

# ZERO ENERGY BUILDING –AN OVERVIEW

Presented

by

**Dr.M.Meena**

Assistant Professor of Physics

S.T.Hindu College , Nagercoil-629902

Kanyakumari Dist

# WHY ?

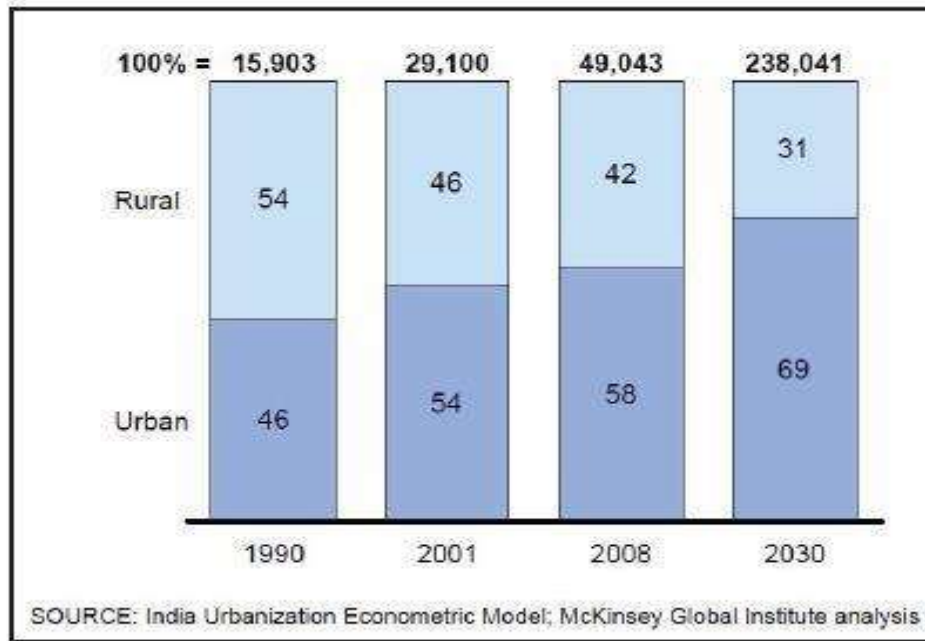
- We people **waste** lot of energy in our daily usage either by **knowingly or unknowingly**.
- Energy need to be conserved not only to cut costs but also to preserve the resources for longer use.
- **Growing Population ,Increasing Energy Demand and Drastical Climate Change .**

# NEED OF ENERGY CONSERVATION

- *Energy conservation is about reducing the energy consumption through using less of an energy service.*
- It produce High Quality Environment and protect wildlife
- It improves Financial status of individuals.
- It improves Health.
- It preserve Energy to Next generation

# Why From Building ?

- Buildings have a significant impact on energy use and the environment.
- In India , **37%** of total energy is used by buildings.
- The energy used by the building sector continues to increase, primarily because new buildings are constructed faster than old ones are retired.
- Energy consumption in the commercial building sector will continue to **increase until buildings can be designed to produce enough energy** to offset the growing energy demand of these buildings



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Figure 1.1: Share (in %) of Urban Areas in GDP (in billions of Indian Rupees, real 2008)

- ✓The cities are going to be the engines of growth for India to become a developed nation .
- ✓ so, the quality of life needs to be improved for sustaining the growth in the long term.
- ✓India being the second most populated country in the world has some of the most densely populated cities in the world.
- ✓The infrastructure in the cities has not been able to keep up with the over-densification and almost all the infrastructure networks from water, waste, transport to housing have become saturated. Some of Indian cities have had the highest rates of air pollution in the world.

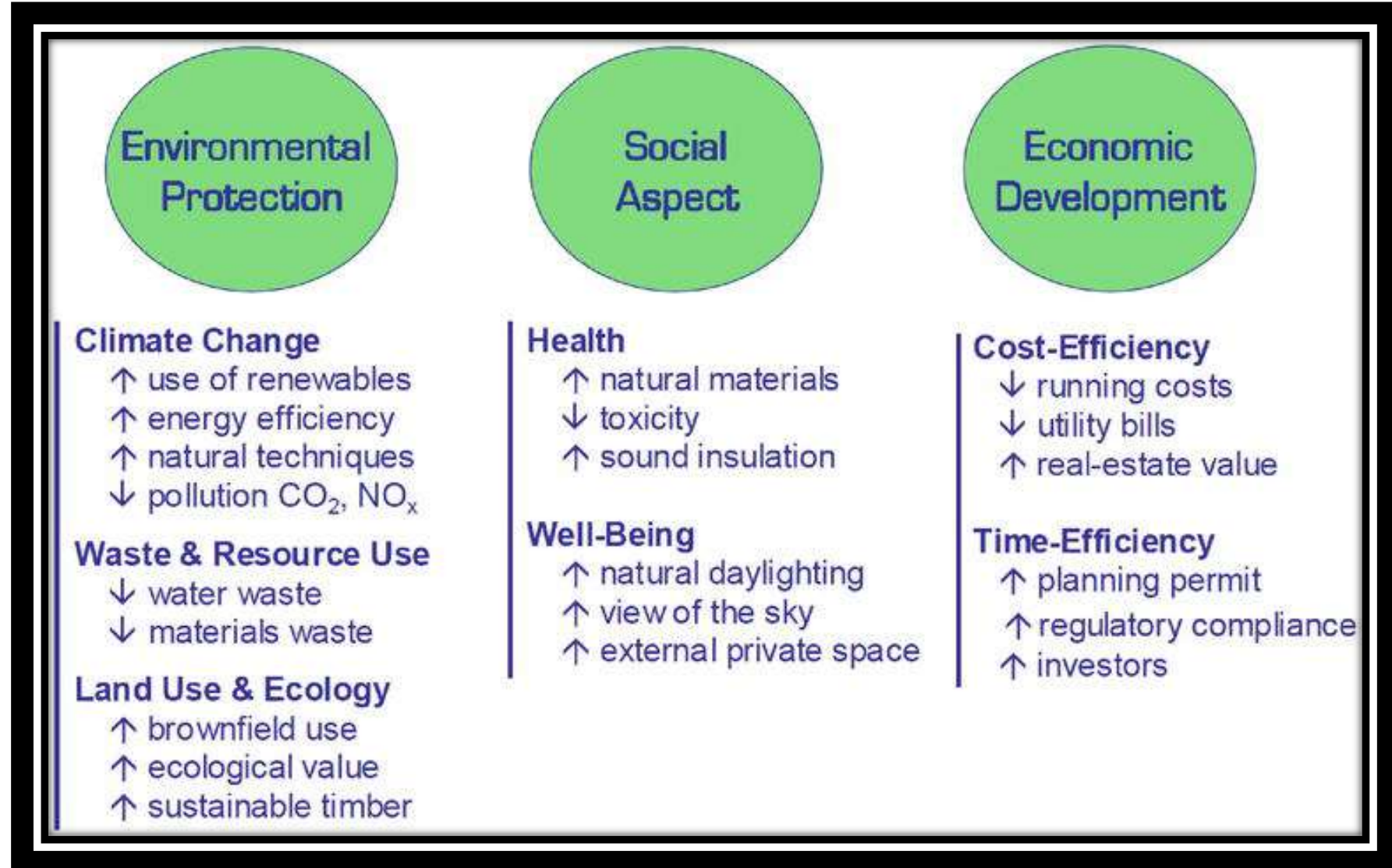
Hence, it is essential that India finds a sustainable, cost effective and energy efficient house, that will help to maintain the low energy consumption as well as become a source of energy thus meeting the electricity demand while saving the environment.

# What is Zero Energy Building ?

Any building or construction characterized by zero net energy consumption and zero carbon emissions calculated over a period of time.

Zero-energy buildings (ZEBs) usually use less energy than traditional buildings as well as generate their own energy on-site to use in the building

# SAILANT FEATURES OF ZEB





# How DOES A BUILDING BECOME A ZBE?



# India's First ZBE



**Indira Paryavaran Bhavan**, a building under the Central Government, was organised by **The Energy and Resources Institute (TERI)**.



- **Effective Ventilation** has been achieved by orientating the building in an East-West direction.
- The design is such that **75% of natural daylight** is utilised to reduce energy consumption.
- The entire building has an access friendly design for differently-abled persons.
- With an Installed capacity of 930 KW peak power, the building has the **largest roof top Solar system**
- Total energy savings of about 40% has been achieved by adoption of **energy Efficient Chilled Beam system of Air Conditioning**.  
This is an innovative air conditioning system, where air conditioning is done by convection currents.
- **Green materials** have been used like Fly ash bricks, regional building materials, materials with high recycled content, high reflectance terrace tiles and rock wool Insulation of outer walls.
- Rapidly **renewable Bamboo Jute Composite material** has been used for door frames & shutters.
- UPVC windows with hermetically sealed double glass, Calcium Silicate ceiling tiles having high recycled content .
- Reduction in water consumption has been achieved by use of **Low discharge water fixtures**, recycling of waste water through Sewage Treatment Plant, use of plants with Low water demand in landscaping, use of Geothermal cooling for HVAC system, rain water harvesting and use of curing compounds during construction.



# CONCLUSION



"Renewable Energy,  
Green Future"

[www.thinkgreen.com](http://www.thinkgreen.com)  
[thinkgreen@gmail.com](mailto:thinkgreen@gmail.com)  
phone number

**THANK YOU ALL**