

## Infrastructure Development



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Rural public investments that decrease poverty the most ( in descending order)

Infrastructure Sector	Number of poor lifted out of poverty per Rs.1 million
Roads	124
Agricultural R & D	85
Education	41
Rural Development	26
Soil and Water Conservation	23
Health	18
Irrigation	10

Public Investment and Poverty Reduction

	China	India	Thailand	Vietnam
<i>Ranking of Returns in Poverty Reduction</i>				
Agricultural R&D	2	2	2	3
Irrigation	6	7	5	4
Education	1	3	4	1
Roads	3	1	3	2
Telecommunications	5			
Electricity	4	8	1	
Health		6		
Soil and Water Conservation		5		
Anti-Poverty Programs	7	4		

## Infrastructure and Poverty Reduction . What is the Connection?

Two thoughts

1. Provide physical infrastructure by Govt
  2. Do not provide infrastructure by Govt
    - as it is riddled with corruption
    - Infrastructure investment is very little to do with removing poverty
    - Benefits are significantly less than expected.
- Let private sector do the infrastructure do the business

## Infrastructure and Poverty Reduction . What is the Connection?

70 % by Govt

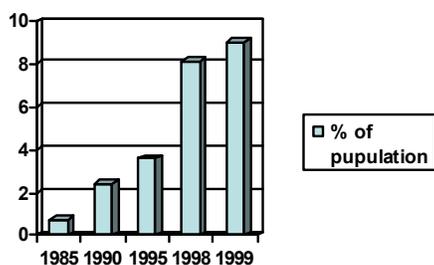
3% from aid

Remaining from private sector

**Sources of Drinking Water in Inhabited Villages in India**

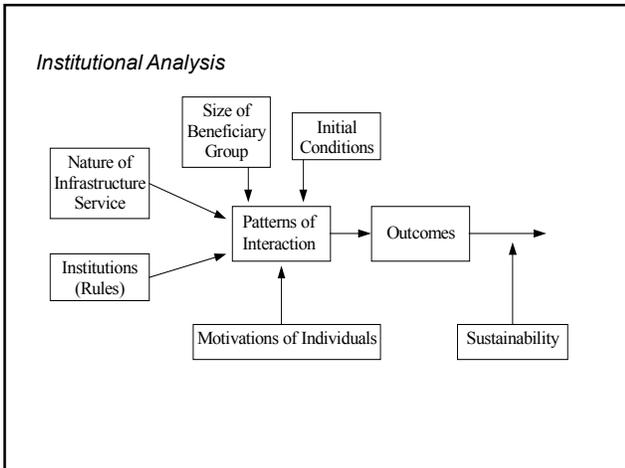
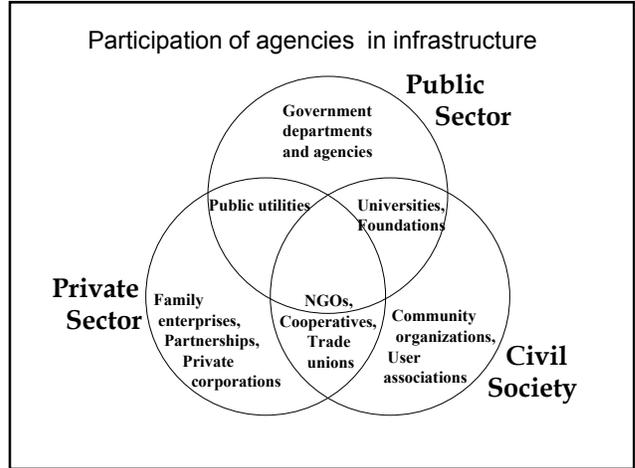
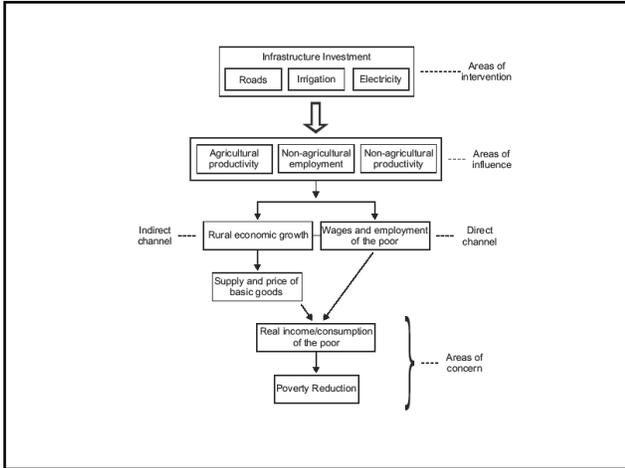
Source	Villages (%)
Well	69.8
Hand pump	55.9
Tube well	21.1
Tap	18.2
Tank	14.3
River	10.0
<i>Nala</i>	3.6
Canal	3.5
Fountain	2.6
Spring	1.7
Lake	0.1
Others	4.5

## Rural Infrastructure-Sanitation



**Table 1: Returns to Agricultural Research, India State-level Analysis**

	Returns in Rupee Per Rupee Spending	No. of Poor Reduced Per Million Rupee Spending
R&D (AGRI)	13.45	84.5
Irrigation	1.36	9.7
Roads	5.31	123.8
Education	1.39	41
Power	0.26	3.8
Soil and Water Conservation	0.96	22.6
Health	0.84	25.5
Anti-poverty Programs	1.09	17.8



### Mechanisms to Coordinate the Provision of Infrastructure

- There are three basic mechanisms to coordinate the provision of infrastructure services:
  - markets, hierarchy, and collective action. The coordination of service provision varies in each case.
- In a *market*,
  - the provision of infrastructure services is coordinated by exchange. Independent profit maximizing agents transact voluntarily with one another.

- Under a *hierarchy*,
  - coordination of infrastructure delivery is achieved by command and control. Transactions take place under the control of a unified command structure, authority flowing from the top of the hierarchy to the bottom. In this way, a hierarchy attempts to align individual interests for the corporate good.
- In the case of *collective action*,
  - infrastructure delivery is coordinated by a common interest. A group of individuals acts together in pursuit of a common goal. Decisions involve many stakeholders who negotiate their differences and cooperate to achieve the shared goal.

*Coordination Mechanisms and Provision of Infrastructure*

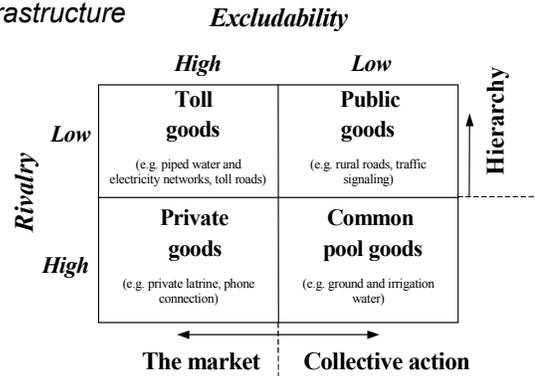
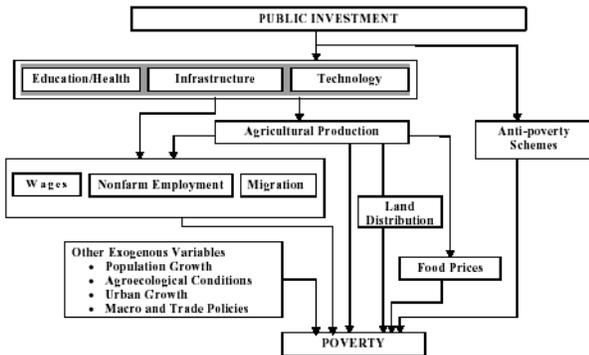


Figure 1: Effects on Poverty of Public Investment



**Government Policy- Suggestions**

- **POWER**
  - ‘The flaw in the policy with regard to electricity was the failure to recognize that the root of the problem lies in the financial non viability of the state electricity boards.
- **ROADS**
  - Private sector be encouraged to participate in road projects through the BOT

## Government Policy- Suggestions

- PORTS
  - The existing port trusts should be corporatized and turned into landlord ports that would then invite different operators, both public and private,
- RAILWAYS
  - Depoliticization of Railways, rationalization of user charges and corporatization of production units. Railways have a key role in initiating development of the key inter- and trans-modal facilities.

## Government Policy- Suggestions

- CIVIL AVIATION
  - Leasing the major airports (Delhi, Mumbai, Chennai and Calcutta), and inviting private sector management of airports.
- Regulation authority
  - An independent regulatory framework for ensuring economic regulation in the sector was suggested as there are many operators.

## Government Policy

- *Rural Roads*
  - a 1% increase in road access coupled with schooling results in a 0.32% rise, via growth, in the mean incomes of the poor.
  - The Pradhanmantri Gram Sadak Yojna was launched in August 2000. The Prime Minister has reiterated the government's commitment to this programme, expected to connect 1.4 lakh habitations with the highway network, has a total outlay of Rs 58,200 crore over the seven year period.

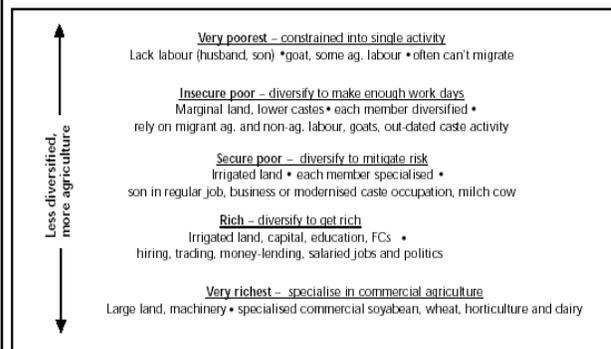
### RURAL INFRASTRUCTURE DEVELOPMENT FUND (RIDF), NABARD

RIDF Tranche	I 1995-96	II 1996-97	III 1997-98	IV 1998-99	V 1998-99	VI 1999-00	VII 2001-02	VIII 2002-03	IX 2003-04
Corpus	2,000	2,500	2,500	3,000	3,500	4,500	5,000	5,500	5,500
Cumulative corpus	2,000	4,500	7,000	10,000	13,500	18,000	23,000	28,500	34,000

## Diversification

- **What are diverse livelihoods?**
- **Diversity at the level of individuals and households**
  - To say that a person or household has a **diverse livelihood** means they rely on different, multiple economic activities within a year, including:
    - Agricultural and non-agricultural work;
    - Work for oneself and work for an employer; and,
    - Work in the rural locality and in other parts of the countryside, towns and cities during temporary migration.

Figure 1 Patterns of diversification



## Urban Infrastructure

### Urban India Population 1901-1991

growth	Population (million)	Percentage of Urban to total Population	Decade rate (per cent)
1901	29.9	10.8	-
1911	25.9	10.3	0.4
1921	28.1	11.2	18.3
1931	33.5	12.0	19.1
1941	44.2	13.9	32.0
1951	62.4	17.3	41.4
1961	78.9	18.0	26.4
1971	109.1	19.9	38.2
1981	159.5	23.3	46.1
1991	217.6	25.7	36.4
2001	306.9	30.5	41.0

## Urban Infrastructure

Size of Towns	Population Range	No. of Towns	Share of Urban Population
I	1,00,000 & above	300	65.20%
II	50,000 to 99,999	345	10.95%
III	20,000 to 49,999	947	13.19%
IV	10,000 to 19,999	1,167	7.77%
V	5,000 to 9,999	740	2.60%
VI	less than 5,000	197	0.29%
<b>All Classes</b>		<b>3,696</b>	<b>100.00%</b>

### Urban Infrastructure

Year	Percentage of Urban to total population	Estimated contribution to national income
1951	17.3	29
1981	23.3	47
1991	25.7	55
2001	30.5	60

Growth of employment (main workers) in urban India during 1981-91 was recorded at 38% against 16% in rural areas and 26.1% in the country as a whole.

### Urban Infrastructure

- India's urban population is second largest in the world after China, and is higher than the total urban population of all countries put together barring China, USA and Russia.
- Over the last fifty years, while the country's population has grown by 2.5 times, in the urban areas it has grown by five times

### Urban Infrastructure

- It is estimated that by the turn of the millennium 305 million Indians shall be living in nearly 3,700 towns and cities spread across the length and breadth of the country. This would be nearly 30 per cent of country's total population.
- . According to the 1991 census, 3.7 per cent of Indian population lived in the mega cities Mumbai (Bombay), Delhi, Calcutta and Chennai (Madras). In 1947, only 60 million people (15 per cent of the total population at that time) lived in urban areas

### Investment Needs in Urban India

- Investment requirement for housing in urban areas has been estimated at Rs. 526,00 crores
- urban water supply, sanitation and roads at about Rs. 28,035 crores
- The Central Public Health Engineering (CPHEEO) has estimated the requirement of funds for 100 percent coverage of the urban population under safe water supply and sanitation services by the year 2021 at Rs.172,905 crores
- the amount required for urban transport infrastructure investment in cities with population 100,000 or more during the next 20 years would be of the order of Rs. 207,000 crore

### Urban Infrastructure Problem

In spite of its prominent role in Indian economy, urban India faces serious problems due to population pressure, deterioration in the physical environment and quality of life.

- According to estimates nearly one third of the urban India lives below poverty line.
- About 15 percent of the urbanites do not have access to safe drinking water and
- About 50 percent are not covered by sanitary facilities.
- Traffic congestion has assumed critical dimensions in many metropolitan cities due to massive increase in the number of personal vehicles, inadequate road space and lack of public transport..

### Urban Infrastructure Problem

**There is a huge and widening gap between demand and supply of essential services and infrastructure.**

**Urban poor in India are forced to live under unhygienic conditions in slums, lacking in basic amenities.**

**Slums have grown in almost all major cities due to inability of major chunks of population to afford accommodation in planned areas of the cities**

### Urban Infrastructure Problem

Various modes of Private-Public-Partnership (PPP) are being experimented by different urban local bodies in the country.

Municipal Bond, Tradable Development Rights, Urban Shelter and Infrastructure Fund,

use of Land as a Resource are some of the new techniques that are being applied by the city authorities.

The Constitution (74th) Amendment Act 1992 has unleashed a new era of dynamism and reform in Urban India

### Peri-urban development A new subject for the future ?

1. Cities occupy less than 2 percent of earth's land surface, but house almost half of the human population and use 75 percent of the resources taken from earth.
2. The proportion of the world's population that lives in cities rose from 29 percent in 1950 to 47 percent in 1998 and 55 percent are anticipated by 2015.
3. Although two thirds of urban residents live in cities of less than a million people, mega-cities with a population of more than 10 million are on the rise.
4. In 1975 there were 5, by 1995 there were 15 and by 2015 there we can expect 26.

## What is peri-urban areas

Peri urban areas are:

- a transition belt with properties of both, urban and rural characteristics,

intermediate housing, and act as a buffer for migration;

They are areas:

- with a mosaic type of agriculture, housing areas and industry
- with great development dynamics
- with ongoing urbanisation and increasing land prices
- with direct access by residents to goods and services
- with distance from the city convertible by peri-urban residents with urban employees

## What is peri-urban areas

with more than 50% of households receiving their major income from industrial and urban employment

- with semi-commercial and commercial agriculture
- with deficient infrastructure and inadequate waste management
- with opportunities for sustainable development and mutual benefits
- with land use conflicts and competition for resources
- with centrifugal and centripetal fluxes and reciprocal economic, social and environmental impacts

## Rural infrastructure

## Gokul Gram Yojna- a concept

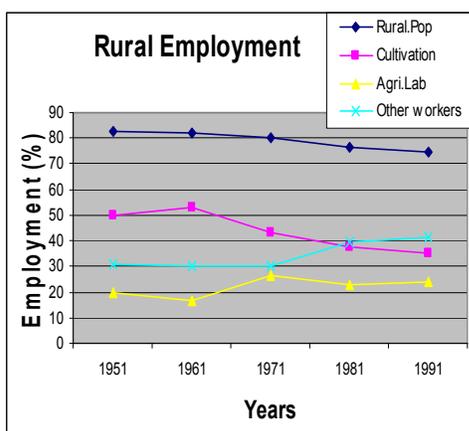
- Government of Gujarat launched an innovative approach for overall development of the villages through **Gokul Gram Yojna** in 1995-96
- The scheme aimed at providing specified 16 basic amenities, wherever missing, in the villages of Gujarat in a consistent manner within a time period of five years (1995-2000).
- About Rs 300 Crores @ Rs 15 lakhs per village
- NABARD has sanctioned about Rs 70 crores for the same

### Rural Infrastructure activities(1)

1. Approach roads
2. Pucca, all-weather, round the year pliable internal approach roads starting from the village entrance up to the Panchayat ghar or panchayat chora
3. White washing of the houses situated on both sides of the road starting from the village entrance to the Panchayat Ghar so as to give a beautiful outlook to the village
4. Providing of drinking water facilities
5. Construction and renovation of the village ponds with bathing ghats
6. Construction of primary school rooms, balvadis, anganwadis
7. Community halls

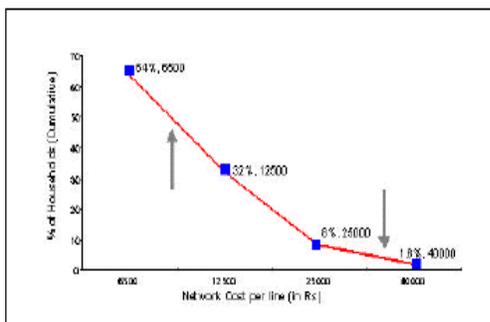
### Rural Infrastructure activities(2)

8. Development of village pastures
9. Construction of panchayat ghars
10. Hawadas
11. Electrification
12. Soak-wells or soak pits or drainage
13. Individual or community latrines
14. Shifting of Ukardas at the entrance of the village to an alternate site
15. Tree plantations along the main road of the village
16. Afforestation in the gauchar or wasteland



### Internet and Telephony for Small Offices and Farms Via Satellite





Telecom Affordability for Indian Households at different Network infrastructure cost

## Benefits of Kisoks

- off-line applications
- e-mail
- entertainment based on Internet
- on-line knowledge delivery (agriculture/delivery)
- on-line application for certificates
- advertisement
- insurance applications and
- on-line medical check-up.

Table 2: Services offered by Village Information Kiosks

S.No.	Heads	Services Offered
1.	e-governance	<ul style="list-style-type: none"> <li>• Birth Certificate</li> <li>• Death Certificate</li> <li>• Old Age Pension</li> <li>• Encumbrance Certificate</li> <li>• Petitions to CM, Collector, BDO etc.</li> <li>• Complains for water, street light etc.</li> <li>• Guideline Value of land as per government department</li> <li>• Information of all Government department</li> </ul>
2.	Health	<ul style="list-style-type: none"> <li>• Associated with Arvind Eye Hospital</li> <li>• Online appointment with the doctor</li> <li>• Online registration for eye check-up and operation</li> <li>• Details of the eye problem along with the picture of the infected eye is sent to doctor through e-mail</li> </ul>
3.	Entertainment	<ul style="list-style-type: none"> <li>• Browsing</li> <li>• Playing computer games</li> <li>• Cartoon shows for village kids</li> <li>• Movie show for villagers</li> </ul>
4.	Agriculture	<ul style="list-style-type: none"> <li>• Provides with the market prices prevailing nearby markets</li> <li>• Provide with canal timing for the purpose of irrigation</li> <li>• Gives rain status</li> <li>• Gives Reservoir level information</li> <li>• Online agricultural query resolved by logging on to associated sites</li> </ul>
5.	Education	<ul style="list-style-type: none"> <li>• For giving computer education and training</li> <li>• Checking examination results</li> <li>• Enquiring for higher studies in town and cities</li> </ul>
6.	Others	<ul style="list-style-type: none"> <li>• Lottery results</li> <li>• Astrology</li> <li>• DTP work</li> <li>• Foreign Currency Rates</li> <li>• Selling insurance policies - agreement with Royal Sundaram Finance</li> <li>• Using scroll bar advertising on company's website</li> </ul>

Uses of kisoks

## Requirement of Kisok

The Village Kiosk consists of a standard PC with internet connection provides a complete Village Kiosk Kit (which provides 35/ 70 kbps Internet

connections) consisting of :

- Internet Connection
- a pentium PC with color monitor, speakers, monophone and sound card
- a 4 hour power back-up for computer
- an application suit consisting of word-processing, browsing and e-mail

software all in local language as well as English

- An 80 column Dot matrix printer, Web camera and a CD-Rom drive