NIMZ will either be with the state government, a state government undertaking in joint ownership with a private partner or under any other appropriate model. Wasteland, as far as possible will be acquired and agricultural land will be kept to minimum. It should not be in ecologically sensitive area.

NIMZs will put in place a comprehensive exit policy that will promote productivity while providing flexibility by reducing some of the moving rigidities in the labour market and by ensuring protection of workers' rights as laid down in the statute.

Affordable Housing

Affordable housing addresses the housing needs of the lower or middle income households. Disposable income of the people remains the primary factor in determining the affordability. As a result, it becomes the increased responsibility of the government to cater to the rising demand for

affordable housing. The Government of India has taken various measures to meet the increased demand for affordable housing along with some developers and stressing on public-private partnerships (PPP) for development of these units.

There were many problems initially in developing affordable housing: lack of land and high construction costs; unfavourable tax environment and lack of incentives. A major catalyst instrumental in this segment's growth was the Indian government's ambitious housing program.

In 2015, Prime Minister Narendra Modi announced the 'Housing for All by 2022' scheme targeting two crore homes to be built across all urban locations over the next five years. 2017-18 Union Budget has many initiatives for the affordable sector:

- The government has granted the much-coveted infrastructure status to affordable housing, giving developers access to cheaper sources of funding, including external commercial borrowings (ECBs).
- Affordable housing promoters have been granted more time for project completion - the deadline has been increased to five years from the current three years.
- The qualifying criteria for affordable housing have been revised to 30 square meters and 60 square meters on the carpet, rather than the saleable area, for metros and non-metros respectively. This effectively increases the size of the affordable housing market across India.
- a new Credit Linked Subsidy Scheme (CLSS) for the mid-income group was announced with a provision of Rs 1,000 crore.

The government is reaching out to developers to make 'Housing for All by 2022' a reality. An additional incentive of 39% higher allocations was announced for affordable housing development this financial year under the Pradhan Mantri Awas Yojana (PMAY). It has also extended the CLSS to loans up to Rs 12 lakh.

Government policies like the Real Estate Regulatory Authority (RERA) made buyer confident. The availability of cheap finance is also driving the demand for affordable housing.

Refinance of housing loans by National Housing Banks (NHBs) will give further boost to the sector.

There are however challenges.

The biggest challenge to create affordable housing is the unlocking of land in urban areas. Unless adequate land is made available, creating 2 crore homes may be a distant dream. According to an estimate, close to 57,392 acres will be required to build the 2 crore homes. This will require unlocking non-essential lands currently being held by large government bodies.

The housing shortage in India is pegged at 1.9 crore units and the government has recognized the need to fill the gap in urban housing. The drive to bring homes to the country's 1.3 billion people is expected to bring a colossal $1.3 trillion of investment to the housing sector over the next seven years. The government's financial and policy thrust, regulatory support, rising urbanization, and increasing affordability is converting demand for affordable homes into a commercially viable opportunity.

Infrastructure Status

In the Budget 2017-18, GOI gave 'affordable housing' infrastructure status to facilitate higher investment in the sector and, in turn, achieve the government's ambitious goal of 'Housing for All'.

The grant of infrastructure status would mean builders will be eligible for many government tax and subsidy incentives, and institutional funding at affordable rates for low cost homes.

With the infrastructure status, the sector can look at funding through insurance companies, which is a huge alternate sector and opens up a new avenue for long term real estate funding. It also means higher limit on external commercial borrowings which will attract more investments.

PPP Policy for Affordable Housing

Central Government announced a new PPP Policy for Affordable Housing that allows extending central assistance of up to Rs.2.50 lakh per each house to be built by private builders even on private lands besides opening up immense potential for private investments in affordable housing projects on government lands in urban areas.

The policy gives eight PPP (Public Private Partnership) options for private sector to invest in affordable housing segment. It seeks to divide risks among the government, developers and financial institutions, to those who can manage them the best besides leveraging under utilized and un-utilized private and public lands towards meeting the Housing for All target by 202..

It proposes eight implementation models for affordable housing using PPP, six of those using government lands, and two using private land. These are:

- Government land based subsidised housing: The public authority will allot land to the selected private developer, who will design, build, and transfer the housing units back to the authority. The public authority will pay the developer based on pre-determined milestones.
- Mixed development cross-subsidised housing: Instead of receiving payments from the public authority, the developer can cross subsidise the project by developing high end housing on a part of the allotted land.
- Annuity based subsidised housing: The public authority will allot the land and pay the developer in annuity payments (up to 10 years). The developer will maintain the project for this period, and will be monitored by the authority.
- Annuity cum capital grant based subsidised housing: A significant proportion of the cost (40-50%) will be paid by the authority during the construction phase. The remainder will be paid as an annuity (up to 10 years).
- Direct relationship ownership housing: The land will be allotted to the developer by the authority. The beneficiary will directly pay to the private developer.
- Direct relationship rental housing: The developer will own the housing units and receive rent from the beneficiaries.
- Credit Linked Subsidy Scheme (CLSS) approach: The private developer will be responsible for providing land as well as the development of the project. Under the CLSS

component of the Pradhan Mantri Awas Yojana (PMAY), the central government will provide an interest - subsidy of Rs 2.50 lakh per house on loans taken by beneficiaries.

- Affordable Housing Partnership (AHP) approach: The private developer will be responsible for providing land and the development of the project. The central government will provide the allottees an assistance of Rs 1.50 lakh for each economically weaker section housing unit

Sagar Mala Project

Problems with the port sector in India

For long, the growth of India's maritime sector has been hampered by many procedural and policy related challenges, the most important among them being the presence of a dual institutional structure that has led to the development of major ports (those owned by the central government) and non-major ports (those owned by the state governments) as individual projects.

Lack of infrastructure for evacuation of cargo at major and non-major ports leading to a sub-optimal transport modal mix, limited hinterland linkages and its impact on transportation costs, limited development of coastal areas for manufacturing and economic activities, low penetration of coastal and inland shipping, lack of scale and deep draft at ports also contributed to the skewed growth.

Sagar Mala project is a strategic and customer-oriented initiative of the Government of India to modernize India's Ports so that port-led development can be augmented and coastlines can be developed to contribute in India's growth. It looks towards "transforming the existing Ports into modern world class Ports and integrate the development of the Ports, the Industrial clusters and hinterland and efficient evacuation systems through road, rail, inland and coastal waterways resulting in Ports becoming the drivers of economic activity in coastal areas. It aims at harnessing India's 7,500-km long coastline, 14,500-km of potentially navigable waterways and strategic location on key international maritime trade routes.

Indian coastline will be developed as Coastal Economic Regions (CER). The Sagarmala Development Company was given the nod for incorporation by Indian Cabinet in July 2016 with an initial authorized share capital of Rs 1000 Crore and subscribed share capital of Rs 90 Crore, to give a push to port-led development. The Sagarmala National Perspective Plan was released in April-2016 with details on Project Plan and Implementation.

Sagar Mala project—an infrastructure-cum-policy initiative being readied by the shipping ministry— seeks to allow the central government to have a say in the development of non-major ports. The initiative, according to the ministry, will strive to tackle all the challenges by focusing on port modernization, efficient evacuation and coastal economic development through a structured framework for ensuring inter-agency collaboration and integrated development. It will provide the necessary institutional framework to enable the central and state authorities to work together for ensuring inclusive growth.

Coastal Economic Regions (CER)

As a part of flagship Sagarmala (string of ports) project, the government will develop 10 Coastal Economic Regions (CERs) which will be the focal point for economic development along India's vast coastline of over 7,000km. Each CER will hold an integrated and comprehensive plan of the

area, combining the growth potential of various industrial clusters and economic activities with the upgradation and development of both major and non-major ports simultaneously. The CER will also develop transport systems for land- and water-borne evacuation of cargo from and to the ports on a regional basis, thus ensuring an optimal modal mix. By linking major and non-major ports, industrial clusters and evacuation infrastructure into a single system at a larger regional level, a CER will enable seamless and efficient movement of cargo through gateways, thereby allowing ports to enhance competitiveness and offer multiple freight options to customers.

Ports will thus be able to actively participate in driving the economic development of a wider region, which is similar to the role large global ports are playing in their respective countries.This will need enabling policies, institutional framework and appropriate funding mechanism for promoting collaborative development.

The Sagar Mala project would be implemented by a company set up at the national level. Each CER will be developed through a special purpose vehicle having equity participation from the state government concerned and the company. The management of the CER special purpose vehicle would vest with the state government.

Port-led development model successfully delivered in Gujarat. This includes development port-based industrial parks, captive industries and ancillary facilities such as ship repair, shipbuilding, ship-breaking, bunkering, container freight stations, warehousing facilities, industries requiring significant import of raw materials and industries with large export potential. This will ultimately result in more cargo for ports. The states, too, have much to gain from such a collaboration because it would ensure funding and other institutional support from the centre.

Sagar Mala has come at the right time for the central government-owned ports, many of which are losing market share to non-major ports mainly due to regulatory reasons. Extending a collaborative hand would help both set of ports to grow. The project would need Rs 5,000 crore in investment in the next five years.

While this will primarily focus on major and minor ports, government is also going for its other agenda to attract private investment in the inland waterway sector that can provide a competitive alternative to road and rail network for cargo transport. Thus, Make in India programme gets boost.

Logistics Performance Index (LPI)

It is a benchmarking tool created to help countries identify the challenges and opportunities they face in their performance on trade logistics and what they can do to improve their performance. It is the weighted average of the country scores on key dimensions: quality of logistics services (e.g., transport operators, customs brokers); Ability to track and trace consignments; Timeliness of shipments in reaching destination within the scheduled or expected delivery time etc. This measure indicates the relative ease and efficiency with which products can be moved into and inside a country.

Logistics Performance Index is reported by World Bank in every 2 years. The LPI is based on a worldwide survey of stakeholders on the ground providing feedback on the logistics "friendliness" of the countries in which they operate and those with which they trade.In the 2016 logistics performance index,top position is held by Germany. India holds 35th position, a significant improvement from 2014.

NIIF

National Investment and Infrastructure Fund (NIIF) is a fund created by the Government of India for strengthening infrastructure financing in the country. It must be noted that his is different from the National Investment Fund which is raised form public sector disinvestment.

India needs investments worth an estimated Rs 43 lakh crore (about $646 billion) in the infrastructure sector over the next five years. As much as 70% of this requirement will be in power, roads and urban infrastructure. Since most public-sector banks are struggling to cope with toxic assets, their ability to fund large infrastructure projects is very limited. So funds for infrastructure from other sources, including NIIF, assume importance.

The NIIF and its sub-funds are supposed to invest in infrastructure projects — greenfield, brownfield and stalled. The NIIF will have an initial corpus of Rs 40,000 crore, of which 49% will be contributed by the government. The remaining 51% is to be raised from sovereign wealth funds, other global long-term investors and public-sector units. The government has already approved its contribution of Rs 20,000 crore towards the NIIF. Of this, however, Rs 1,000 crore has been budgeted for 2017-18, and Rs 4,000 crore for the last fiscal.

The NIIF was set up as a trust under the provisions of the Indian Trusts Act, 1882.The NIIF was registered with Securities and Exchange Board of India as investment fund in 2015. NIIF aims to raise debt to invest in the equity of infrastructure finance companies such as Indian Rail Finance Corporation (IRFC) and National Housing Bank (NHB). It could also consider other nationally important projects, for example, in manufacturing, if commercially viable.

The idea is that these infrastructure finance companies can then use this extra equity, manifold. It is a fund of funds and may invest in other SEBI registered funds.

New Metro Policy

The new metro rail policy empowers states, by putting the onus on them to improve project viability by stressing on economic viability and private participation. It elaborates, that the viability can be improved by promoting transit-oriented development (TOD) and allying it with real estate development, improving last-mile connectivity as well as attracting private investments. The policy provides for rigorous assessment of new metro proposals, including alternate transit mode analysis to ensure that the least-cost and most-efficient mass transit mode is selected for public transport. The new policy plans to empower states to regulate and set up a Fare-Fixation Authority as well as promoting other non-fare revenues such as advertisements, lease of space. Also there are provisions to raise resources using innovative mechanisms like 'Betterment Levy' on nearby assets, issuance of corporate bonds and improve last-mile connectivity for a catchment area of nearly five km, to promote metro ridership. The three models are outlined in the policy:

- Public-Private Partnership with Central assistance. This will be part of the Union Finance Ministry's viability gap funding scheme.
- Grant by Centre whereby 10% of Metro project cost will be provided by the Central government as lump sum amount.
- 50-50% Equity sharing model taken between the Centre and state.

Green Bonds

Green bonds are debt instruments that raise money to fund clean energy projects. Companies that raise money through these bonds have to invest it only in areas that are environment-friendly such as renewable energy, waste management, clean transport or sustainable land use.Though the green bond market has been in existence globally since 2007, in India it took off in 2015. Their significance lies in the clean environment that it will create; reverse climate change; augment financial resources for investment; provide foreign currency etc.

Yes Bank was the first Indian entity to raise money through green bonds, raising ₹1000 crore from insurance companies, pension funds, mutual fund houses and foreign portfolio investors to fund solar, wind and biomass projects in 2015. Later, the EXIM Bank raised about $500 million from international investors through green bonds.

Since India signed the Paris climate deal in 2015, a number of public and private companies have sold green bonds to raise money. Companies such as IDBI Bank, Axis Bank and NTPC Ltd have raised large sums through green bonds. State Bank of India plans to raise in 2017-18 up to $3 billion in the country's biggest overseas green-bond issue for funding projects that will help achieve the government's commitments toward sustainable growth.There has been an aggressive commitment for renewable energy by the government which has set very stringent renewable energy targets—175 gigawatts by 2022—an estimated requirement of $200 billion. Hence, in the next five years, we will see a huge amount of infrastructure spending on such projects.The Securities and Exchange Board of India (Sebi), in 2015, endorsed the Green Bond principles which are internationally recognized standards.

SEBI Guidelines

In 2015, Securities and Exchange Board of India (SEBI) proposed new norms for issuance and listing of green bonds. The proposed norms mainly relate to disclosure requirements by the companies intending to issue such bonds, as also to the periodic reporting of fund allocation:list of projects to which Green Bond proceeds have been allocated. This may also include the details of expected environmental impact of such projects.

However, for designating an issue of corporate bonds as green bonds, in addition to the compliance with the requirements under the existing regulations, an issuer will have to disclose in the offer document certain additional information about the green bonds, which have been based upon the Green Bond Principles, 2015.

Green Bond Principles 2015

As the market for green bonds grew rapidly, a group of banks initiated the development of the Green Bond Principles (GBP)—a set of voluntary guidelines framing the issuance of green bonds.GBP encourage transparency, disclosure, and integrity in the development of the green bond market. The GBP suggest a process for designating, disclosing, managing, and reporting on the proceeds of the bond. They are designed to provide issuers with guidance on the key components involved in launching a green bond, including providing information to aid investors in evaluating the environmental impact of their green bond investments. The International Capital Markets Association acts as the GBP's secretariat and facilitates the work of its members, including issuers, investors, banks underwriting green bonds, and other market participants.

The GBP recognize several broad categories of potential eligible projects, which include but are not limited to the following:

- Renewable energy
- Energy efficiency (including efficient buildings)
- Sustainable waste management
- Sustainable land use (including sustainable forestry and agriculture)
- Biodiversity conservation
- Clean transportation
- Sustainable water management (including clean and/or drinking water)
- Climate change adaptation

India's Inland Waterways

India has an extensive network of inland waterways in the form of rivers, canals, backwaters and creeks. The total navigable length is 14,500 km (9,000 mi), out of which about 5,200 km (3,200 mi) of the river and 4,000 km (2,500 mi) of canals can be used by mechanized crafts. Freight transportation by waterways is under-utilized in India compared to other large countries and geographic areas like the United States, China and the European Union. The total cargo moved (in tonne kilometers) by the inland waterway was just 0.1% of the total inland traffic in India, compared to the 21% figure for United States. Cargo transportation in an organized manner is confined to a few waterways in Goa, West Bengal, Assam, and Kerala.

Cost of water transportation in India is barely 50 paise a kilometer, as compared to ₹1 by railways and ₹1.5by roads. Hence water transportation is receiving significant attention in recent times. Inland waterways in India consist of the Ganges (Ganga)–Bhagirathi–Hooghly rivers, the Brahmaputra, the Barak river, the rivers in Goa, the backwaters in Kerala, inland waters in Mumbai and the deltaic regions of the Godavari - Krishna rivers. About 44 million tones of cargo is moved annually through these waterways using mechanized vessels and country boats.

Inland Waterways and National Waterways Act 2016

In April 2016 National Waterways Act came into force. It declares 106 additional inland waterways as the national waterways in addition to five existing national waterways. The declaration of these National Waterways would enable Inland Waterways Authority of India (IWAI) to develop the feasible stretches for Shipping and Navigation. The right over the use of water, river bed and the land will remain with the State Government.

The legislation provides conversion into waterways 15 rivers in West Bengal, 14 each in Assam and Maharashtra, 11 in Karnataka, 12 in Uttar Pradesh, 9 in Tamil Nadu and 6 each in Bihar and Goa and 5 each in Gujarat, Meghalaya, Odisha and Telangana, among others. It also includes plan to convert the Yamuna in Delhi and Haryana into a waterway. Five of the river-stretches, which have been declared as National Waterways, include Allahabad Haldia on Ganga (1,620 km), Brahmaputra's Dhubri-Sadiya (891 km), West Coast Canal Kottapuram Kollam (205 km), Kakinada Puducherry canals (1,078 km) and East Coast Canal integrated with Brahmani river and Mahanadi delta rivers (588 km).

The Act highlights the crucial importance of waterways in the economic development of the country, which for long remained a backburner. India's trade through the waterways constitutes only 3.5 per cent. Inland water development is cost-effective. Often it has been said that it is far

easier and less expensive to transport goods from Mumbai to London than it is from Mumbai to Delhi. In this context, the Minister said that inland waterways cost only 30 paise to move cargo through waterways in comparison to Rs 1.5 through road and Rupee one from raill.

The Act also ensures that it is equally environment-friendly especially in protecting the riverine ecology and fisheries and importantly tackling pollution. Inland waterways interlink three important issues:

- Tool for industrial development: The competitive edge of key industries (steel, agro, oil & minerals) on the global market strongly relies on cost-effective inbound and outbound shipments of raw materials by waterways. A positive chain effect is established that can directly benefits non-waterway regions through competitive pricing of end products.
- Tool for economic growth: In densely populated parts of India with strong industry presence, inland waterways will help keep goods moving by avoiding a traffic gridlock when economic growth leads to rising freight volumes again. Investments in waterways infrastructure will serve, besides sustainable transport, regional development and tourism. The neighbourhood first approach of the government will get adequate boost by developing India's inland waterways.
- Tool for sustainable development: Clearly inland waterway transport will reduce negative externalities. Investments in waterways will serve biodiversity and integrated water management.

The social and environmental benefits of inland water transport are potentially high. Reduced fuel consumption, reduced global warming, cheaper goods and services for customers, more fisheries and wildlife, less accidents on road, decongested highways, cheaper travel opportunities for riverine communities are some very immediate benefits. Fishing can become a viable livelihood option again for the riverine communities. Importantly, it will also force cities and towns to reduce untreated sewage into rivers as they will tend to decrease the economic value of the river.

Other benefits are: creation of business opportunities and jobs, and public benefits, such as recreation. Some of the key benefits provided by inland waterways may lie in those areas which are currently not quantified and valued, such as drainage and community benefits including a sense of civic pride. Further evidence on the benefits of green transport opportunities is also required as these may prove to play a significant role in reducing travel carbon emissions. These are high on the government's agenda.

Jal Marg Vikas

It is a project on the river Ganga, being developed between Allahabad and Haldia to cover a distance of 1620 kms. The project envisages development of a fairway with three metres depth, which would enable commercial navigation of at least 1500 ton vessels on the river. Construction of multi modal terminals, jetties, river information system, channel marking, navigational lock, river training and conservancy works are to be undertaken as part of the project. The project is being implemented with technical and investment support from World Bank and would be completed over a period of six years at an estimated cost of Rs. 4200 crore.

Special Economic Zones (SEZs)

India was one of the first in Asia to recognize the effectiveness of the Export Processing Zone (EPZ) model in promoting exports, with Asia's first EPZ set up in Kandla in 1965. With a view to

overcome the shortcomings experienced on account of the multiplicity of controls and clearances; absence of world-class infrastructure, and an unstable fiscal regime and with a view to attract larger foreign investments in India, the Special Economic Zones (SEZs) Policy was announced in 2000. This policy intended to make SEZs an engine for economic growth supported by quality infrastructure complemented by an attractive fiscal package, both at the Centre and the State level, with the minimum possible regulations.

To instill confidence in investors and signal the Government's commitment to a stable SEZ policy regime and with a view to impart stability to the SEZ regime thereby generating greater economic activity and employment through the establishment of SEZs, Special Economic Zones Act, 2005, was made in 2005 The main objectives of the SEZ Act are:

- generation of additional economic activity
- promotion of exports of goods and services;
- promotion of investment from domestic and foreign sources;
- creation of employment opportunities;
- development of infrastructure facilities;

It is expected that this will trigger a large flow of foreign and domestic investment in SEZs, in infrastructure and productive capacity, leading to generation of additional economic activity and creation of employment opportunities.

The SEZ Act 2005 envisages key role for the State Governments in Export Promotion and creation of related infrastructure. A Single Window SEZ approval mechanism has been provided through a 19 member inter-ministerial SEZ Board of Approval (BoA). The applications duly recommended by the respective State Governments/UT Administration are considered by this BoA periodically. All decisions of the Board of approvals are with consensus.The SEZ Rules provide for different minimum land requirement for different class of SEZs. Every SEZ is divided into a processing area where alone the SEZ units would come up and the non-processing area where the supporting infrastructure is to be created.

Approval Mechanism

The developer submits the proposal for establishment of SEZ to the concerned State Government. The State Government has to forward the proposal with its recommendation to the Board of Approval. The applicant also has the option to submit the proposal directly to the Board of Approval.The Board of Approval has been constituted by the Central Government in exercise of the powers conferred under the SEZ Act. All the decisions are taken in the Board of Approval by consensus.

The functioning of the SEZs is governed by a three tier administrative set up. The Board of Approval is the apex body. The Approval Committee at the Zone level deals with approval of units in the SEZs and other related issues. Each Zone is headed by a Development Commissioner, who is ex-officio chairperson of the Approval Committee.

Once an SEZ has been approved by the Board of Approval and Central Government has notified the area of the SEZ, units are allowed to be set up in the SEZ. All the proposals for setting up of units in the SEZ are approved at the Zone level by the Approval Committee consisting of Development Commissioner, Customs Authorities and representatives of State Government.

Fact Sheet on Special Economic Zones

Number of Formal approvals (As *on 07.09.2017*)	**424**
Number of notified SEZs (As *on 07.09.2017*)	**354** + *(7 Central Govt. + 11 State/Pvt. SEZs)*
Number of In-Principle Approvals (As *on 07.09.2017*)	**31**
Operational SEZs *(As on 30th June, 2017)*	**222**
Units approved in SEZs *(As on 30th June, 2017)*	**4,643**

INVESTMENT	**Investment** *(As on February, 2006)*	**Incremental Investment**	**Total Investment** *(As on 30th June, 2017)*
Central Government SEZs	Rs.2,279.20 cr.	Rs.13,694.80 cr.	Rs.15,974 cr.
State/Pvt. SEZs set up before 2006	Rs.1,756.31 cr.	Rs.9,721.69 cr.	Rs.11,478 cr.
SEZs Notified under the Act	-	Rs.4,05,690 cr.	Rs.4,05,690 cr.
Total	**Rs.4,035.51 cr.**	**Rs.4,29,106.49 cr.**	**Rs.4,33,142 cr.**

EMPLOYMENT	**Employment** *(As on February, 2006)*	**Incremental Employment**	**Total Employment** *(As on 30th June, 2017)*
Central Government SEZs	1,22,236 persons	1,12,625 persons	2,34,861 persons
State/Pvt. SEZs set up before 2006	12,468 persons	83,502 persons	95,970 persons
SEZs Notified under the Act	0 persons	14,48,020 persons	14,48,020 persons
Total	**1,34,704 persons**	**16,44,147 persons**	**17,78,851 persons**

Exports in 2014-15	**Rs. 4,63,770 Crore**
Exports in 2015-16	**Rs. 4,67,337 Crore**
Exports in 2016-17	**Rs. 5,23,637 Crore**
Exports in 2017-18 *(As on 30th June, 2017)*	**Rs. 1,35,248 Crore** (Growth of 15.39% over the exports of the corresponding period of FY 2016-17)

Industrial Parks

The Rakesh Mohan Committee Report refers to Integrated Industrial Parks as "self contained island providing high-quality infrastructural facilities. Integrated industrial parks offer industrial, residential, and commercial areas with developed plots/ pre-built factories, power, telecom, water and other social infrastructure".

Stakeholders	Benefits offered
For Users:	Availability of high quality infrastructure in a centralised manner for the end-user industries resulting in lower transaction costs and shorter start-up time for them. Economies of scale in terms of development of land and infrastructure, including common facilities.
For the State:	Macroeconomic benefits like, increase in industrial development, growth of hinterland, etc. Geographical spread of industrial development including development of backward areas. Fulfilment of state's social objectives like generation of employment, creation of social infrastructure, etc. Revenues generated by the government through taxes and duties
For the Developer / Operator:	Commercial returns received by the park developer, operator and utility provider

The industrial parks are usually promoted by the SIDC or such other government agency / statutory authority. The projects are planned, approved, developed, managed and regulated by a governmental agency with minimal private sector participation.

There are different schemes under which the industrial parks could be promoted including: Growth Centre, Export Processing Zone, Free Trade Zone, Export Promotion Industrial Park, Software Technology Park, Electronics Hardware Technology Park.

The key features of the industrial parks development in India are:

- Status of the industrial parks sector varies from State to State, wherein states like Maharashtra, Gujarat, AP, Tamil Nadu, etc. have made significant progress in promoting industrial parks / estates.
- The approaches relating to development, administration, regulation, etc. of industrial parks also vary according to the political and developmental compulsions faced by the individual States.
- Primarily, the industrial parks have been promoted by the government and its agencies with minimal private sector participation (PSP). PSP in industrial parks has met with partial success in India and that too has primarily been restricted to the IT parks.
- A few examples of the private initiative in industrial parks development are Information Technology Park (ITPL), Bangalore; Infocity, Hyderabad; Technopark, Thiruvananthapuram; etc. The Mahindra City at Chennai was envisaged initially as an Auto

Park. However, over a period of time, the concept was changed and the park started focussing on IT and ITeS. The IT sector boom could perhaps have contributed to the development and success of IT parks.

- Often, the decision to set-up an industrial park reflects the and social objectives of the government. With parks throughout the State normally under a single agency, typically the SIDC, the revenues from parks at industrially forward locations are used to cross-subsidise the parks in the backward areas.

China is setting up two industrial parks, one in Gujarat and the other in Maharashtra. India wants Chinese goods made in India as that can help in reduction of trade deficit and also exports from India in future. Indian market is large and also cuts labour costs for China. But India has to protect its small and medium enterprises (SMEs).

Land Pooling Vs Land Acquisition

States, such as Maharashtra, Gujarat, Tamil Nadu, Punjab, Andhra Pradesh and Kerala have used land pooling as a viable alternative to land acquisition. It is a technique for promoting efficient, sustainable and equitable land development in the urban fringes.

The concept of land pooling involves amassing small rural land parcels into a large parcel, provide it with infrastructure and return approximately 60 per cent of the redeveloped land to the owners after the development is complete and appropriating the costs of infrastructure and public spaces. Of the 40 per cent that remains with the local town planning or state government authority, a substantial portion is reserved for setting up infrastructure such as roads, hospitals, schools, parks, provide electricity, water, sewerage and such like. The local planning or developing authority usually sells the rest for financing the costs for the infrastructure and amenities. The target parcels are usually agricultural holdings which are converted to urban use.

Since contiguous parcels are required by the government authority, the land owner usually gets a percentage of his holding back at another location within a radius of 5 km from his original holding. He may also get additional floor space index (FSI), due to which the value of the returned land will be a multiple of the worth of his original holding, even though the plot size has shrunk. A land readjustment scheme like this is initiated by Government

As the method is based on public/private cooperation, the majority of the landowners should support the use of the technique. Forceful acquisition of land should be avoided.

It provides an opportunity for a planned development of the land and infrastructure network and it avoids the problem where different types of land uses and densities are mixed.

It is an attractive method to influence the location and timing of new urban development since it is becoming increasingly difficult to obtain public support for land acquisition. The method is supported and sometimes even initiated by the landowners since they would make considerable profit on the project.

Farmers agreed to become partners in a land pooling scheme proposed by the Andhra Pradesh Capital Region Development Authority (APCRDA), for the development of the Andhra Pradesh state capital at Amaravati, contributing about 33,000 acre to the government for the purpose. The Delhi Development Authority (DDA) identified 200 villages along the outskirts of Delhi in a land

pooling scheme, to convert around 90 villages into development areas and another 90 into urban villages. DDA has recently passed a modified land pooling policy within the Master Plan Delhi 2021.

City and Industrial Development Corporation of Maharashtra Lt(CIDCO) is developing an international airport at Navi Mumbai and villages coming under Navi Mumbai Airport Influence Notified Area (NAINA) are participating in a land pooling scheme to facilitate its construction.

Pooling is seen as a viable alternative to land acquisition primarily because of the difficulties involved in acquiring clear, marketable and litigation-free appropriately sized contiguous land parcels for development –it is sensitive issue in various parts of the country.