

**'Climate resilience in built environment'**  
**GRIHA Summit**  
Organised by  
**The Energy and Resources Institute (TERI)**

**“Resilient settlements - a planner's perspective”**

Presentation by  
**Institutional Systems Planning Center (ISPC)**  
V-29, Green Park, New Delhi-110016  
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## **HYPOTHESIS**

**DEVELOPMENT IN INDIA WITH SOCIO-ECONOMIC PROSPERITY & EQUITABLE OPPORTUNITIES**

**India has to strategically utilise its exceptional resource**  
Of  
**Uniformly distributed settlement plan**  
With  
**A large number of land holdings.**

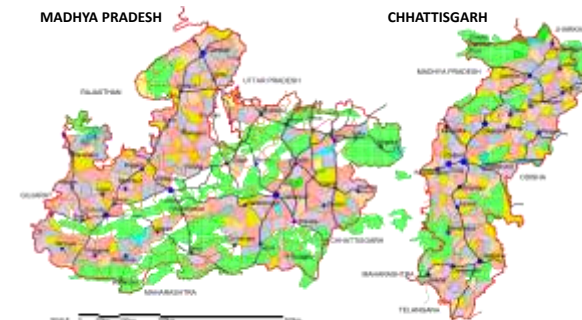
**The existing pattern has to be developed in a manner**  
That  
**The variety of members in each family**  
**Can work in any sector of economy**  
While  
**Their families utilize a range of institutions & amenities,**  
With  
**Little travel time & energy.**

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In Order to achieve the above objectives  
India should be developed as a  
**UNIFIED SETTLEMENT PLAN**  
Integrating rural and urban development.

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**MODULAR DEVELOPMENT OF ABOUT 2500 EXISTING DIVISIONS OF  
'ARABLE & HABITABLE' LAND IN THE COUNTRY,  
AS AUTONOMOUS & SELF-SUSTAINABLE UNITS OF DEVELOPMENT**



354 EXISTING REGIONAL MODULES IN M.P. AND 110 IN CHHATTISGARH

Regional-modules of 600 to 1000sq.km area or about half the size of Delhi, with an average population of four Lakh residents exist all over the country. They utilize most of the area for farming but qualify as urban areas in terms of their population density. These triangular Modules with 100 to 300 villages & about 1000km rural roads have highways or major-roads at their peripheries and towns or cities at their vertices.

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**REGIONAL  
MODULES  
AROUND INDORE**



**REGIONAL  
MODULES  
AROUND BHOPAL**

**SOCIAL ASPECTS OF RESILIENT SETTLEMENTS**

The diagram illustrates six social aspects of resilient settlements arranged around a central hub. The central hub features a family silhouette and a building icon. Six icons radiate from the center, each representing a social aspect: a family silhouette, a group of people celebrating, a classical building, a shopping cart, a city skyline with a large 'X' over it, and a group of people. The text labels for each aspect are: 'FAMILY LIFE WITH WORK OPPORTUNITIES', 'COMMUNITY INTERACTION', 'ACCESSIBILITY TO INSTITUTIONS, COMMERCIAL AREAS, RECREATIONAL SPACES', 'SELF GOVERNANCE', and 'SECURITY & DEFENSE'. The 'SECURITY & DEFENSE' icon is crossed out with a large black 'X'.

**UNIFIED SETTLEMENT PLAN WILL LEAD TO**

**ECONOMIC ASPECTS OF RESILIENT SETTLEMENTS**

The diagram for 'Economic Aspects of Resilient Settlements' features six icons arranged in a 2x3 grid. The top row includes: 1) A silhouette of a person in a traditional setting representing 'Utilization of Existing Structure'. 2) A tree with branches labeled 'FOOD', 'TRANSPORTATION', 'EDUCATION', 'HEALTH CARE', 'ENERGY', and 'HABITAT' representing 'Low Cost of Services and Residences'. 3) A tree with a cow and barrels representing 'High Value Agriculture'. The bottom row includes: 4) A central node with six surrounding nodes representing 'Viability of Institutions, Business Centers'. 5) A silhouette of an industrial skyline representing 'Low Cost of High Quality Industrial Production'. 6) A vertical stack of arrows labeled 'FARMER', 'ENGINEER', 'MANAGER', 'TEACHER', and 'DOCTOR' representing 'Comparable Work Opportunities at All Locations in All Sectors'.

**UNIFIED SETTLEMENT PLAN WILL LEAD TO**

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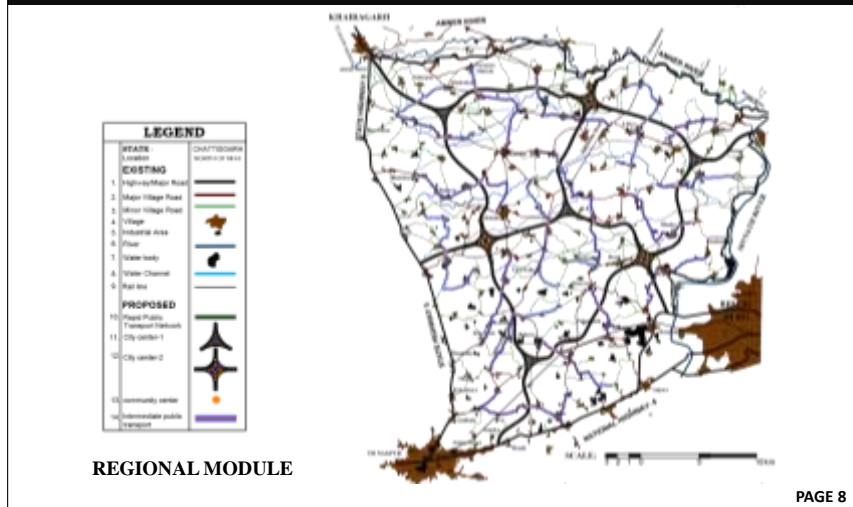
**ENVIRONMENTAL ASPECTS OF RESILIENT SETTLEMENTS**

The diagram for 'Environmental Aspects of Resilient Settlements' features four icons arranged in a 2x2 grid. The top row includes: 1) A silhouette of palm trees representing 'Large Scale Orchard Development'. 2) A silhouette of a bus representing 'Efficient Public Transport System'. The bottom row includes: 3) A silhouette of a landscape with recycling symbols representing 'De-centralized Waste Management'. 4) A silhouette of a person in a traditional setting with a water drop icon above representing 'Large Scale Water Harvesting'. Below the icons is the text 'LOW CONSUMPTION OF NATURAL RESOURCE BY UTILIZING EXISTING STRUCTURES'.

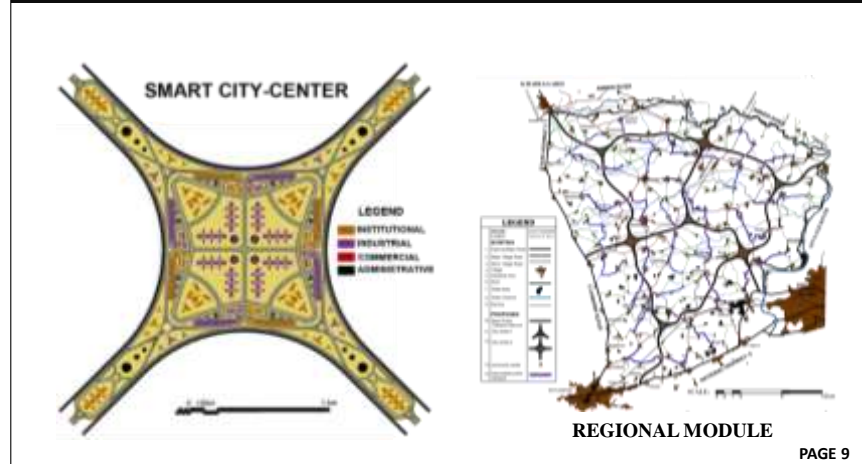
**UNIFIED SETTLEMENT PLAN WILL LEAD TO**

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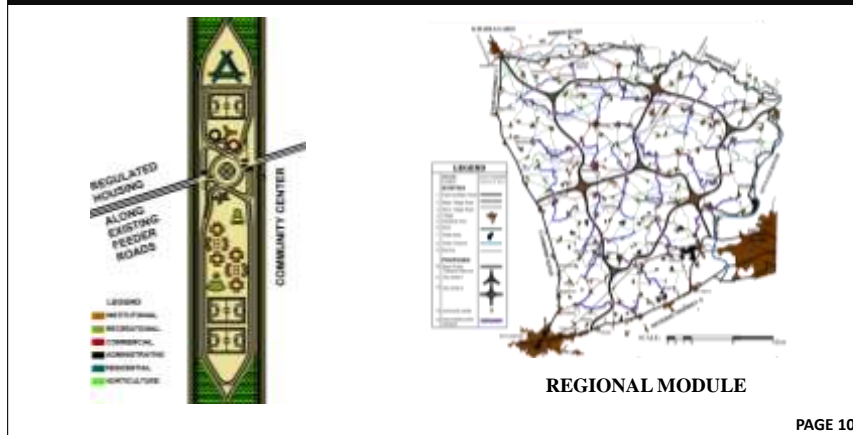
**A SYSTEM OF SMART-NETWORK WITH CITY-CENTERS & COMMUNITY-CENTERS FOR REGIONAL-MODULES ACROSS THE COUNTRY**



**Seven or nine, interconnected city-centers, about 500 acres (area of a large sector in a township) each, located uniformly at 5 to 10 km distance from each other, on the underutilized land in each regional-module. City-centers shall include specialized institutions, business centers & varying sizes of industries.**

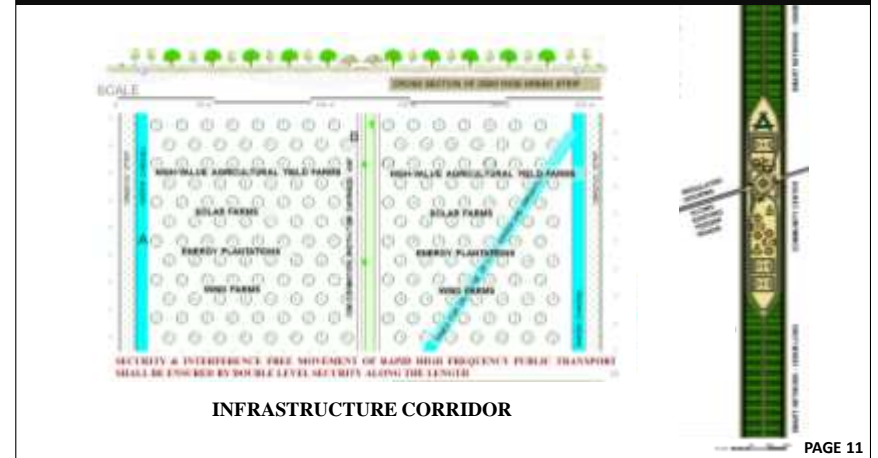


**20-25 Community-centers** of about 50 acres each, located on the way from one City-center to another, include spacious institutions (*for health-care, education & recreation*) and commercial centers, for basic requirements of the residential areas and farmland in their neighborhood. They shall also have some administrative-support and transit-accommodations for newcomers and visitors to the Regional-module.



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**About 100km long Infrastructure corridor** (250m wide land-strips) shall weave between the existing habitations, connecting all the new Urban-centers with each other and with the existing urban-areas along the peripheries & vertices of their Regional-module.



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**20m wide, Link-roads**, as key infrastructure for a rapid public-transport system. The system shall utilize 20-25 existing roads for feeder-service, from the existing villages and the new growth, to the Link-roads at the Community-centers.

The system shall connect most residential areas with new Urban-centers of a Regional-module, in an average travel time of about 30 minutes, for both, passengers & goods.

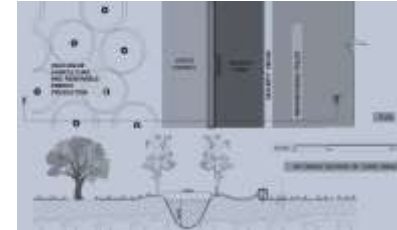


**20M WIDE LINK ROADS**

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**90m wide horticulture-strips, 10m wide aquaculture channels, 10m wide grazing-strip & 5m wide bio-fencing** (all shaded with trees & solar panels) along both sides of the Link- roads. These resources shall be utilized for integrated agriculture activities, skill development & foolproof security.

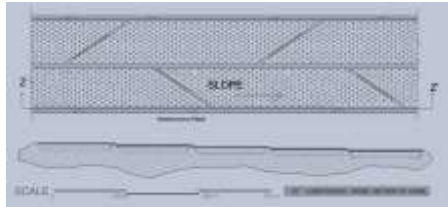
**Service lines for electricity, communication, water, gas, waste disposal etc.** for efficient connectivity, through the Smart-network and its 20 to 25 feeder roads, in the entire Regional-module.



**STRIPS FOR INTEGRATED AGRICULTURE**

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**Development of 9-12 water-sheds** and holding tanks for large-scale rain water harvesting, through stepped water-channels (10m wide & 50-100m long units) along the edges of the 250m wide & 100km long smart-network in each Regional Module.



CANALS IN FORM OF MULTI-UTILITY TANKS



WATERSHEDS

**Regulated growth of high-quality residences** (housing societies or farm houses) as per the requirement over time (for richer locals & reverse-migrants), along the 20-25 feeder-roads to the urban-network, due to the development of urban-centers & efficient public-transport system in each regional-module.

