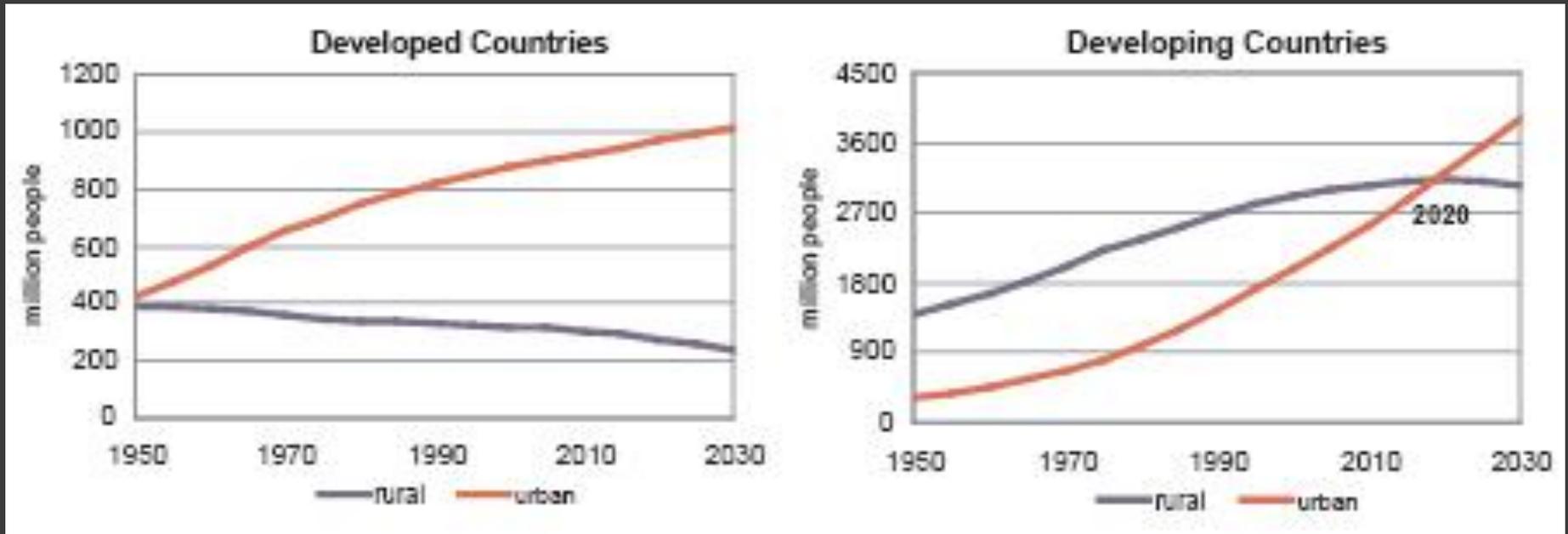


# RECASTING INDIA

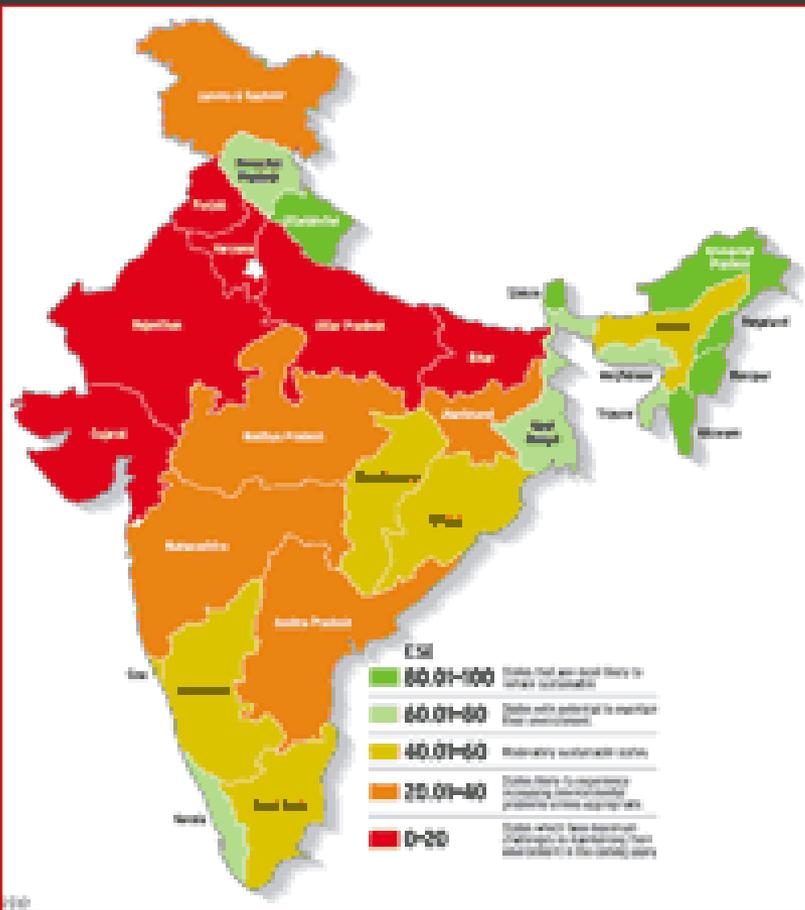
## FACADES OF THE FUTURE

**Context:** By 2030, five billion people (60 percent of the global population) will live in cities and four-fifths of these urban dwellers will be in the developing world.



**Economic context:** Increased urbanization often correlates to higher national incomes (GDP)





## CHOKING IN DELHI

	PM2.5 LEVEL
Jan 26, 2015 (estimated day's avg)	90-110
Jan 26, 2013 6-10am (during R-Day parade)	160-234
Jan 25-27, 2012-14 (3-day average)	130-170

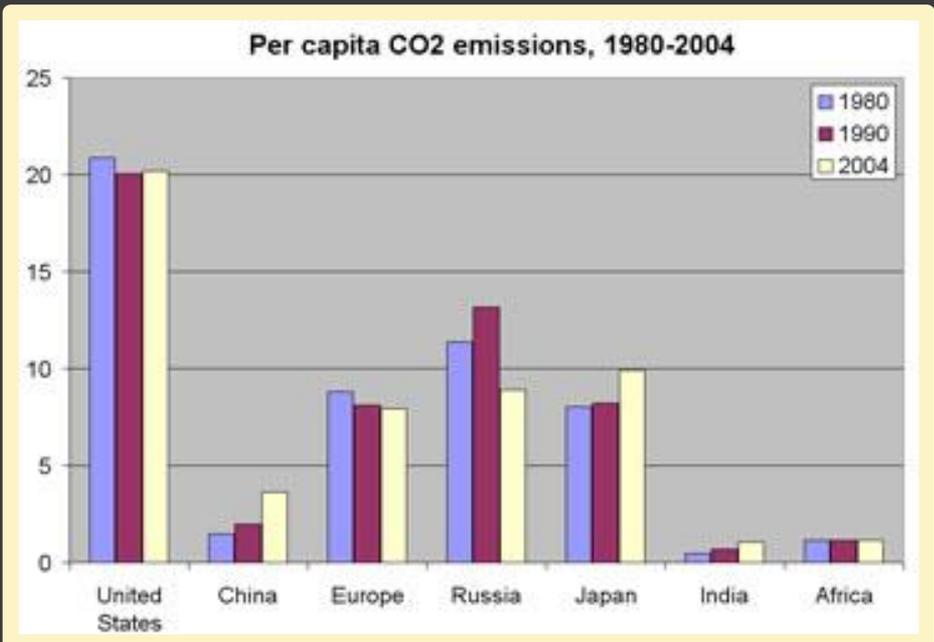


### SAFE STANDARD

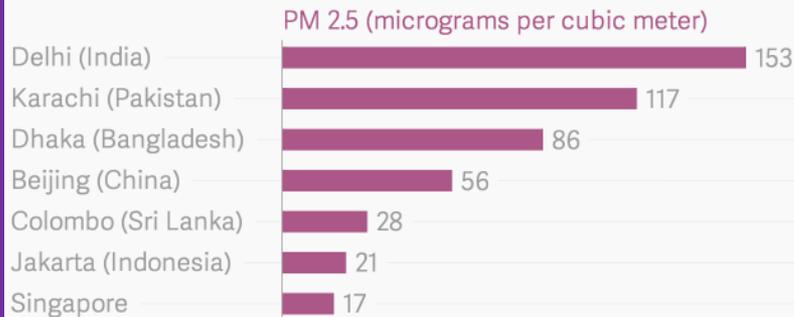
USEPA	WHO	INDIA
15	25	60

Figures in microgram per cubic metre

**WHAT'S PM2.5** Fine, respirable particles floating in air that get lodged in lungs

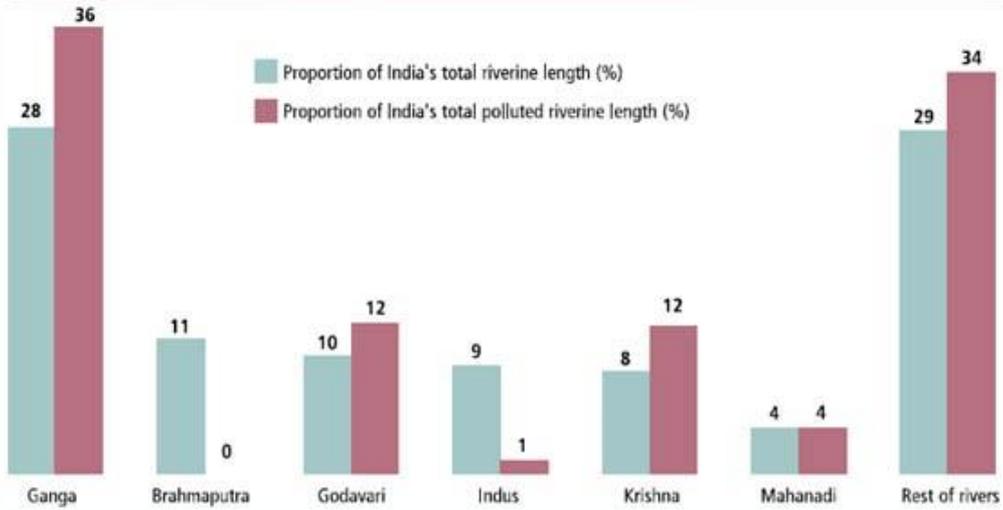


### Comparison between Delhi and other Asian cities



# WATER

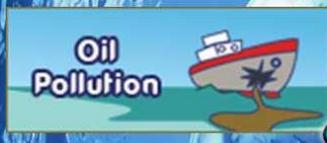
## THE STATE OF INDIA'S RIVERS: THE EXTENT RIVER STRETCHES ARE POLLUTED



Source: R C Trivedi 2007, *Pollution in our rivers: the CPCB perspective*, presentation, New Delhi, June, mimeo



## THE CAUSES OF WATER POLLUTION!

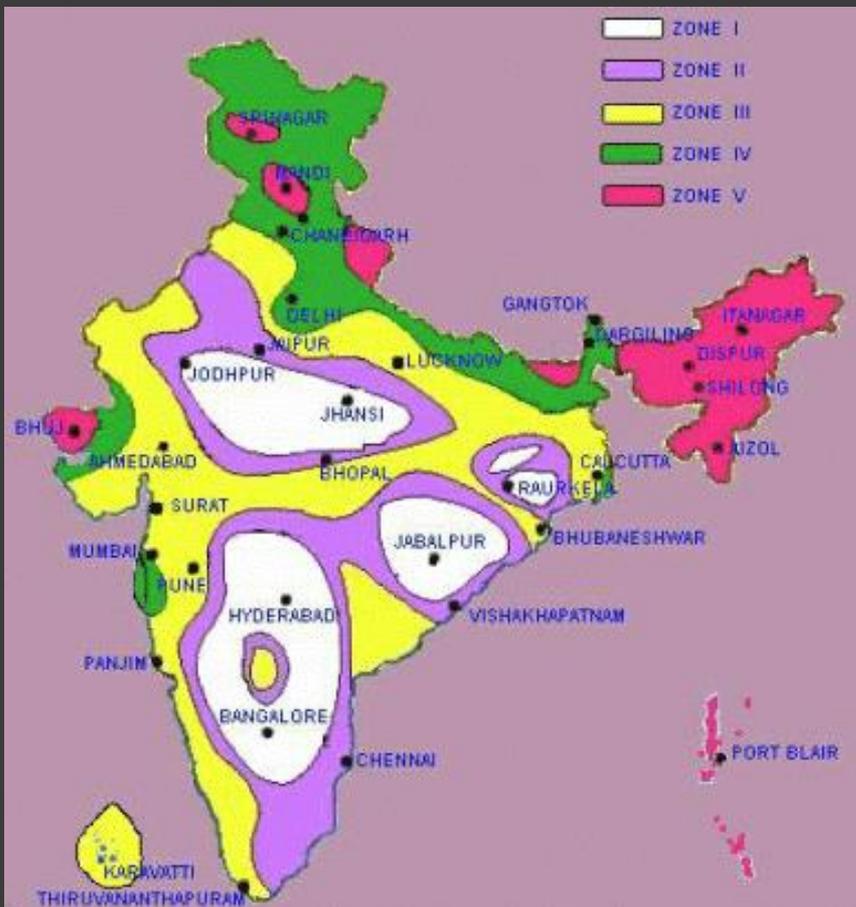


**Major Causes!**



# EARTH

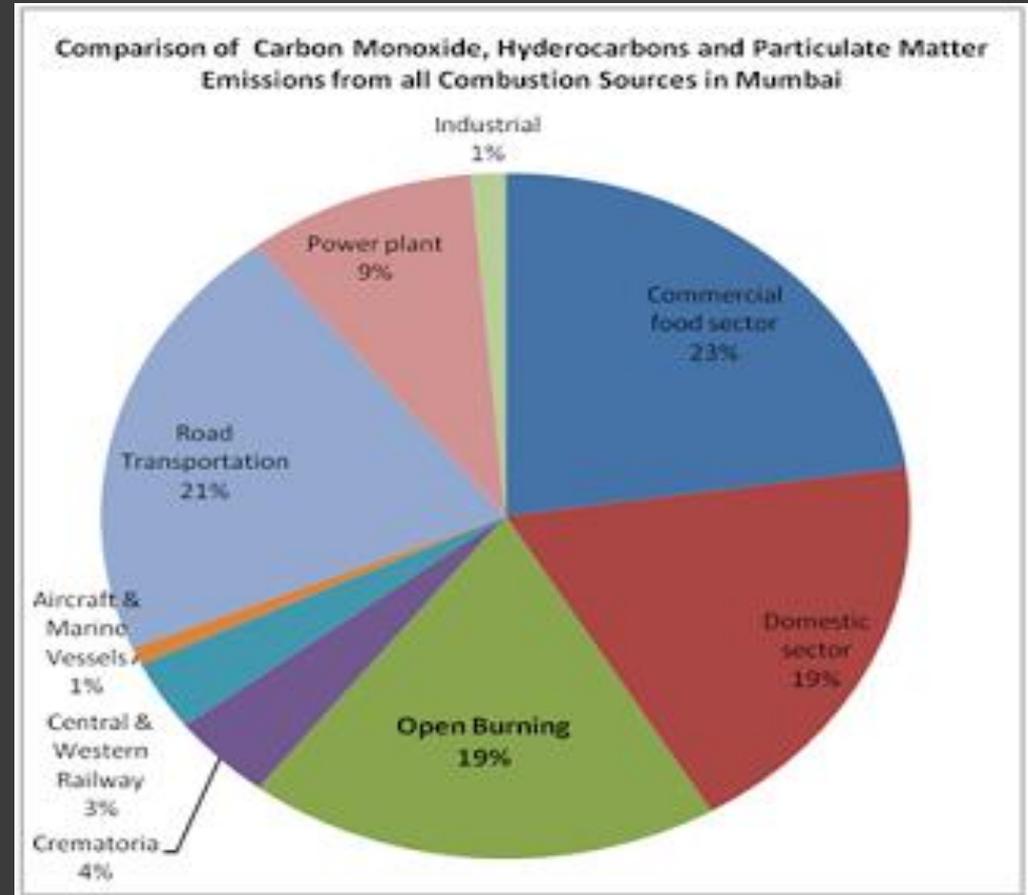
unsanitary landfills are potential sources of heavy metals contamination in groundwater sources adjoining the landfills



EARTHQUAKE – ZONING:  
dams adding to plates shifts



# AIR-----WATER-----EARTH------(dis) CONNECT



Open burning contributes to 19% of Mumbai's Air Pollution due to Carbon Monoxide, Hydrocarbons and Particulate Matter

# N E E D----- O F----- T H E----- H O U R----- B A L A N C E

Knowledge: Think Global –Act Local= G L O C A L

Protect,  
Plant,  
Maintain:  
forests, trees,  
urban parks,  
open spaces,  
coasts, hills  
r e n e w



Afforestation,  
Organic farming,  
Urban farming,  
Drip irrigation, Perma  
culture, Hydroponics,  
Green walls,  
Manage solid waste-  
reduce, recycle

Rain water harvesting, Bunds, tanks, water table  
recharging, responsible waste disposal  
reduce, reuse, recycle

Responsible Mining,  
alternative energy,  
reduce, reuse, recycle

HINDOL SENGUPTA

# RECASTING INDIA

HOW  
ENTREPRENEURSHIP  
IS REVOLUTIONIZING  
THE WORLD'S LARGEST  
DEMOCRACY

R  
E  
L  
E  
V  
A  
N  
C  
E

“India's greatest economic battles "are being recast, the debate is being reframed" away from the longstanding idea that India's protracted problems can only be solved by its government.”

# CASE study -SAMSKRUTI-HOYSALA -an ALTERNATIVE

THEMATIC CONCEPT climate responsive and energy efficient habitat, in both resources and functionality, employing appropriate materials and technology for secure and contemporary comfort living that is rooted in the local context while being interactive within and without for a wholesome experience of blissful coexistence with NATURE and its bounty. ....a smart community that has the inbuilt possibility of experiencing responsible living, nodal connectivity, social cohesion, ecological sensitization and a participatory existence. Our aim is to facilitate a generically green-comfort living-through designed indoor and outdoor - spaces that cater to the present needs with MINDFULNESS FOR THE FUTURE through eco-responsiveness.

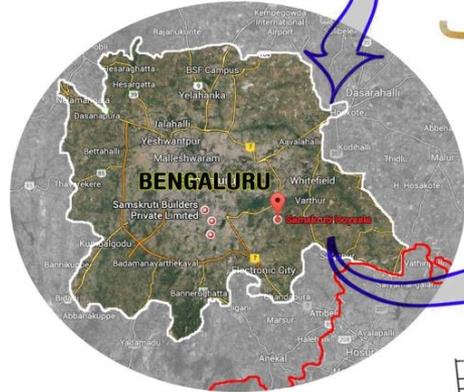
# KEYs

- No AC
- One tree for each apartment
- Growing bed -for each family
- Day-lit each space
- Cross ventilation
- Community kitchen garden
- Community recreational spaces
- Water SELF
- Sufficient Drinking water in each kitchen
- 24 hr hot water at each point by solar
- Solar lighting for common areas
- consumption billing of water and electricity



Latitude : 12° 58' 43.073" N  
Longitude : 77° 47' 52.832" E

Municipal area - 800 sq km



## eCO SENSITIVE BOUTIQUE APARTMENT

Located at Doddakannelli, just 2 kms away from Sarjapura Road, Samskruti Hoysala offers a host of services and facilities with the aim to facilitate a generically green living through designed indoor and outdoor spaces that cater to the present needs with mindfulness for the future through eco-responsibility.

We wish to go back to our roots to bring in the change in human behaviour by adopting the best of our culture and modern technology at Samskruti Hoysala.



*A bit of Sun, plenty of shadow, channeling air through, and letting the water drain away can be constituted as the key to design generically green building in Salubrious Bangalore*



### CLIMATIC RESPONSE DATA

- Summer max temperature: 36.6 deg C
- Summer Avg max temperature: 28 deg C
- Winter min temperature: 13 deg C
- Winter Avg min temperature: 22 deg C
- Summer and Monsoon Winds - Predominant W & SW
- Winter Winds - Predominant East
- Annual average Wind velocity 2 m/s



SAMSKRUTI HOYSALA- BUILDING VIEW

ARCHINOVA-ENVIRONS

# Facts and FIGURES

Site area: 2,684 sq.m.

FAR: 2.25

Total Built up: 6,039 sq.m + 602 sq.m cantilevered open to sky terraces.

Ground Coverage 50%: 1,337 sq.m

Basement (double ht): 1,691 sq.m

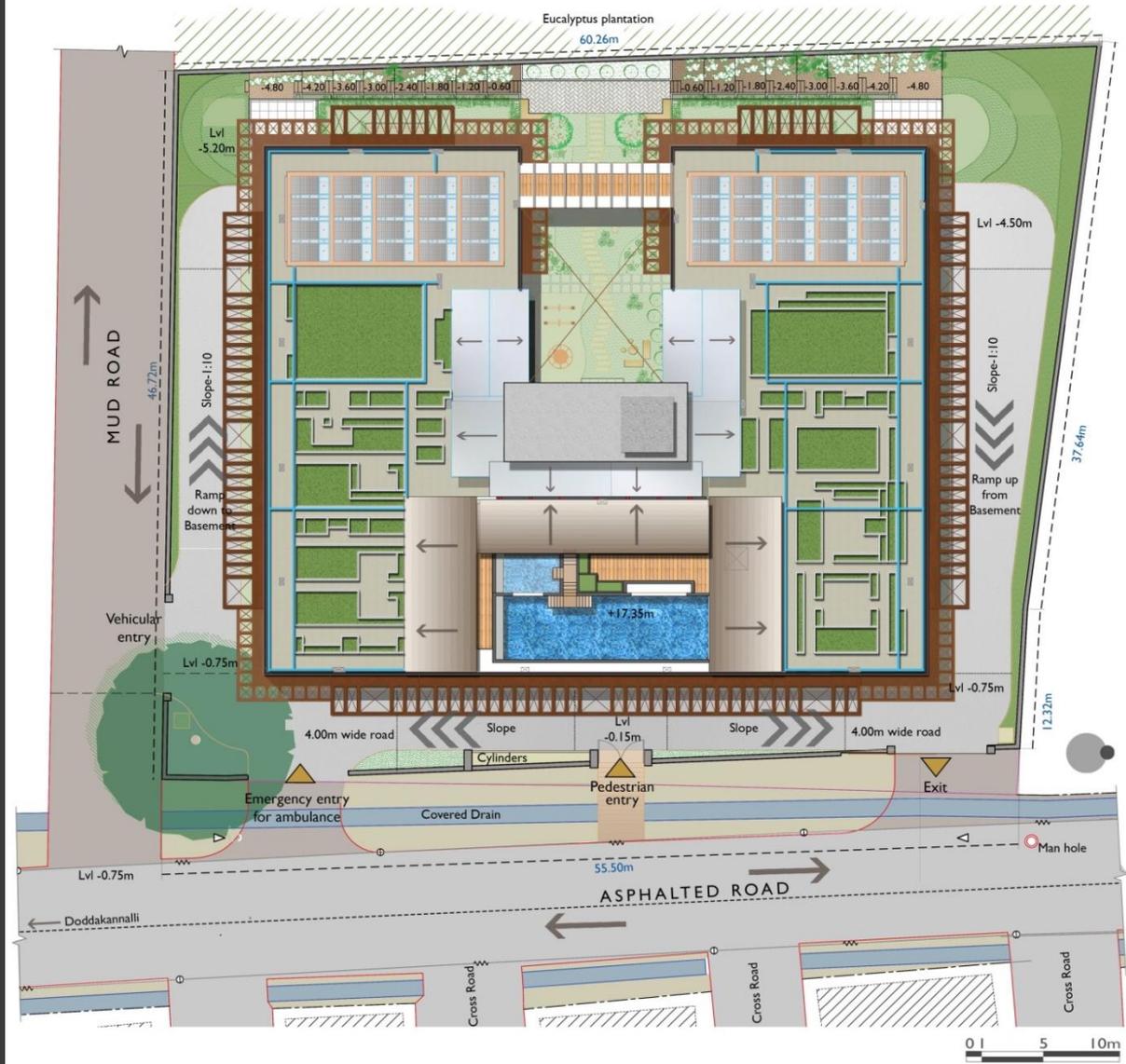
Roof terrace Total area: 1306 sq.m

Roof - Swimming pool: 88 sqm

Deck: 82.25 sq.m

Community Kitchen, facilities and storage: 77 sq.m.

Green House: 597 sq.m



## Unit Areas:

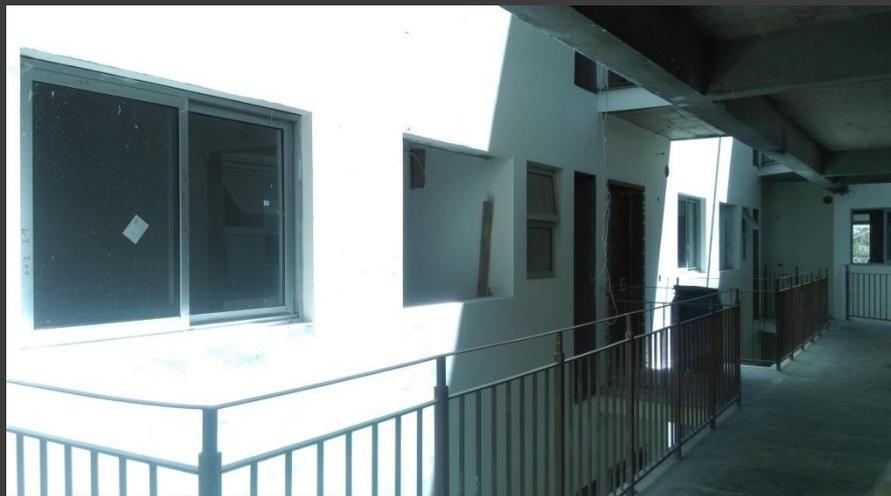
3 BHK - 18 nos. @ area 136 to 150 sq.m. inclusive of open to sky terraces

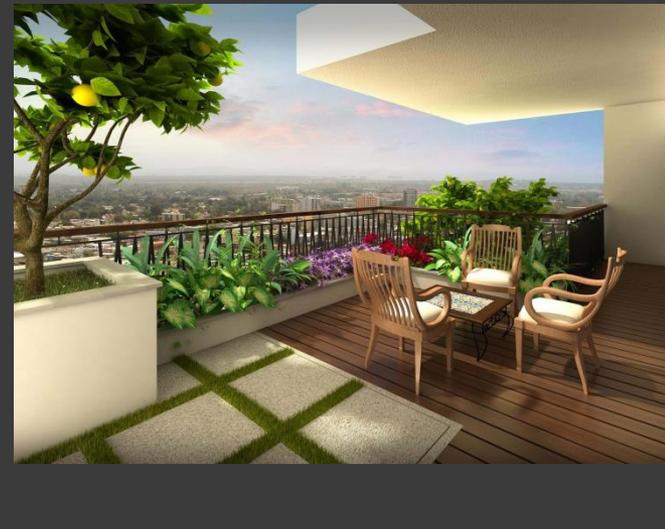
2 Bhk - 26 nos. @ area 100 to 114 sq.m inclusive of open to sky terraces

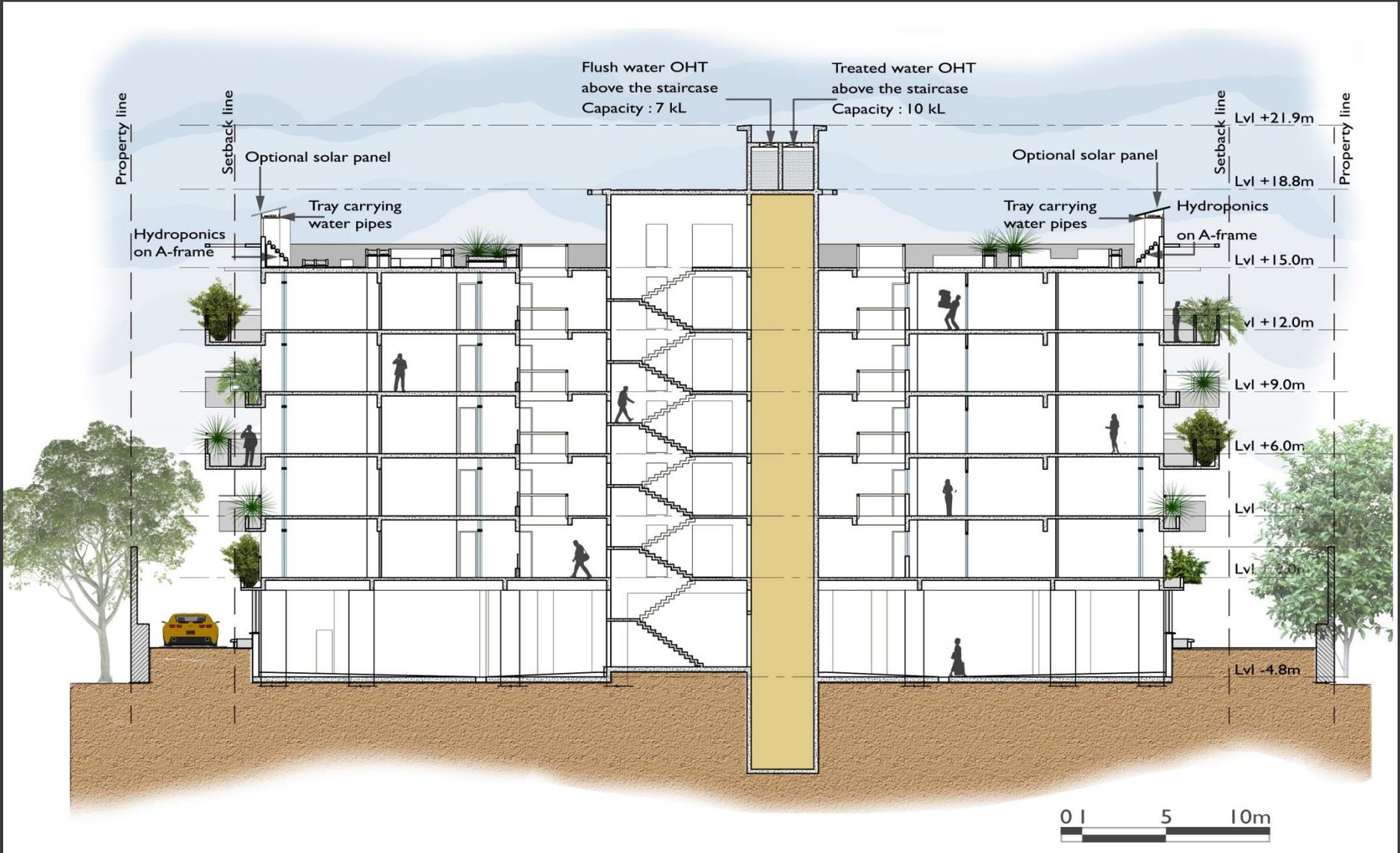
1 Bhk - 1 no. @ 52 sq.m.

5 Bhk - 2 no. @ 275 sq.m.









SECTION ---- NORTH-SOUTH

## GREEN ENVELOPES THE BUILDING

Protection against radiation lets the light in

Protection against wind

Releases moisture

Captures the fine dust

Mitigates the noise

Provides Insulation

Aesthetic appeal

Energy saving approach

Improves indoor air quality

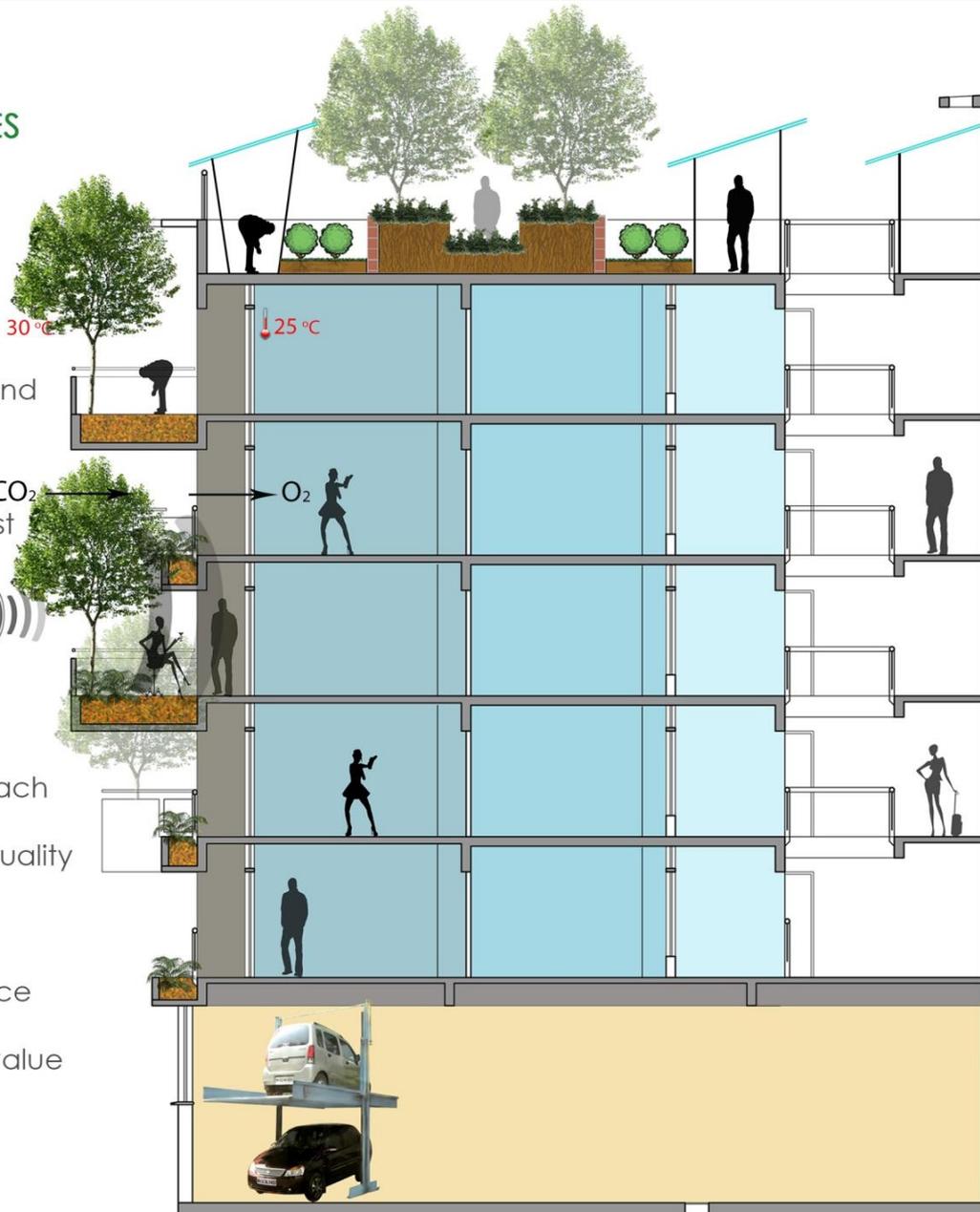
Water recycling

Increased green space

Enhanced property value

Removes VOC's

Stack parking



Schematic Section (NTS)

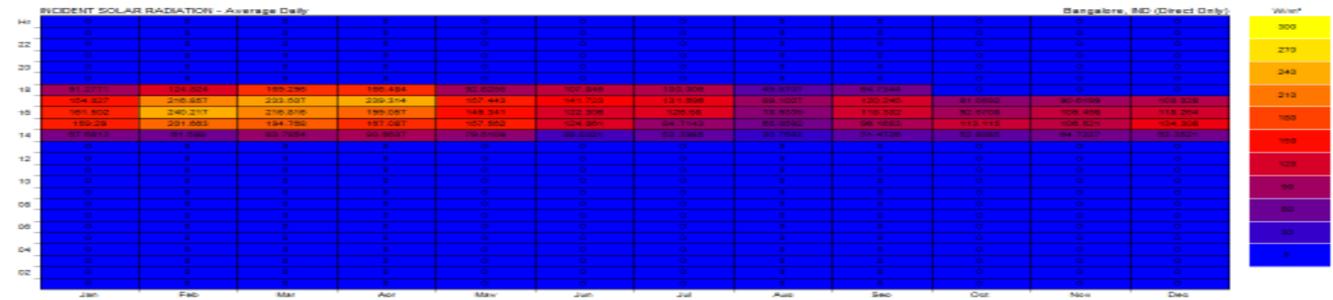




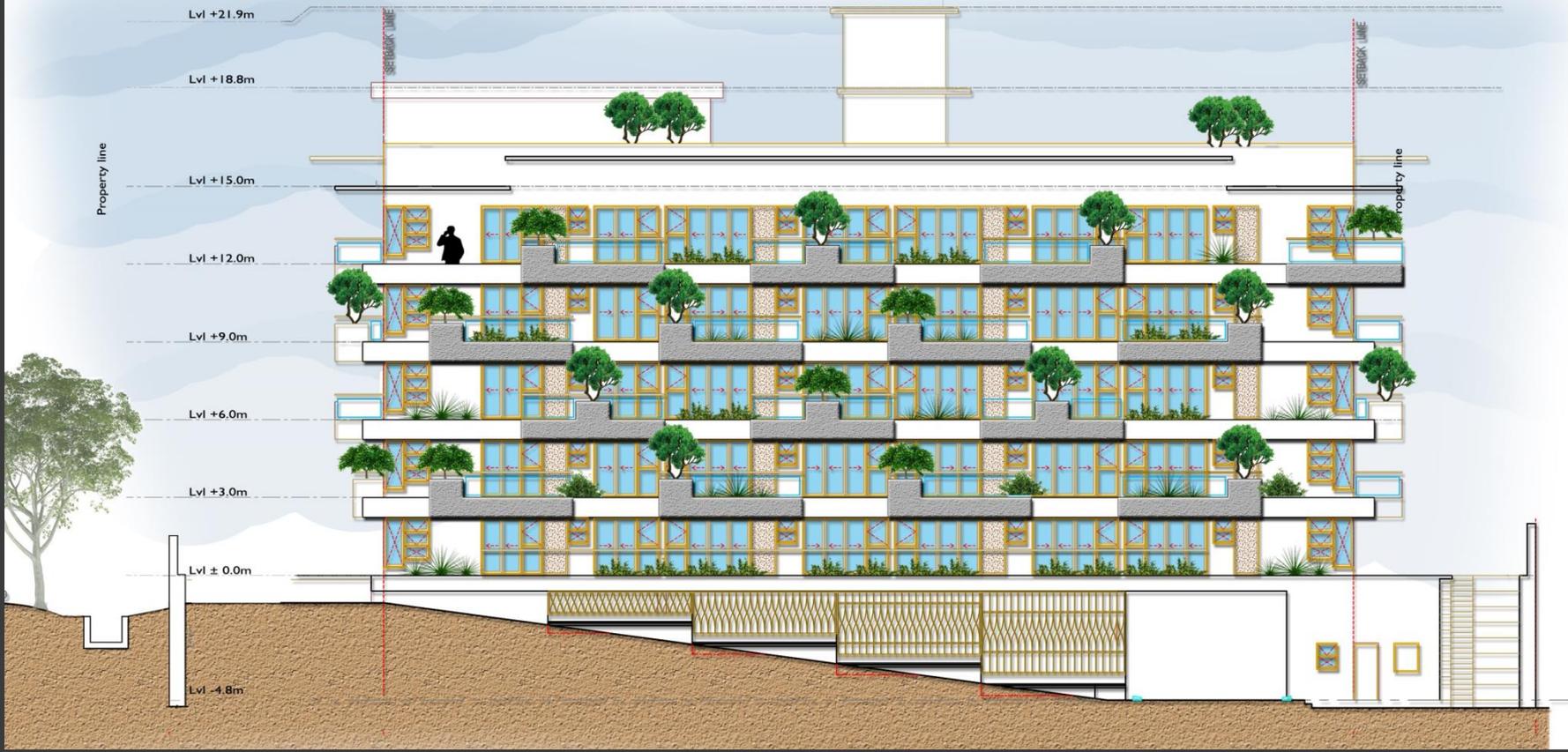


WEST

**West Face:**

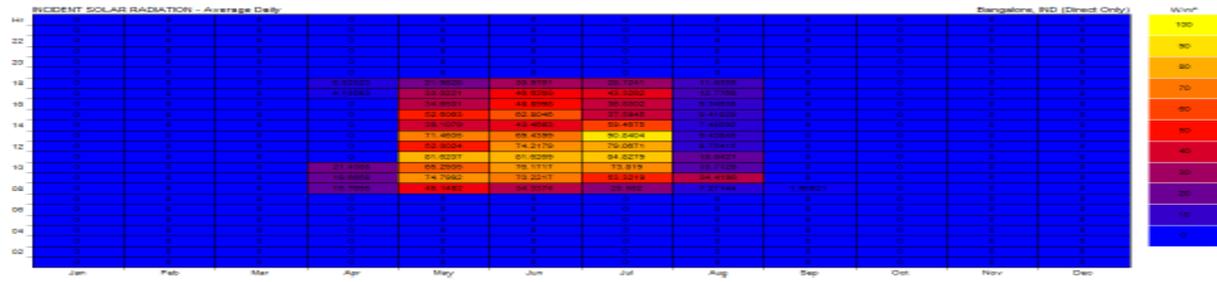


- The West face of the building receives a maximum intensity of 243 W/sqm from 3pm to 4pm during the month of February.



NORTH

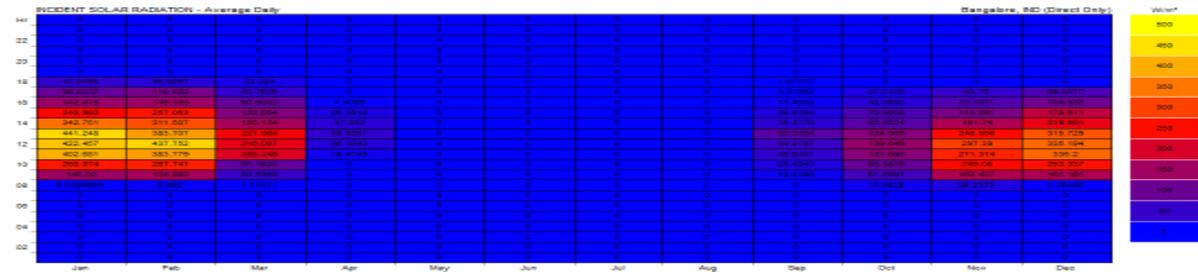
**North Face:**



- The North face of the building receives a maximum intensity of 90W/sqm of direct solar radiation from 12 pm to 1 pm during July.

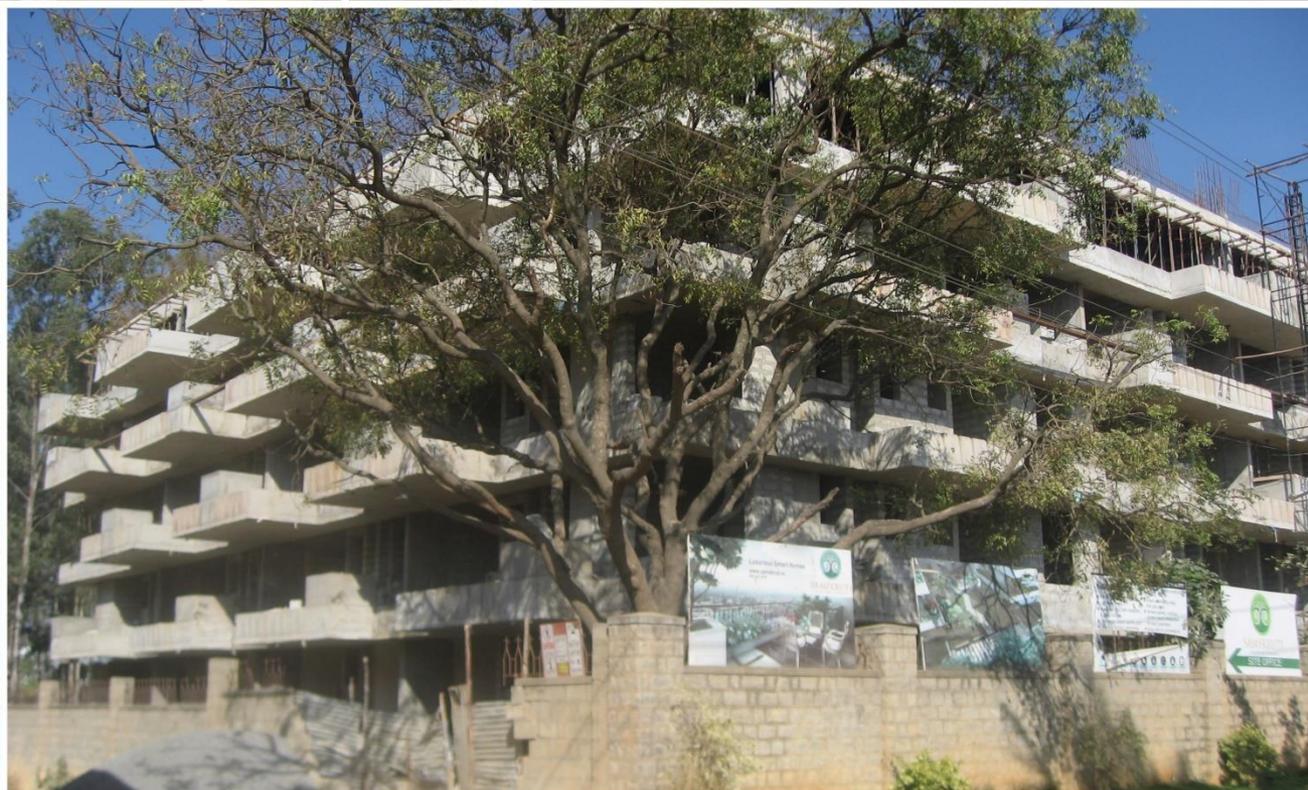


**South Face:**



**SOUTH**

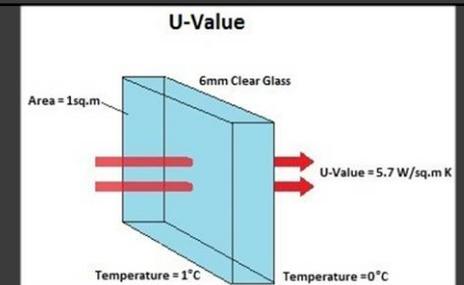
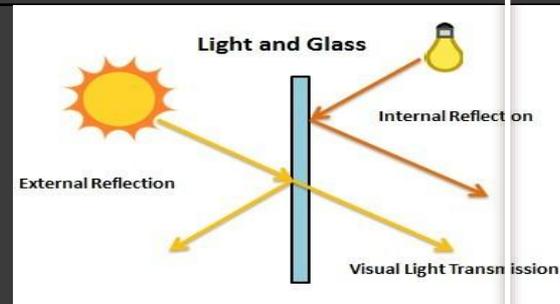
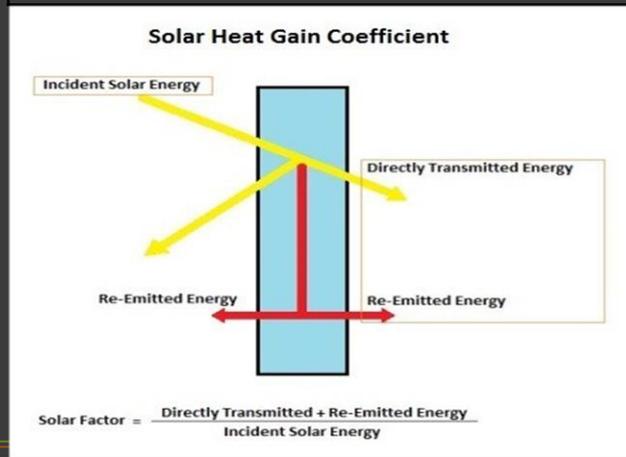
- The South face of the building receives a maximum intensity of 441W/sq. m from 1 pm to 2 pm during the month of February.



The following products are considered for the aforementioned requirements of the project:

Coated Glass  (Face #2)	LIGHT FACTORS			ENERGY FACTORS		
	Visual Light Transmittance (%)	Reflectance (%)		Solar Heat Gain Coefficient (SHGC)	Shading Coefficient (SC)	U-value (W/m <sup>2</sup> K)
		Outdoor	Indoor			
Clear(base)	88	8	8	0.82	0.94	5.7
ST 167	65	19	19	0.66	0.75	5.6
ET 150 II	50	13	11	0.49	0.56	5
ET 125	28	27	9	0.29	0.33	3.8

Note: Values in accordance with ISO 9050m1.5 and EN 673



$$\text{Relative Heat Gain (RHG)} = [(\text{Incident Solar Energy} \times \text{SHGC}) + (\text{Temperature Difference, } \Delta T \times \text{U-Value})].$$



South facade



**Rainwater** from various sources such as solar panels, roof top areas are to be stored in dedicated sump. This water will be purified and supplied as potable water. When insufficient, **ground water** from one of two bore-wells to be pumped into the sump. TREATED BY PLIMMER™ water treatment system which is more efficient than conventional RO. Purified water pumped to overhead dedicated tanks for use - as safe drinking water in every tap.

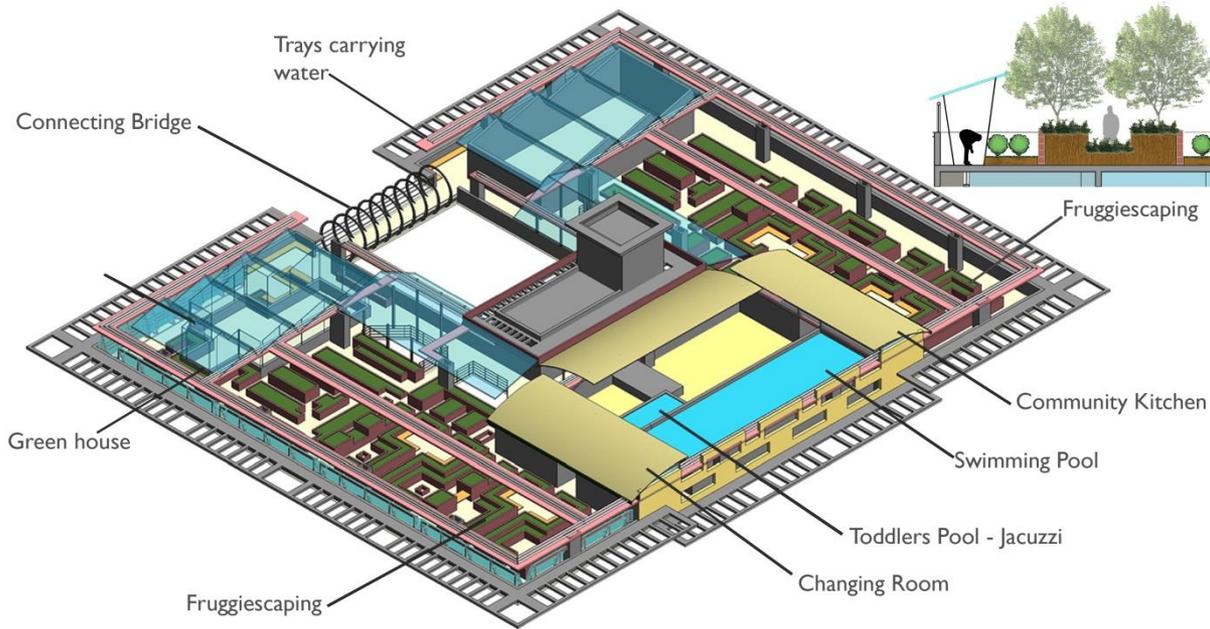
**Black And Grey Water** is to be collected and purified **WITH KLARO SBR**. Further purified with filters: sand, carbon, ozonation, and chlorination (limited use) and then to be supplied for flushing and gardening. This process is 86% efficient. Drive run-off water is stored in different sump. This is to be purified also by Klaro for re-use.



### **WATER TANKS SIZES:**

**Fresh water:** 267000 L (basement) + 50K liter (ramp area) + 40K liter (pre + post treatment at the basement) + 10 K liter (overhead)

**Grey water tanks** (pre+ post treatment): Basement:50kL + 50kL + 40kL + 10kL (overhead)



Isometric view of the terrace and features



**"Fruggiescaping"**  
Fruits and Veggies  
as landscaping:  
*Samskruti*  
is in process of  
trade-marking

Veggie - Kg/month:

TOMATO- 100 ; BRINJAL- 75 ; CAPSICUM- 25; CHILLY 10 ; CABBAGE 50 ; CAULIFLOWER- 50;  
CARROTS -125 ; BEETROOT- 25 ; POTATOES -125 ; OKRA- 50 ;  
WATERMELON -250 ; SPRING ONION- 12.5 ; BEANS- 125 ;  
SEEDLESS CUCUMBER- 125; STRAWBERRIES- 25; HEIRLOOM TOMATOES- 75

Hydroponic NFT systems

With 30+ hydroponic systems producing pesticide free greens, intend to harvest a total of 500 kilograms from these systems. The greens include the following  
LETTUCE, SPINACH, SWISS CHARD, ROCKET/ARUGULA, KALE, COLLARDS,  
BASIL, THYME, OREGANO, and MARJORAM



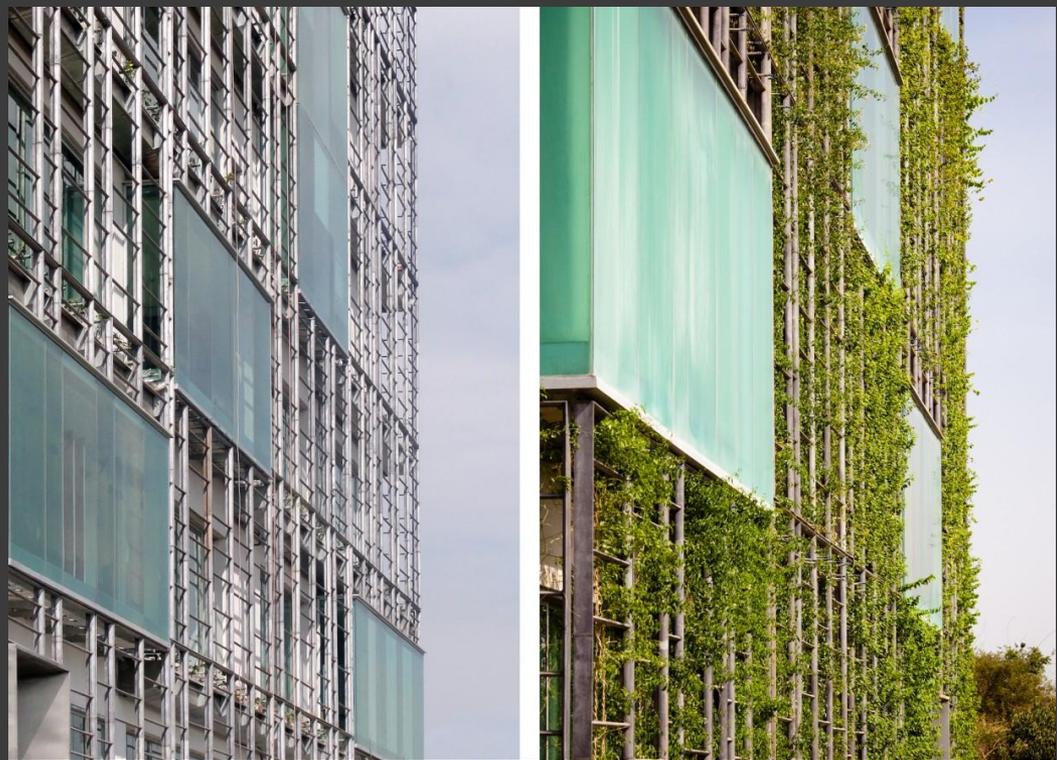
Moving away ----- to this



Spire Edge in Manesar, India by  
T.R. Hamzah & Yeang Sdn. Bhd. 2009

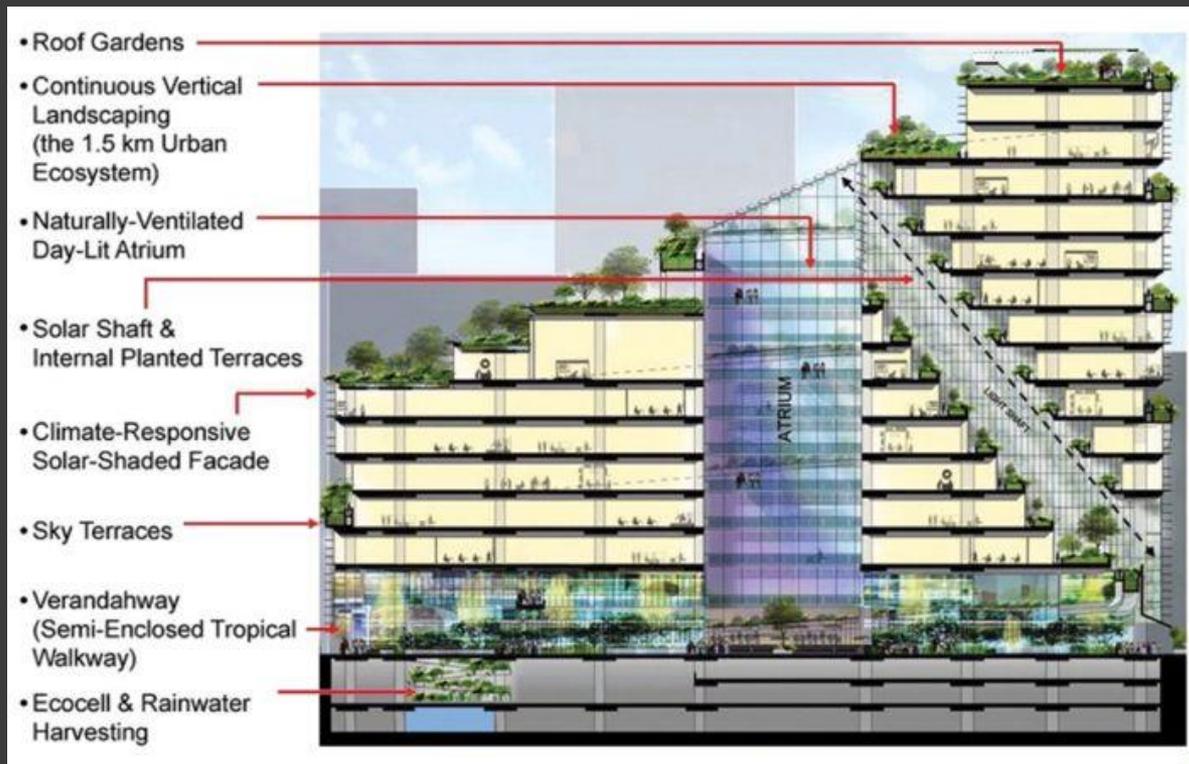


Moving away -----to this



KMC Hyderabad by RMA





Preferred Future



CONTEXTUAL  
DESIGN



Triburg Headquarters, Gurgaon by SPA Design

THANK-YOU

Confederation of Construction Projects and Services (CCPS) &  
All India Glass Manufacturers Federation (AIGMF)



principal architect

**poonam verma mascarenhas**

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**archinova\_environs**

Architecture . Conservation . Landscape

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