“Sustainable Urban Planning towards people & environment friendly inclusive urban development’

Regional workshop
‘Energy and Resource Efficiency in Urban Water Management’

August 12, 2013

Organised by CSE, New Delhi

Supported by:

CCBP NURM, Ministry of Urban Development, Govt of India
Government of Puducherry

Lalit Kishor Bhati
Architect-Planner, Auroville

Messages of Water

Masaru Emoto
Hado Institute (IHM) Tokyo

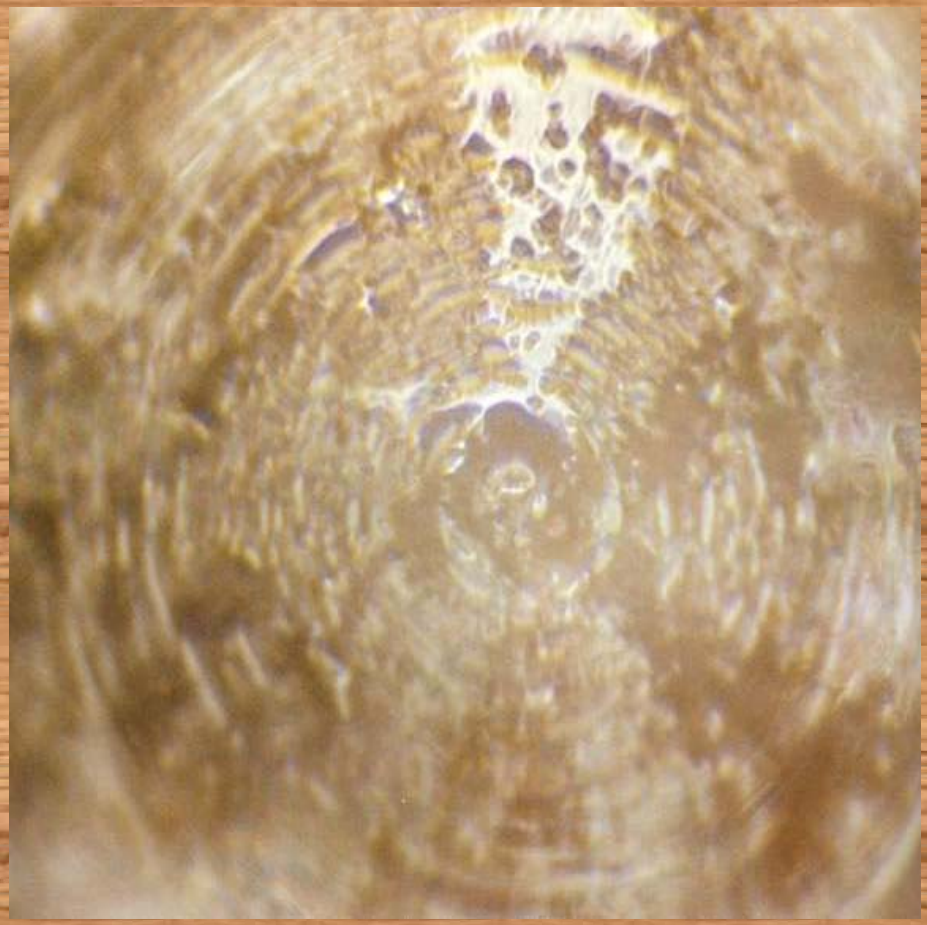
Hado
(pronounced hadou to rhyme with shadow) = wave/vibration/energy

Dr. Masaru Emoto

Water crystal of Fujiwara Dam
before offering a prayer.
(Page 135)

Water crystal of Fujiwara Dam
after offering a prayer.
(Page 137)

Water Crystal Exposed to the Song Entitled, “Silent Night”



Water Crystal Exposed to Heavy Metal Music

One can not solve the problem with the same mind which created it.

Albert Einstein

One can’t change the existing reality by fighting it but by making new models…

Buckminster Fuller


Sustainable communities
Social and cultural
Governance
Transport and connectivity
Services
Environmental
Equity
Economy
Housing and the Built environment
Active, inclusive and safe - fair, tolerant and cohesive with a strong local culture and other shared community activities
Well run - with effective and inclusive participation, representation and leadership
Well connected - with good transport services and communication linking people to jobs, health and other services
Well served - with public, private, community and voluntary services that are appropriate to people's needs and accessible to all
Environmentally sensitive - providing places for people to live that are considerate of the environment
Fair for everyone - including those in other communities, now and in the future
Thriving - with a flourishing and diverse local economy
Well designed and built - featuring a quality built and natural environment

INDIA'S MOST LIVEABLE CITIES

As the Indian economy grows, cities are expanding faster than ever before, making it a challenge to provide top class urban living spaces. While the government is battling to renew the cities with funding under the Jawaharlal Nehru Urban Renewal Mission, it can do little to stop the migration of people from the villages to the cities and the creation of new urban extensions. A ranking of Indian cities by a Ficci-Ernst & Young study, titled Indian Real Estate Report 2007: Growth and New Destinations, maps India's most and least liveable cities on several counts. New Delhi, the Capital, tops the overall ranking.

The report makes an assessment of 48 cities based on more than 57 parameters. New Delhi, because of its high quality of life and infrastructure, is the top Indian city. It is followed by Greater Mumbai. Chandigarh is one of the most prosperous cities in India, while Shimla, ranked 27th, has the highest per capita income.

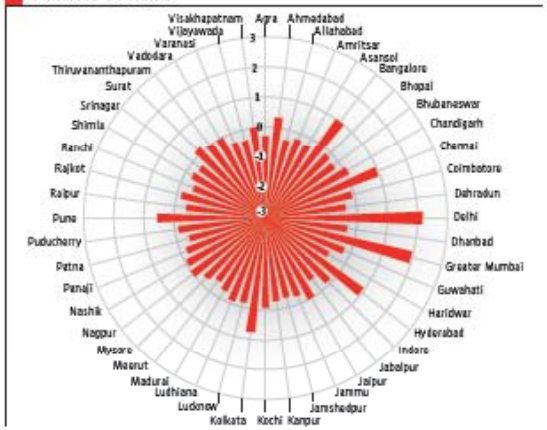
Text by **Shabana Hussain**, Graphics by Ahmed Raza Khan/Mint

Source: Ernst & Young

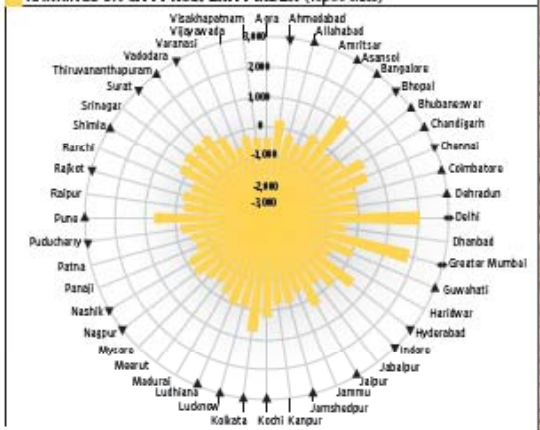
▲ Denotes if the ranking on the index is higher than the City's overall ranking
➡ Denotes if the ranking on the index is equal to the City's overall ranking
▼ Denotes if the ranking on the index is lower than the City's overall ranking

ERNST & YOUNG INDIA CITY RANKINGS

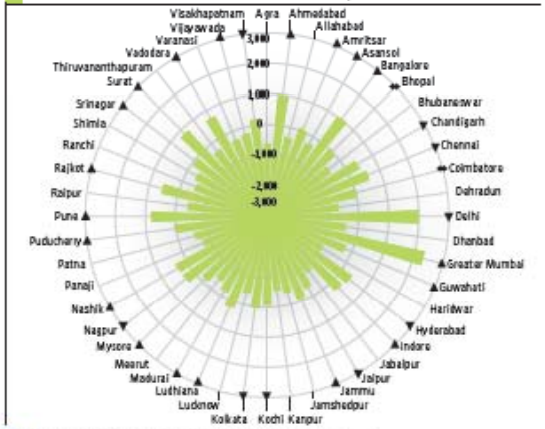
RANKINGS-OVERALL



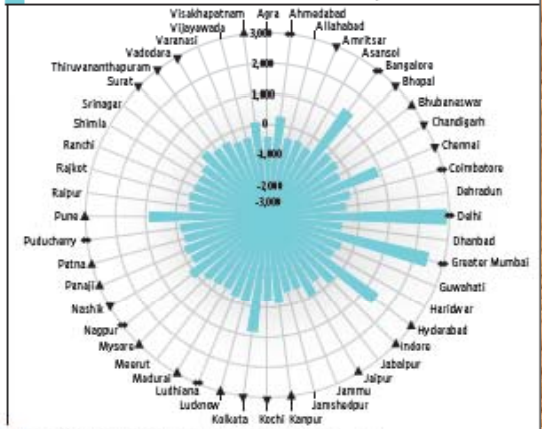
RANKINGS ON CITY PROSPERITY INDEX (Top 30 cities)



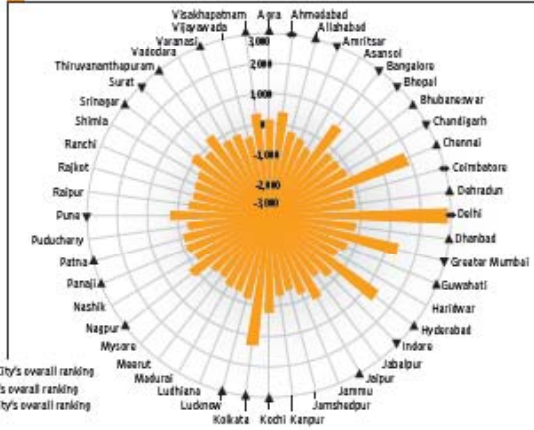
RANKINGS ON URBAN GOVERNANCE INDEX (Top 30 cities)



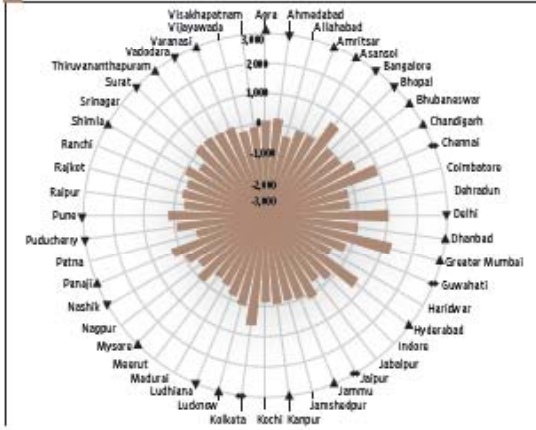
RANKINGS ON BUSINESS ENVIRONMENT INDEX (Top 30 cities)



RANKINGS ON INFRASTRUCTURE INDEX (Top 30 cities)



RANKINGS ON QUALITY OF LIFE INDEX (Top 30 cities)



Results

Here are the complete results for the 22 cities in the Asian Green City Index, including the overall results and placements within the eight individual categories. The cities were placed in one of five performance bands, from well below average to well above average.

Overall results

well below average	below average	average	above average	well above average
Karachi	Bangaluru Hanoi Kolkata Manila Mumbai	Bangkok Beijing Delhi Guangzhou Jakarta Kuala Lumpur Nanjing Shanghai Wuhan	Hong Kong Osaka Seoul Taipei Tokyo Yokohama	Singapore

Category results

Energy and CO_2

well below average	below average	average	above average	well above average
Shanghai	Beijing Guangzhou Karachi Kolkata Kuala Lumpur Nanjing Wuhan	Bangkok Bangaluru Hanoi Manila Mumbai	Delhi Hong Kong Jakarta Osaka Seoul Singapore Taipei Yokohama	Tokyo

Transport

well below average	below average	average	above average	well above average
Karachi Kolkata	Bangkok Bangaluru Hanoi Manila Mumbai	Beijing Delhi Guangzhou Jakarta Nanjing Shanghai Wuhan	Hong Kong Kuala Lumpur Seoul Singapore Taipei Tokyo Yokohama	Osaka

Water

well below average	below average	average	above average	well above average
Kuala Lumpur	Bangkok Delhi Guangzhou Hanoi Jakarta Manila	Bangaluru Hong Kong Karachi Kolkata Mumbai Shanghai Taipei	Beijing Nanjing Osaka Seoul Wuhan	Singapore Tokyo Yokohama

Air quality

well below average	below average	average	above average	well above average
Karachi Mumbai	Beijing Kolkata Wuhan	Bangaluru Delhi Guangzhou Hanoi Jakarta Nanjing Seoul Shanghai	Bangkok Hong Kong Kuala Lumpur Manila Osaka Singapore Taipei Tokyo Yokohama	

Land use and buildings

well below average	below average	average	above average	well above average
Hanoi	Bangkok Karachi Kolkata Manila Shanghai Wuhan	Beijing Bangaluru Delhi Guangzhou Jakarta Kuala Lumpur Mumbai Nanjing Tokyo	Osaka Seoul Singapore Taipei Yokohama	Hong Kong

Waste

well below average	below average	average	above average	well above average
Jakarta Kuala Lumpur	Bangkok Karachi Kolkata Manila Mumbai Seoul	Beijing Bangaluru Guangzhou Hanoi Nanjing Shanghai Wuhan	Delhi Hong Kong Osaka Taipei Tokyo Yokohama	Singapore

Sanitation

well below average	below average	average	above average	well above average
Hanoi	Bangkok Jakarta Karachi Kolkata Kuala Lumpur Manila Mumbai	Beijing Bangaluru Delhi Nanjing Shanghai Wuhan	Guangzhou Hong Kong Osaka Seoul Singapore Taipei Tokyo Yokohama	

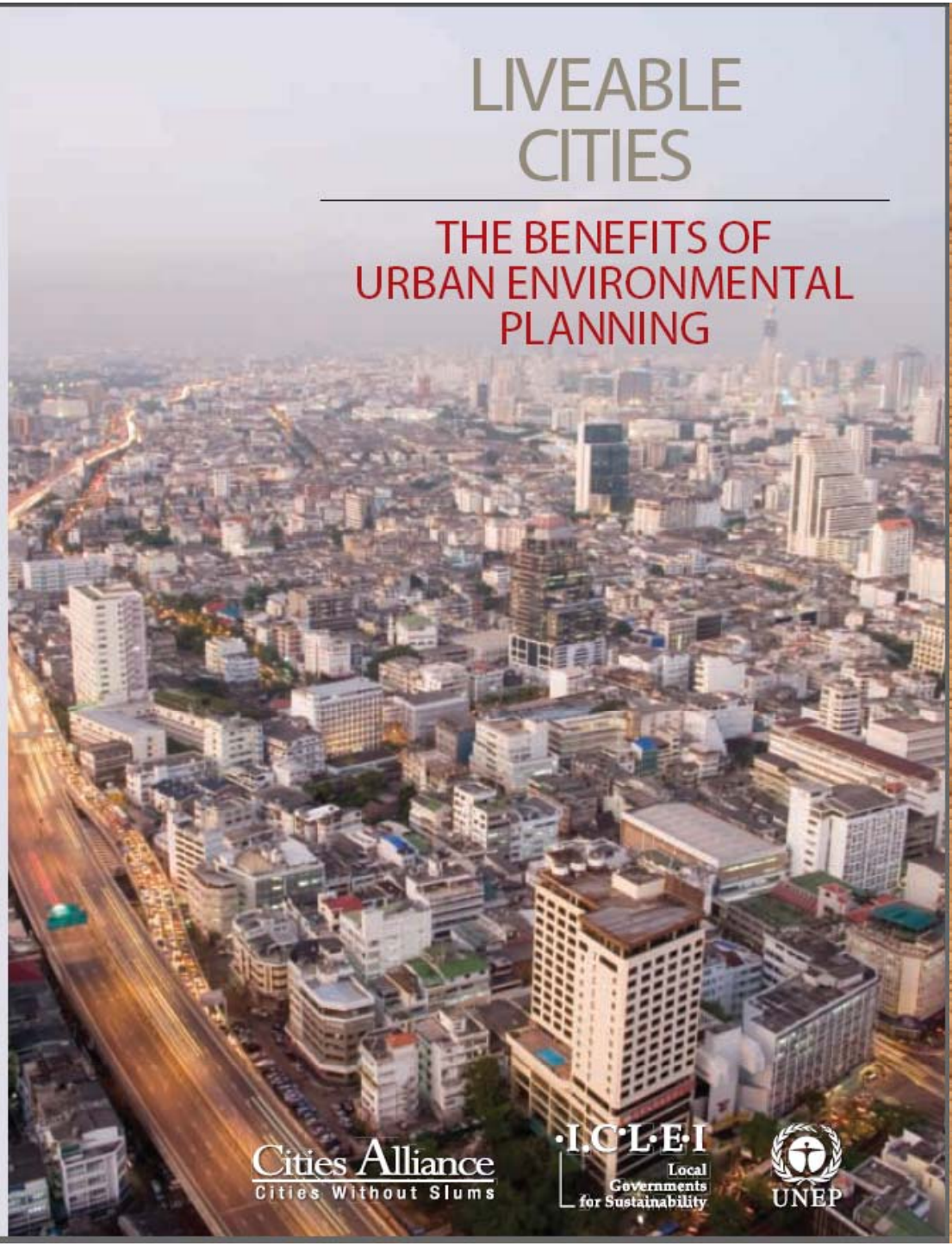
Environmental governance

well below average	below average	average	above average	well above average
Hanoi Kolkata	Karachi Mumbai	Beijing Bangaluru Delhi Guangzhou Jakarta Kuala Lumpur Manila Nanjing Shanghai Wuhan	Bangkok Hong Kong Osaka Seoul Singapore Taipei Tokyo Yokohama	

LIVEABLE CITIES THE BENEFITS OF URBAN ENVIRONMENTAL PLANNING Cities Alliance

LIVEABLE CITIES

THE BENEFITS OF URBAN ENVIRONMENTAL PLANNING



Cities Alliance
Cities Without Slums

ICLEI
Local Governments for Sustainability

UNEP

Climate change and economic loss in Mumbai

Carlin Carr, Mumbai Community Manager

Coastal cities across the world face risk of extreme weather due to global warming. Climate change is no longer a future episode; the harsh realities are already taking form. **In the developing world, flooding, heat waves and severe storms are wreaking havoc on ill-prepared urban centers.** A recent **article** in the *Guardian* says that in addition to contributing to 400,000 deaths a year (an additional 4.5 million die due to air pollution), climate change is causing severe damage to the global economy. Discussing these figures from a new, large-scale study entitled **"Climate Vulnerability Monitor: A Guide to the Cold Calculus of a Hot Planet,"** the article says that **the economic impact of global warming is an alarming $1.2 trillion, "wiping 1.6 percent annually from the global GDP."**

The widespread and devastating impacts from climate change are hitting developing nations most severely. The report finds that by 2030, the cost of climate change and air pollution together will be 3.2 percent of global GDP, but that **the least developed countries are "forecast to bear the brunt, suffering losses of up to 11 percent of their GDP."**

Working Group on Environmental Sustainability of Indian Cities for the formulation of the 12th Five Year Plan

Draft Paper

Introduction: While Indian cities have grown manifold in the past several decades, and there is expectation that the pace of urbanization would accelerate in the future, problems of water supply, sewage disposal, municipal wastes, power supply, open landscaped spaces, air pollution, and public transport, have assumed stark proportions in many urban areas. These are linked, in turn to several causal factors, some obvious or proximate, such as inadequate and improper land-use planning, and others which lie at a deeper level. The latter include primarily issues of governance – the absence of necessary empowerment and democratic accountability of municipal bodies, their inadequate capacities for undertaking policy formulation, planning, regulation, enforcement, essential policy reform, and implementation of programmes and infrastructure projects, besides insufficient financial and human resources, themselves linked on the one hand, to poor governance, compounded by political deadlocks. While a comprehensive approach to these issues is outside the scope of the present paper, we present our proposals on the following key themes on environmental sustainability of Indian cities:

Themes:

Land use, urban and regional planning
Water supply and sanitation
Solid waste management
Energy efficiency
Air quality management

THEMES	STATUS	DOCUMENTS REFERRED
Master Planning/ Development Planning Practice	• Currently Master Plans are available for only 1500 towns out of 5161 urban centers many of which are not reviewed and are outdated. • Master Plan is a Land Use Plan for urban areas and is legally enforceable. It is long term (10-20 years) and rigid in that changes are difficult to accomplish during its legal validity. Though there is provision for periodic review but the same is not complied by most of the cities. • Poor implementation of Master Plans has been the key issue which is largely due to lack of political will. • City Development Plan (CDP) has been key as far as Project and Infrastructure Investment planning for the JNNURM cities is concerned • Little harmonization between Master Plan (Land Use), Regional Plan and CDP. • Regional Planning in India only advisory except in case of NCR and Goa Regional Plan • No Regional Land Use plan exists for most of the city regions, and therefore developments outside Master Plan areas are not planned or controlled. • Special Area Planning in India like SIR's, SEZ's, and Industrial Townships, has not been able to gain traction due to poor planning and implementation. • Town Planning Schemes have been successful in cases of planned urban expansion and infrastructure delivery, but are limited to Gujarat and Maharashtra. • Comprehensive Development Plan which is more like a regional planning practice has been initiated in some states but still not been mainstreamed. • Lack of Regional Planning Practice is resulting in rural-urban divide rather than creating a continuum of development. • Lack of convergence between different levels/sector Plans has been a significant barrier to successful implementation of plans/schemes.	HPEC Report Managing Asian Cities Report Livable Cities Report

Diagram: 2- Auroville urban design

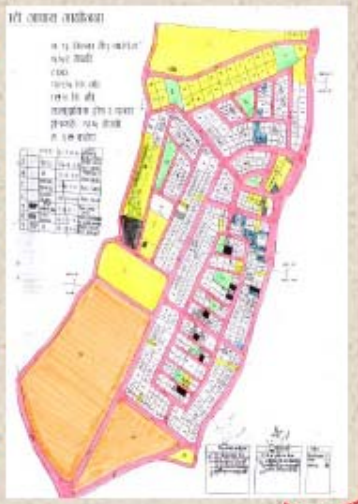
Diagram: 3- T P Scheme

Diagram: 4- BRTS, Ahmedabad

LEARNING FROM BEST PRACTICES

Equitable and inclusive Town Planning Schemes at Gujarat

Formed under the Bombay Town Planning Act, 1915 TP Schemes in Gujarat facilitate equitable and inclusive development. A portion of land is appropriated for accommodating urban poor. Plots providing adequate social infrastructure such as schools, hospitals, dispensaries, clinics, open spaces, housing for the poor, etc., are reserved up to 20% of total development



Auroville Master Plan

The Master plan designed for a time period of 25 years adopted a concept of bio-region. One fourth Land is allocated for urban and residential land use and the rest consists of a 15 sq km productive green area. The plan promotes bio-diversity, environmental restoration, land regeneration, and water management.

HUDA Land Development Model

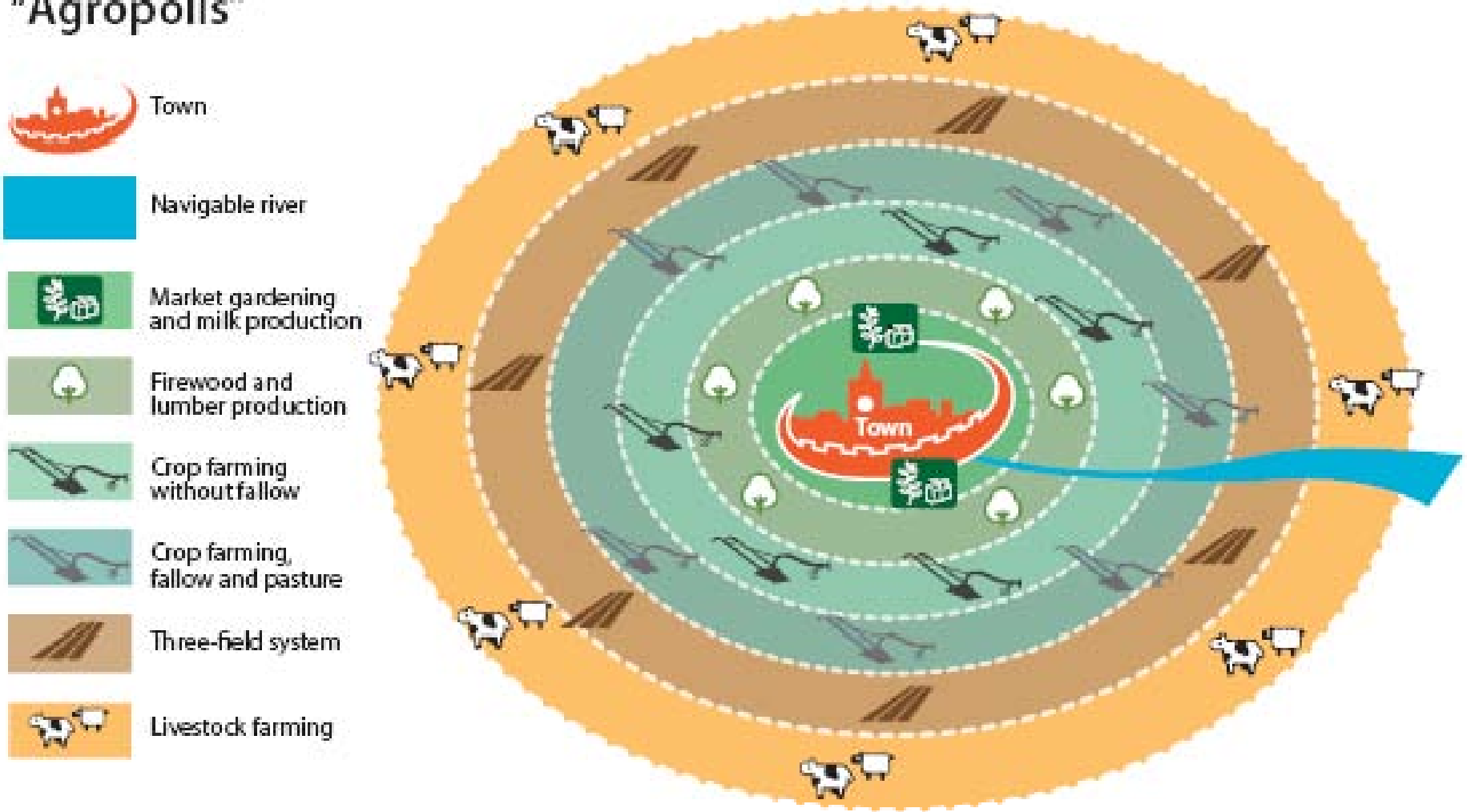
Formed under the HUDA Act, 1977, it has acquired 6500 acres of land and developed around 4000 acres. It has also facilitated private developers to purchase around 6000 acres and develop)

Green Infrastructure Design

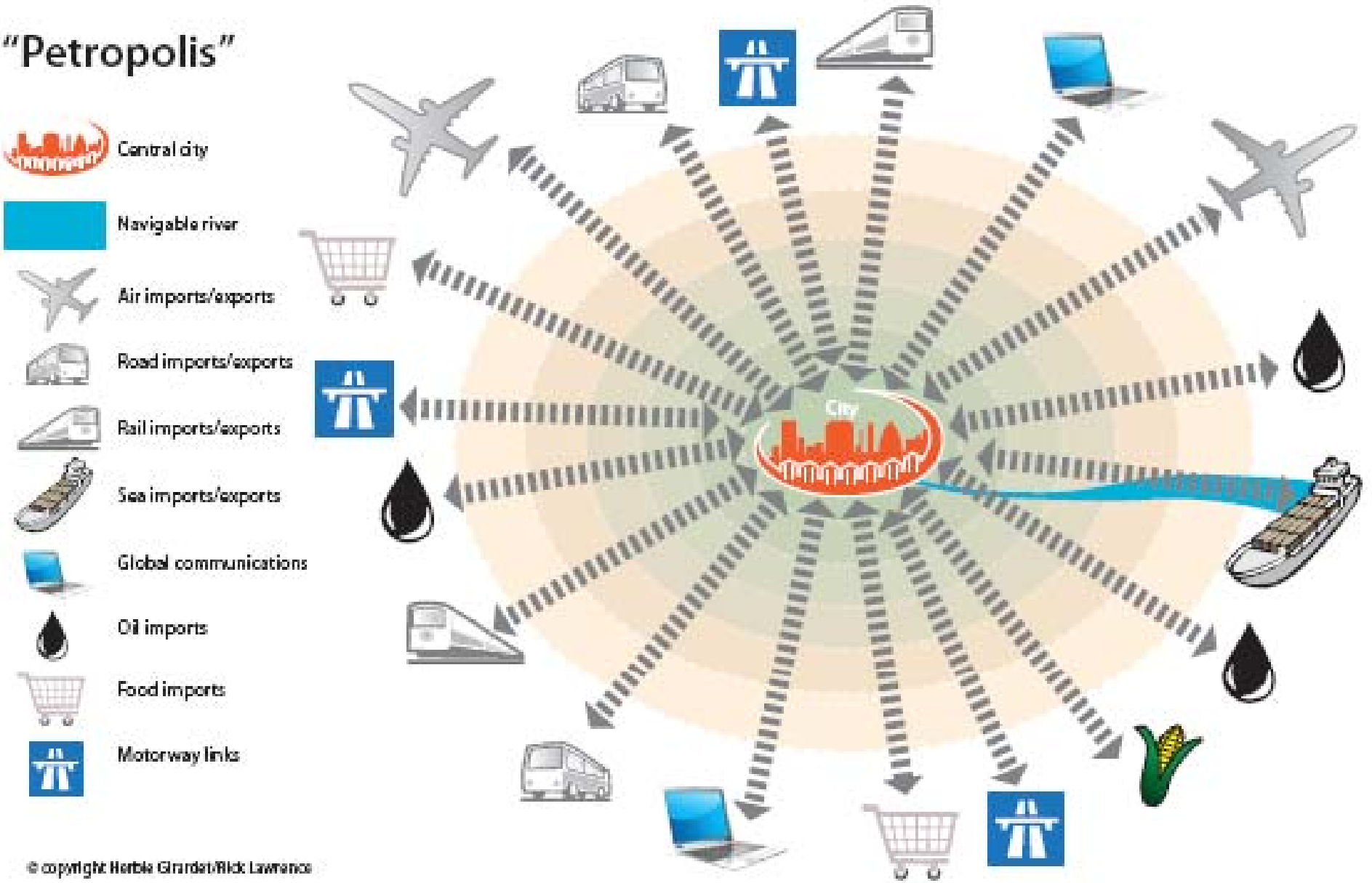
A network of multi-functional open spaces, including formal parks, gardens, woodlands, green corridors, waterways, street trees and open countryside focuses on clean urban environment and better quality of life

Cities as ecological and economic systems

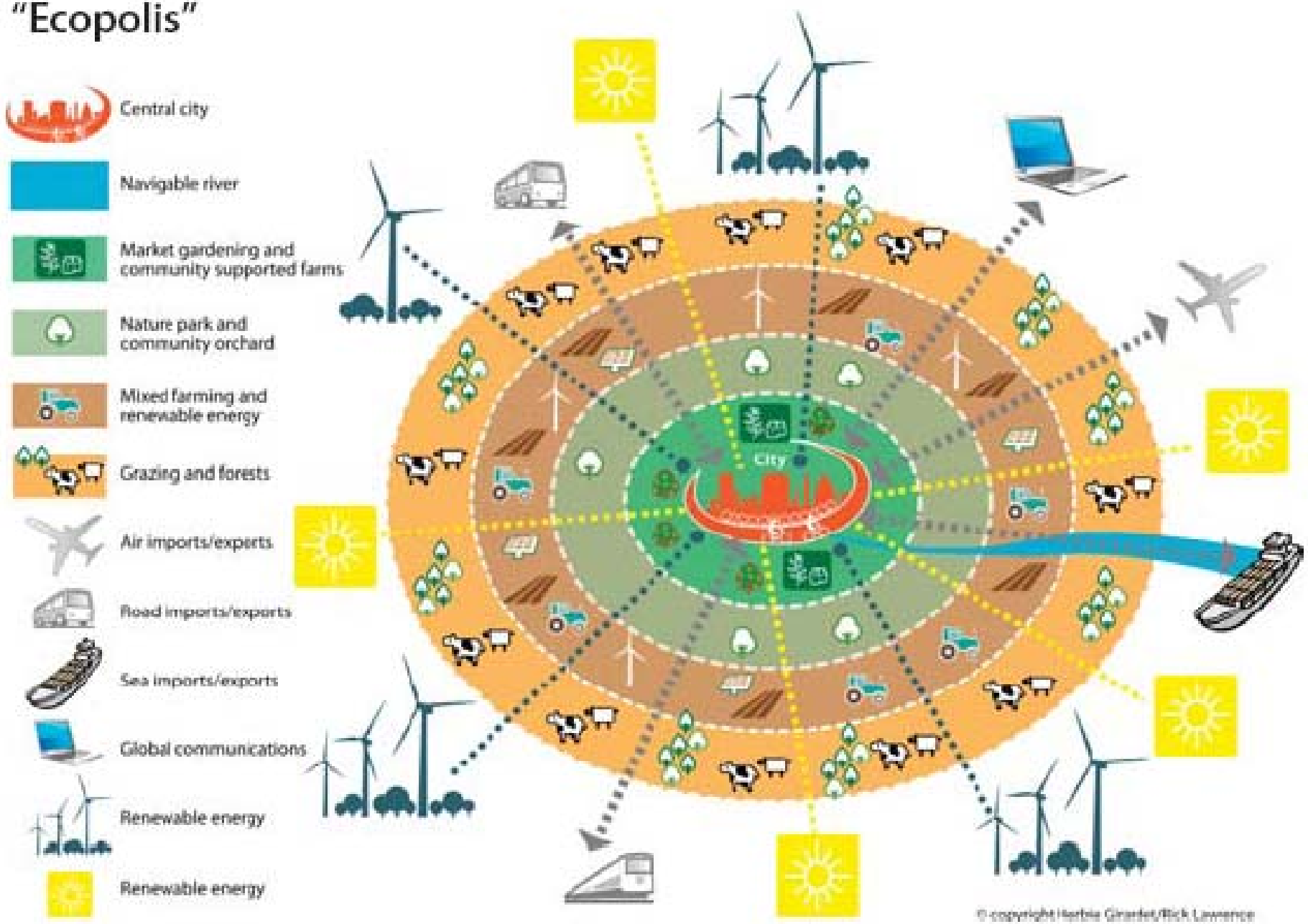
"Agropolis"

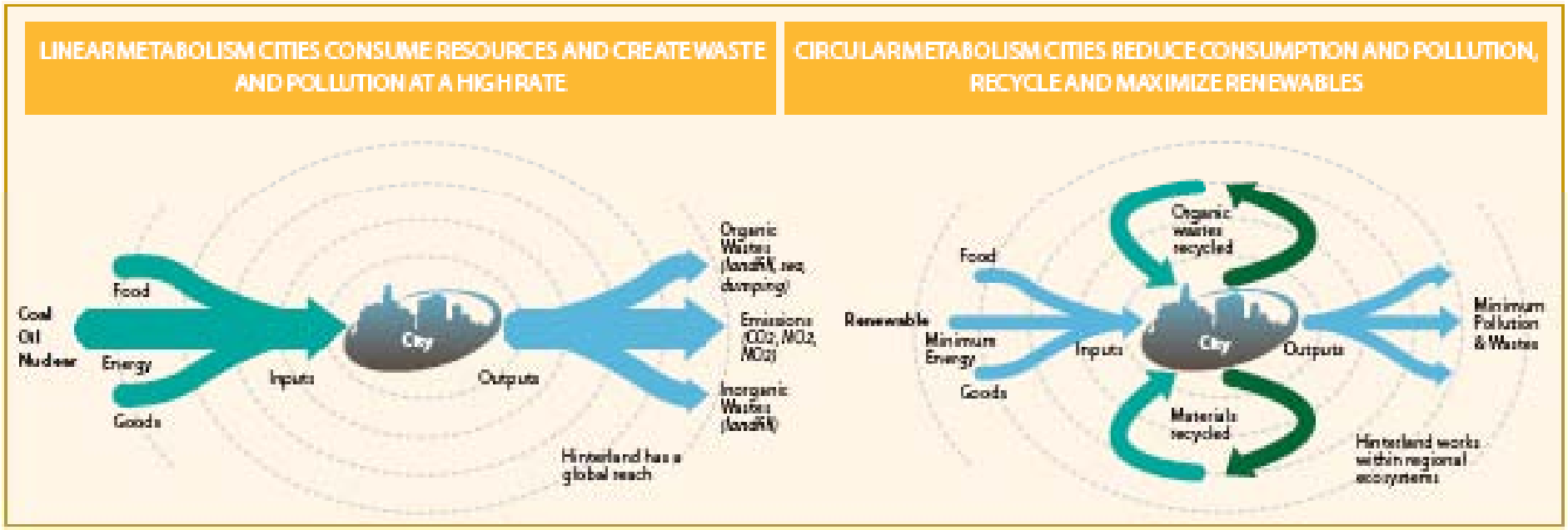


"Petropolis"

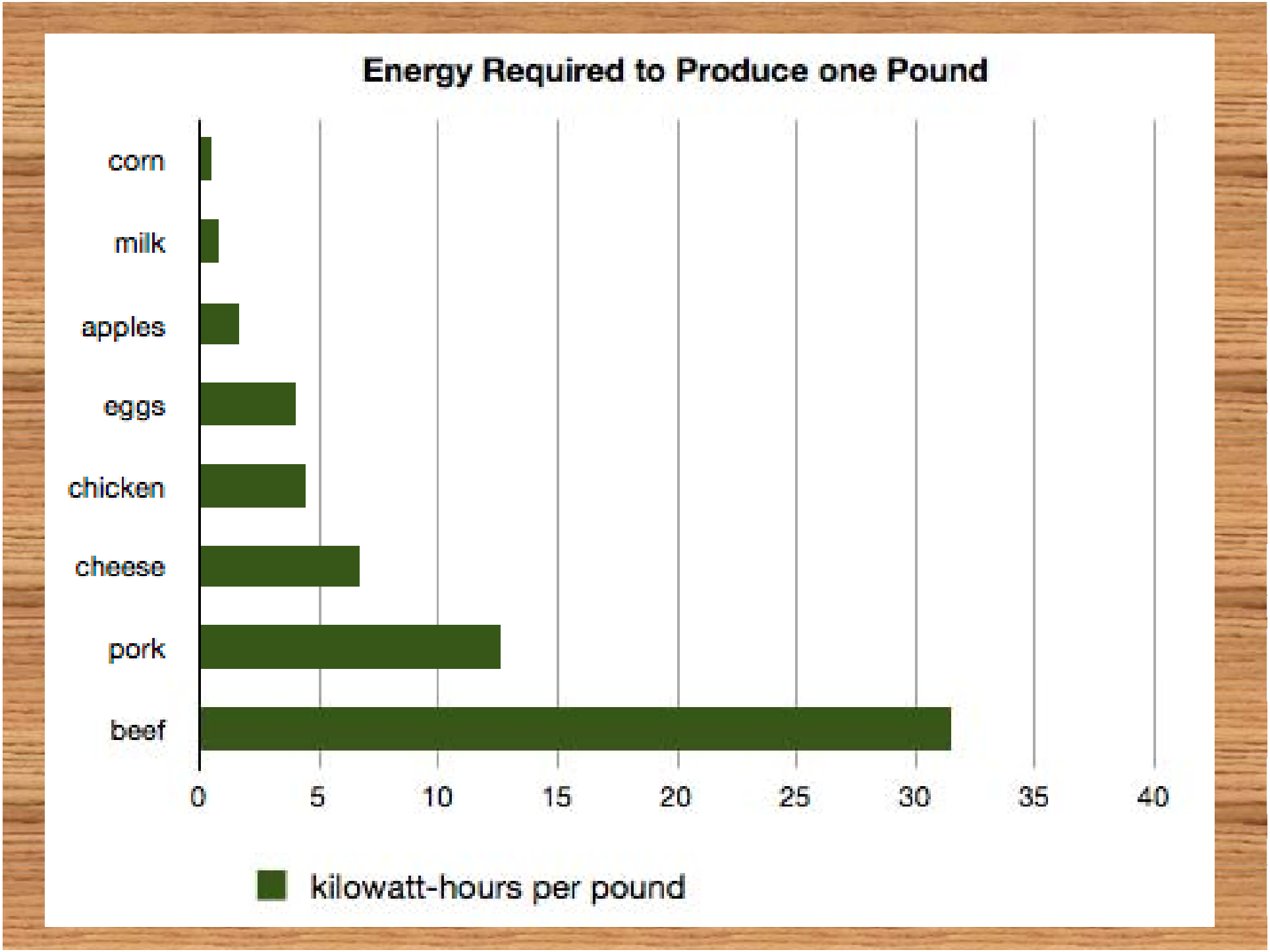


"Ecopolis"


Central city
Navigable river
Market gardening and community supported farms
Nature park and community orchard
Mixed farming and renewable energy
Grazing and forests
Air imports/experts
Road imports/exports
Sea imports/exports
Global communications
Renewable energy
Renewable energy
City
© copyright Herbie Girardet/Rick Lawrence



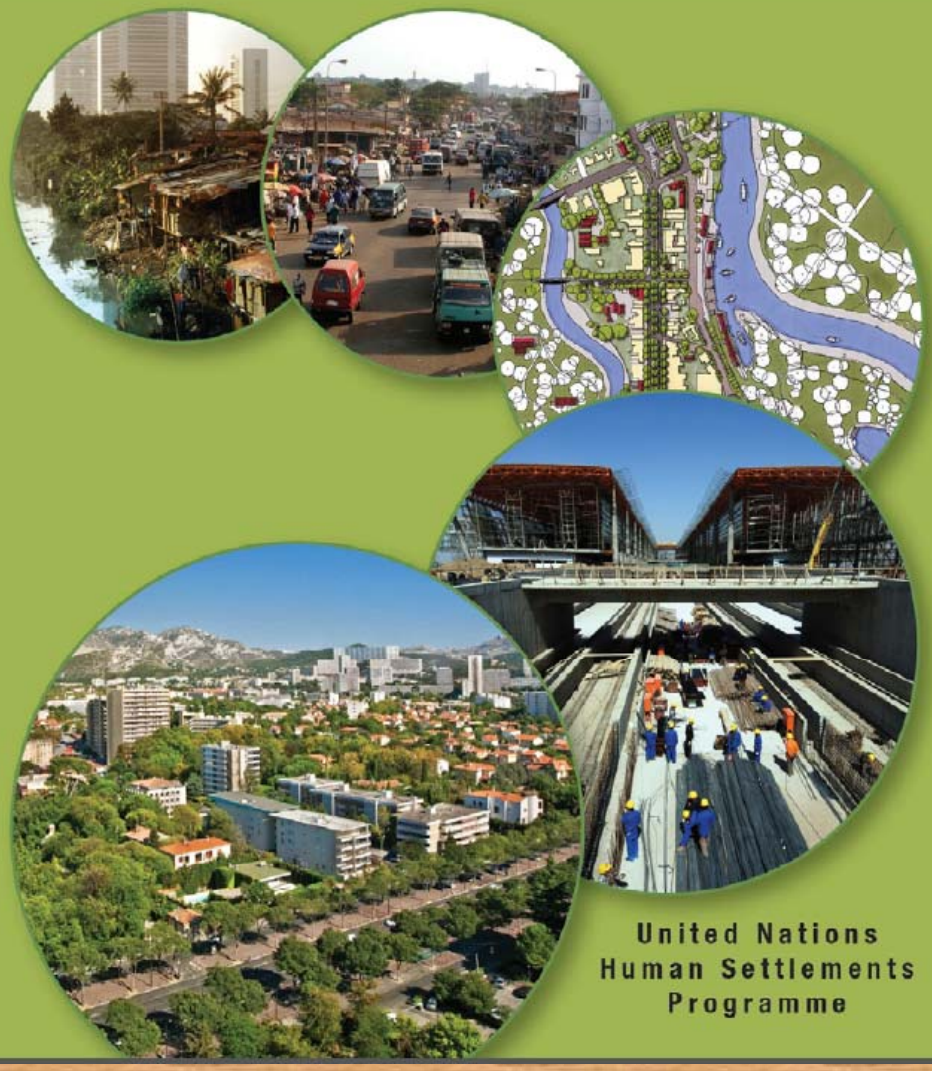
A key component of the sustainable city is a 'circular metabolism' which assures the most efficient possible use of resources


Energy Required to Produce one Pound
corn
milk
apples
eggs
chicken
cheese
pork
beef
0
5
10
15
20
25
30
35
40
kilowatt-hours per pound

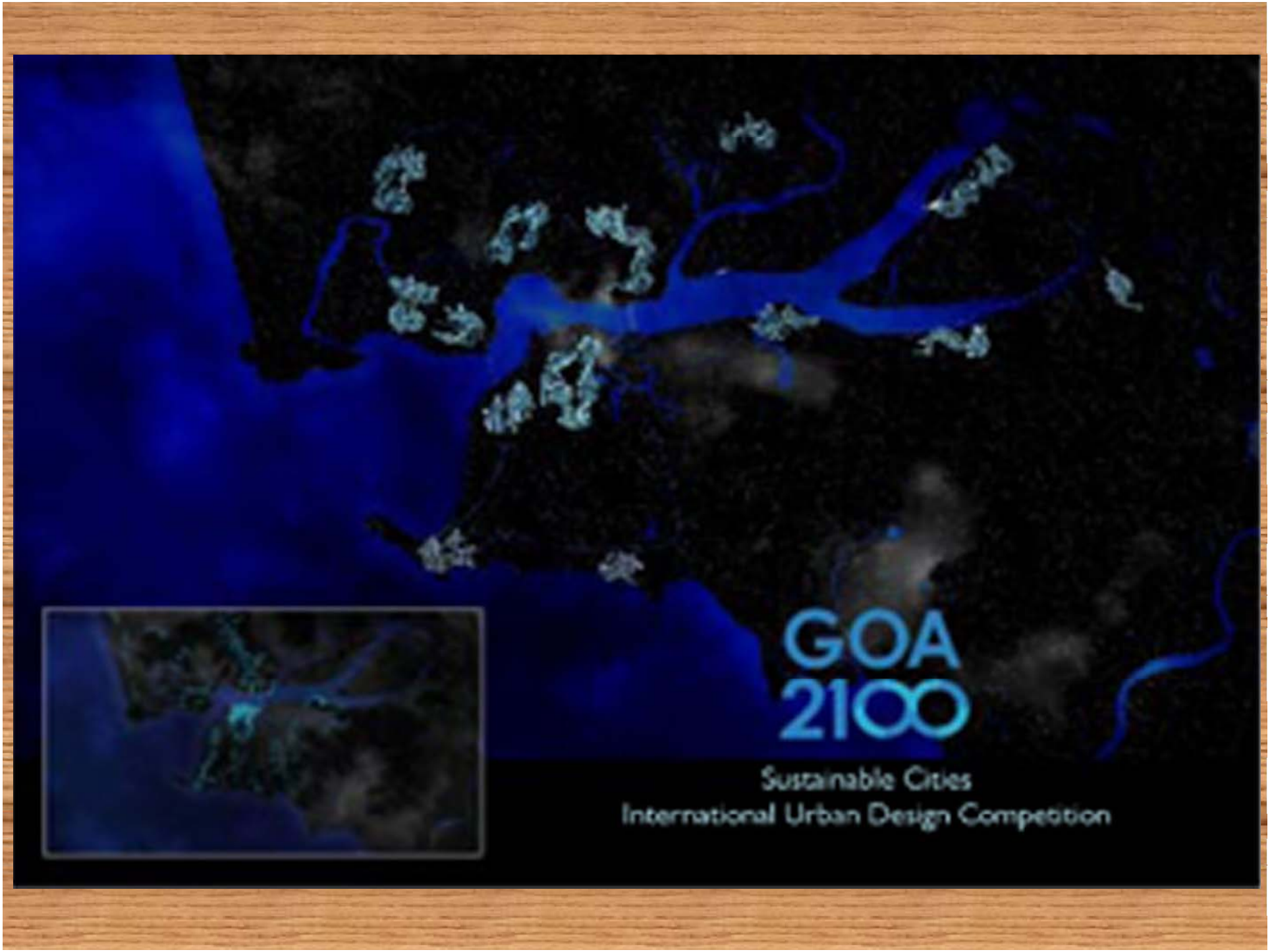
UN-HABITAT

GLOBAL REPORT ON HUMAN SETTLEMENTS 2009

PLANNING Sustainable Cities



United Nations
Human Settlements
Programme

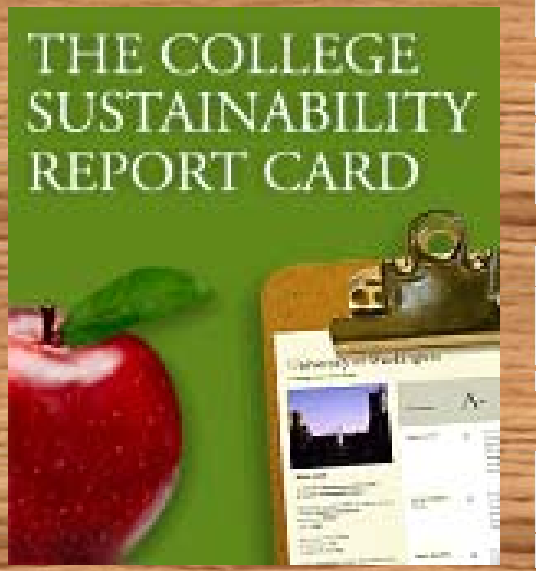

GOA
2100
Sustainable Cities
International Urban Design Competition

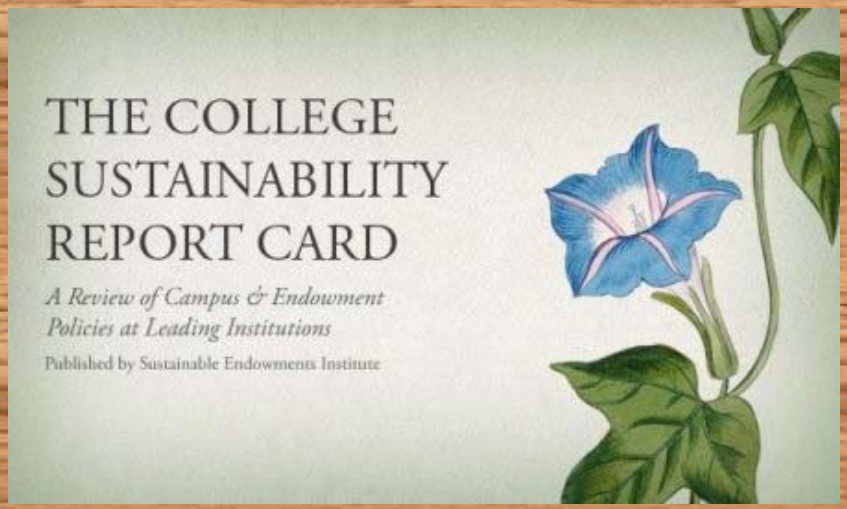
Tamil Nadu Annual Meeting & Conference

EDUCATION FOR SUSTAINABLE DEVELOPMENT

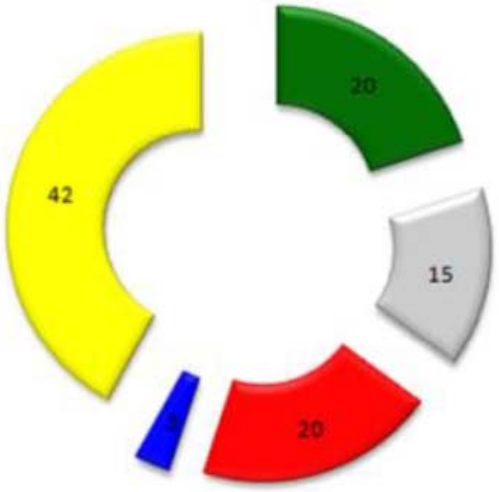
"Future of Education in India"

13 March 2011: Hotel Taj Coromandel, Chennai





		ACADEMICS	ADMINISTRATION	EFFICIENCY	ENERGY	FOOD	PURCHASING	TRANSPORTATION	WASTE MGT.	BONUS	SCORE*
1	UNIVERSITY OF COLORADO AT BOULDER	8	9	9	3	7	8	**10**	**10**	5	**100**
2	UNIVERSITY OF WASHINGTON AT SEATTLE	8	**10**	8	9	7	8	8	8	2	**98**
3	MIDDLEBURY COLLEGE	8	**10**	9	6	7	8	8	7	5	**98**
4	UNIVERSITY OF VERMONT	8	8	9	7	7	8	9	7	4	**97**
5	COLLEGE OF THE ATLANTIC	8	8	8	**10**	7	9	5	9	3	**97**
6	EVERGREEN STATE COLLEGE	6	**10**	9	7	7	9	7	7.5	4	**96.5**
7	UNIVERSITY OF CALIFORNIA AT SANTA CRUZ	8	8	7	5	8	9	**10**	6	5	**96**
8	UNIVERSITY OF CALIFORNIA AT BERKELEY	8	7	9	4	9	7	9	8	5	**96**
9	UNIVERSITY OF CALIFORNIA AT LOS ANGELES	8	9	8	3	5	9	9	**10**	5	**96**
10	OBERLIN COLLEGE	6	9	9	6	7	9	6	**10**	3	**95**

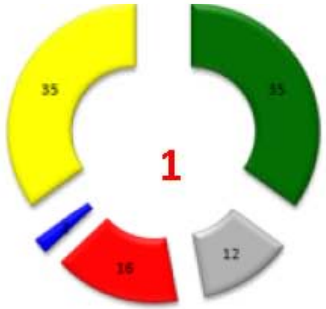


%	area	Landuse
20	4.53	Open/Recreation
15	3.40	Transportation
20	4.53	PuBlic/ Semi-public
3	0.68	Commercial
42	9.52	Residential

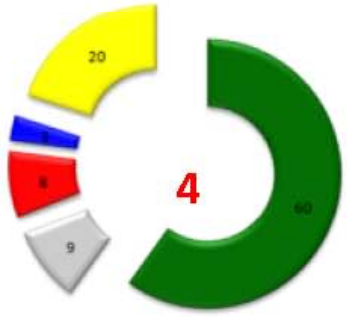
UDPFI Landuse Distribution

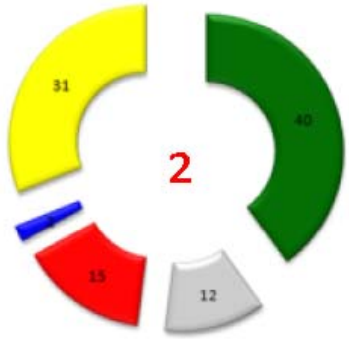
LEGEND

- Open/Recreation
- Transportation
- PuBlic/ Semi-public
- Commercial
- Residential

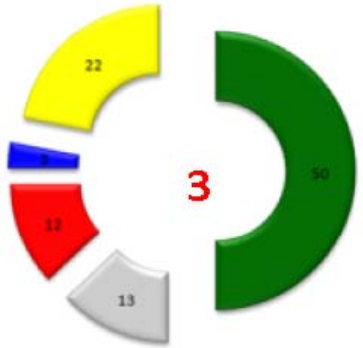


%	area	Landuse	%	area
35	7.93	Open/Recreation	60	13.60
12	2.72	Transportation	9	2.04
16	3.63	PuBlic/ Semi-public	8	1.81
2	0.45	Commercial	3	0.68
35	7.93	Residential	20	4.53





%	area	Landuse	%	area
40	9.06	Open/Recreation	50	11.33
12	2.72	Transportation	13	2.95
15	3.40	PuBlic/ Semi-public	12	2.72
2	0.45	Commercial	3	0.68
31	7.02	Residential	22	4.99



Landuse	%	area
Open/Recreation	70	15.86
Transportation	6	1.36
PuBlic/ Semi-public	5	1.13
Commercial	1	0.23
Residential	18	4.08

Landuse Distribution,

FORM

INVENTORISATION OF OPEN SPACES & WATER BODIES IN GREATER MUMBAI FOR MMR-EIS

FINAL REPORT
Executive Summary

August 2012

CONSULTANTS
Adarkar Associates




1. **3.46 The work of Box and Harrison (1993),** developed following publication of an earlier iteration of the NPFA standard in 1992, suggested that there should be provision for Local Nature Reserves in every urban area at a minimum level of 1 hectare per 1000 people. **10 sq.m./person**

2. **Recommended Quantitative Standards:** The provision of open space to serve new residential developments should be on a hierarchical basis varying in size from large regional parks to small children's play area and passive recreation spaces close to peoples' homes. Most planning authorities include quantitative standards for public open space in their Development Plans. These are represented either as a requirement per person or as a percentage of site area. Most common amongst the requirements are 15/20 m2 per person or 10-14% of site area. ... **Guidelines for Planning Authorities on Residential Density** ISBN 0-7076-6259-1 © Government of Ireland 1999 http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/FileDownLoad,1611,en.pdf

Important Links for reference

http://www.eukn.org/eukn/themes/Urban_Policy/Housing/Housing_quality/Housing_design_and_standards/index.html

http://www.scotland.gov.uk/Publications/2005/07/18104215/42463

http://www.prm.nau.edu/PRM423/recreation_standards.htm

http://www.southampton.gov.uk/building-planning/planning/ldf/localplanreview/planreview-textinweb/chapter5/open-space/default/default.asp

http://www.disabilityindia.org/Guidelines%20&%20space%20standards%20for%20barrier.htm

http://www.pland.gov.hk/tech_doc/hkpsg/E_sum/recreation/recreation.htm

http://www.haringey.gov.uk/open_space_and_recreation_standards_spd.pdf.

http://www.sewrpc.org/parkplanning/pdfs/sewrpc_recreation_open_space_objectives.pdf.

http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/FileDownLoad,1611,en.pdf.

4 ha/1000 Population

Local Natural Reserve, Community Gardens, Passive Recreational Spaces, Children Play area, Small Gardens

http://72.14.235.132/search?q=cache:d-FBLSvjPpUJ:www.tams.act.gov.au/__data/assets/pdf_file/0020/12566/ds14_urban_open_space.pdf+open+space+standards&cd=28&hl=en&ct=clnk&gl=in&client=firefox-a

http://72.14.235.132/search?q=cache:N7DPoMW61joJ:www.archdalenc.govoffice2.com/vertical/Sites/%257B8DE36453-197F-49B4-AC1C-A4A263D24685%257D/uploads/%257BC81AEBE2-0FAF-4AC5-93F3-512EBEDEB405%257D.PDF+open+space+standards&cd=29&hl=en&ct=clnk&gl=in&client=firefox-a

http://72.14.235.132/search?q=cache:hOaJS-IscAYJ:www.derby.gov.uk/NR/rdonlyres/A020185E-373C-40D8-B3F2-900C88344D8F/0/LUP_PublicOpenSpaceSPG.pdf+open+space+standards&cd=27&hl=en&ct=clnk&gl=in&client=firefox-a

INDIAN GREEN BUILDING COUNCIL

Green-I

Contest for School Students

CII

7th Edition

Green Building Congress 2009

India's Flagship event on Green Buildings

International Conference & Exhibition on Green Buildings

9-12 Sep 2009:HICC, Hyderabad

8th Edition

Green Building Congress 2010

India's Flagship event on Green Buildings

International Conference & Exhibition on Green Buildings

6-9 October 2010,
Chennai Trade Centre, Chennai, India

Asia's largest green building conference & exhibition

India Celebrates

World Green Building Week

20 - 26 September 2010 is declared as World Green Building Week!

GRIHA

Green Rating for Integrated Habitat Assessment

Bridging the gap between demand and supply of non-renewable and scarce resources through cost-effective interventions

Form	The purpose of participation	What 'participation' means to the implementing agency	What 'participation' means for those involved	Potential approaches
Nominal	Display, manipulation	Legitimization to show that it is doing something; pre-empt opposition	Inclusion, in the hope of gaining access to potential collective or individual benefits	Token representation on decision-making bodies
Consultative	Assembling useful information	Better informed decision-making with no loss of control	Policies and plans that are more appropriate, but with no guarantee that the outcomes of consultations are taken into account	Information collection through systematic data collection, consultative processes, responses to proposals
Instrumental	A means of increasing effectiveness and stretching external resources further	Efficiency to draw on beneficiaries' resources, increase cost effectiveness, and improve the prospects for successful operation and maintenance	Access to facilities and services that are normally provided only to those that can afford to pay	Contributions to costs (money, labour, etc.)
Representative	To give people a say in decision-making through the political system or specific channels	Sustainability; established systems are used for the expression of voice, improving responsiveness and ensuring accountability; provides a means of organizing and aggregating different views	Leverage, direct or indirect influence	Representative electoral political system (national and local government; decision-making and advisory bodies at city or local level)
Transformative	Both a means and an end	Partnership with non-governmental actors; collaborative decision-making and implementation	Joint analysis and development of plans; empowerment to enable people to define objectives, make their own decisions, control resources and take action	Governance arrangements that involve partnerships or 'contracts' between government and citizen groups; devolution of powers, responsibilities and resources

Source: based on Pretty, 1995; White, 1996, pp7–9; Cornwall, 2008, p273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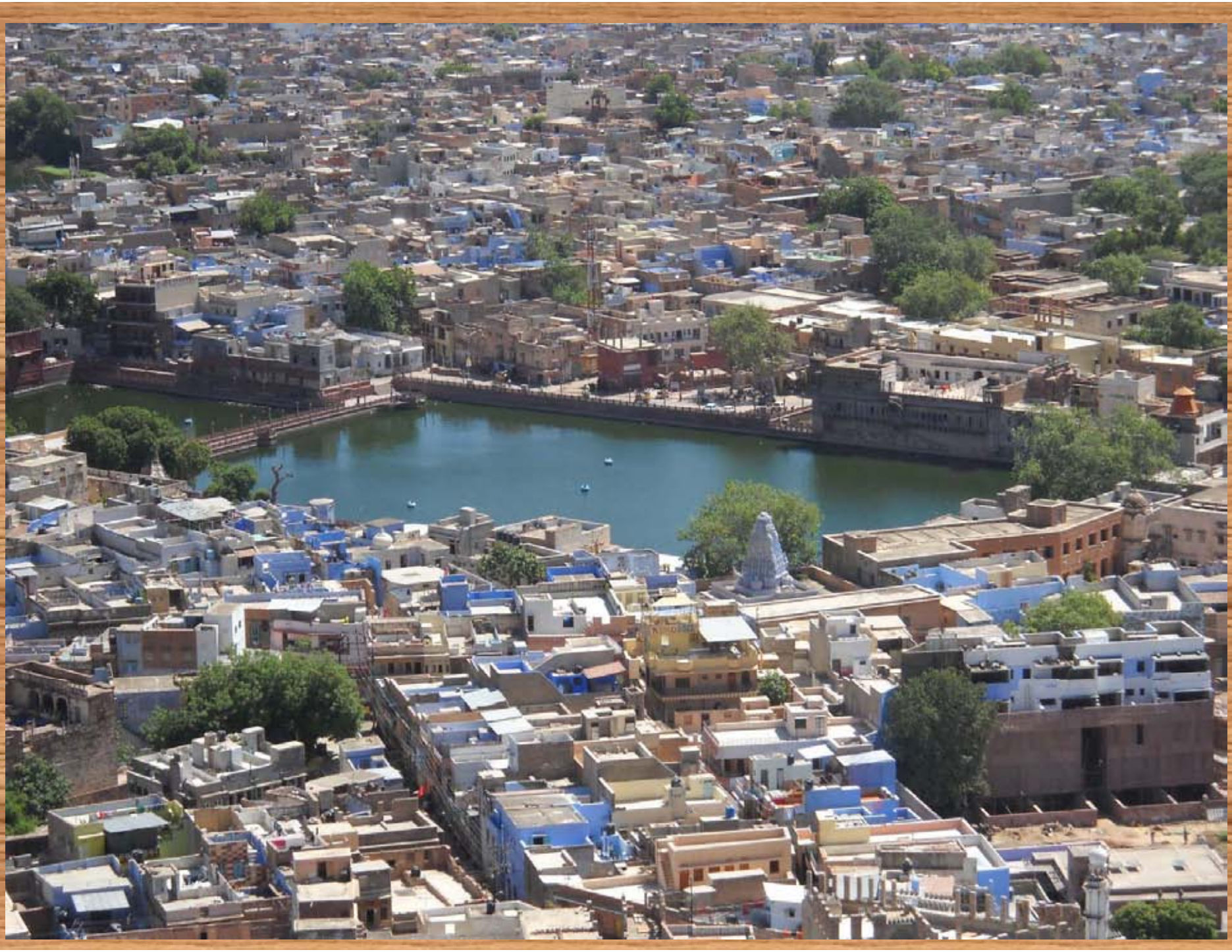
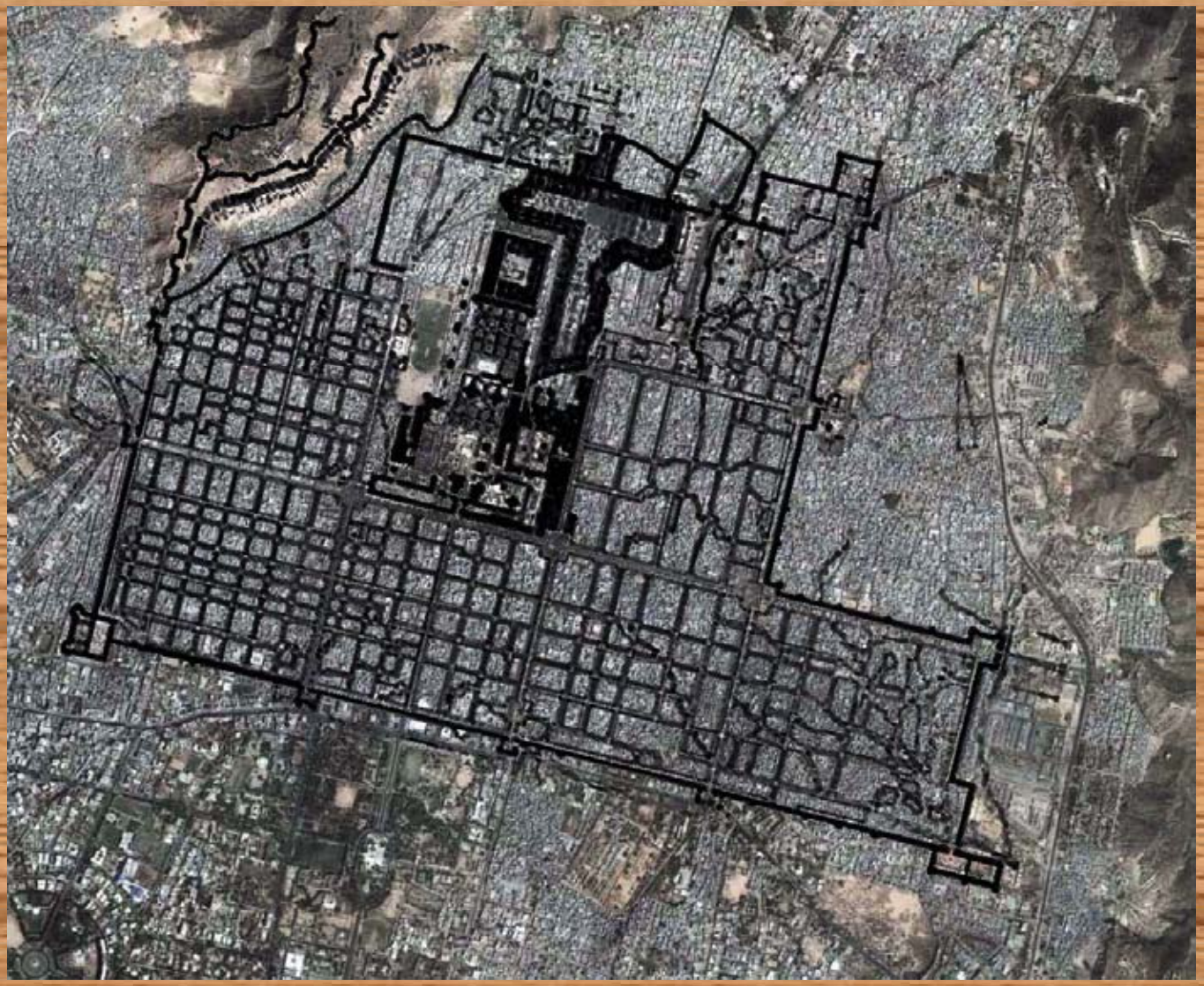
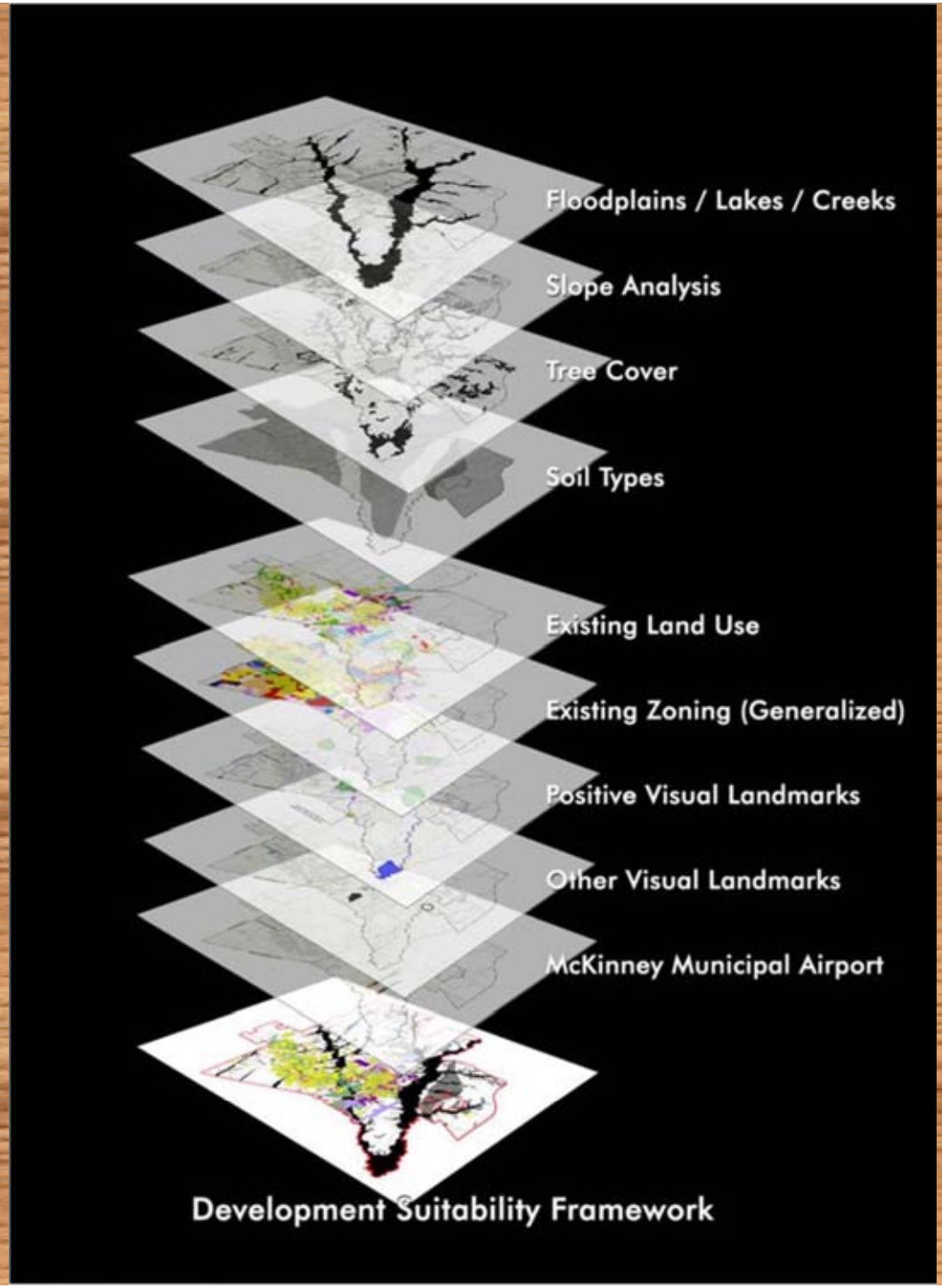
www.kepguru.hu



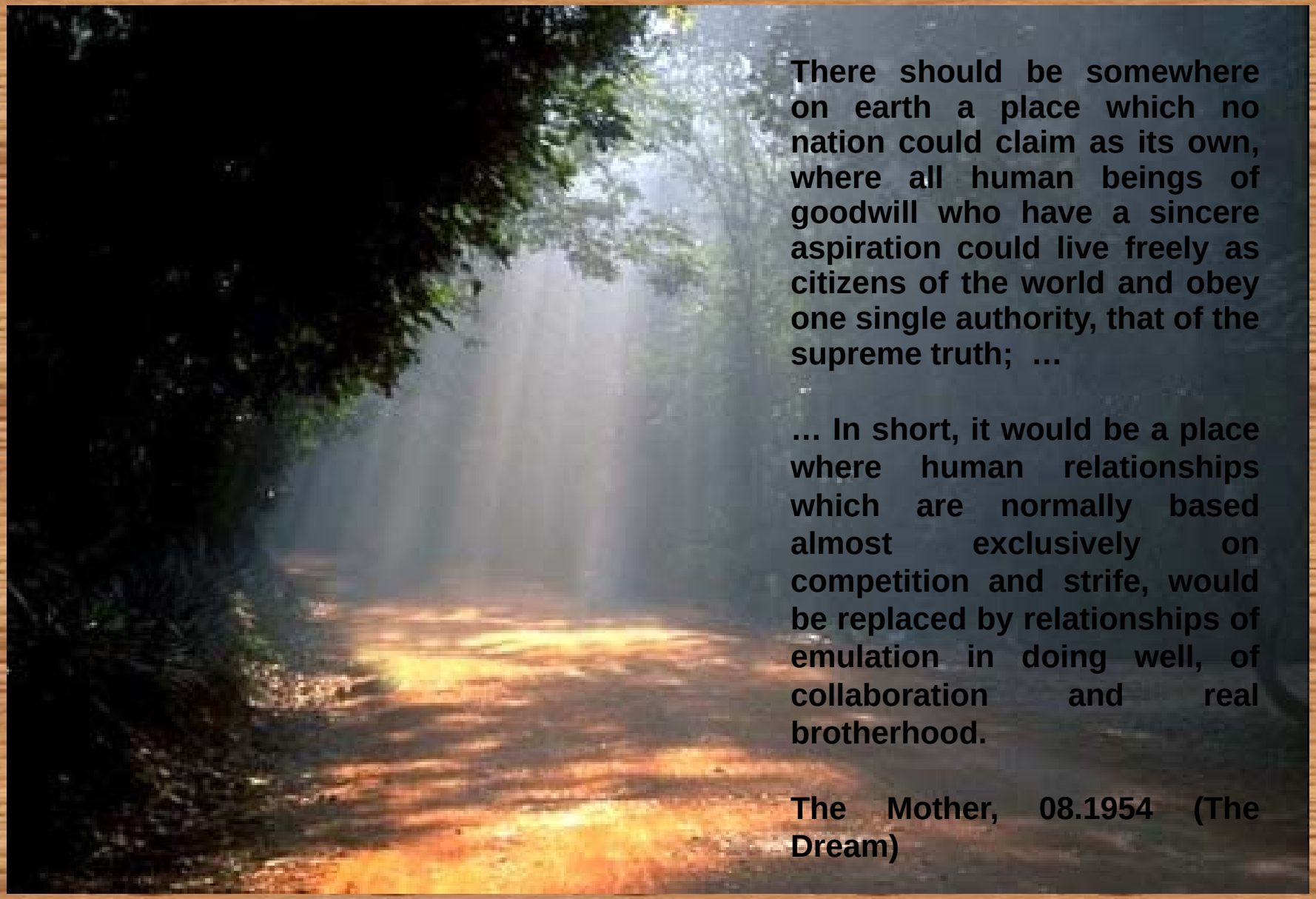


Photograph by George Steinmetz

NATIONAL GEOGRAPHIC


Floodplains / Lakes / Creeks
Slope Analysis
Tree Cover
Soil Types
Existing Land Use
Existing Zoning (Generalized)
Positive Visual Landmarks
Other Visual Landmarks
McKinney Municipal Airport
Development Suitability Framework

Auroville - The City the Earth Needs



There should be somewhere on earth a place which no nation could claim as its own, where all human beings of goodwill who have a sincere aspiration could live freely as citizens of the world and obey one single authority, that of the supreme truth; …

… In short, it would be a place where human relationships which are normally based almost exclusively on competition and strife, would be replaced by relationships of emulation in doing well, of collaboration and real brotherhood.

The Mother, 08.1954 (The Dream)

The Dream

The Charter of Auroville

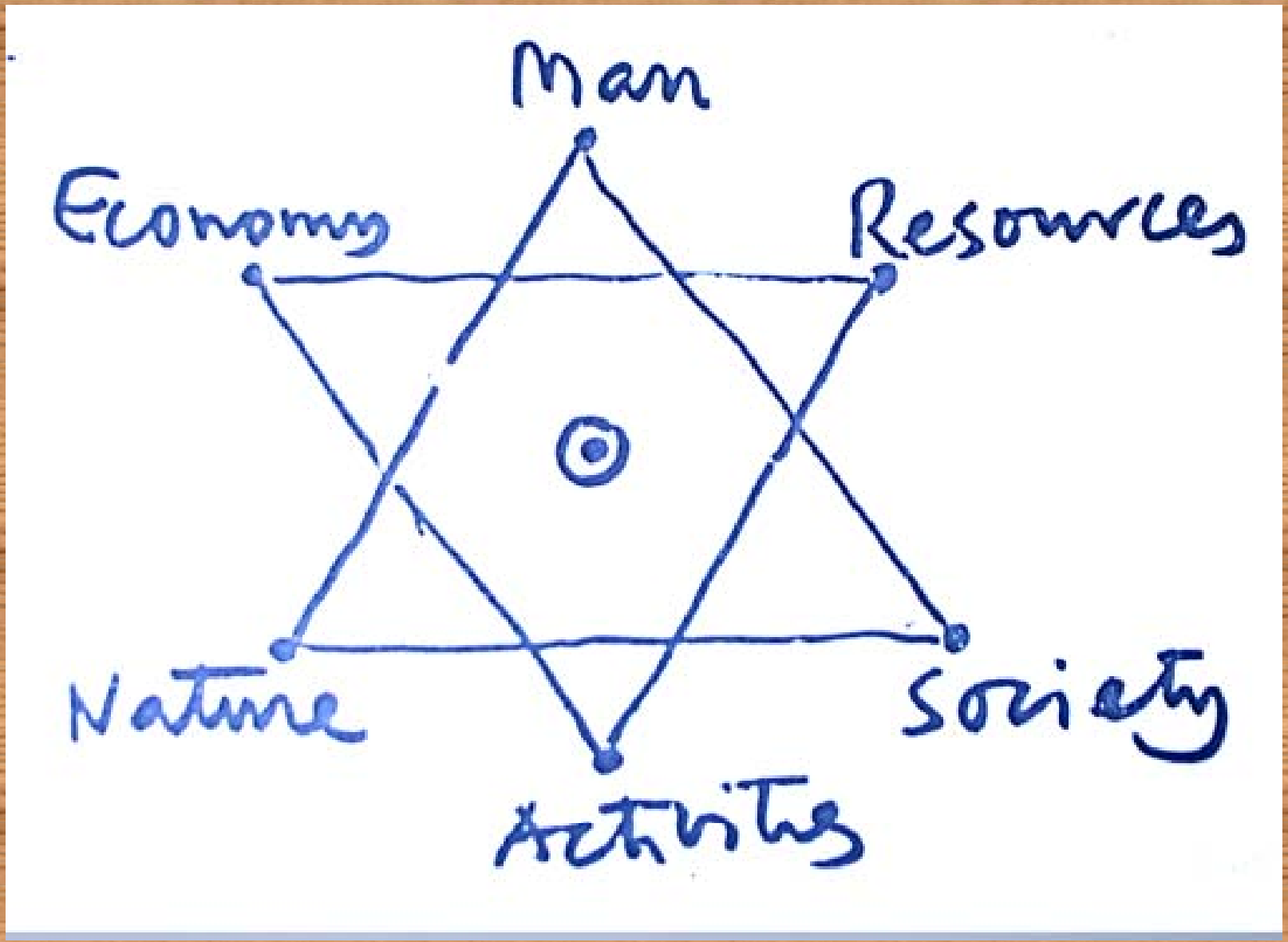
1. *Auroville belongs to nobody in particular. Auroville belongs to humanity as a whole. But to live in Auroville one must be willing servitor of the Divine consciousness.*

2. *Auroville will be the place of an unending education, of constant progress and a youth that never ages.*

3. *Auroville wants to be the bridge between the past and the future. Taking advantage of all discoveries from without and from within, Auroville will boldly spring towards future realisations.*

4. *Auroville will be a site of material and spiritual resarches for a living embodiment of an actual human unity*

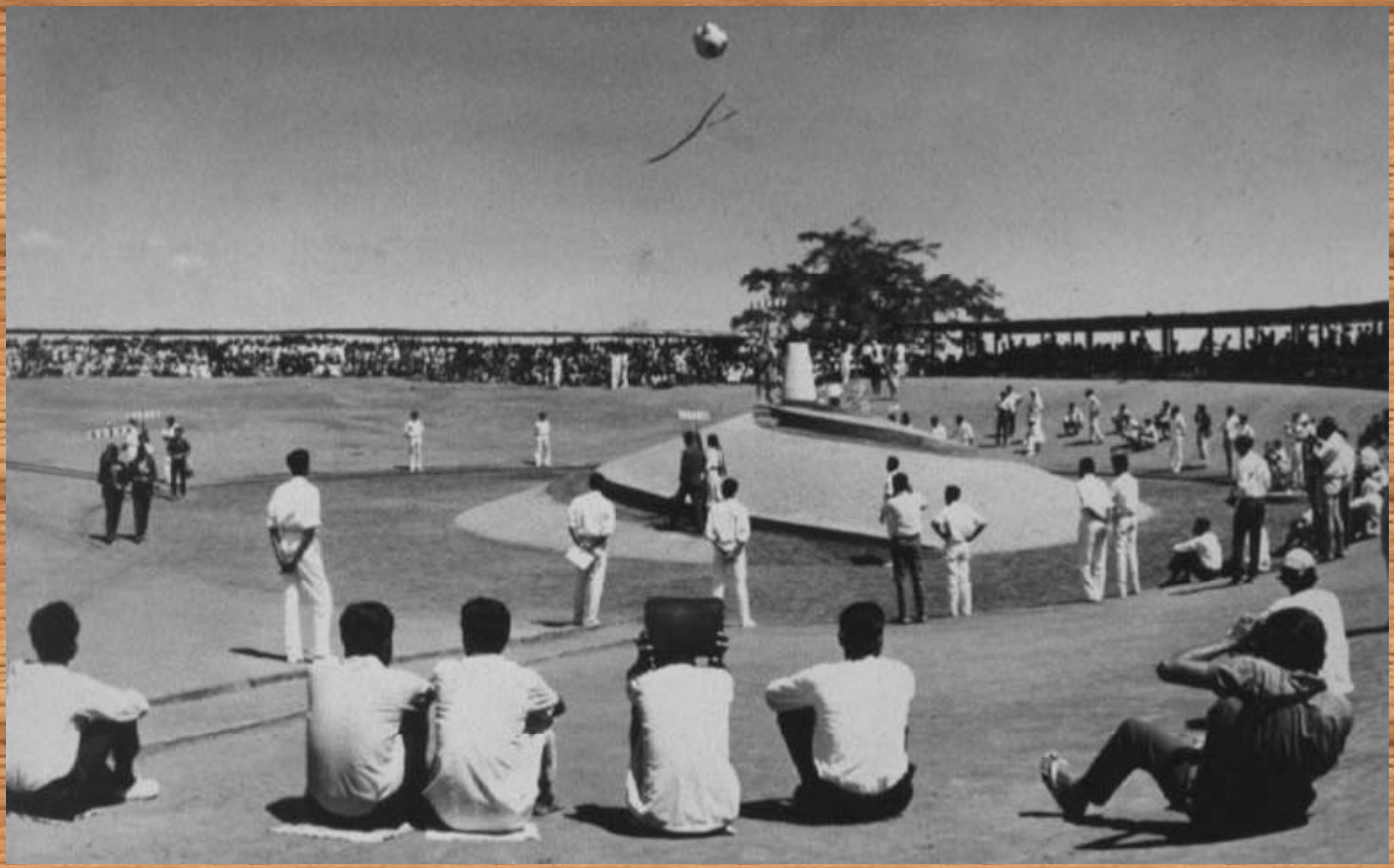
The Integrated link for Sustainable Planning



A township for 50,000 people

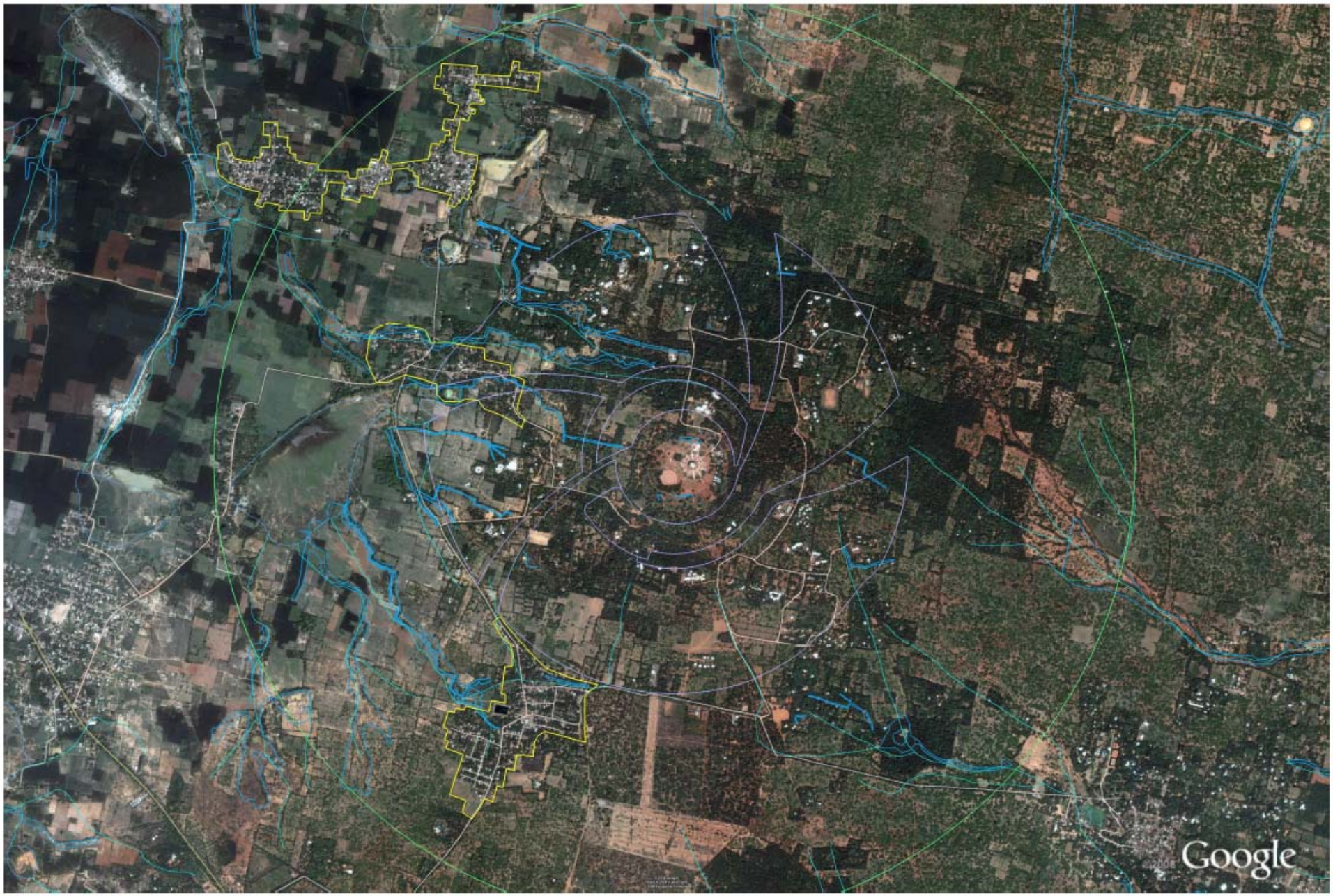
dedicated to human unity

inaugurated on 28th Feb 1968



beginnings

today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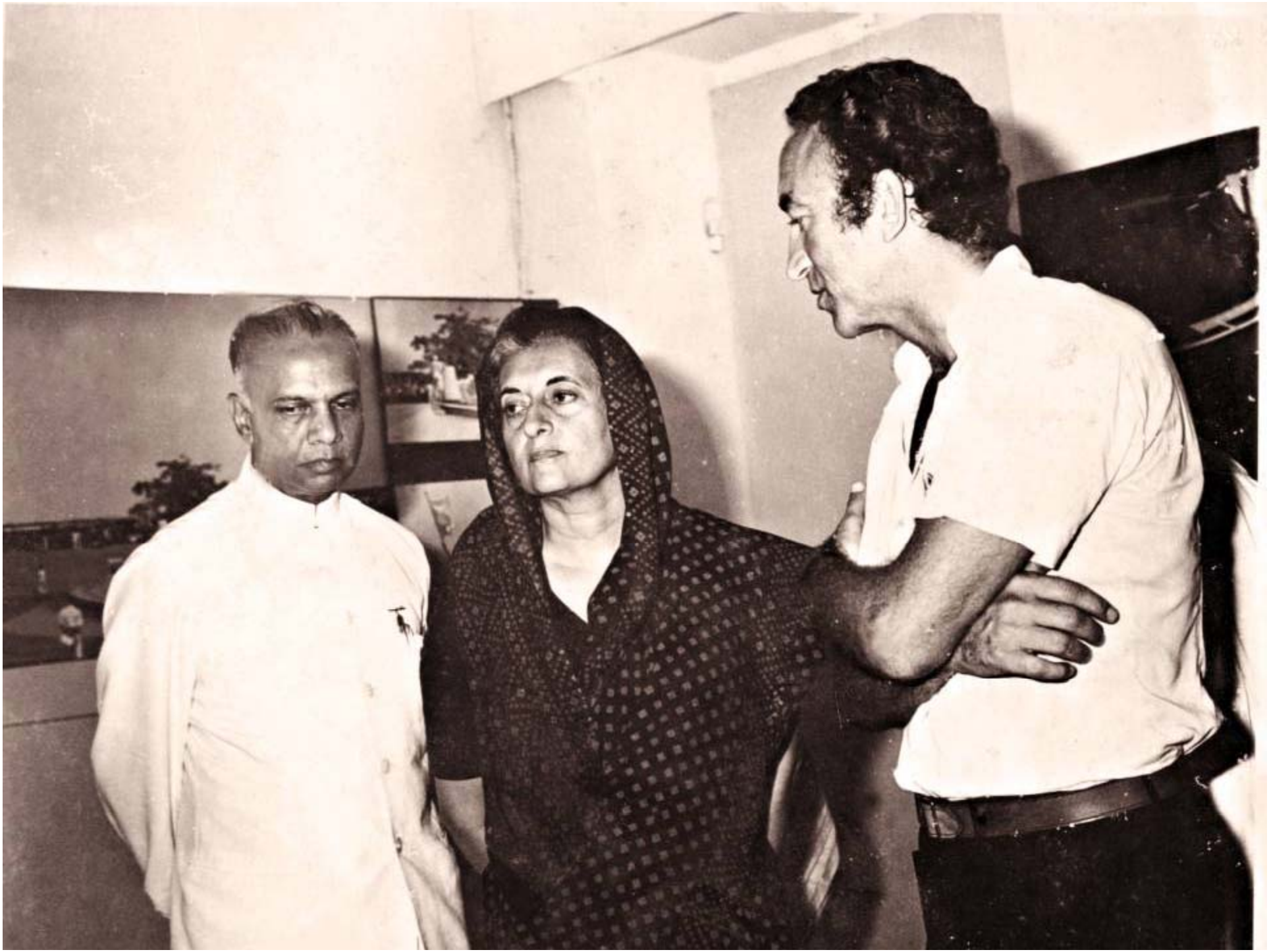
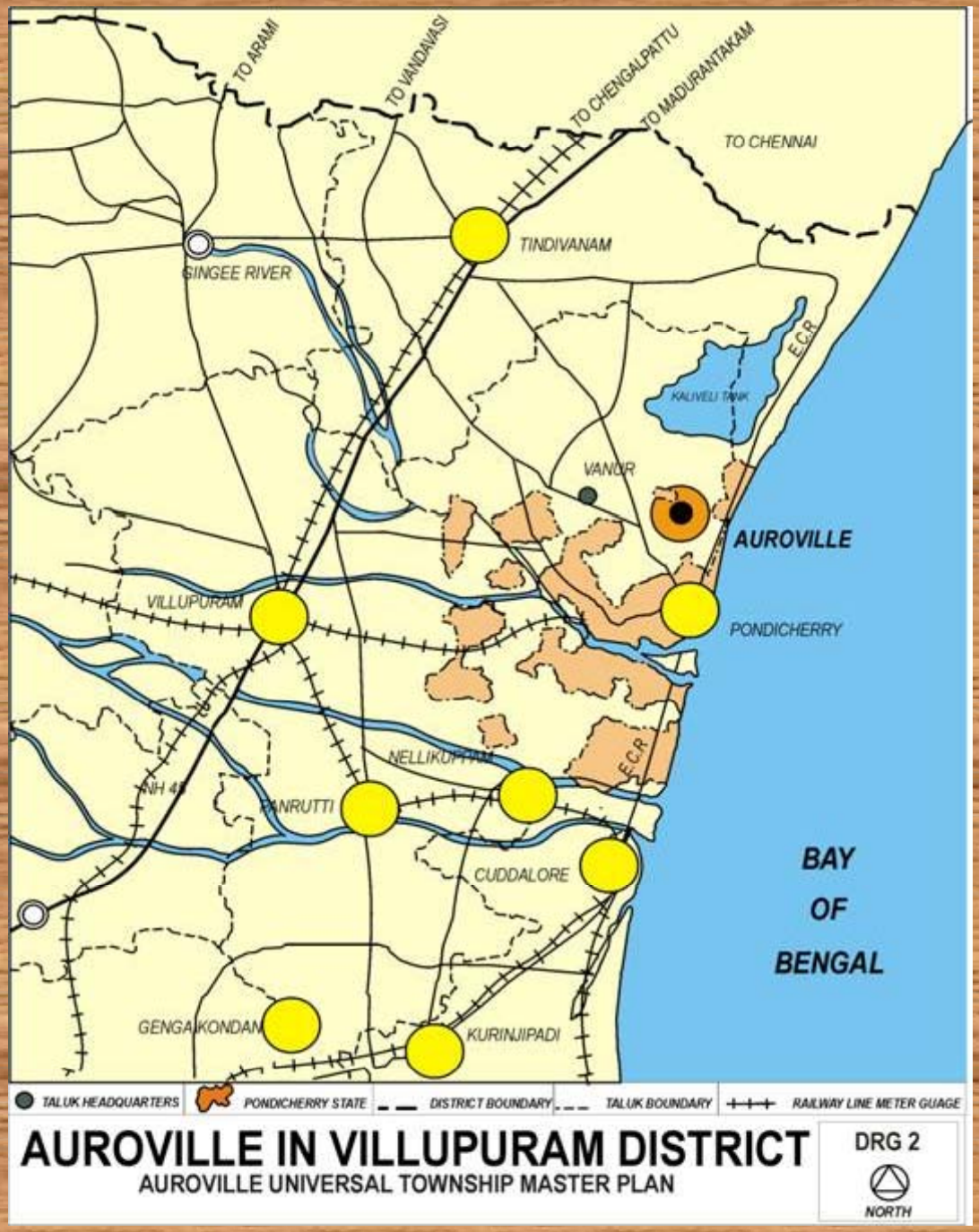




Regional Planning

Falling in 2 States

Ecologically very sensitive area

Surrounded by Pondicherry Urban Complex, Institutional area & Industrial area

Usage of Satellite Data/Images and GIS for Planning studies and inputs

City Area & Green Belt

Township Area 20 sq kms

- **Urban area - 5 sq kms**
- **GB - 15 sq kms**
- **T/S radius 2.5 kms**
- **Planned Population**

50,000 (105 P/Ha) in City

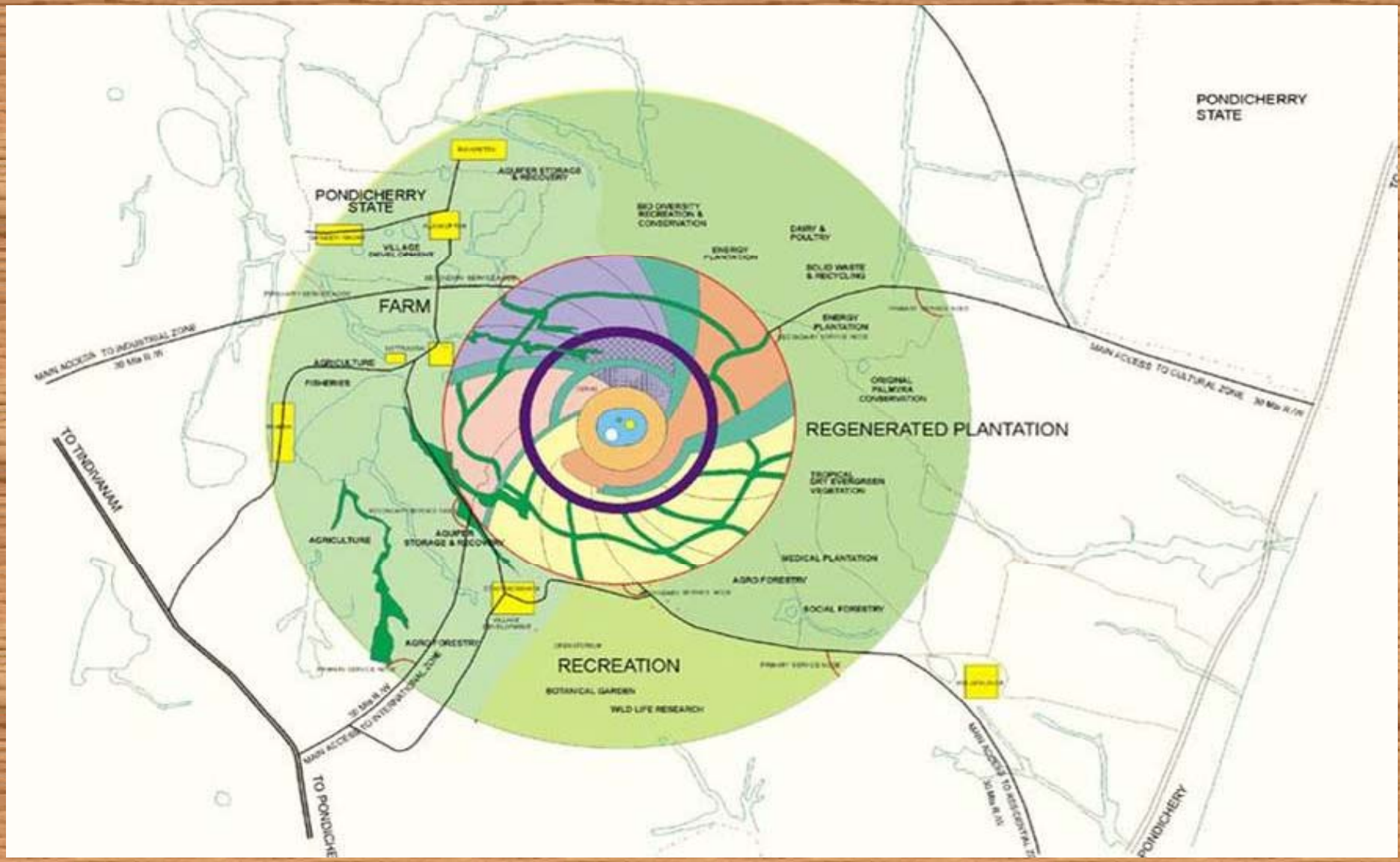
- **Res zone density - max 640 P/Ha**
- **55% open - green areas**
- **Present Population 2400 people only**

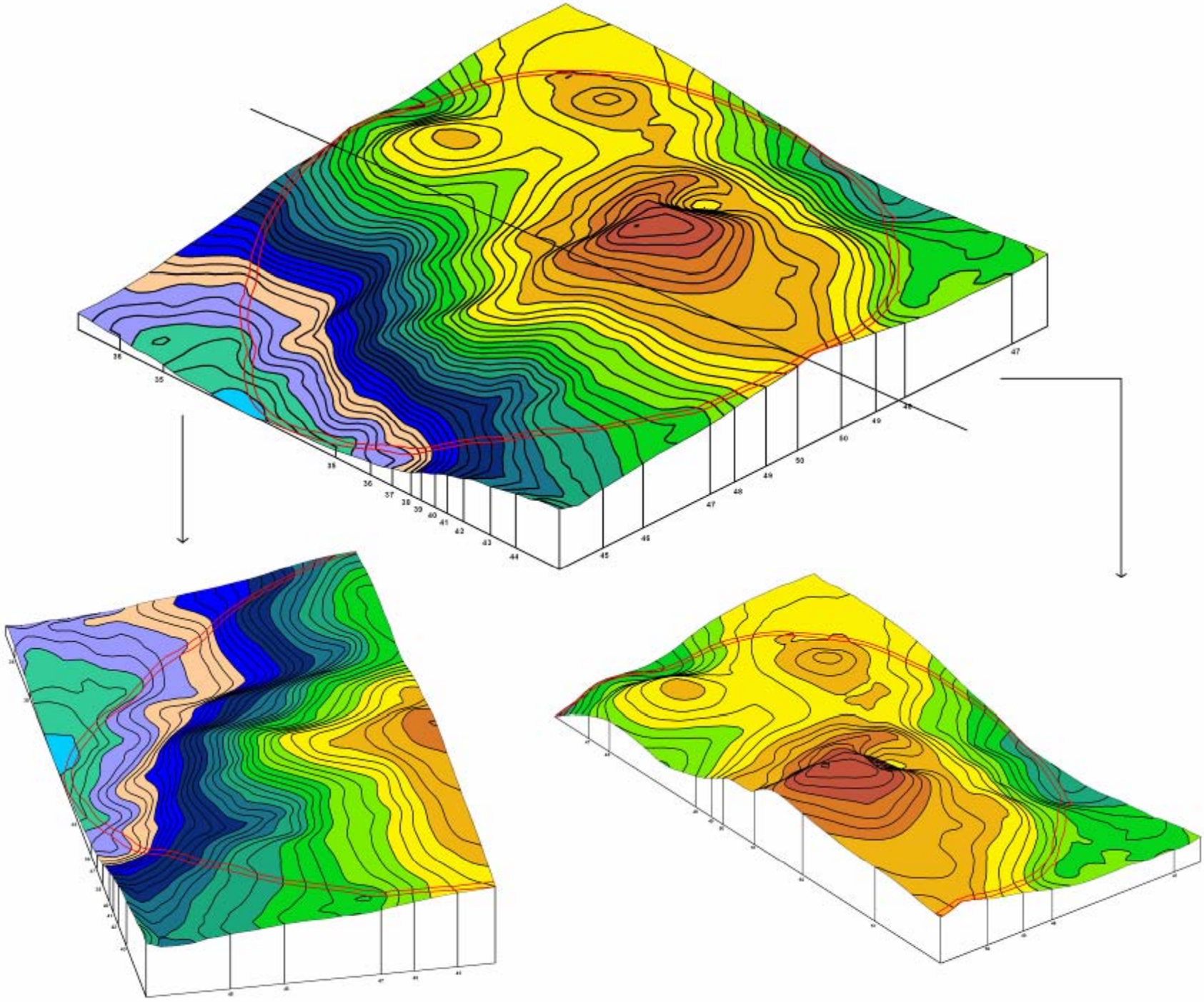
(1900 adults)

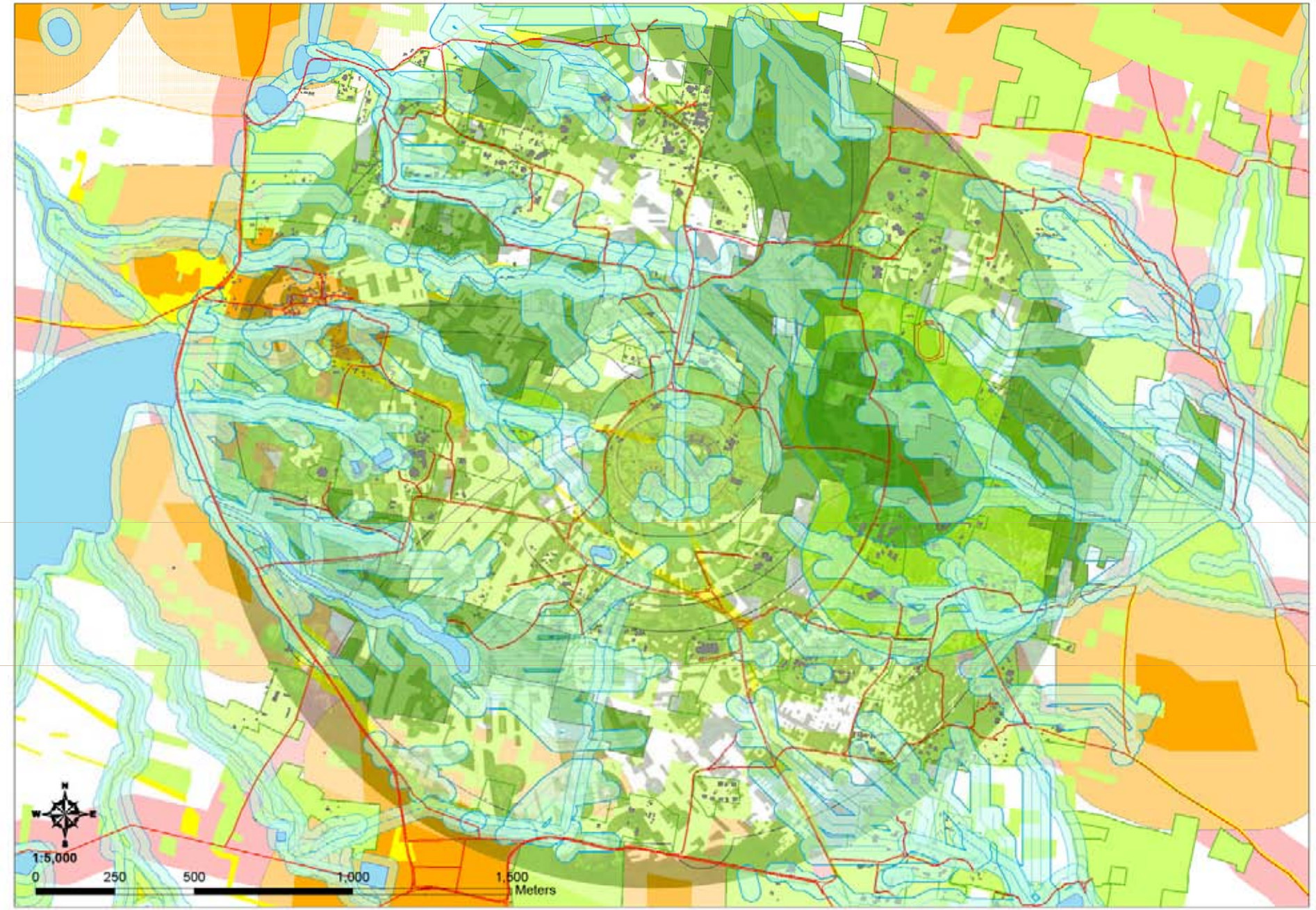
From 45 Countries

Proposed Landuse Plan

from Gazzetted Master Plan



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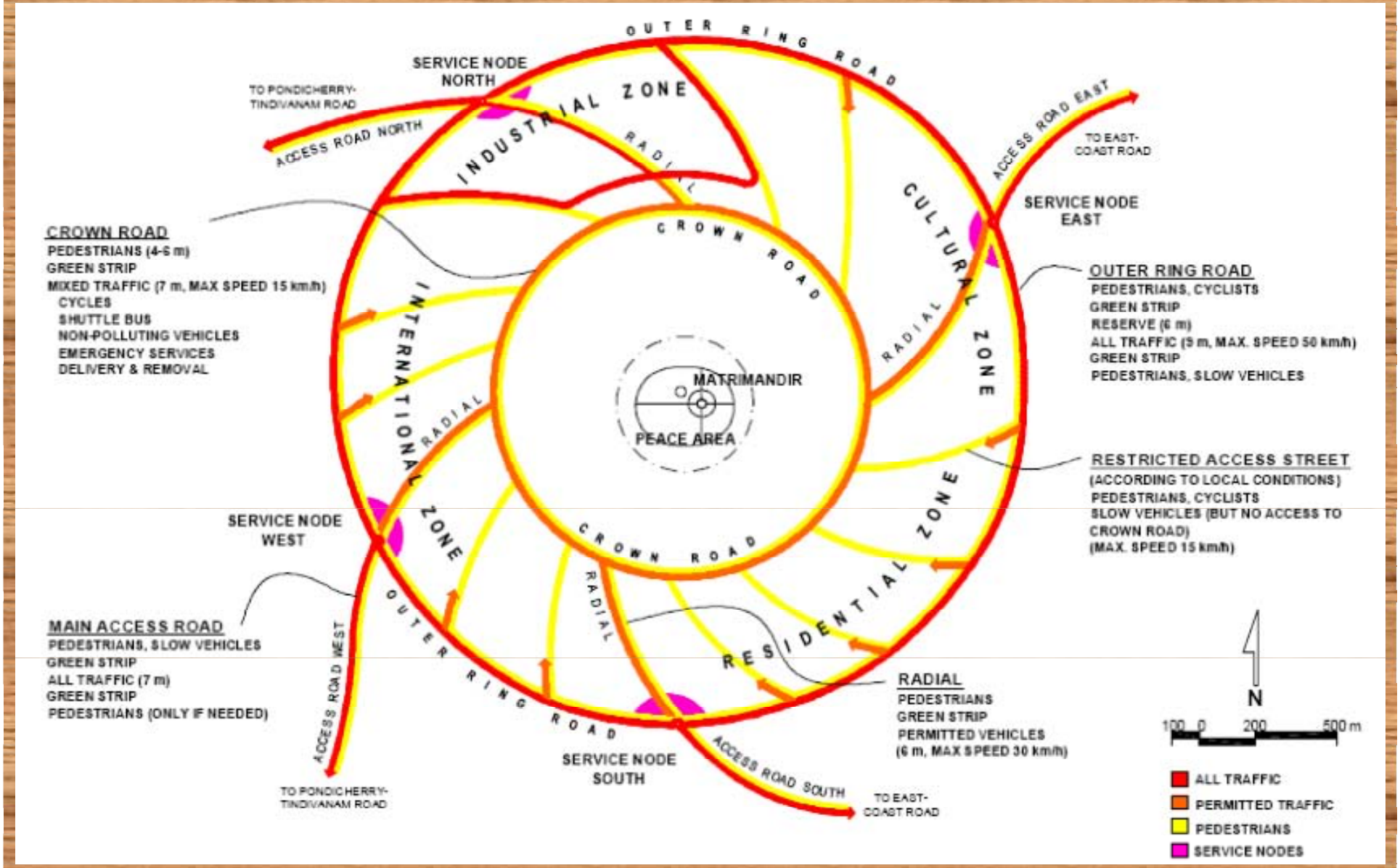
OUTER RING ROAD
SERVICE NODE NORTH
TO PONDICHERRY-TINDIVANAM ROAD
ACCESS ROAD NORTH
INDUSTRIAL ZONE
RADIAL
ACCESS ROAD EAST
TO EAST-COAST ROAD
SERVICE NODE EAST
CULTURAL ZONE
CROWN ROAD
CROWN ROAD
MATRIMANDIR
PEACE AREA
RADIAL
INTERNATIONAL ZONE
RADIAL
RESIDENTIAL ZONE
SERVICE NODE WEST
CROWN ROAD
RADIAL
OUTER RING ROAD
ACCESS ROAD WEST
SERVICE NODE SOUTH
ACCESS ROAD SOUTH
TO PONDICHERRY-TINDIVANAM ROAD
TO EAST-COAST ROAD
CROWN ROAD
PEDESTRIANS (4-6 m)
GREEN STRIP
MIXED TRAFFIC (7 m, MAX SPEED 15 km/h)
CYCLES
SHUTTLE BUS
NON-POLLUTING VEHICLES
EMERGENCY SERVICES
DELIVERY & REMOVAL
OUTER RING ROAD
PEDESTRIANS, CYCLISTS
GREEN STRIP
RESERVE (6 m)
ALL TRAFFIC (9 m, MAX. SPEED 50 km/h)
GREEN STRIP
PEDESTRIANS, SLOW VEHICLES
RESTRICTED ACCESS STREET
(ACCORDING TO LOCAL CONDITIONS)
PEDESTRIANS, CYCLISTS
SLOW VEHICLES (BUT NO ACCESS TO CROWN ROAD)
(MAX. SPEED 15 km/h)
MAIN ACCESS ROAD
PEDESTRIANS, SLOW VEHICLES
GREEN STRIP
ALL TRAFFIC (7 m)
GREEN STRIP
PEDESTRIANS (ONLY IF NEEDED)
RADIAL
PEDESTRIANS
GREEN STRIP
PERMITTED VEHICLES
(6 m, MAX SPEED 30 km/h)
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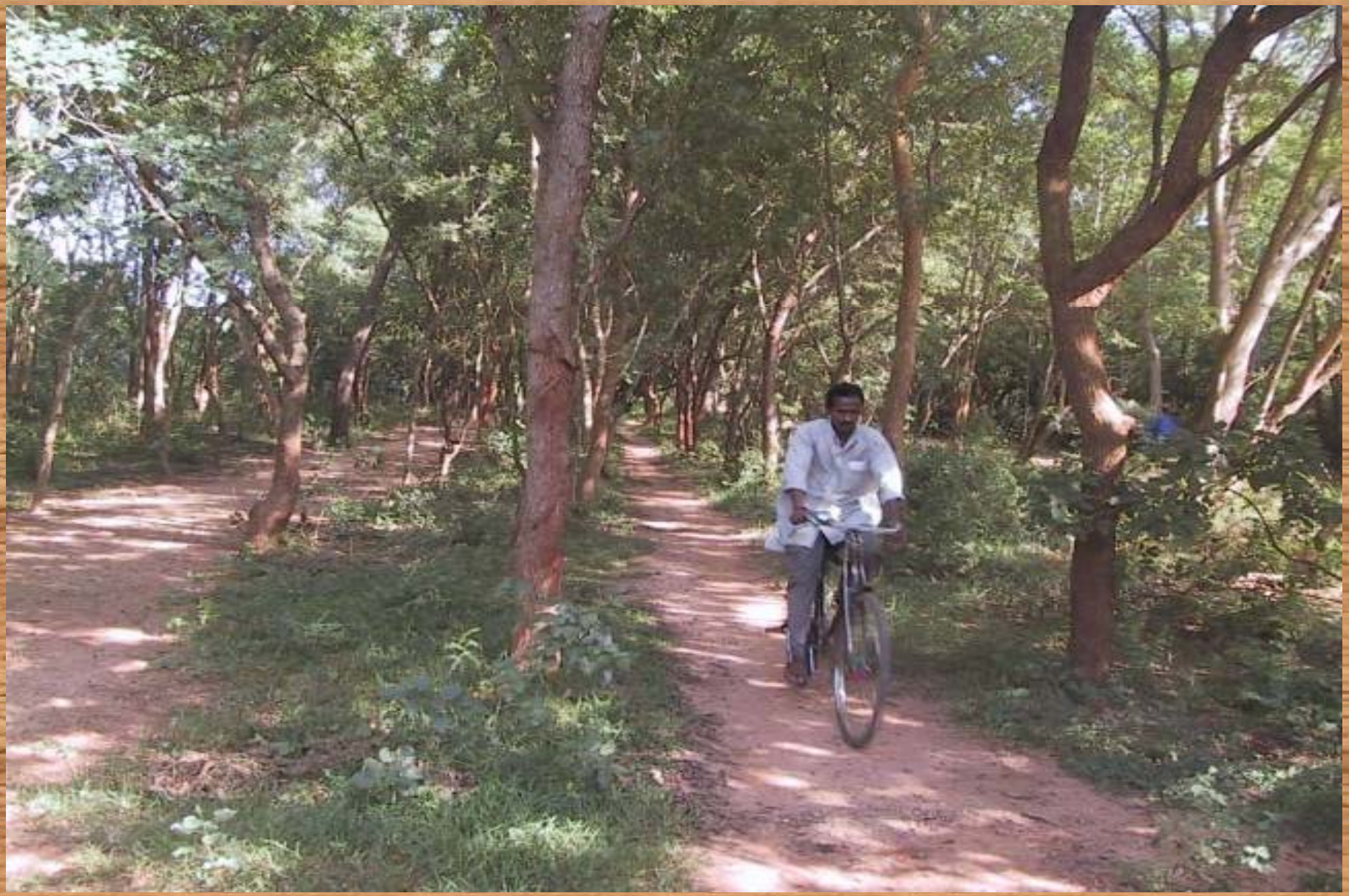
ALL TRAFFIC
PERMITTED TRAFFIC
PEDESTRIANS
SERVICE NODES

Existing Cycle & Pedestrian Tracks



water management

Appropriate Landscaping

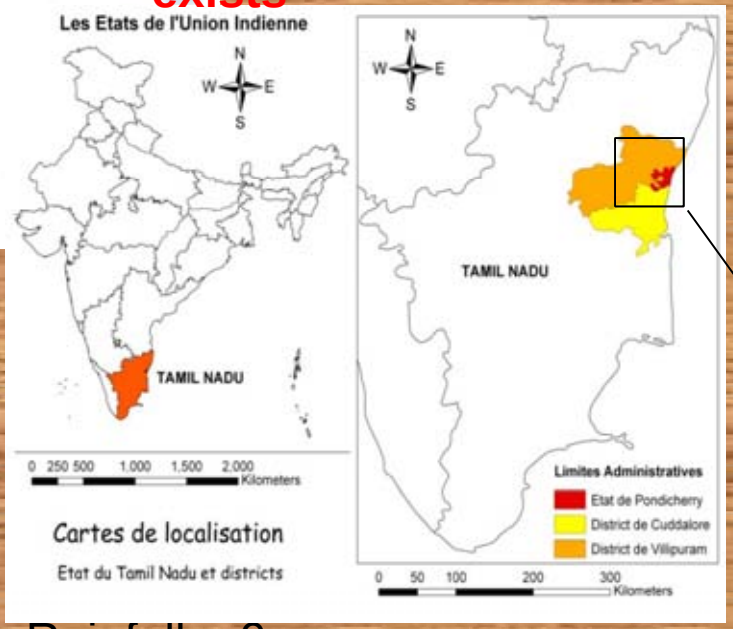
CONTEXT : geography and climate

Tamil Nadu

Available water resources volume -> 28 000 Mm^3

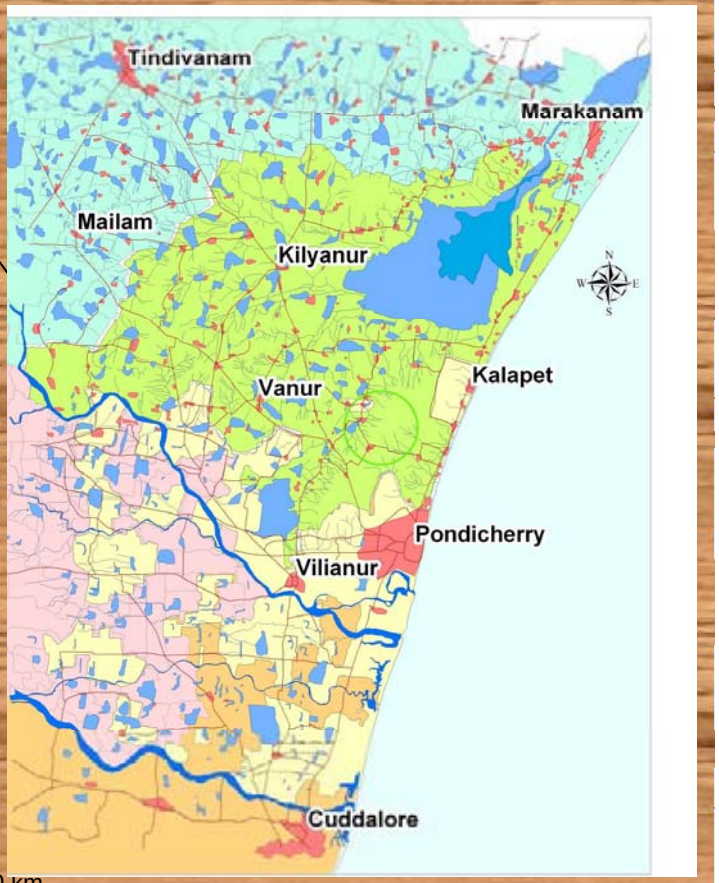
Used water volume -> 32 000 Mm^3

=> **A deficit of water already exists**



Coastal sedimentary basin of Kaluvelli-Pondicherry

- 1500 km^2, 70 km^2 swamp
- > 1,2 M inhabitants
- 60% rural



Climate

- semi-arid: PET > Rainfall ~ 9 months/year

Efficient rainfall 3 months/year

- rainfall: ~1300 mm/year with monsoons

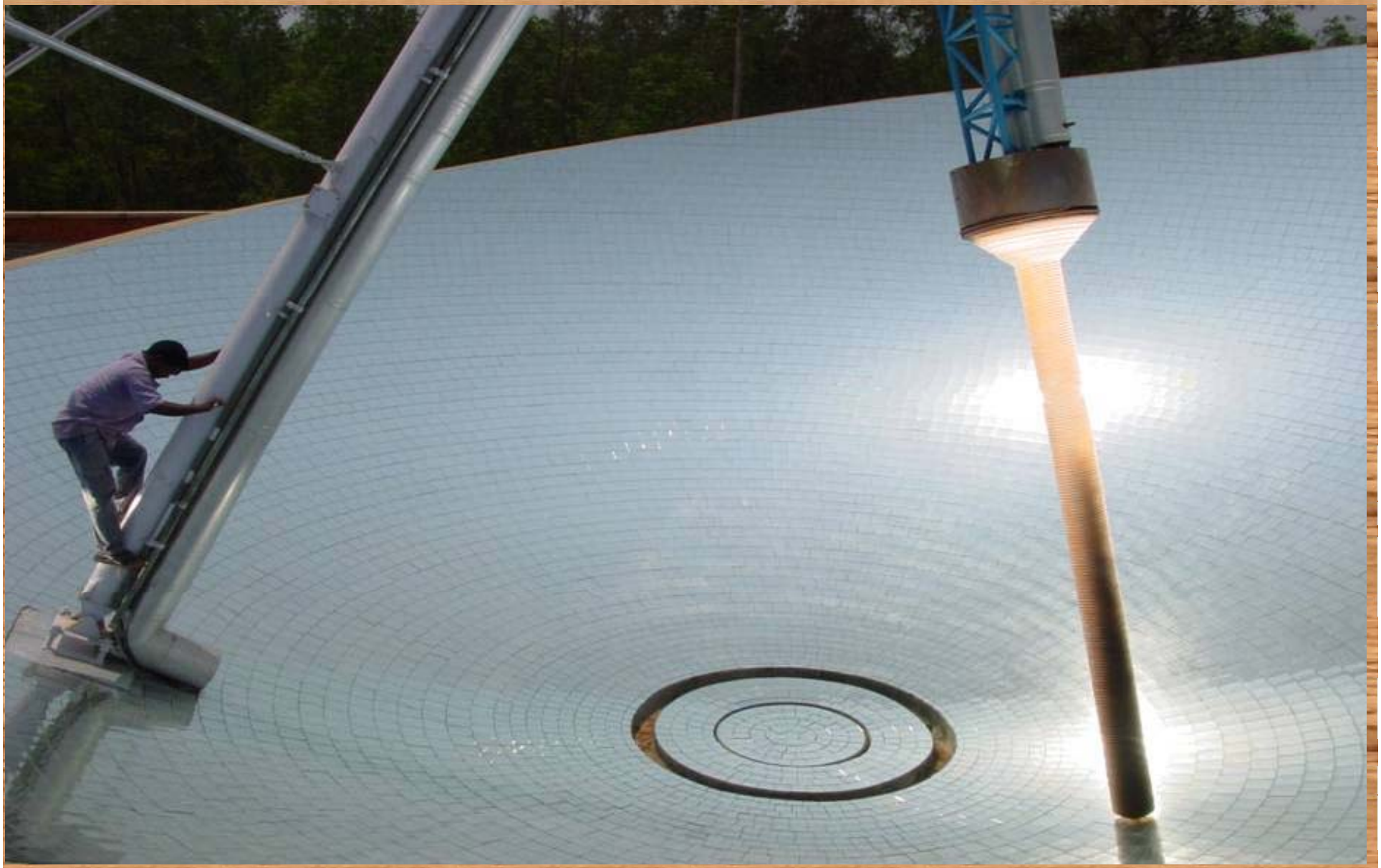
SO (Jul.-Sep., 40%)

NE (Oct.-Dec., 60%)

AUCR/Town Hall Annex: Towards an Integrated Green Built Complex –

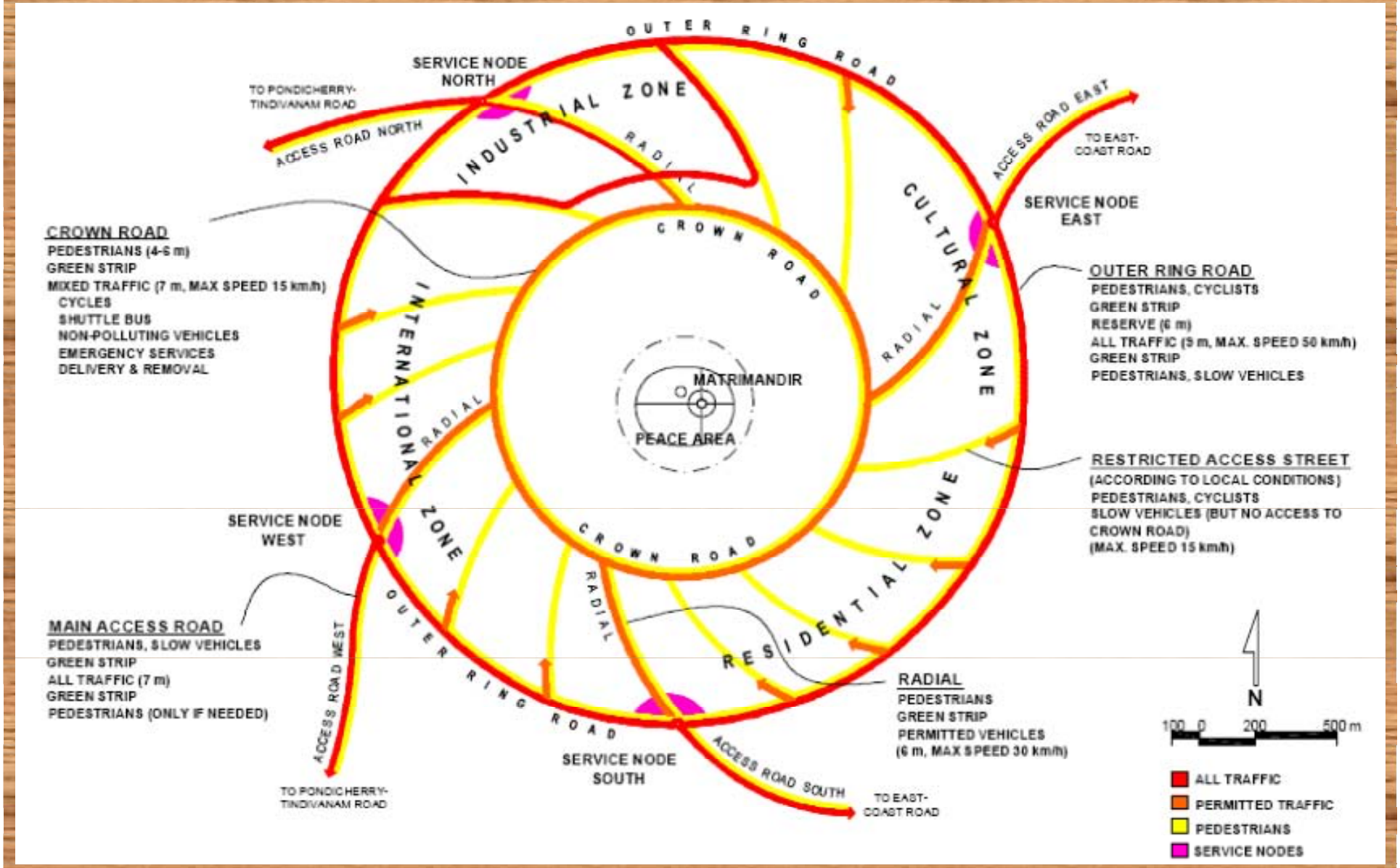
Rain Water Harvesting in place

renewable energy



Indian Renewable Energy Minister taking a test ride on EV Future 2 wheeler 2010

green belt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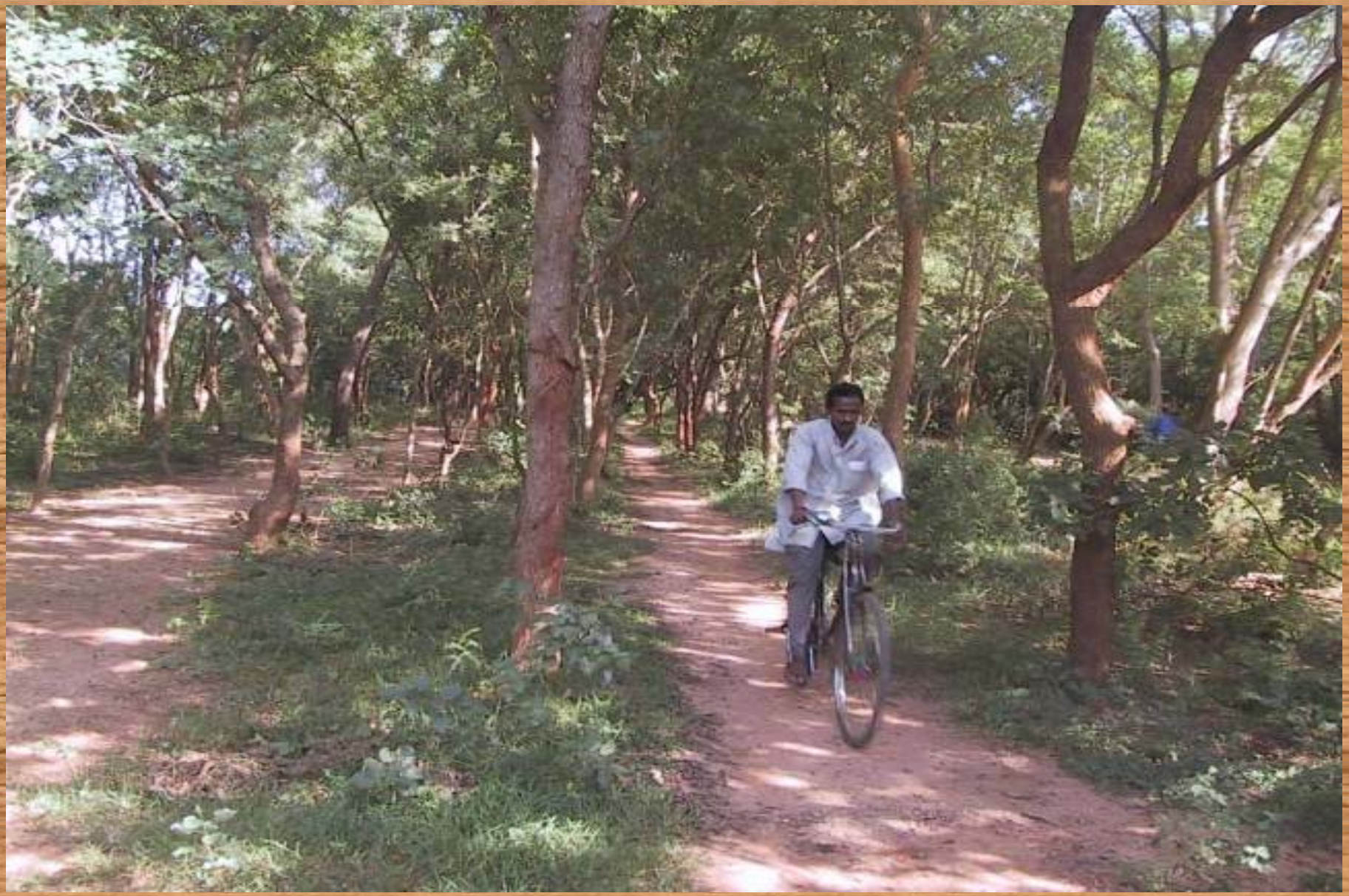
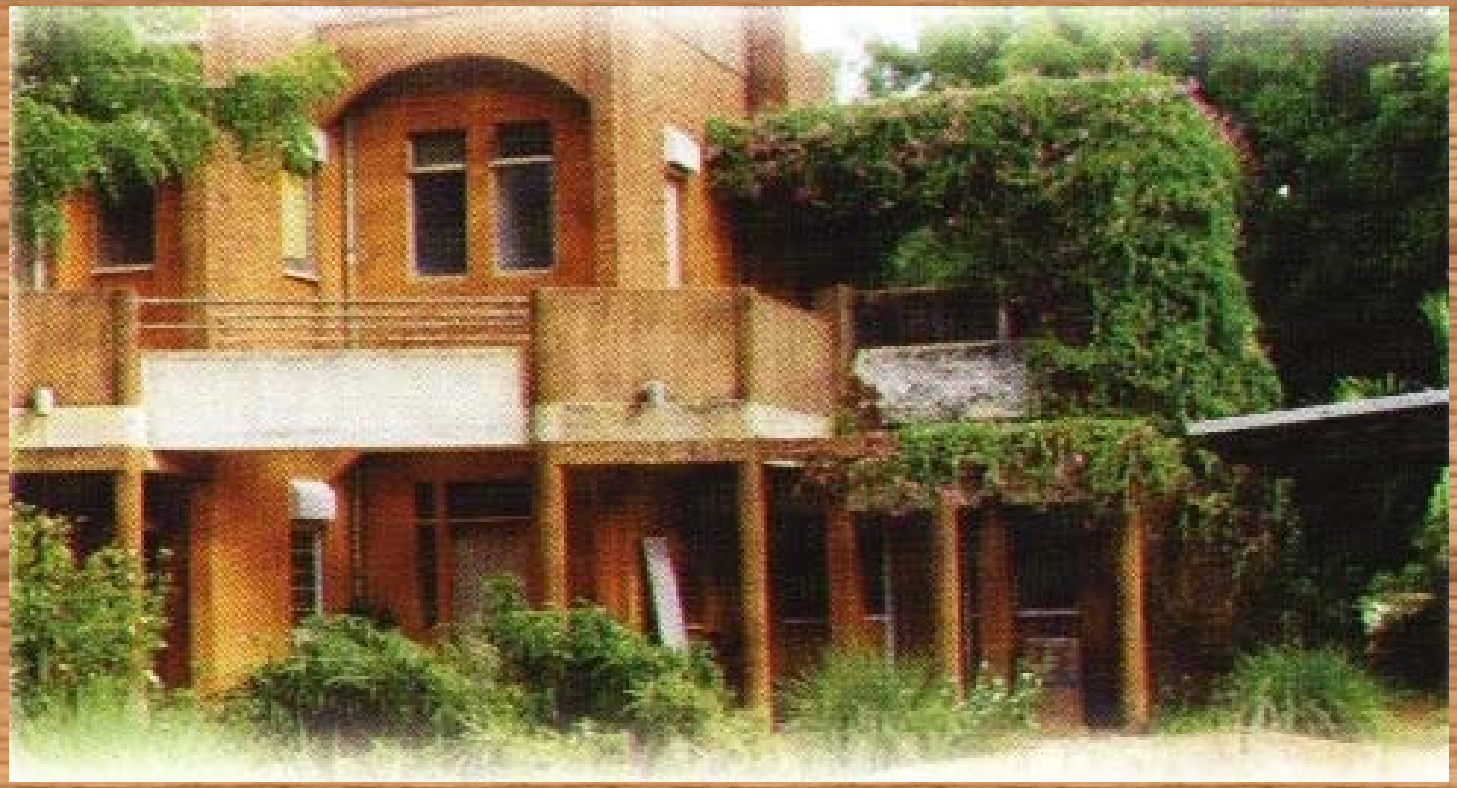


Building Envelope:
Material with Low Embodied Energy



Choice of material is important in reducing the energy content of a building

Visitors Centre – 1992 Hassan Fathy International Award for Architecture for the Poor

Vikas Community
Finalist for the "2000 World Habitat Award"

ACHIEVEMENTS IN AUROVILLE

Cost effective houses

Community & Infrastructure

Houses

Compressed earth blocks


Compressed earth blocks

Roofing with terracotta hollow blocks

solid waste management

Small Steps

Cloth bag

Compact

Portable

Practical


Instead, Watch chose to whine
Care erred last
year when it turned down the
Hutchinsons' application for a
or even publicly backed pro-charter-
pitched Smoltz. The old ace was
been used for several years and
differentiates between even-

Newspaper clippings

Old news can come in really handy when you are trying to protect the environment and generate a livelihood, the WELL way.

Text: **Anisha Paul** | Photographs: courtesy **the designers**

Orly and Danny

CURTAINS OF SATIN, LACE, SILK, velvet, yes... but recycled newspaper? Well, why not? And while we're on the curtains, how about lampshades made of empty PET bottles or coasters of recycled newspaper. Israeli couple Danny and Orly with their designer Vidyha and the WELL group (Women's Empowerment through Local Livelihood) in Auroville, Pondicherry, can make all this and more.

WELL, Danny and Orly's effort to create an alternative livelihood for the women affected by the tsunami has grown so popular that apart from supplying to stores in Mumbai and Delhi, the two have already started exporting their completely eco-friendly items to Ireland, Germany, Australia, New Zealand and the US.

"Orly and I came to Auroville two months before the tsunami hit," says Danny. "And we have been working with the women here since then in an attempt to rehabilitate them." WELL crafts hair clips, bracelets, handbags, key chains, coasters, baskets, plant holders (square,

1 A set of bowls made from newspaper reeds and coloured a refreshing green

2 Waste baskets... the demand for which is increasing by leaps and bounds!

3 Breadbaskets in various sizes

4 A display of the various products produced by WELL

round, oval-shaped), vases (they take the old PET bottle and wrap it up with papier mache), and laundry baskets (so popular, they're finding it tough to keep up with the demand). They have been experimenting with creating curtains from newspaper reeds (and will be launching them in the market soon).

At WELL, you can see they are doing their best to make sure they do not deviate from their mission to be completely eco-friendly. Even the varnish they use on their accessories is eco-friendly (water-based and devoid of heavy metals). "We do not use plastic at all. You might find wooden and glass beads on necklaces, but there is no plastic anywhere," says Danny.

In Mumbai, you can find WELL products at Eco Corner, A...ll For U and soon at Anokhi. In Chennai, they are stocked at Vanilla and Naturally Auroville; in Pondicherry it's Casablanca; in Auroville it's La Boutique du Auroville located at the visitor centre; in Cochin you'll find WELL products at Ahom; in Surat you'll have to visit Village Craft; in Delhi The Shop in Delhi and in Kodaikanal you can check out Blue Mango.

Well Paper வெல் பேப்பர்

Auroville | www.wellpaper.org | +91(0)4132622571

Women's Empowerment through Local Livelihood (WELL)

Wellpaper was initiated in 2005 in South India as a tsunami-relief effort, to provide alternative livelihood to affected families from the local areas. It gradually developed into a social enterprise model for bringing livelihood to local women from neighbouring villages of Auroville, Tamil Nadu.

WELL's vision is for long term sustainability through personal and social development.
We proudly claim that behind our success is an unshakable faith in team work and the equality of all individuals.

Wellpaper follows "green practices" and a no-machine philosophy. Using simple tools like scissors, knives and needles, and locally available raw materials - waste newspaper, glue, and water-based varnishes - the women transform waste into wonderful, handmade creations.

The WELL women receive an education in micro-business management, business planning, personal and social empowerment, family and inter-group networking, health, hygiene, and family care. When it was seen, that some women had to walk more than 45 minutes each way to reach their workplace, a bicycle scheme was launched, giving them access to cycles, as an alternative means of healthy, efficient transport.

Today, WELL is a social enterprise which empowers groups of women. The project generates income from products made out of waste materials, with four independent, self-maintained production units, manufacturing an exciting product range from woven baskets to rolled beads

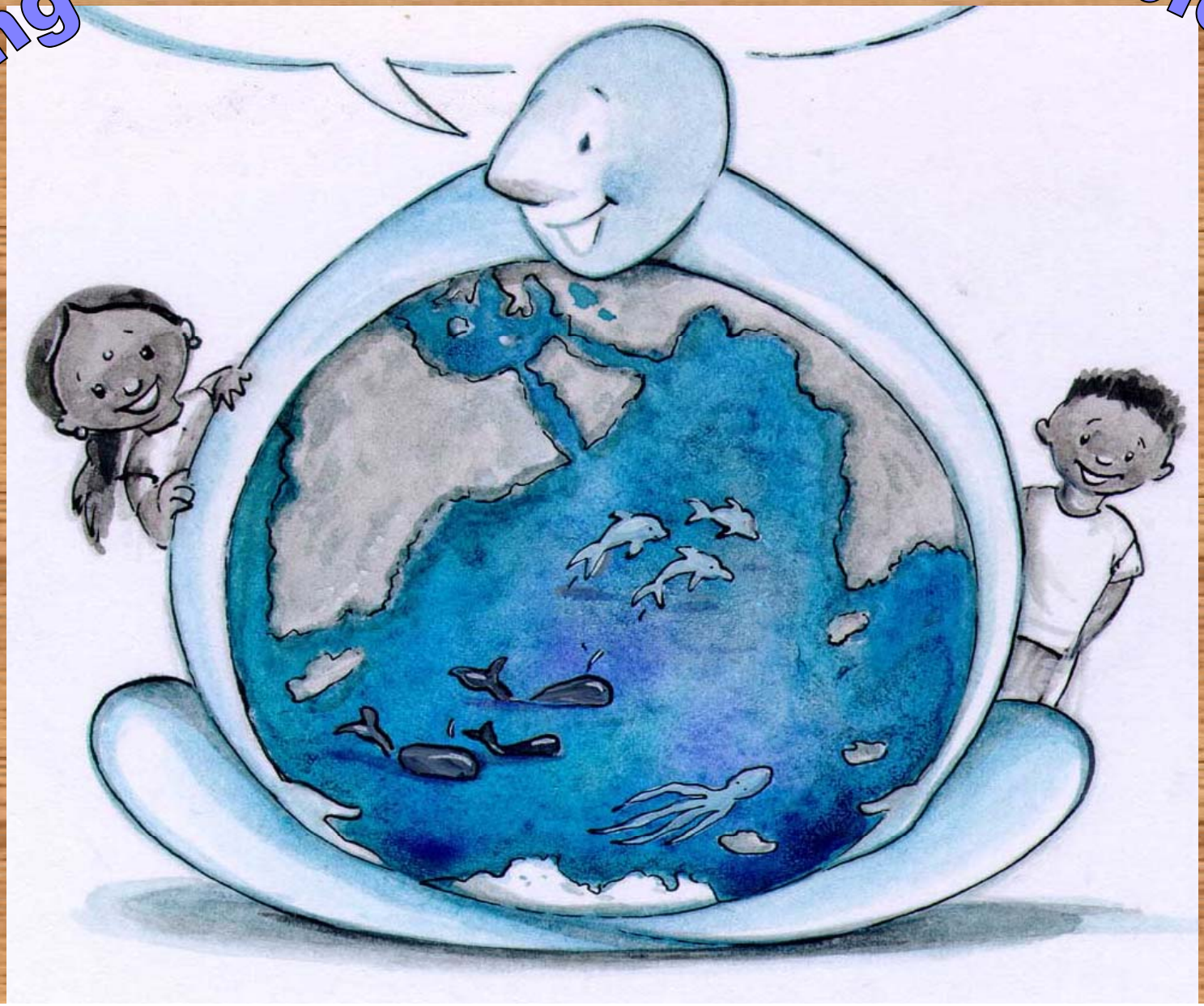
The WELL support team provides marketing and distribution channels, research and sourcing for sustainable materials, welfare planning and fund raising for special projects like insurance, field trips, new work premises.

WELL Studio is where new design ideas and unique products are experimented with (mostly reusing the rejected items that did not meet our quality control standards and recyclable waste from other units)

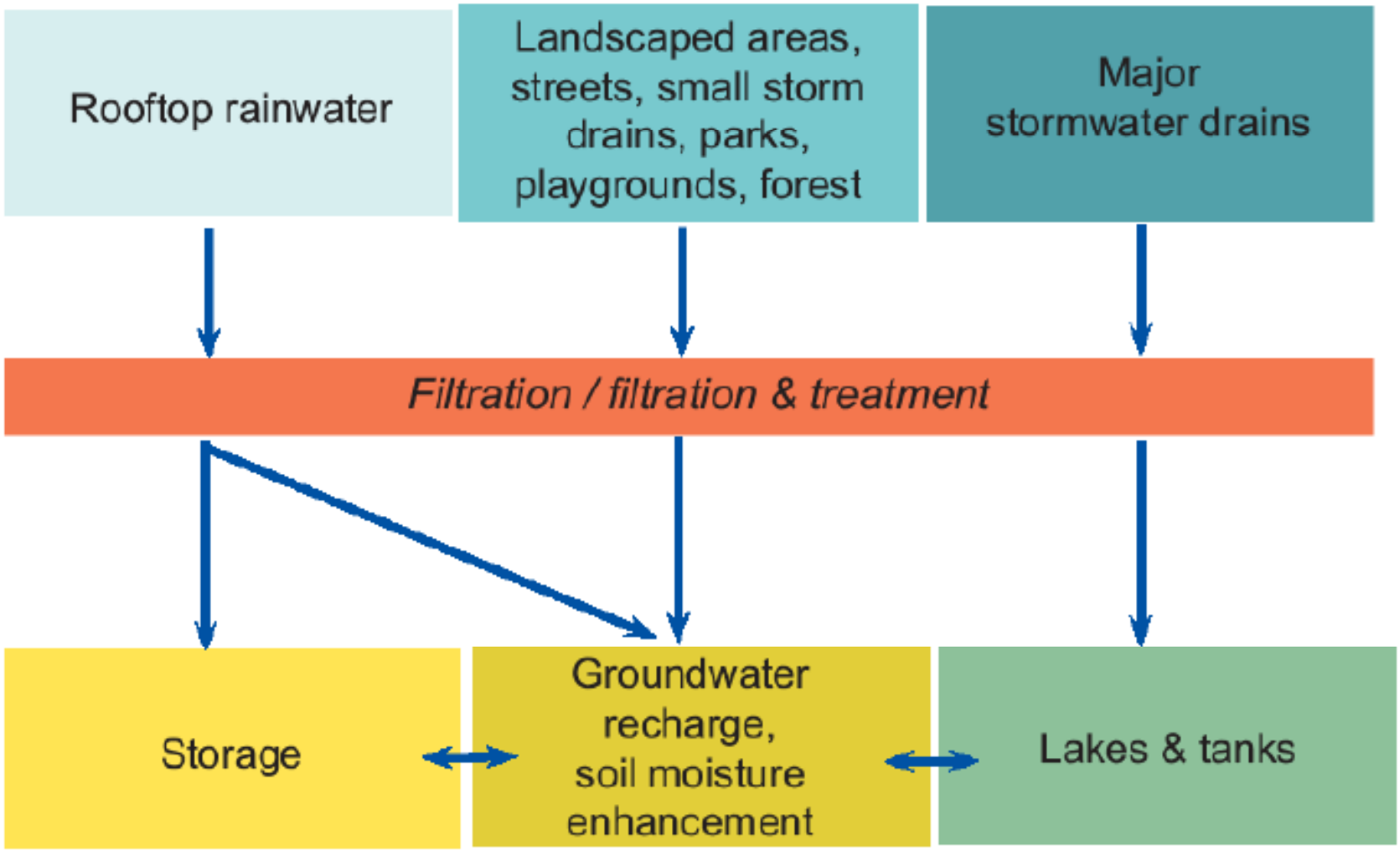
Wellpaper operates in the Auroville bio-region. The WELL women are from the neighboring villages, most of the support team are members of Auroville community, and our headquarters are located in Kottakarai village, connecting and integrating Auroville with the surrounding village communities.

Community Participation Process

Working together for a sustainable future



RAIN IN A CITY







It is generally stated by proponents of green roofs that all green roofs are equally beneficial in terms of the embellishment of the urban environment.

The argument behind this statement is that green roofs are considered natural and that they will be appreciated and valued for that reason.

Rain barrel : Does storing water from rain reduce pumping of water?

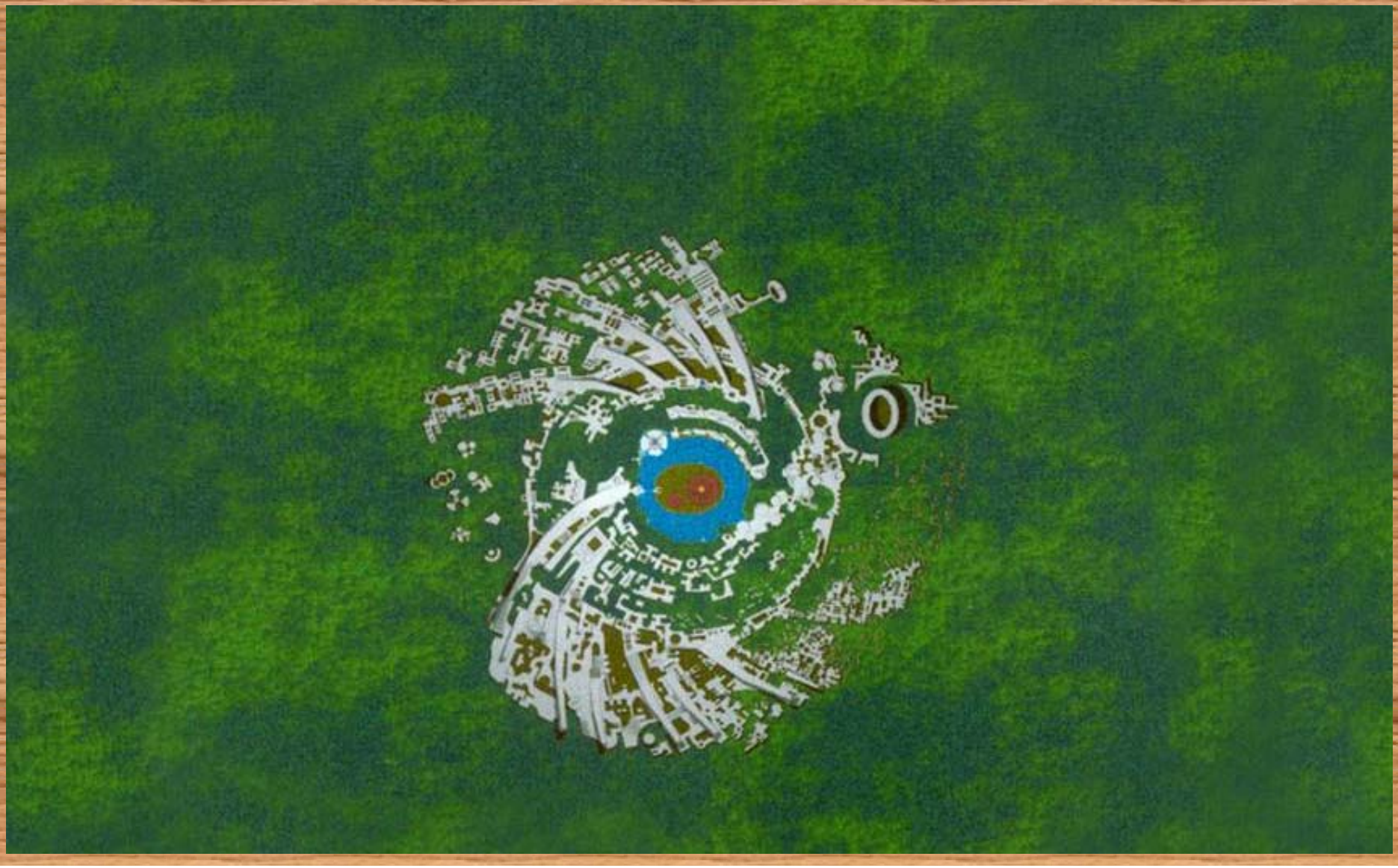
Sharing Experience – Knowhow Transfer & Serving larger society

Major Eco-restoration project under implementation by Auroville Experts in State Capital City of Chennai/Madras – '*Adyar Poonga*'


The area under transformation - forest grows…
90 thousand seedlings of 172 Indigenous species have been planted


STAFF ROOM

an inclusive society in the making

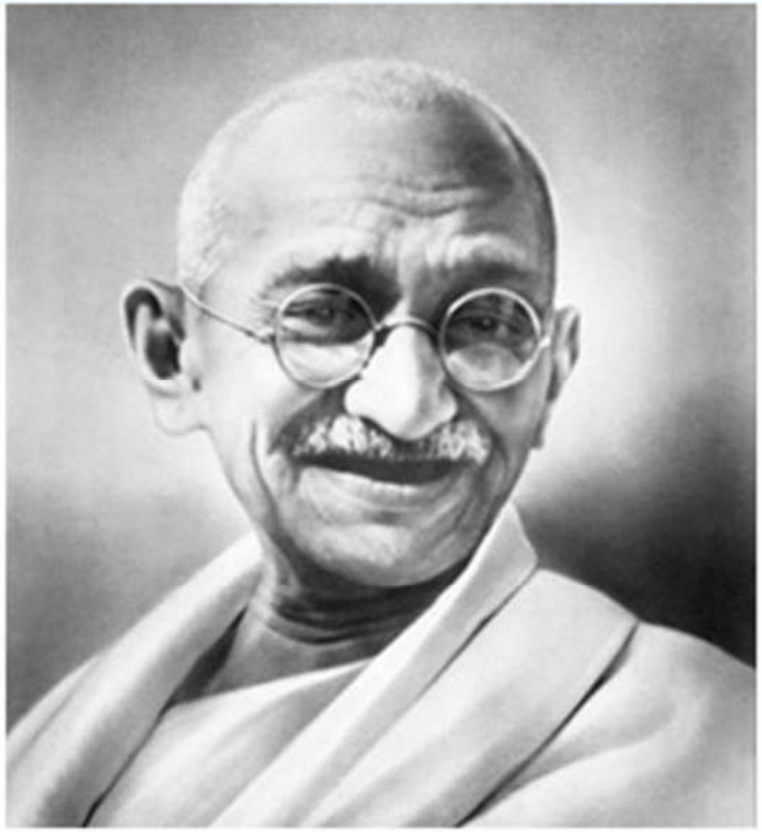


One can not solve the problem with the same mind which created it.

Albert Einstein

One can’t change the existing reality by fighting it but by making new models…

Buckminster Fuller



Be The
Change
You Wish To See In
The World

For Further Information

www.auroville.org

AUROVILLE GREEN PRACTICES SEMINAR

5-7 SEPTEMBER 2013

ECO PRODUCTIVE CITIES

www.agp.aurovilleconsulting.org

LALIT KISHOR BHATI
Architect Urban Planner

lalit@auroville.org.in