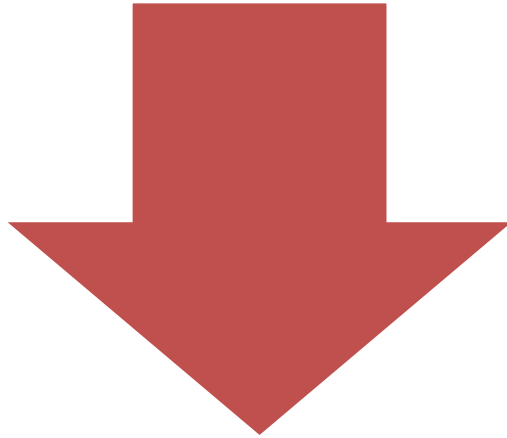


# Infrastructure of the Indian Economy

# Economic and Social Infrastructure



Growth in Economic Infrastructure is the prime mover of Development. It includes Transport and Communication, Energy and Power, Irrigation, Banking and Insurance, Science and Technology.



Social Infrastructure is equally important indicator of quality of economic progress and for raising the standard of living. It includes facilities for education, health, housing, financial inclusion and accessibility, reduction in per cent of population living in poverty.



# Role of Economic Infrastructure

## Improves agricultural productivity

- Facilitates movement of goods
- Raises the level of national output

## Raises Industrial production and productivity

- Generates employment
- Facilitates foreign investment in industry and promotes exports

## Expands the service sector

- Speedier movement of services across the country
- Service growth and Financial inclusion of rural areas

## 10.1.2 Problems due to lack of economic infrastructure

1. Inadequate transportation links of the rural sector

2. Lack of all weather roads

3. No railway links in certain regions.

4. Poor planning of transport systems in the regions.

5. Poor communication networks

6. Inadequate irrigation facilities making agriculture dependent on monsoon.

1. Lack of planned development of inter-city and intra-city road transport services

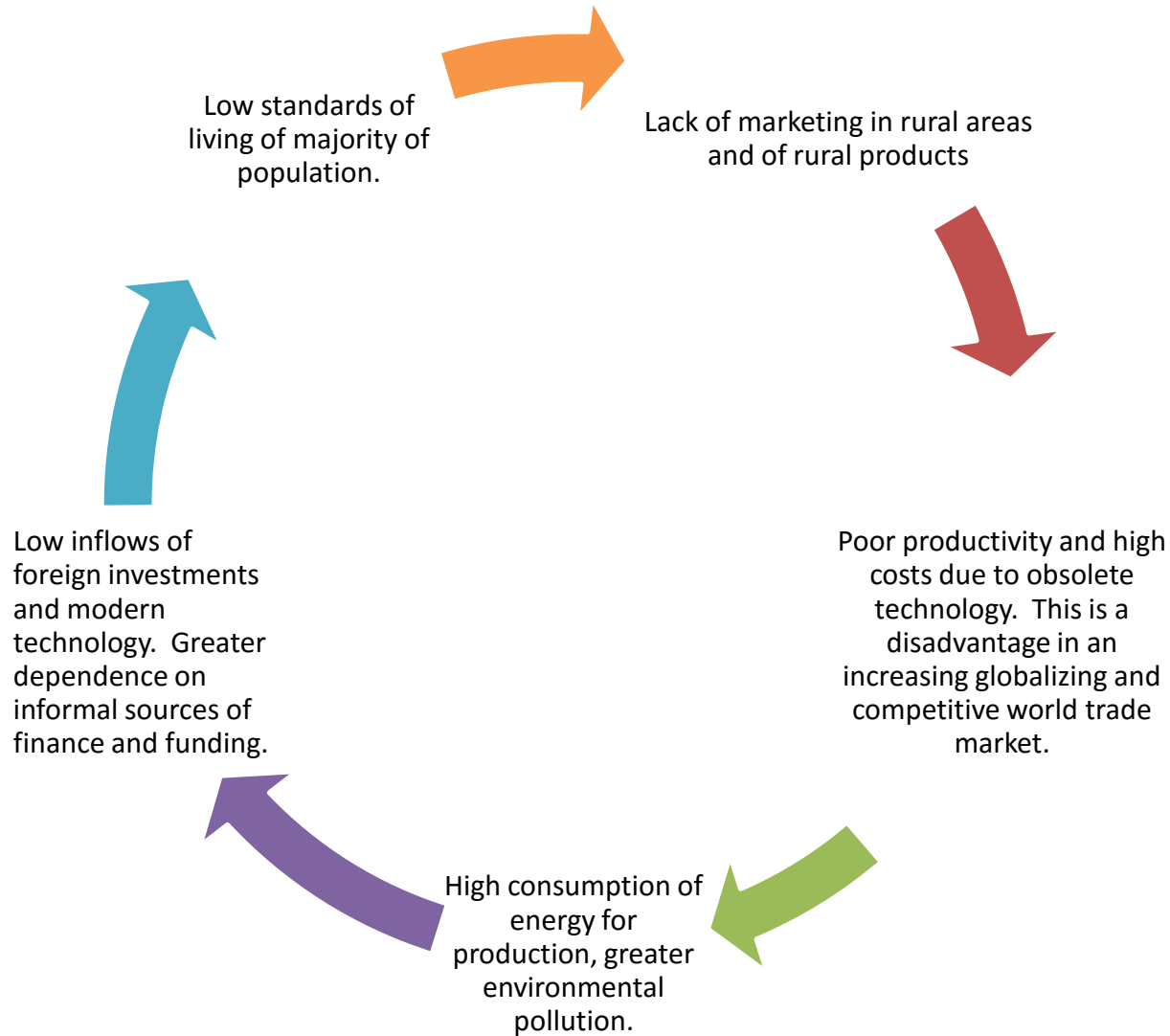
2. Inadequate power supply

3. Greater dependence on thermal power or fossil fuel energy.

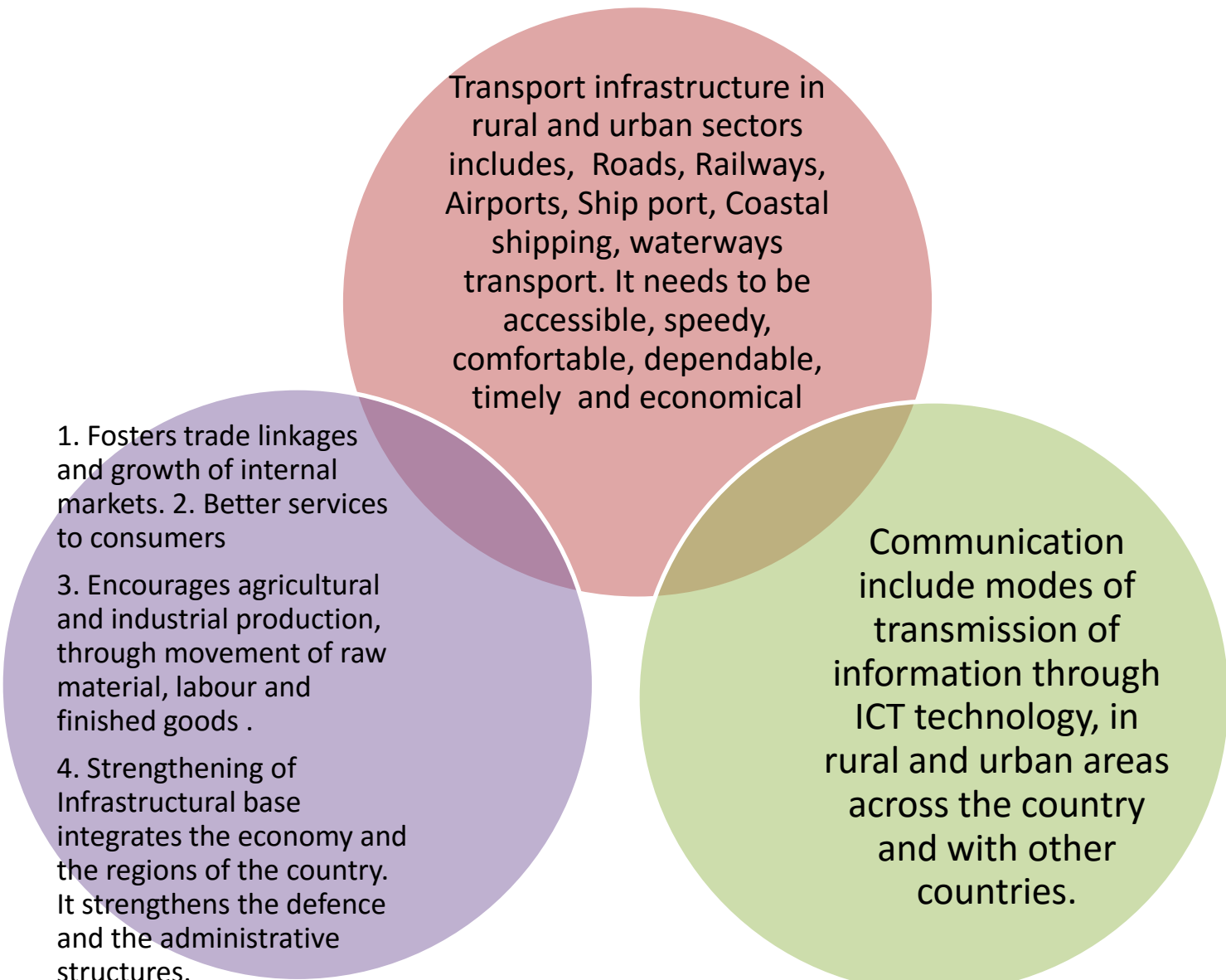
4. Inadequate banking facilities

5. Obsolete industrial technology and assets.

# Adverse Impact of Inadequate Infrastructure



# Transport Infrastructure



Transport infrastructure in rural and urban sectors includes, Roads, Railways, Airports, Ship port, Coastal shipping, waterways transport. It needs to be accessible, speedy, comfortable, dependable, timely and economical

1. Fosters trade linkages and growth of internal markets. 2. Better services to consumers
3. Encourages agricultural and industrial production, through movement of raw material, labour and finished goods .
4. Strengthening of Infrastructural base integrates the economy and the regions of the country. It strengthens the defence and the administrative structures.

Communication include modes of transmission of information through ICT technology, in rural and urban areas across the country and with other countries.

# Policy of Government for development of transport and communication sector

5. **Telecommunications** was the first sector to be de-licensed and de-reserved in 1991. As per Telecommunication Policy of 1994, one telephone per village was to be provided by 1997. Department of Telecommunications was created for the purpose. By 2004 out of 6.07 lakh villages in India, 5.22 lakh villages had been provided with telephone. National Telecom Policy envisages one PCO or Public Call Office for every 500 persons in urban centres. Telecom Regulatory Authority Of India has been functioning since 1997.

1. **National Highways Authority** of India has been established for implementing plans for expansion of highways and road networks. Rules for Foreign Direct Investment (FDI) in road infrastructure have been liberalised for projects of Rs 1500 crore or more. National Highway Development project has also been launched, to merge the golden quadrilateral ( Delhi, Calcutta, Chennai, Mumbai ) with East -West ( Silchar and Saurashtra ) and North -South ( Kashmir Kanya kumari)

4. **Civil Aviation**: policy for investment was announced in 1997 to allow 100 per cent investment by NRI and Overseas Corporate Bodies in domestic airlines. Five airports are being developed with private investment

2. **Five mega projects** have been undertaken. A **Tariff Authority of India for Ports** has been constituted. An automatic approval of projects for construction of ports and harbours with 100% foreign equity has been allowed by Government of India.

3. **Railways**: Rail Vikas Nigam Limited was constituted in 2003 to create new institutional mechanisms for implementing railway projects. New schemes for Luggage Break vans, Parcel vans, Own Your Own Wagon , Build Own Lease Transfer , are to encourage private investment in railways.

# Sources of Power or Energy

5. **Atomic Power:** In 1969 The Tarapur Atomic Power Station was built in Maharashtra. Canada helped in building two Pressurized Heavy Water Reactors at Rawatpur (Rajasthan) in 1972 and 1980. Indian technology has been used to build two Nuclear Power Stations at Kalapakkam near Chennai (1984-85) and Narora in Uttar Pradesh in 1989-90.

Non-Power applications of atomic energy, through use of radioisotopes and radiation technology is also being made in health care, agriculture, hydrology, and industry.

1. **Power or Energy** is critical for development of an economy. There is a positive co-relation between the per capita energy consumption and the level of economic development. The consumption of electricity per kilowatt hour in India was 173 in 1980 and 561 in 2001.


2. **Fossil fuel**, hydro electric energy and atomic energy, are the three sources of commercial energy. Between 1990 to 2004 the power generation capacity increased at the rate of 4.1 per cent per year.

4. **Hydro electric** Power: Every major river has a hydro electric power plant and its advantage is that water is a renewable source of power generation


3. **Fossil resource** or Thermal Power energy: Fossil fuels comprise of coal, lignite petroleum and natural gas. The Plant Load factor of thermal plants is the indicator of operational efficiency. This has increased from 64.6% to 72.2% between 1998-99 to 2002-2003. Coal is a major source of energy in India, as it can be easily converted to energy, gas and oil. About 65% of coal output is utilised for thermal power generation.



# Importance of Power or Energy Sector and Policy




6. Private participation in Power Projects from 1991, has allowed more than 127 private power projects (1997) Electricity Act, 2003 allowed for private participation in States, and generation of power was de-licensed..




1. Facilitates the growth of industrialisation through easy availability of hydroelectric, thermal, and nuclear power. Industrialisation results in growth of employment in secondary sector.


5. The Energy Conservation Act, 2001 promotes Regulatory mechanisms and measures for Achieving the objectives of the National Energy Policy. The measures include declaring the Central Ministry for New and Renewable Sources of Energy (1992) as the nodal agency for all measures for improving fuel efficiency, development of biogas plants, improved stove for use in rural households, Biomass programme. Development of Solar Thermal devices, Strengthening of institutions such as India Rural Electrification Corporation (1969), Power Finance Corporation, North East Electric Power Corporation Ltd., Energy Management Centre, Power Grid Corporation of India(1989) and Power Trading Corporation of India Limited (1999), and Bureau of Energy Efficiency (2002)



2. Leads to better and more efficient utilisation of natural resources such as mineral ores, crude oil, coal. Adequate availability of power strengthens economic infrastructure, and results in growth of service sector.



4. Objectives of the Energy Policy of Government of India: (a) accelerated use of commercial energy sources. (b) Conservation of Energy (c) Substitute natural gas for oil products (d) control the consumption of petroleum, oil and lubricants (e) Intensive research and application of alternate and renewable sources of energy.



3. Increase in national output helps to achieve economic self sufficiency through building of capital for investment, and exports.

# Irrigation

1. Principal sources of Irrigation are (a) surface water resources such as rivers, lakes, tanks, (b) Underground water resources such as wells and pumped water.

There exist the traditional 'rehet' from medieval times, that are large open wells or 'baovadi' from which water is pulled out through a wheel having basin shaped scoops as steps. The wheel is linked by a pulley, to a bullock that rotates it by walking around the periphery of the well. In Rajasthan, there exist traditional underground, rain water storage structures that are accessible through permanent staircases in descending and ascending order. The water stored in such structures is sufficient for the entire village for the year.

2. In 1950s, less than 20% of cultivated land was irrigated, and the total capacity of irrigation was 23 million hectares.

A major irrigation project on a river, has coverage of 10,000 hectares of land.

Projects that irrigate 2,000 to 10,000 hectares are called minor irrigation projects.

The Ultimate Irrigation Potential is assessed to be 138-139 million hectares. By the end of Tenth Plan (2002-2007) 115 million hectares had been brought under irrigation.

3. By 2004, 28 Minor irrigations projects and 3000 surface minor projects had created a potential for 2,262 thousand hectares.

See table on page 238.


4. Underground projects have gained in importance. In 1995-96, the underground irrigation projects rose to 51 per cent and canal irrigation projects fell to 49 per cent.

5. Limitation of Irrigation: Despite good progress in irrigation project, they cover only 100 million hectares out of the total 190 million hectares under cultivation.


# Importance of Irrigation and suggestions for improvement

2. More employment and income opportunities can be provided in rural areas through irrigation.


3. Average productivity of land can be raised through irrigation, by keeping a balance between chemical fertilizers and natural fertilizers, High Yield Variety Seeds and normal seeds, crop rotation, and multiple cropping.



**Suggestion 1.** More planned funds are needed as studies show that lack of irrigation is a severe constraint in agricultural development in many areas.




**Importance Point 1.** As rainfall in India is limited to four months, and the winter rains cover only a very small area in two out of 29 States, irrigation is important for a variety of crops, that can be grown through out the year, across the country. This will raise the crop production.




2. There should be greater focus on minor and medium projects, that are less capital intensive, and easier to monitor and control

3. There should be **greater involvement of farmers** in the creation of irrigation projects plans.

4. Farmers need to be trained in better **water management techniques** such as drip irrigation.



5. In un-irrigated areas, farmers could be encouraged to adopt crops that need less water.



# Indian Banking and Financial Infrastructure

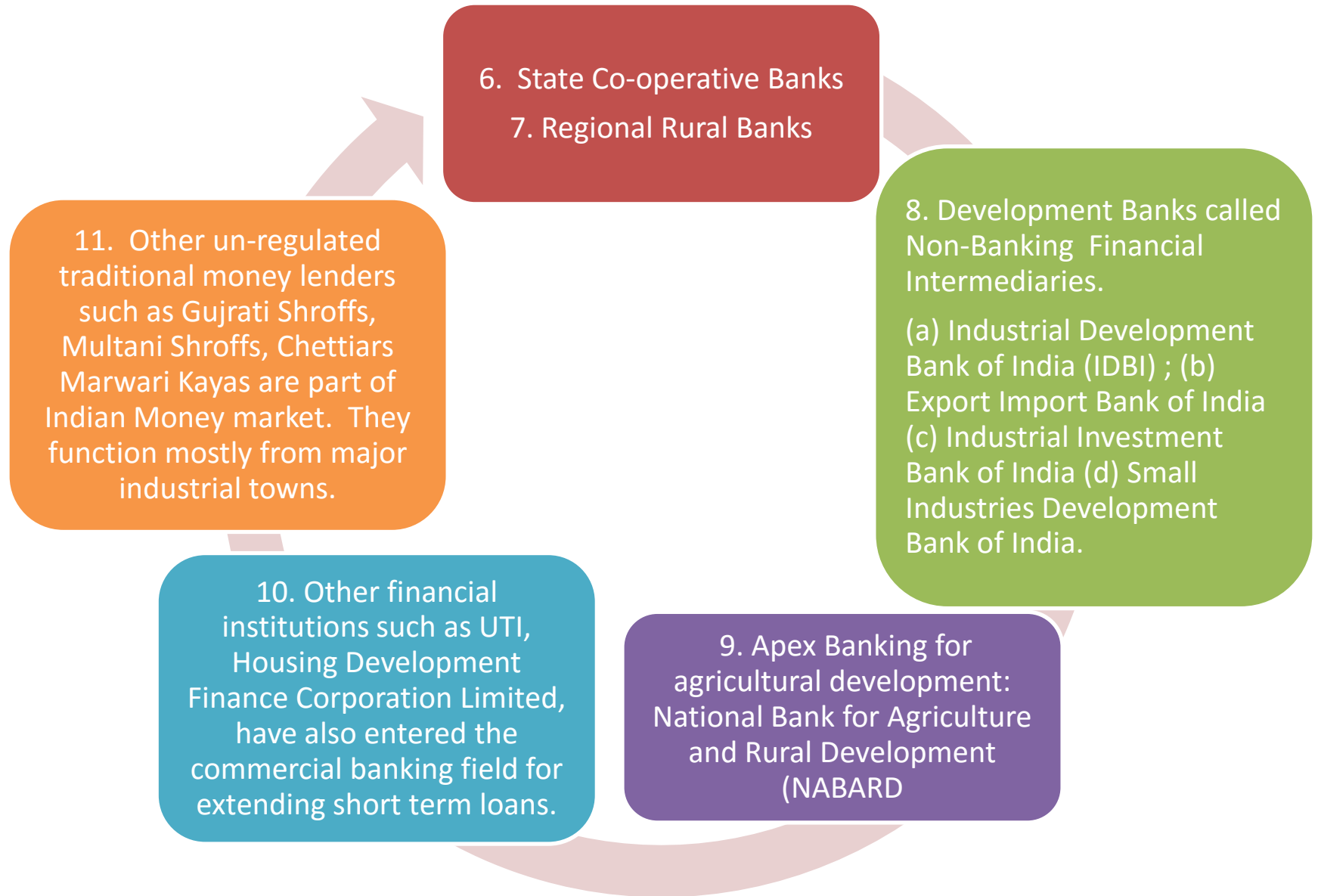
1. Reserve Bank of India : HQ in Mumbai and branch in New Delhi

2. State Bank of India and its Associate Banks.

3. Commercial Banks                      (4) Foreign Banks

- 5. **Universal Bank** : Industrial Credit and Investment Corporation of India (ICICI) that was merged with ICICI Bank in 2002 , is **the first universal Bank in India**. It provides both short term loans like the commercial bank and long term loans like the development bank.

# Financial Infrastructure



# Role and Importance of Financial Infrastructure

## Banks mobilize small savings

- Facilitate capital formation
- Create employment and income opportunities.
- Provide various services to citizens such as investment in stock exchange, housing loans, loans for consumer durables, to raise the standard of living.

## Financial Institutions provide institutional credit to farmers and for growth of agricultural sector

- Improve social security
- Contribute to development in rural sector
- Expand financial inclusion
- Creation of a strong organised money market

## Long term loans to industrial sector contributes to establishment and modernization of industry

- The secondary and tertiary sectors are essential for speedier development of the national economy.
- Facilitate export –import and international trade participation by India

# Social Infrastructure and Human Resource Development

1. Social infrastructure provides basic necessities of life for purpose of Equity. It is necessary for development of skilled and productive human resource .

2. It includes easy access to facilities for education, health, welfare and housing, hygiene and sanitation.

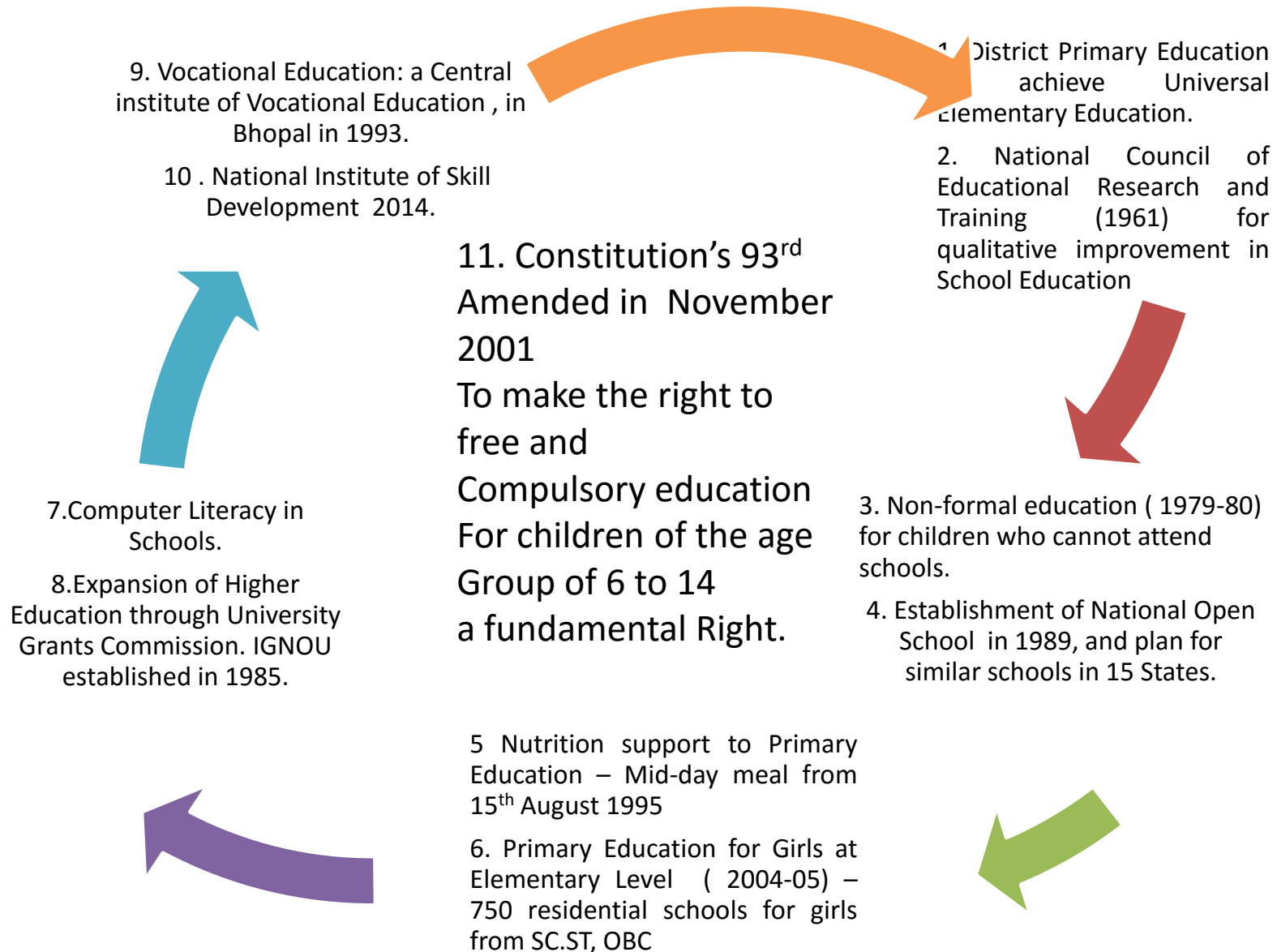
3. Education is the central component of 'human capital' . It improves awareness and consciousness about social, economic and political environment

4. Reduction in mortality rate, creation of better earning capabilities, improving people's participation in development and political activities, and improving the quality of human resource are the important outputs of education.

5. Importance of Health and family welfare is an important pre-requirement for improving the quality of life. It directly contributes to higher life expectancy, better control of diseases, checking the rate of growth of population.

6. Importance of housing is that improve social security, standard of living, productivity of labour

# Steps taken by Government for strengthening social structure





Health Infrastructure- Health sector is a State subject, but Central Government formulates projects for disease control at the national level and provides for funds.

1. Hospitals in 1951, totalled 2,694. In 2001 these were 15,622. During the same period, the number of hospital beds increased from 1.13 lakh to 9.14 lakh. Bed –population ratio has increased from 0.24 to 0.80.

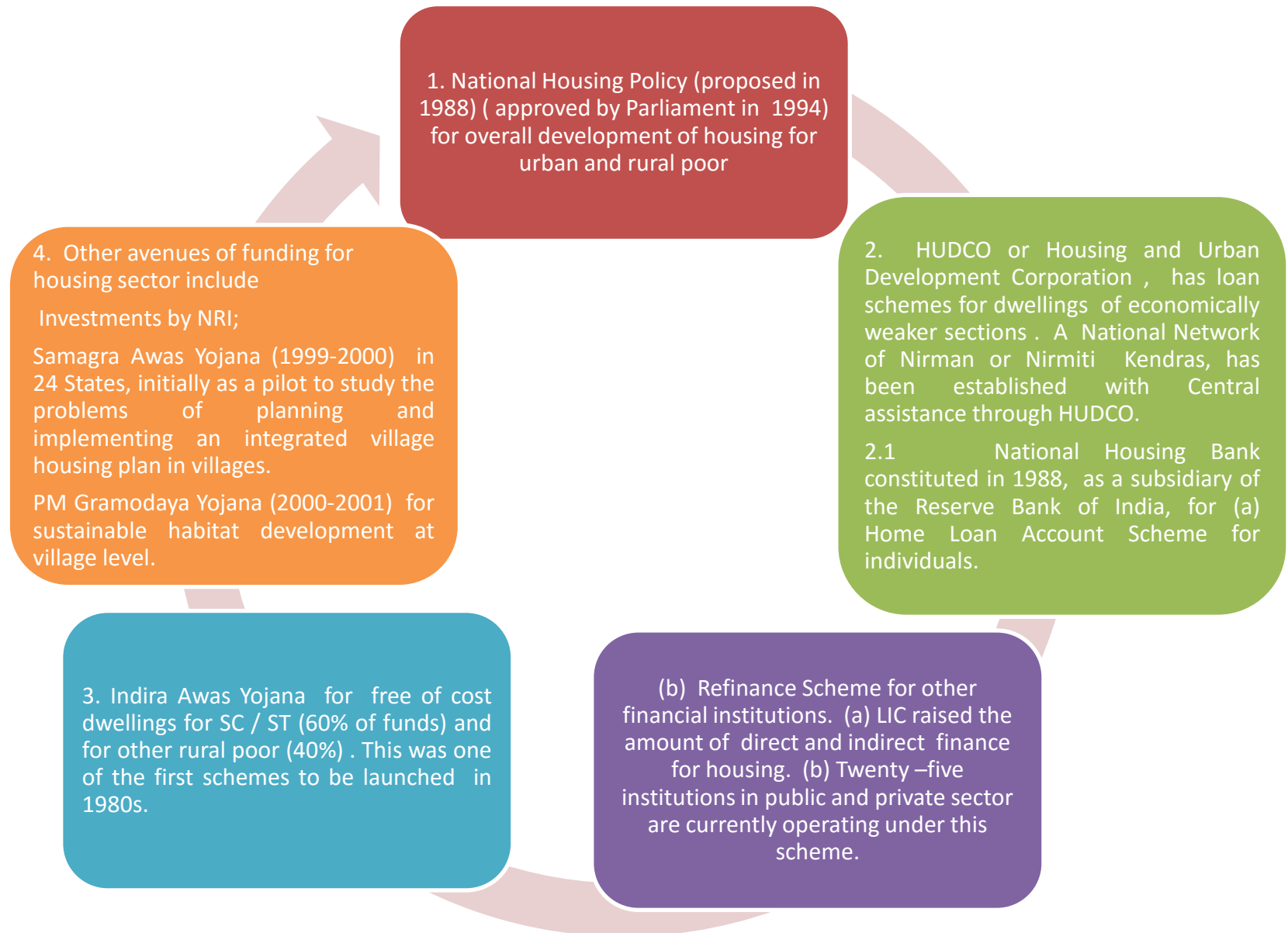
2. Health dispensaries in 1951 totalled 6,515 and have increased to 27,403. Under Minimum Need Programme rural health care has been given a priority through the Five Year Plans.

3. Under ' Health for Under Privileged', a National Illness Assistance Fund has been constituted to ensure financial assistance for BPL families for specialised medical treatment.

4. Integrated Child Development Services (ICDS) (1975) for reducing the problem of malnutrition of children in rural areas . It establishes an 'Aaganwadi' in each village or a group of villages, where children up to 6 years of age can be enrolled for pre-school learning, supplementary nutrients, uniforms and footwear, medical check up .

5. National Rural Health Mission was a five year intensive plan for creation of health infrastructure in rural areas and inter linking it from the Primary Health Centre at village level to the Community Health Centre at Block level , and the District Hospital in District Headquarters. Health and Family Welfare Services

# Social Infrastructure: Housing in Urban and Rural Areas



# Problems pertaining to lack of social infrastructure

1. In many States the primary health centre services are badly effected by absence of all weather roads , electricity and water supply, telephone services. These shortfalls adversely impact the infant and maternal mortality rates.

2. Inadequate access to safe drinking water and sanitation facilities adversely impacts health. World Bank Report of 2004 indicates that only 33 per cent of Indian population had access to improved sanitation facilities. 11.7% population had to walk more than 2 km per day to fetch drinking water.

5. Growing number of homeless in India is a major problem as their estimated number in 2001 was 2 million. This government figure is disputed and private estimates place the number of homeless at 78 million in 2003.

4. High drop out rates at primary level of education: About 51% students drop out after class 8<sup>th</sup> . The poor economic conditions of a large number of people in rural areas is responsible for this 'capability failure' , because improvement in living standards is possible only through capability to improve one's income opportunities.

3. Low enrolment in Higher Education: Though the number of higher education institution has increased there is little improvement in the enrolment of students for higher education