## Planning for Human Settlements in India-Spatial Perspective

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#### Abstract

This paper examines the basis upon which rural and urban areas are classified as such. It looks into various criteria for the above all over the world and re-iterates the Indian definition of an 'urban' area. It then examines the role of cities and urban areas as engines of growth and specifies the need for developing ruralurban linkages and planning in a spatial perspective.

Subsequently, this paper develops into the intricacies of Dr. Kalam's PURA (Provision of Urban Amenities in Rural Areas) model- the various types of ruralurban and inter rural connectivity it is intended to generate, its aims and its feasibility constraints. It also looks into successful episodes of private investment in rural areas and the projects that have been proposed on the basis of the PURA model. Moreover, it examines the role of SEZs in societal transformation through PURA and presents an alternative- Atanu Dey's RISC (Rural Infrastructure Services Commons) model. Finally, it takes a brief look at rural-urban linkage based programmes on an international level.

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## Planning for Human Settlements in India-Spatial Perspective

#### V.K. Dhar\*and Ruchira Sen<sup>#</sup>

WHAT IS 'URBAN' AND WHAT IS 'RURAL'? Are the two mutually exclusive or are there degrees of urbanity and rusticity that cut across the whole range of human settlements? Whatever may be the qualitative or even socio-economic aspects of rural-urban linkages, statistically; census definitions round the world, draw a clear demarcation between rural and urban places. In bygone days, urban settlements stood out distinct and clear often surrounded by walls beyond which it was all countryside. But today the criteria used to distinguish the 'urban' from the 'rural' varies widely from country to country and sometimes within the same country from time to time. The definitions adopted are indeed diverse based on one or more such factors as administrative status, population size and density, occupational patterns and land use, and other characteristics associated with towns and cities.

#### Various Criteria

Even today some countries define the terms 'urban' by reference to specific towns and cities. In Egypt, urban areas are defined as 'Governates of Cairo, Alexandria, Port Said, Islamia and Suez", combined with the administrative criteria of frontier governments and capitals of other governates as well as district capitals". Municipal local areas alone are deemed to be urban in a number of centres such as: -

Algeria -	-	55 most important communes having local self-governments
Morocco -	-	117 Urban Centres
Tanzania -	-	16 Gazetted townships
Dominican Republic -	-	Administrative centres of <i>municipios</i> & municipal districts
El-Salvador -	-	Administrative centres of <i>municipios</i>
Nicargua -	-	Administrative centres of departments and <i>municipios</i>
Brazil -	-	Administrative centre of <i>municipios</i> and districts.
Indonesia ·	-	Municipalities, regency capitals and other places with urban
		characteristics
Iraq -	-	Areas within the boundaries of Municipal Council
Sri Lanka -	-	Municipalities, Urban Councils or towns
Thailand -	-	Municipalities
Belgium -	-	Cities, Urban Agglomeration and urban communes
Bulgaria -	-	Towns i.e. localities legally established as urban
Hungary -	-	Budapest and all legally designated towns
Finland -	-	Urban Communes
Norway -	-	Town Municipalities
U.K	-	Cities, Municipal boroughs and urban districts

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A very common basis is the size of settlements in terms of population as low a limit as 200 in Denmark and Sweden and more than 400 in Albania. In South Africa, all areas of 500 or more inhabitants are treated as urban. Places with a lower population fit the urban category provided that they have some urban characteristics and about 100 'whites'. Settlements qualify as 'urban' if they have a population of 1000 in Canada, Venezuela, Australia and New Zealand; 1500 in Columbia and Ireland; 2000 in Kenya, Liberia, Cuba and France; 2500 in Mexico and USA, and 5000 in Ghana, Korea, Austria, Pakistan and Iran where in addition, all of *Shahrestan* is included regardless of its size.

Some countries including India have multiple criteria combining occupational and other urban characteristics with population size. In Japan, a city should have a population of at least 30,000 with 60 percent of houses located in main built up areas and at least 60 percent of the population engaged in urban types of business. Smaller places can be treated as 'urban' if they have urban facilities and conditions as defined by a prefecture order. In Israel, the population limit of 2000 is subject to the condition that not more than one third of the civilian labour earns its living from agriculture. Yugoslavia has a graduated scale with all places having 15,000 or more people being treated as urban, places in the range of 5000 to 14,999 are classified as urban if 30 percent of the population is not engaged in agriculture; 3000 to 4999 if 70 per cent is employed in the non-agricultural sector, and down to 2000 if 80 per cent is non-agricultural. In Netherlands all municipalities with 2000 or more inhabitants are classified as urban and those with less than 2000 as semi-urban provided that not more than 20 percent of their economically active male population is engaged in agricultural type of economic activity.

The term 'urban characteristics' is vaguely used in a number of countries but it is only in Philippines and Czechoslovakia that these are specifically set out. In Philippines, Barrios, cities and municipalities having 1000 or more inhabitants are regarded as urban provided that they have population densities of about 500 to 1000 persons per square kilometer, which can be disregarded if the central districts have such characteristics as- a "network of streets; six or more commercial or recreational establishments and some amenities of a city e.g. town hall, church, public plaza, market place, school, hospital etc." Czechoslovakia has "large towns" with a population of 5000, having a density of 100 persons per hectare of built up area and with no more than 10 percent of the labour force active in agriculture and "small towns" down to about 2500 inhabitants with a population density of 75 persons per hectare and no more than 15 percent of the labour force involved in agriculture. In addition, certain urban characteristics which may be present to a lesser degree in small towns are described as three or more living quarters in at least 15 percent of houses, piped water supply and a sewerage system, at least 2 to 5 physicians and a pharmacy, a secondary school, a hotel with at least twenty beds, trade and distributive services, job opportunities for the surrounding areas, a bus terminus etc.

Considering all the above variations, the definition adopted in India in the 1961 census and followed in 1971, 1981, 1991 and 2001 is a comprehensive one with multiple criteria. The definition that prevailed more or less before 1961 was laid down in 1901 to include:

- 1 All municipalities, cantonments and civil lines not included in a municipality; and
- 2 All other continuous collections of houses permanently inhabited by not less than 5000 persons which the Provincial Superintendent of census may decide to treat as a town

#### Indian Classification

The definition in use in India since 1961 as set out in 2001 census is as follows:

1. All places with a municipality, corporation, cantonment board or notified area committee, etc. so declared by state law;

- 2. All other places, which satisfy the following criteria:
  - a. A minimum population of 5000;
  - b. At least 75 percent of male working population engaged in non-agricultural pursuits; and
  - c. A population density of at least 400 persons per sq. km.

The above definition includes most of the criteria – administrative, population size, density, occupational status etc. The limit of 5000 is by no means rigid and the classification of towns into six size categories includes class VI towns with populations less than 5000. There were 324 such towns in 1981, 287 in 1991 and 227 in 2001. In fact some of these towns had a population of less than 2000 and a number even less than 1000 mostly in hill areas.

S.No	State	Number of villages (5000 - 9999 persons)	Number of villages (above 10,000 persons)	
1	Andaman & Nicobar Islands	2	0	
2	Andhra Pradesh	1788	498	
3	Arunachal Pradesh	3	0	
4	Assam	185	19	
5	Bihar	2312	630	
6	Chandigarh	6	2	
7	Chattisgarh	80	6	
8	Dadra & Nagar Haveli	7	0	
9	Daman & Diu	5	2	
10	Delhi	26	24	
11	Goa	23	3	
12	Gujarat	807	153	
13	Haryana	504	97	
14	Himachal Pradesh	8	1	
15	Jammu & Kashmir	135	10	
16	Jharkhand	174	28	
17	Karnataka	703	131	
18	Kerala	206	1072	
19	Lakshadeep	2	1	
20	Madhya Pradesh	615	19	
21	Maharashtra	1018	262	

Table 1Number of Places Classified as Villages with Population

22	Manipur	28	6
23	Meghalaya	4	0
24	Mizoram	1	1
25	Nagaland	50	5
26	Orissa	179	5
27	Pondicherry	20	2
28	Punjab	273	26
29	Rajasthan	661	100
30	Sikkim	9	0
31	Tamil Nadu	1254	168
32	Tripura	106	28
33	Uttar Pradesh	2266	296
34	Uttranchal	69	13
35	West Bengal	1529	354
	Total	15058	3962

Source: Census of India, 2001

On the other hand a very large number of places with a population of 5000 or over and even exceeding 10,000 were classified as villages and they were more than three times the number of all the towns and cities in the country as may be seen from the following table for 2001.

A interesting aspect of the rigidity of Indian classification can be seen in the fact that 666 places of different sizes, that were classified as urban in 1991, were under the same definition declassified and treated as villages in 2001 census and 1138 places that entered the urban category in 2001 census did not do so in the lowest class but in all sizes laterally.

A large number of places that are statistically urban according to the census need not be urban administratively. Only less than one third of the census urban places were constituted as full-fledged municipalities or city corporations and another 2091 are Nagar Panchayats, notified areas or town area committees.

The criteria for constituting a municipality differ considerably among the various states. In Tamil Nadu which has the largest number of urban places (832 as many as 724 do not come within the purview of a municipal committee because no town is given municipal status unless its population exceeds 20,000 and its annual revenue is substantially in excess of one lakh rupees). The Gujarat Panchayat Act 1961 extended to places up to population of 30,000 and following the passing of this Act, the places with a population of 20,000 or less are designated as Nagar Panchayats. In 2001 in Gujarat, about 93 towns had Panchayats and only 85 municipal authorities. On the other hand there are many municipal bodies in towns with a population less than 5000 and practically all the census urban places in Haryana, Punjab, J & K, Rajasthan are urban local bodies. Uttar Pradesh has a separate category of Town Areas under a separate Act for its small towns with population around 5000 and Municipal Boards are constituted for places with about 20,000 population. A large majority of such town areas in Uttar Pradesh have however been treated as villages under the census.

# Table 2Local Bodies in Urban India, 2001-2002<br/>(As on September, 2003)

SI.No.	State/Uts	Municipal	Municipal	Nagar	Panchayats	Total
		Corporation	Council	Panchayats	/Non-	
State					wunicipai	
1	Andhra Pradesh	7	109	1	03	210
1 2		1	103	1	17	17
2	Accom	1	20	38	57	125
3	Ribar	5	23	80	12	120
4 5	Ibarkhand	1	17	22	112	152
5	Goo		12	22	21	1.02
7	Guiarat	6	85	58	03	44 242
/ 0	Gujarat	1	21	16	20	242
0	Himaghal Dradagh	1	21	40	30 E	57
9			20	51 62	5	37 75
10	Jammu & Kasminii	C	104	03	52	75
10	Karala	0 F	52	07	23	270
12	Kerala Madhua Dradaah	5	53	004	101	159
13	Madnya Pradesh	14	80	234	60	394
14	Chattisgarn	6	20	49	22	97
15	Manarashtra	19	224	2	133	378
16	Manipur		8	21	4	33
17	Meghalaya		6	3	7	16
18	Mizoram			1	21	22
19	Nagaland	-		8	1	9
20	Orissa	2	33	68	35	138
21	Punjab	4	97	30	26	157
22	Rajasthan	3	11	169	39	222
23	Sikkim		_	8	1	9
24	Tamil Nadu	6	102	611	113	832
25	Tripura		1	12	10	23
26	Uttar Pradesh	11	193	417	83	704
27	Uttaranchal	1	31	28	26	86
28	West Bengal	6	112	4	253	375
Union	Territories				0	
1	A & N Islands		1		2	3
2	Chandigarh	1			0	1
3	Delhi	1	1		60	62
4	Pondicherry	Not Available			2	2
	Dadra & Nagar					
5	Haveli				2	2
6	Lakshadweep				3	3
7	Daman & Diu		2		4	6
Total		107	1438	2091	1525	5161

Kerala is in a call by itself. There are no nucleated villages. 'Rural Areas' are merely linear extensions of urban concentrations and the average population of an area under a Panchayat exceeds 20,000 persons and Panchayats function more or less in the same style as municipalities. Kerala is indeed a collection of rural towns interspersed with larger administrative and commercial centres.

It will thus be seen that if only the administrative test of notified urban local bodies were applied, more than one third of places classified as urban will become rural and if the size test of 5000 population, which is more usually accepted in UN estimates, were applied, the number of urban places will become more than five times and over 110 million will be added which is more than 50 percent of total urban population in 1991. Such is the paradox of urban and non-urban in the Indian context. Nevertheless, it is the total urban population according to the census that is regarded as the statistical index of the level of urbanisation at a given time.

#### The dominant transition process

The numbers of additions to the urban family of human settlements lags behind as in the past. The number of urban places had increased from 3059 in 1951 to only 5161 in 2001 while the urban population had almost increased by five times from 62.4 million to 285.3 million. Considering a longer period of 100 years, the number of urban places had increased by 183 per cent and the urban population by 1040 percent between 1901 and 2001.

The alternative process of change of rural settlements to urban has not received necessary attention. The fact that 13376 so called 'villages' have populations exceeding 5000 (some even exceed 10,000) is an evidence of their vitality and growth potential. However the absence of any worthwhile infrastructure is a serious handicap to their development as agents of urbanization. Such a large agglomeration of people indicates diversity of activities, which can receive a fillip if necessary facilities and organizational inputs are provided. Urbanisation policies, as any development policies, have to be based on dispersal and two are interlinked. One of the reasons for failure to ensure against regional imbalances and to provide dispersal of employment opportunities to lesser settlements – small towns or large villages – is the absence of linkages between urban infrastructure and industrial location. Policies of urbanisation and economic planning have to be related to a common base of human settlements. Only thus can one expect a comparative release of pressure on major urban centres as well as a balanced absorption of the projected labour force.

#### Are cities really engines of rural growth?

In India, during the British rule, due to imperial objectives of law and order and revenue collection, greater emphasis was laid on establishment of administrative headquarters like tehsil/taluk and thane circles, which subsequently grew into central areas. It can certainly be hypothesized that if considerations of economic development and optimum utilisation of local resources as well as infrastructural build up were considered in a spatial relationship along with people's choices and convenience, this pattern of support centre would turn out to be different with far greater balance between the different level of human settlements.

The existing settlement pattern thus only tends to increase imbalances with lopsided development. Whatever the size of the human settlement – village, town, city or metropolis - there is a symbiotic relationship that should pervade their functional roles and spatial distribution. The various levels of settlements- rural or urban cannot exist in isolation but are meant to sustain the economy of the other units and are in turn sustained by the lower and higher levels of human habitation.

It is the failure to establish these linkages by a systematic development of human settlements with a network of small and medium towns, which account for extensive areas being declared as backward regions. It may be mentioned here that out of about 402 districts in 1981 census, 286 were declared as backward by the Planning Commission.

#### **Urbanisation in the Districts**

An analysis of the census data appears to establish direct link between backwardness and level of urbanisation or number of support centres existing in various districts of the country. The distribution of districts by percentage of urban population according to 1991 census are given below:

Percentage of Urban Population	No. of districts
0-10	110
10-15	61
150-25	139
25-40	82
40-60	33
60+	17
Entirely Rural	10
Total	452

Almost 70 percent of the districts had an urban population of less than 25 percent; this nearly equaled the all India average (25.7). More than half of these were less than 15 percent urban. There was, however, substantial variation among states. Another index would be the number of towns/support centres existing in differential districts. The following table gives the distribution of districts according to number of towns existing in 1991 census.

No. of Towns	No. of districts
1-5	149
6-10	147
11-15	90
16-20	40
21-30	16
Entirely Rural	10
Total	452

As high as, 67 percent of the districts had less than 10 towns and almost 33 percent had less than 5 towns. In such circumstances it means that with considering the average sized district in India (of about 18 lakh persons) there may be a single town to serve a population of 2 to 5 lakhs. On the other hand, there are 10 districts, which are totally rural in character. There are few districts like Muzaffarpur and Katihar in Bihar where the population per town ranges from 13 to 21 lakh. This only means that majority of the population is just not served and that the benefits of development are appropriated only by a small percentage of people. There is a possibility of a shortage of urban places being made by a substantially large number of large sized villages as discussed earlier.

#### Implications for development planning

The question is whether the programmes and schemes of rural development, particularly in the backward areas can be effectively implemented to achieve their objectives without the inter-linkages of small and medium towns. Can agriculture be commercialised and the agriculturist be placed within an easy reach of adequate support by way of supplies, credit, marketing and technologies, without a viable system of human settlements? Isn't the establishment of rural –urban linkages, and thereby a symbiotic relationship between rural hinterlands and small and medium towns a prerequisite for development?

Similarly, mere sectoral allocations for economic and social services by the respective departments cannot provide the desired results. They must have locational footholds in the form of an urban/semi-urban hierarchy of settlements for the effective delivery of these services. Poor urban hierarchies or the absence of settlement size not only hinders the downward flow of services and development impulses but actually 'polarizes' socio-economic development into poles of growth: the large urban centres. This inevitably stultifies the spread effect, and arrests diffusion to the peripheries outwards to the lagging areas.

#### **Spatial Perspectives**

The location of growth centres, or the selection of existing small and medium towns or a large village for the purpose is generally an ad-hoc decision often influenced by administrative and political exigencies. A number of questions arise:

- Can growth centre strategies be purposeful and effective in ensuring dispersal without taking into account the spatial and functional interlinkages between town and country?
- Can investment planning and resource allocations be divorced from the planning of physical inter relationships between various levels of human settlements?
- Will the district plans continue to remain sectoral plans superimposed on a rural canvas, ignoring the existence of 'urban' places so crucial to the effective plan implementation or should they be integrated with a spatial development plan of human settlements?

It is necessary to recognize the horizontal and vertical relationship between the different sizes of human settlements- the villages, districts, regional towns and the cities, in terms of space, population to be served, functions to be performed and the level of services to be delivered.

#### PURA (Provision of Urban Amenities in Rural Areas)

Dr. Kalam's PURA model is an experiment in spatial integration. It connects 10-15 villages and a town via a 30 km Ring Road i.e. it connects 100,000 or more peasants in a circular community that can be crossed in 30 minutes travel time via a high-speed circular highway. PURA was conceptualized when it was observed that in general a city generates remunerative jobs in the non-farm sector whereas the same population distributed over a number of villages cannot do so. It was deduced that this is because cities have a larger market due to higher road, rail and telecommunication connectivity. What PURA intends to do is to create connectivity within a cluster of villages, linking them to towns and cities. PURA aims at four types of connectivity: - 1) **Physical**- A Ring Road shall connect the cluster of villages to surrounding towns, thus reducing commuting distance. More rural workers will be able to commute to towns to work, without moving out of the village and adding to the growth of slum dwellings and the informal sector.

Ring roads around cities have provided better connectivity to villages. The appreciating land pries along ring roads and the accessibility of the market to rural products have encouraged rural communities to accentuate their local based economic activities. Moreover, the lengths of water and sewer lines, drainage and link roads can be reduced. This is much more cost effective.



Also, there shall be a high-speed bus service. Areas around the Ring Road can be leased off to the private sector for a rent, so that they can provide user services like Internet facilities etc. This will bring in non-agricultural employment opportunities in the rural sector, better rural-urban linkages, private investment (and thereby greater investment) in the rural sector and a high potential for development.

To encourage the private sector, perhaps, a Special Economic Zone can set up around the villages covered via the Ring Road. Also, these Ring Roads can be constructed in the proximity of a railway line. Thus more internal trading in goods and services can take place.

2) **Electronic-** The Central Government, the State Governments, NGOs, Venture capitalists and private players must collaborate to provide satellite links, wireless connectivity, optical fibre connectivity and leased phone lines. This might sound easier said than done but in reality, it is mainly, an extension of ITC's e-Choupal initiative.

ITC has provided agricultural information in the local language to rural farmers in 31000 villages through the Internet to help them get a better price for their produce and to eliminate inefficiencies in the supply chain (Middle men). e-Choupals operate as a trading, marketing, and distributing super highway of goods and services across rural India. Farmers can sell their produce to ITC directly through the e-Choupals. This eliminates middlemen. ITC can buy food grains for less while farmers can get a better price for their produce. Thanks to e-Choupals, farmers can log on to the site through internet kiosks set up by ITC, located at a Choupal *sanchalak's* house, and order high quality agri-inputs, get information on the best farming practices, prevailing market prices for crops at home and abroad and the weather forecast-all in the local language. ITC even manages to make a profit on the e-Choupals- after all, it is ITC products that are sold and it is the ITC that can buy food grains at a lower cost while the farmers can sell them at a more remunerative price.

When Clinton visited India in March 2000, one of the highlights was his visit to a girls' school in Nyala, which had three computers as a part of the Government of Rajasthan's e-governance experiment. The Panchayat Bhavan in Nyala where a computer was installed for Clinton to see is currently under lock and key. It hasn't worked since then. Nyala had been given a telephone connection but that has been taken away. The main power line runs just 20 m away.

PURA would bring in greater efficiency. The fact that so many villages will be spatially integrated will create a greater demand for phone and e-services despite the fact that individual purchasing power is low. Public phones, Internet, electricity to run a computer and other appliances, etc are essential to revolutionise the rural sector. It must not lose out on the digital revolution sweeping urban India.

3) Knowledge- e-governance and the e-revolution would be perfectly useless without literacy. Hence Social Infrastructure must be promoted. Schools, hospitals, and centers for vocational training must be provided. These can be initiatives of the Central or State Government (They can use the funds generated by the 2% cess.)

Private parties can establish schools in the PURA set up with low fees as they can be assured of many students. Due to higher physical connectivity, students all over the cluster will be able to attend without wasting too much of commuting time and money. One problem that can arise is that parents might want their children at home to help with the housework and in the fields. Thus evening classes must be arranged to attract a larger number of students. Similarly hospitals and centres for vocational training can be developed in a sustainable manner due to spatial integration. An ambulance service must be operational.

4) Economic- the three aforementioned types of connectivity lead to economic connectivity. i.e. more efficient trade and movement of goods and services across the cluster of villages, between the villages and the towns, and thus, throughout the country. PURA, given a chance, can revolutionise the rural sector that employs approximately 70% of the labour force but contributes to only 25% of the GDP.



How to implement PURA

A cursory glance:

- 1) Select a ring of villages
- 2) Connect them via transport and telecommunication
- 3) Encourage reputed specialists to locate schools, hospitals and other social infrastructure.
- 4) Attract industry and commerce (tax waivers, special economic zones etc.)
- 5) Internet Connectivity.

#### A detailed plan:

- 1) The 'Rurbaniser' (Since PURA urbanises the rural areas without thwarting the rural ambience, the body that takes the initiative to implement PURA is called a "Rurbaniser") with equity from the government, local administration and private enterprise, identifies a selection of Ring Road alignments in the vicinity of an expanding city.
- 2) The Rurbaniser offers a proposal to the local farmers that they should lease out their land for a period of 99 years so that infrastructure can be set up. (Getting a lease on the land shall be cheaper than buying it.)
- 3) The Rurbaniser identifies the best offers and gets support from the State Government in order to build the Ring Road using Central Government funds.
- 4) It approaches Venture Capitalists to underwrite the interest costs of transport, and telecommunication connectivity for the gestation period. (approx 3 years)
- 5) It encourages reputed specialists to locate schools, hospitals and other social services.
- 6) It attracts industry and commerce.
- 7) It must emphasize on Internet connectivity

#### Aims of the PURA model

- 1. The comprehensive development of rural areas to generate urban level incomes
- 2. Investment at urban levels
- 3. A zero net rural-urban migration.
- 4. Quality infrastructure as a pre-requisite rather than as a consequence of development.
- 5. Modern industry and investment in social and commercial services instead of rural handicrafts and agri-based small industry.
- 6. The encouragement of private investment in rural areas.
- 7. Self-sustenance (producers should depend on their own profits rather than on government subsidies.)

#### Ways to ensure that PURA works

- P.V. Indiresan argues that since PURA will increase rural incomes, the demand for non-basic imports will tend to rise. (According to Engel's law) Due to this, the rural areas must generate more export businesses employing around 1000 workers. This will create employment, reduce rural-urban migration and solve the potential balance of payments problem as well. This will be possible to achieve if a Special Economic Zone is set up around the areas covered under PURA.
- 2) Attracting the Private sector to provide a wide range of consumer services.

#### Capital for PURA

- a) Usual grants of the Central Government for Rural Development
- b) Venture Capital from HUDCO

c) Normal business investment to meet expected increases in market demand.

#### **Funds Required**

- Assuming that rural Ring and Link roads shall each be about 30 km in length, the first step of constructing the Ring Road and the link roads shall cost the government 40-50 crores.
- b) This one time cost can be made from the Prime Minister's Gram Sadak Yojana or by taking bank loans with the Rural Development Ministry guaranteeing a Rs. 3-4 crores repayment annually.<sup>1</sup>
- c) Only 8-10 crores venture capital is needed. Charging Rs. 30-50 as rent per year could yield attractive returns to the Venture Capitalist. (eg. HUDCO)

The funds for PURA are still under consideration. Some state governments like the Government of Orissa have already identified the clusters of villages and the towns to which they must be connected. However, they have still not estimated the costs. Moreover, the venture capital from HUDCO has still not been confirmed.

Other problems that might occur are as follows:

1) Private entrepreneurs might not invest in rural areas due to high risks and the lack of immediate profits.

2) Farmers may demand a very high compensation for the land that they lease out to the MoRD for the construction of the Ring Road and to sublet to private players.

3) Villagers might be too poor to purchase what is produced.

#### Private players interested in rural areas

1) **ITC**-ITC's Rs. 12,000 crore e-Choupal is corporate India's biggest foray into rural India. 35 companies are partners in this initiative. An e-Choupal is a computer with Internet facilities lodged in the house of a 'choupal-sanchalak', appointed and paid by ITC. This provides farmers with real time pricing, the daily local weather forecast, advisory services and agricultural information in the vernacular language and thereby helps them get better prices for their products, eliminates middle men and ITC is thus able to buy food grain at a lower cost. Also, it enables farmers to purchase seeds, fertilizers, and tractors from the ITC.

2) **DYNAMIX**- Installed computerized and automated milk collection centres in the Baramati district of Maharashtra. The process of milk collection once took all day and was expensive in terms of time and labour. Now, the milk cans are weighed, a computer tests the fat content and flashes the price on the screen. It has a large contribution in making India the largest milk producer in the world.

3) **MAHINDRA**- works on contract farming and retail of farm inputs. It has 35 outlets distributed over Punjab, Haryana, UP, Chattisgarh, Madhya Pradesh, Maharashtra, Tamil Nadu and Andhra Pradesh. It intends to diversify into export-oriented products like flowers and aromatic plants.

4) **TATA**, ICICI, ING Vyasya and SBI are promoting urea under the flagship of Tata Chemicals. They own 350 centres in Punjab, Haryana and Western UP. 200 more will be networked by December 2004. This group also offers contract farming.

<sup>&</sup>lt;sup>1</sup> Figures taken from "Dr. Kalam's PURA model and Societal Transformation"-Jegadish Gandhi

5) **EID PARRY**- Using IT, the sugar major plans to expand into rural areas in Tamil Nadu to provide advisory services, information and finance schemes to farmers who supply sugar to its mills. Nellikuppam near Cuddalore is one of Eid Parry's areas of focus.

6) **DCM**- Rural malls to sell feed, stocks, seeds, fertilizers, veterinary medicines, and farm implements. They propose to give free technical advice on new crops and plant nutrients to farmers.

#### Types of PURA

1) Plain terrain PURA- is synonymous to the afore-mentioned PURA model.

2) Hill PURA- involves the construction of hill roads and ropeways. Each tourist spot will have a good link road to the main road. Road transportation may be supplemented with a helicopter service. Community sheds must be established for the storage and preservation of hill produce. There must be adequate link roads so that a tourist or a local resident is always able to find her way out of any emergency-road blocks, landslides, earth quakes etc. All hill villages in the state must be linked with the District Head Quarters via VSAT connectivity and satellite radios (HAMSAT network) Training in modern agriculture, horticulture and agro processing, storage, preservation, marketing and finance must be imparted.

3) Coastal PURA- involves the construction of jetties, small and medium sized boats, with their landing centres at intervals of 10-15 km. Each landing centre should have a good link road connected to the main coastal road. Community sheds should be provided for the repair and storage of fishing nets. Fishermen should be provided with broadcasting facilities through satellite radios; a GPS mobile cell phone may be provided for emergency communication. Local fishing population data, meteorological data etc can be provided by 'Village Resource Centres' via SMS. Fishermen must be trained in cost effective marketing, managing safety issues and storage and preservation techniques.

#### **Case Studies of Proposed Projects**

#### 1) Banbasa

Banbasa is an emerging township the market of which extends to the adjoining Bhajanpur village. It lies in the newly created Champawat district though it was once a part of Nainital district and then Udham Singh Nagar. It is located at the entry point to Mahendra Nagar in Nepal and its local government is soon to be converted into a Nagar Panchayat.

The concept of PURA is settlement central. The residents should not ideally be forced to move out of their immediate environs to satisfy their basic needs-clean water, schooling, health, telecommunications etc. While preparing the Detailed Project Reports for the Champawat district of Uttaranchal, the team conducted a household level survey of these settlements- Anandpur, Bamanpuri, Banbasa, Bhainsa Jhala, Bhajanpur, Chandni, Devipura, Pachpakariya, Phagpur, Katuwapati, and Gudmi, which were identified as the beneficiaries of the proposed PURA project. After the initial baseline survey, local Gram Panchayat Pradhans, political representatives, office bearers, opinion leaders and NGO/CBO personals were contacted to obtain an overall knowledge of this cluster of villages.

This PURA group of 11 villages (excluding Banbasa, the township) stretches from the southeast corner of Champawat to the east of the Sharda. This river had been harnessed for Hydro Power Potential under the British river schemes of the 1930s. The Lohia Power Station on this river has a generation capacity of 30MW. It is still controlled by the U.P. State

Government though it lies within Uttaranchal's territory. The NHPC has constructed the Tanakpur Hydro Power Project. This constitutes a barrage at Tanakpur that diverts the water of the Sharda via a 6.4 km long power channel.

The summary of the village baseline survey (which interviewed residents, senior members of families, women, students etc. The age group of the interviewees ranged from 32-93, educational background from illiterate to science and law graduates, and income from Rs. 900-20,000 a month. Most interviewees were agriculturists but some were also tonga and rickshaw pullers, vendors, sweepers, pensioners, milkmen and those of the service classes) brought out a clear picture of the infrastructural deficiencies of the cluster. Though each village is electrified, the quality of power isn't very good. The supply is erratic and the voltage is low. Bhainsa Jhala doesn't have this facility. The water supply scenario isn't very encouraging. All villages have handpumps. Banbasa and Chandni have tube wells. However the water is of a poor quality. It is noted for its foul odour, vellowish colour and the high incidence of jaundice that it has caused. PURA has a high potential to develop this area. Bhainsa Jhala with its population of only 345 cannot yield adequate returns to electricity providers. However, if a power line from an adjoining village could be drawn into this village, it would finally be electrified. Thus connectivity would spatially integrate these villages and create an effective demand for urban level markets to develop and an avenue for more private investment. The proposed projects are as follows: \*

<sup>•</sup> Rana PS 'PURA – A model for Rural Development. Shelter. Vol. VII No. 3, October 2000' Rakesh Sharma and DS Dhapola 'Participatory initiatives in urban planning under PURA project'

S.No	Description	Amount needed for development (in Rs)	Amount proposed under PURA (in Rs)	
1	Provision of reliable power supply- New high capacity transformers, 8.2 km long, 11 KV line, 31.60 km high tension line, hanging work out poles	8 crores	40 lakhs	
2	Provision of water supply- -Drinking water: Tube wells at Banbasa and Gudmi with an Overhead tank and a distribution system. -Irrigation: 1 tube well at Chandni for 1.5 cusec discharge capacity with channel	1.65 crores	60 lakhs	
3	Provision of road facilities- C.C. roads for connecting villages 3m wide, 16 km long.	2.24 crores	50 lakhs	
4	Provision of Reliable Telecom, Internet and IT services at Pachpakariya by Uttaranchal Development Institute.	46 lakhs	46 lakhs	
5	Constructing a high school at Gudmi, and a library and a reading room at Al Shaheed Uttam Chand Saraswati Vidya Mandir & Al Poonagiri Inter College.	60.70 lakhs	50 lakhs	
6	Up gradation of health facilities- Construction of S.A.D at Banbasa	11.79 lakhs	11.79 lakhs	
7	Marketing facilities of Dairy & Agriculture Produce- Construction of milk parlour at Anandpur village	35 lakhs	35 lakhs	
Miscellaneous				
1	Drainage- Constructuring drains to avert the onslaught of spill water from Huddi river and monsoon run-off.	2.12 crores	50 lakhs	
2	Establishing a Community Bio-gas Center	5 lakhs	5 lakhs	
	Total	15,59,490,000	3.47 crores	

#### 2) Bangalore-Mysore Infrastructural Corridor Project

PURA is based on the fact that a city can support the neighbouring villages by extending facilities such as roads, transport services, schools, hospitals, Banking facilities, electronic connectivity, market and employment opportunities. On their own, villages lack infrastructure. In Karnataka:

1. The average number of Hospitals was 75 per lakh persons in 2001

2. The average number of primary schools was 94 per lakh persons in 1999-2000

3. 9 districts lag behind the state average. The following 6 are the most deprived districts in Karnataka as per the report of the High Powered Committee on Redressal of Regional Imbalances in Karnataka.

- → Gadag with respect to BPL families
- → Gulbarga with respect to unsafe deliveries

- → Bellary with respect to severely malnourished children
- → Udupi with respect to unsafe drinking water
- → Raichur with respect to children out of school
- → Koppal with respect to gender gaps in literacy

There are 222 Urban Local Bodies in Karnataka. The towns that fall under the PURA population criteria of 20,000 to 100,000 as per the 2001 Census are 18 with City Municipal Councils, 82 with Town Municipal Councils, and 25 with Town Panchayats. Among 93 Town Panchayats in total, 61 have populations below 20,000 but many of these are tourist centres, hill stations, religious centres and hence economically active.

Since the Government needs to assess and analyse existing infrastructure, detailed project reports have already been prepared. It can be seen that not just villages; many towns lack infrastructure too. To optimize the return on investment, those towns should be selected that already have some infrastructure. By increasing connectivity with surrounding villages, PURA can benefit more people in a cost effective manner. Therefore if funds are low, the towns, which have already been covered under previous schemes, must be considered. The previous schemes are:

IDSMT-Integrated Development of Small and Medium Towns KUIDP- Karnataka Urban Infrastructure Development Project KUDCEMP-Karnataka Urban Development and Coastal Environment Management Act Towns that have benefited by the schemes of the Central and State Governments, the Asian Development Bank and The World Bank must also be covered.

Rs. 31.80 had been released to Karnataka by the MoRD (Gol) in March 2003. The following 24 districts had been selected-

- 1. Bagalkot
- 2. Bangalore (rural)
- 3. Bijapur
- 4. Davanagree
- 5. Kodagu
- 6. Shimoga
- 7. Chamarajnagar
- 8. Gadag
- 9. Kolar
- 10. Tumkur
- 11. Belgaum
- 12. Chickmagulur

- 13. Gulbarga
- 14. Koppal
- 15. Udupi
- 16. Bellary
- 17. Chitragurga
- 18. Hassan
- 19. Mandya
- 20. Uttara Kannda
- 21. Bidar
- 22. Dakshina Kannada
- 23. Haveri
- 24. Raichur

The capital investment proposed by the Central Government would be Rs. 3 crores per cluster. Each cluster shall have 10-15 villages within the minimum radius of the town. The towns must have populations of 20,000 to 50,000 in hilly areas and 30,000 to 100,000 in the plains. The Central Government states that preference must be given to backward towns with low electricity connections, common literacy rates, low percentage of households availing piped water etc. The Planning Commission has already selected a list of towns that fit the PURA criteria. It has also made a list of facilities that are to be provided-reliable power supply, provision of water supply, road facilities, telecom, Internet, IT services, schools, health facilities, and marketing facilities for agricultural produce.

However there are many weaknesses and loopholes in how projects are formulated and implemented. Firstly, there are time and cost overruns due to improper formulation, deviations in the scope of the project, delay in fund flow from the Central and State Governments, in-effective supervision etc. The Municipality is rarely involved in projects

involving investments above Rs. 50 lakh and they have not been able to co-ordinate financially and otherwise with other line agencies responsible for other urban infrastructural projects.

The following points must be taken into account while making Detailed Project Reports prior to PURA:-

- Socio-Economic and physical details of the cluster- categorical data on population (Male/Female, Adult/Children) literacy, industries, facilities available, water bodies, forests, roads etc.
- 2) Analysis of potential for growth of clusters.
- 3) Objectives and Vision of the project.
- 4) Identification of bottlenecks/hurdles in the implementation of the Project and finetuning required at various levels of government.
- 5) Mapping of existing physical infrastructure services and a list of new infrastructure required. Identification of infrastructural gaps.
- 6) Potential role to be played by local governments, NGOs, Convergent Government Departments, Private agencies etc.
- 7) Year-wise break up of funds for all the schemes within PURA
- 8) Additional funds and resources required-not only to complete the project but also to maintain infrastructure built.



In February 1995, a Consortium of Indian and US based firms was established to build residential, commercial, transport and environmental infrastructure in the Bangalore-Mysore region. This was a joint venture of The Kalyani Group of Companies, VHB International Ltd, and SAB International Ltd, jointly termed as the Nandi Infrastructure Corridor Enterprises with reference to the BOOT- Build Own Operate Transfer Scheme.

BOOT will help activate the economic activities of each human settlement in this corridor-Mysore Silk, Mysore sandalwood etc. This too is a form of spatial integration via connecting infrastructure and this makes it a scheme that operates on the same principle as PURA. It covers 52 villages- 31 on the peripheral road, 10 on link roads, and 11 on the epress way. These villages are currently engaged in manufacturing silk yarn, agarbathi, toys, beedis etc. Cash Crops are also being planted. With spatial integration, these small-scale industries will be able to expand their scale, achieve economies of scale and be able to market their produce at competitive rates.

Moreover, transportation facilities will be improved. So will electric generation, drinking water, and fiber-optic communication services. With improved speed and safety in transport and improved utilities, the region shall attract new housing opportunities for all income levels, business, investment, education and innovation.

The Consortium will also build 5 self-sustaining townships with a population of 100,000. These will be supporting a cluster of neighbourhood centres. These shall be planned such that workplaces, schools and shopping areas are not at a greater distance than 0.9 km.

Ring roads and other infrastructural projects must be initiated by the Government at Hubli-Dharwad, Shimoga-Bhadrawathi, Gadag-Betageri etc and private sector investment will follow. The City and Town Municipal Corporations should be involved in these projects.

#### 4) Chattisgarh

Soon after the State of Chattisgarh was founded, Prof. P.V. Indiresan (Chief Architect of the PURA concept), Dr. P.S. Rana, then, Chairman HUDCO, Prof Rajendra Prasad and Dr. V.K. Vijay (from IIT Delhi) were invited to conduct a workshop on PURA on behalf of the state government to workout a plan to implement PURA in Chattisgarh. It was also decided that a Techno-Economic Feasibility Report should be prepared with the help of IIT Delhi. Chattisgarh's basic strength lies in processing raw materials available from the animal-forest-agro sector like the food industry, processing medicinal, aromatic and dye plants, biodiesel production, pharmaceutical industry, milk and milk products, non conventional energy sources, biotechnology etc. Thus, the PURA in Chattisgarh shall be a green one. In addition, information technology, electronic goods, BPOs, call centres organic farming etc should be developed.

The suggestions of the high power committee formed to implement PURA were as follows:

- 1) A ring road 30 km long, 45 m wide with forests up to 55 m on both sides of the road.
- 2) The Ring Road should not pass through the village; instead it should bypass all.
- 3) An average floor space of 0.5 km/person
- 4) An average power availability of 0.3 KW/person
- 5) Drinking water availability of 100 lit/day/person
- 6) Waste disposal and recycling within 500m
- 7) Bus service every 10 min
- 8) No rent control
- 9) Streets 15 m wide
- 10) Community water, rainwater, waste disposal & energy strategies
- 11) Quality educational and health facilities
- 12) Up gradation of vocational skills, training and utilization of local manpower in undertaking the PURA construction and building activities on modern, technical lines.

- 13) Establishment of training, vocational, production and marketing centres for the same.
- 14) Establishment of local industries by local engineering and agricultural colleges and the establishment of hospitals by local medical colleges.
- 15) Establishment and maintenance of Agri-shopping malls.

A team of 5 investigators (2 senior investigators along with graduate and post graduate engineers) along with a consultant team from IIT Delhi surveyed various sites, collected ground information, gathered revenue records and other data and identified 7 prospective ring roads:

Site No.	Name of the area	Sub Site No.	Length of the ring road	Area served by PURA	Population to be served	No. of associated villages
1.	Mandir Hasaud (Arang)	1.1	34 km	12, 510 ha	50, 465	23
		1.2	37 km	11, 298 ha	29,656	22
		1.3	32 km	9986 ha	24,900	17
		1.4	31 km	7736 ha	20,922	11
2.	Abhanpur	2.1	38 km	14,248 ha	39,091	28
		2.2	31 km	10,348 ha	34,318	17
3.	Kumhari (Patan)	3.1	39 km	12, 120 ha	26,725	23
		3.2	31 km	12,532 ha	28,951	24
4.	Dharisawa	4.1	31 km	9022 ha	27,694	16

#### 5) Tirurangadi, Kerela (an experiment in Coastal PURA)

Kerela is a pioneer as far as decentralized planning is concerned. Over the last 2 Five Year plans, the PRIs (Panchayati Raj Institutions) in Kerela have distinguished themselves in developing and implementing local plans based on minimal infrastructure. However the challenge of spatial integration entails that the planning process must be upgraded to a higher level but the PRIs must not lose their say.

PURA is considered to contain a scope of local level planning at an upgraded scale. An experiment was launched at the relatively backward Tirurangadi Block Panchayat in Malappuram district, consisting of 7 village Panchayats and 2 Coastal Panchayats.

Tirurangadi has an area of 142.1 sq km, a population of 295,674, and an average density of 2081 people per sq km. Though it has a literacy rate of 87.05%, 45% of its families are below the poverty line. Only 10% of the area is covered by water supply, though 78% of households are electrified.

After analyzing the natural features, land use, physical connectivity, basic minimum services, human development services, power and electronic connectivity, the hierarchy of settlement and doing a sample survey of the socio-economic situation, a draft action plan was made.

The background work for this project was done over a period in time and the project took over 4 months to develop. The experience so far has thrown up several interesting lessons.

- a) Strong local governments can support viable PURA projects.
- b) There is a need for technical expertise in the implementation of such projects. The Tirurangadi experiment would not have worked if it hadn't been for the Centre for Earth Science Studies.
- c) An integrating agency is needed to develop a holistic approach. The Town and Country Planning Department had coordinated the Tirurangadi experiment.
- d) As per Coastal PURA, there are tremendous disparities between the socioeconomic situation of the fisher population and the rest. Thus the size of a cluster deemed to make PURA viable might pose a problem. The two sections of the population may have many socio-economic problems if connected.
- e) The population density on the coastal fringe is quite high as evident in the land costs and availability. Most of the fisher population lives in 'purambokes'. Hence resettlement and rehabilitation is an issue.
- f) Conservation issues are highly relevant, as PURA tends to increase land prices, which provides an incentive to convert forest area into agricultural area. Hence forests must be strictly protected and deforestation, checked.
- g) If funds are to be raised from the market, the risk is quite high. It isn't always possible to guarantee large revenues or even revenues that cover the cost.
- h) Where local governments are strong, parallel agencies are not advisable. Instead the local governments within the cluster should be given a forum to come together and formulate and implement the plans to make PURA successful.

#### **PURA- An Action Plan**

- The Prime Minister made an announcement on the 15<sup>th</sup> of August 2003 saying that the PURA strategy shall be implemented in 5000 rural clusters across the country in the next 5 years.
- The North Eastern and Special Category States shall be prioritized.
- Backward areas are to be identified by the Planning Commission.
- The Planning Commission shall identify clusters of villages around small towns (population 20,000 to 1 Lakh). In the first phase villages with 5 to 10 km. around these towns will be selected as per the 2001 Census 593 districts.
- Districts with towns that have a population of 5 Lakh & above, UT's, the State of Goa & districts close to metropolitan area were not considered.
- In the remaining 505 districts:

- Preference was given to towns (population size between 30,000 to 1 Lakh in plains & 20,000 to 50,000 in hill areas) with low electricity connections, low literacy rates, and a low percentage of households availing piped water.
- In those hilly areas with no towns (N.E. States), rural clusters were identified around the District Head Quarters.
- In special category states & states with an incidence of poverty above national average 2 clusters of 10 – 15 villages were identified around each town.
- As per States with incidences of poverty below average only 1 cluster was identified around each town as the town would not have enough infrastructure to support two clusters.
- The Deputy Commissioner shall be the nodal officer for the preparation, implementation & monitoring of the PURA strategy. Private sector initiative is to be encouraged.
- MoRD shall be the Nodal Ministry for the implementation, co-ordination, budget provision & monitoring of schemes including the identification of 1000 clusters per annum in consultation with the States.

#### What has been done so far?

#### Uttar Pradesh

•5 districts- Bharthana, Kannaiy, Amroha, Muzzafarnagar, and Bareilly, have been selected.

- The Project Report has been prepared
- The Centre and the concerned State (here UP) shall share the financial burden in the ratio 50:50.
- Approximately, spending Rs. 25 crore per district has been proposed.
- A cluster of 10 villages has been identified in each district.
- In Bharthana:
  - → Plan Outlay: Rs. 14,64,6000
  - → Work on electricity and telecommunication shall start soon.
- → The Central Government has released Rs. 1.5 crores.

#### Bihar:

- Motipur (16 villages, 85000 population) has been selected.
- 1st Phase: Building infrastructure: Roads, water, education, health and a market for goods and services. In actuality only the roads have been constructed.
- Released amount Rs. 15 lakhs only.
- Detailed guidelines absent.
- Need for state level planning body to implement PURA.

#### Pondicherry:

- Karaikal Region has been selected.
- Coastal PURA approach followed.
- 12-15 villages, population- 60,000

• Urban facilities to be provided along the ring road must be identified.

#### Chitrakoot (MP):

- Patni Village has been selected
- Programme aimed at improvement in health & hygiene and 100% literacy
- 80 villages around Chitrakoot are now litigation free.

#### Parvara (integrated rural developed complex in Maharashtra)

- 20 villages (80,000 people) have been connected through telemedicine.
- All people are now officially above the poverty line.
- The complex has engineering, medical, dental & physiotherapy colleges.

#### Periyar PURA (Thanjavur – Tamil Nadu)

• 65 villages have been connected – physical, electronic & medical leading to economic connectivity.

• Circular road and inter-connecting roads constructed along with a bus transport system.

• Internet kiosks, knowledge connectivity attributed to a women's engineering college that has provided skill oriented and financial training to the Periyar residents.

- Cultivation of Jatropha and medicinal plants.
- Power generation using bio mass
- Food processing
- 6 percolation ponds constructed. Dams built to harness rain water amounting to 2.73 lakh cubic per meter per annum.
- 200 acres of wasteland has been converted to cultivable land.

#### Proposals

#### 1) Special Economic Zones

We would like to propose that to increase the effectiveness of the PURA Scheme, a Special Economic Zone (SEZ) must be set up in the area covered by PURA. An SEZ is an area of 1000 ha or more within which investors are provided tax breaks (A 100% exemption from Income Tax), raw materials free from levies, and where 100% Foreign Direct Investment is allowed in manufacturing units. Commodities produced in SEZs are free of VAT, service taxes, dividend taxes, and all cesses.

As far as trade and commerce are concerned, SEZs are regarded as international territory. Local raw materials bought by producers within SEZs are regarded as exports whereas those goods that are produced in SEZs and sold in the DTA (Domestic Tariff Area) are regarded as imports.

The objective behind an SEZ is to enhance foreign investment, increase exports, create jobs and promote regional development. One of the biggest SEZ success stories is that of Shenzhen in China. The exports from Shenzhen itself account for one-seventh of the exports of a gigantic country like China. They were estimated at \$762 billion in 2005. Shenzhen's

compound annual growth rate has in fact, been 38%, the highest recorded growth rate in human history.<sup>2</sup>

SEZs in India were announced by the government in March 2000. Since then 15 SEZs including 8 EPZs (Export Processing Zones) have been set up at Kandla, Surat, Mumbai, Kochi, Noida, Chennai (3 SEZs), Visakhapatnam, Indore, Jaipur and Jodhpur, Falta, Manikanchan, and Salt Lake.

SEZs overcome the biggest problem faced by developing countries-the lack of resources to spearhead economic development. They provide an incentive to the private and foreign sector to supplement public investment in rural areas. PURA will need private sector investment to ensure the sustainability of its projects. However, investment in rural areas faces very high risks. At any rate, the gestation period of PURA projects is very long indeed. Hence, the private sector must be proactively encouraged to invest in rural areas. SEZs are an adequate incentive for this purpose.

# 2) Considering villages with a population of over 5000 as support centres along with towns

According to the PURA criteria, clusters of villages are identified around towns with a population over 20,000. However, there are 19020 villages that should fit the town criteria as their populations exceed 5000. The populations of 3962 villages even exceed 10,000. These are probably not classified as towns as they do not fit the other criteria followed by the Census authorities. To broaden the scope of PURA and to increase the area under it in eventuality, even those villages that would have classified as towns if the only criteria were the population, should be taken as support centres. However, this would be exceptionally risky unless these villages are given self-sustaining infrastructure first. This is possible but it involves the implementation of another experiment in spatial integration, which we believe should be implemented along with PURA. This is Atanu Dey and Vinod Khosla's RISC.

#### **RISC-** Rural Infrastructure Services Commons

The Rural Infrastructure and Services Commons model comprises of 5000 rural centers built around existing infrastructure like railway stations, *"haats"* (informal weekly markets) or Tier III/IV towns) Each RISC (rural center) shall address the needs of a large rural population–about 100 villages or around 100,000 people. Given population densities, this is usually within a radius of 40 kilometers. This population will have access to the RISC with an average of a couple of hours' bicycle ride. Dey and Khosle view Rural India as a 'Bicycle Commute Economy'.

With 700 million people in above 500,000 villages, every cluster of 100 villages will have approx 140,000 people. 5000 such clusters will cover the entire rural population. According to Dey and Khosle, if you draw 5000 such circles of say, 40 km radius, you should be able to cover rural India. *The idea is to make available in the centre of this cluster of villages, all possible urban amenities thereby in situ urbanising the rural areas.* 

Like PURA, RISC too, aggregates demand by developing rural infrastructure in such a way that it is available to 10-15 villages, hence making them, in essence, one.

The purchasing power of a rural Indian and an Indian village is low but the aggregate demand of 10-15 villages and 100,000 people is large enough to allow the private sector investors a fairly high rate of return.

<sup>&</sup>lt;sup>2</sup> Bhavesh Gandhi, Vice Chairman, Sea King Infrastructure Limited in 'Special Economic Zones in India-Opportunities Unlimited'

However, unlike PURA, RISC does not have a separate road plan or any plans of wooing the private sector. This is because RISC is easier to implement. It has a two-layered structure:

1) The Infrastructural Level (The I Level)- This level, comprising of electric wires, telephones, phone lines, wireless phones, physical plant, buildings, water, sanitation, security, transportation, and financial institutions, is provided by a small set of providers. eg. Telecommunications or Electricity can be provided by a very small group of large operators or the government itself. The investor is expected to earn a large rate of return, as the aggregate demand is large even though individual purchasing power isn't

2) **The Service Level (The S Level)**- This level comprises of the user services. (eg: Access to markets, Educational facilities, Health Care, Banking and Financial Services, Telecommunications and Internet Access, Legal Services, Market Information, Weather and Agricultural Information)

Market forces shall determine the kinds of services provided and who the service providers shall be. Individuals, small businesses, NGOs and multinational agencies shall compete to provide services to the rural areas. If the core infrastructural services are reliably available at low prices, the user services will be correspondingly low.

In the diagram below, the RISC centre lies at the geometric centre of a circle containing a cluster of a 100 villages. This RISC centre offers two kinds of services. It has STD/PCO booths, Internet facilities, possibly a taxi stand, an auto-rickshaw stand and a bus stand. It has commercial centres that generate employment, a water tank, a bank, a legal office, a school and a hospital. These facilities combat the Low Equilibrium Development trap of Poor Infrastructure, leading to a lack of services, low incomes and thus the inability to pay for infrastructure. Thus it is evident that these facilities will lead to a large number of services offered. A water tank will mean its maintenance and that of its pipelines. A bank will mean financial services; offices will mean legal, financial, information related services etc. Taxis, autos and buses will mean drivers and conductors. Thus, infrastructure shall bring about services, which in turn shall generate employment.



#### Implementation of RISC

1. The I-level shall provide a reliable, standardized, low priced infrastructure platform.

2. This shall be achieved by coordinated activities of public corporations, Govt. Bodies and NGOs.

3. At the S level, firms and individuals shall provide services eg: an ITC e-choupal.

4. Due to competition, economies of scale and cheap infrastructure, prices for these services shall be low.

5. Villagers from all 100 villages are a critical mass of consumers. Their demand is aggregated. This will bring in economies of scope and agglomeration.

Thus it can be seen that Dey and Khosla assume that increased state-sponsored infrastructure will encourage the private sector to deliver the services and hence increase jobs, reverse the low equilibrium development trap, generate employment and increase rural incomes. However, the reason for the low investment of the private sector in the rural sector is that risks are high and that the gestation periods are long. Thus they need adequate incentives. In addition to infrastructure, they need a special economic zone to lower their costs and a planned road structure such that people in the remoter rural regions (say, those on the circumference of the circle of which the RISC is the centre) can enjoy faster and easier commuting, hence, greater efficiency. We must admit that a bicycle is too slow.

On the other hand, RISC has a greater sustainability: According to Dey's estimates though costs for I level investment are significant, they can be met. (The S level is unplanned so we cannot estimate it) If we spend \$1 million on each RISC, 5000 centres to saturate rural India will cost \$5 billion. While this is a large number, it is far less than even 1% of India's GDP of \$3369 billion.<sup>3</sup>

The necessary condition for sustainability is that user fees must cover the cost of services delivered. The Per capita demand is low due to the low purchasing power of the rural Indian. Like PURA, RISC derives its sustainability by aggregating demand over a sufficiently large population.

- Assume an average daily income of \$1
- Annual income of a population of 140,000=\$ 51.1 million
- Assume RISC increases the total output of goods and services by 10% due to its autocatalytic nature.
- Output becomes \$51.1 million + \$5.11 million=\$56.21 million.

• Assigning half of this increased output to increased income leaves approx \$2 million per year to pay for services at RISC.

• The annual gross revenues per RISC shall be \$2 million and the aggregate revenues for 5000 RISCs would be \$10 billion per year.

• Taking a conservative multiplier of 2.5, the total effect of 5000 RISCs will be \$10 billion x 2.5= \$25 billion.

• Even if only 2000 RISCs are implemented, the effect shall be \$10 billion.

<sup>&</sup>lt;sup>3</sup> Source: www.cia.gov

Thus to widen the scope of PURA by identifying clusters of small villages even around backward towns, leave alone villages with large populations, the centres must be developed first in such a way that they aggregate the demand all the way till the periphery of the cluster of villages. This calls for the implementation of the RISC model prior to the implementation of PURA in these areas. Once the Ring Road is constructed, it will bring about greater connectivity not only though the cluster but to other villages and towns as well. The accessibility of the services within the RISC Centre will be increased and the Low Equilibrium Development Trap will certainly be reversed.

RISC aims to make rural markets more efficient. It focuses on the highest economic use of all investments by giving rural Indians better access to all the facilities that they need rather than setting a few of them up in individual villages. Thereby, it aims to achieve the *in situ* urbanization of the rural population as a method of checking rural-urban migration. Ill equipped to participate in the urban economy; the migrants become part of the mega slums in the mega cities. They also raise the per capita cost of providing basic services like police, education and housing.

In this context, both PURA as well as RISC are based on the Harris-Todaro model. This theory asserts that rural-urban migration will continue as long as the expected urban real income exceeds the real wage rate in the agricultural sector. Under the assumptions that there is no unemployment in the rural sector, the agricultural/rural sector is perfectly competitive and that potential migrants are risk neutral, the model believes that to attain the equilibrium state in which net rural-urban migration is zero, the rural income (The Marginal Revenue Product of the marginal potential migrant) must equal the expected urban income. Mathematically,

#### W<sub>r</sub>=I<sub>e</sub>/I<sub>us</sub>\* W<sub>u</sub>

Where  $W_r$  is the wage rate in the agricultural sector.  $l_e$  is the no. of urban employed.  $l_{US}$  is the total number of job seekers-employed and unemployed in the urban sector.  $W_U$  is the wage rate in the urban sector

In conclusion in backward towns without much infrastructure or those clusters of villages identified around villages with a population of above 5000.

#### **PURA versus RISC**

• RISC easier to implement and hence must be implemented first.

• PURA is more about developing better connectivity between towns and villages in such a way that bus travel becomes easy and that waiting time is reduced.

• Thus PURA needs to be centered around already existing infrastructure while RISC is about building infrastructure in the centre of a cluster of villages such that no rural resident is more than 40 km away from a RISC centre.

• Hence the Ring Road must be built with a 40 km radius from a RISC centre.

• Both PURA and RISC are based on the Harris-Todaro model and attempt to increase incomes in rural areas to halt rural-urban migration.

There are other programmes, which have attempted to bring about an increase in rural incomes via the spatial integration of villages and the establishment of rural-urban linkages. These are as follows:

#### 1) The UNDP & The Government of Nepal Rural-Urban Partnership Programme

**(RUPP):** This programme was intended to address the widening gap between the rich and the poor by making use of rural-urban socio-economic linkages and developing an increasing access to resources. It began by identifying the urban areas to which the rural areas are to be linked. The UNCHS (United Nations Centre for Human Settlements) has had a remarkable role to play in this project. It has identified existing business opportunities and local capabilities based on the established database, mobilised rural entrepreneurs and potential entrepreneurs into groups and disseminated its information to each group. The RUPP supports each group and enables them to carry out the proposed business activities.

These support components consist of enterprise and management training, technology transfer initiatives, procedures of conducting meetings, book keeping, operating bank accounts etc. A Maturity Certificate is awarded after training.

This project is partly funded by the beneficiaries of the training programme who pool in their resources to pay for it. The proponents of the RUPP believe that rural development can ensure that urban consumption needs are met since more products can be produced in the rural areas.

The RUPP has established a database in all of its 12 partner municipalities and 24 rural market centres on existing opportunities and potentials in rural and urban areas. It organized skilled labour and disadvantaged groups to link labour skills and intermediary products to existing manufacturers and the industrial system. It has also organized micro enterprises into group enterprises, co-operatives, companies etc and arranged for better marketing strategies. This was aimed at increasing incomes and raising the living standards of the poor (rural as well as urban). It has also collaborated with 12 municipalities to form the Market Development Fund (MDF) to mobilize resources from different donors.

At this juncture it is worthwhile to mention the Hitkari Banana Group under the RUPP. Five persons who sold bananas were grouped, trained in marketing and given financial assistance. This scheme was partly financed by credit. The rest of the funding came from the group members in addition to cash in kind and labour contributions from their families. In short, they received an assistance package to sell bananas in rural as well as urban areas. After a while they became credit worthy enough to obtain a commercial lone to expand their business. Rural households' low access to low-interest credit is one of the weakest rural-urban linkages that the RUPP did its best to strengthen. The Hitkari Banana venture was largely successful except for one problem- Bananas are prone to disease and perishable. Thus demand for them is usually variable. The Hitkari group should have diversified its portfolio of investment.

#### 2) South Korea's Rural Urban Integration City Concept:

In December 1994, the Government of South Korea selected 49 cities and 43 rural areas on the basis of historical homogeneity, similarity of living sphere, natural topography and potential for balanced development. It was assessed whether these areas wanted to be integrated on the basis of public hearings and opinion polls. The scheme was successfully evaluated by the residents and these areas were integrated. The objectives of this scheme were balanced rural-urban development, a better quality of life and infrastructure and higher administrative efficiency.

This plan can be refined by re-adjusting the planning system with respect to the whole area of integrated cities, preventing potential environmental degradation in rural areas and resolving the potential conflict between local governance and spatial integration.

# 2) The Government of Indonesia, UNDP, UNHCS Poverty Alleviation Programme through Rural-Urban Linkages (PARUL)

PARUL was implemented while Indonesia was in the throes of an economic crisis. For one thing, inflation was at 80% and unemployment was rising sharply. It was noticed that rural areas with weak links to urban areas are handicapped while competing in regional, national, and international markets. This undermines motivation to produce, invest, raise productivity, diversify production and engage in new activities.

Thus PARUL was formulated. It had two phases-The Initial Development Phase, which began in December 1997 and The Implementation Phase, which began in January 1999. This phase was also called PLED-Partnership for Local Economic Development of selected regions to raise incomes and create productive employment opportunities.

PARUL was applied in five pilot provinces-South Sulawesi, North Sulawesi, Irian Jaya, West Java and DI Yogyakarta. Its policy was based upon supporting local economic development by linking the small-scale industries to broader markets in collaboration with Large Scale Industries. This was aimed at generating exports. Action plans were generated for the promotion of production and trade with respect to clusters of economic activities associated with key export commodities.

#### The objectives of PARUL are as follows:

1. To enhance the capacity of central and local institutions led by broad-based, public-private civic partnership, to design and execute plans and strategies for strengthening rural-urban linkages.

2. To develop and implement policies, programmes and projects that support the strengthening of production and trade linkages between rural and urban areas.

3. To facilitate replication in other parts of the country by assisting the government and international donors to adopt the rural-urban linkage approach in other projects concerned with innovative approaches to poverty alleviation & regional development.

#### Benefits from improved rural-urban transport linkages

In the villages of Menies and Pengkelakamas, in East Lombak, Java, the construction of a bridge and a secondary road connecting the two villages to the regency road has enabled trucks to come to Pengkelakamas. This has improved markets as villagers' products can be delivered to middle men at lower transport costs, fishermen can sell their catch in urban areas where there is a greater demand and with the improved market potential, incomes have risen as well.

#### Search for New Horizons

Planning of human settlements requires scanning all along the spectrum. The absence of this, or inadequate attention to it could be a major gap in our settlement planning. There is also a gap in our knowledge on the structure and functioning of settlements in the interfaces (urban) that are emerging in the spectrum. The revolution in transport and technology, the changing mobility and travel preference patterns of producers and consumers consequent upon their changing levels of income, and sectorally and administratively oriented planning interventions disturb and often destroy the earlier hierarchic systems. The migration patterns in their turn do change the system, more conspicuously in the areas where large-scale development and rehabilitation projects are located. This is to be expected, but the disturbed system has to be taken note of and settlement planning designed accordingly.

It must be mentioned here that disturbances are not taking place at all levels and in all regions; they are minimal in the hill forest regions particularly in the core regions, and in some of the coastal zone environments. In some of the agricultural regions, higher order urban centres (private cities) do not exist. Here, the regional scale and setting are important. The settlement hierarchic system and the regional hierarchic system are interdependent. Though at the higher levels in the hierarchic system, inter-city linkages are more important, but in the lower orders, urban-rural links are more important.

The impact of primacy (dominance and hence the shadow effect) of the metropolis does not percolate at all levels in the hierarchy. Primacy is related to the whole system or subsystem, and can be reduced through regional development policies. These attributes of the settlement system need to be explicitly recognized in allocating investments for development of infrastructure, along with plans to provide an economic base, which is necessary to sustain the infrastructure for a better living.

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