



# ENERGY EFFICIENT HABITAT

## Enabling Champions for Climate-Resilient Tamil Nadu

### Reference Handout for RWA



## CLIMATE CHANGE IS IMPACTING REAL ESTATE IN TAMILNADU

Today, there is enough evidence that climate change is real. Tamil Nadu, being a coastal state, is on the frontlines of climate change. The region is routinely impacted by floods, droughts and cyclones that cause catastrophic economic losses (approximately \$300-500 million per climate disaster)<sup>1</sup>. Future projections clearly indicate an increased probability of extreme temperature spells that would be expected to be very detrimental for public health<sup>2</sup>.

**Rise in sea level rise will cause large parts of the coastline to be flooded, and the home you will buy, build or rent and the buildings you will work out of will be affected by this.**

Extreme heat means rising demand for air conditioning in the buildings, and rising electricity costs. Power outage means buildings need to rely on natural ventilation or on solar power to keep the indoors in acceptable temperature conditions.

This is why residents need to be vigilant about the properties that they buy or rent, their choice of appliances, and their lifestyle choices.



The Government of Tamil Nadu is crafting many solutions to leapfrog the State to a greener, cleaner, more resilient State with its TamilNadu Climate Change Mission (TNCCM).

By making the right choices, residents can help the State achieve its goals.

## GREEN HOMES CAN HELP TAMILNADU MITIGATE AND ADAPT TO CLIMATE CHANGE

To mitigate climate change, we must design, construct and occupy climate responsive and green homes.

To adapt with climate change, homes should be designed to protect people from

- heat stress by blocking heat through shading, walls, windows and roofs
- rising flood levels by raising the habitable floor level
- power outage by providing autonomy of critical functions

**Green homes help with both climate adaptation and resilience.** The approach to a green

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<sup>1</sup> [Climate Adaptation in Tamil Nadu, India \(wri.org\)](https://www.wri.org)

<sup>2</sup> [Inner 01 Dec copy \(tn.gov.in\)](https://tn.gov.in)

building design includes making homes naturally comfortable with proper design, reducing energy and water use, using environment friendly materials and reducing waste.

As a homeowner, you should demand for such buildings. You can mobilise your neighbours, residents' association, or any other community to multiply the impact of what you learn and achieve in your own home.

Additionally, you will help meet the objectives of Tamil Nadu Climate Change Mission (TNCCM) as well as India's emissions target.

## PRINCIPLES OF GREEN BUILDING AND LIVING

When green building and green living go hand-in-hand, it can create a huge impact. Here are three approaches for this.

### Buy efficient appliances and equipment

Everyday items like fans, televisions, air conditioners, refrigerators, and electric geysers account for nearly 18% of global energy consumption<sup>3</sup> and almost all of your electricity bills.

Here is a list of simple things to be considered when making a purchasing decision for an equipment or appliance.

- Use BEE 3-STAR (or better) rated appliances. This includes room air conditioner, refrigerator, television, LED lamps, electric geysers, ceiling fans and many more
- Use LED tube-lights and light fixtures
- Use energy efficient BLDC ceiling fans
- Use smart switches for appliances that are used frequently
- Use a smart meter to track usage
- Install solar hot water on rooftop
- Consider a 2-wheeler or 4-wheeler Electric Vehicle over one that uses petrol or diesel (fossil fuel)

### Make lifestyle choices that save energy and resources

Having energy efficient equipment is the beginning. Lifestyle choices increase the energy savings and GHG emissions. Moreover, for a sustainable habitat, it is important to consider actions beyond energy conservation. Here is a list of simple lifestyle choices that can significantly benefit climate change mitigation over the long term.

#### Electricity savings at home

- Use room air conditioner along with ceiling fans and increase the temperature setting to 27°C.

<sup>3</sup> [How Civil Society Groups Can Help Expand Energy Efficiency | World Resources Institute \(wri.org\)](https://www.wri.org/publications/2015/01/how-civil-society-groups-can-help-expand-energy-efficiency)



- Keep windows open when outdoor conditions are comfortable (and turn off ACs)
- Close window shades like curtains during the day to keep the sun out, and open the shades when the sun moves away from the window
- Use portable dehumidifiers instead of air conditioner to improve comfort
- Keep your electronic devices in energy-saving mode
- Unplug appliances/devices when not in use
- Switch off lights and fan when leaving a room
- Wash and iron your clothes in large batches
- Wash clothes at normal temperature in the washing machine
- Monitor electricity usage regularly

#### **Waste reduction at home**

- Take your own bags/containers to market
- Segregate waste at home
- Donate old clothes
- Start composting and growing herbs and vegetables in your balcony

#### **Transportation fuel savings**

- Switch off car engines when waiting or idling
- Use carpooling with friends and colleagues
- Use public transportation where possible
- Charge Electric Vehicles during night time

#### **Tips for good indoor air quality**

- Regular servicing of air conditioners including cleaning the filters
- Clean your electric fans to reduce spread of dust
- Use portable air purifiers seasonally

#### **Other tips**

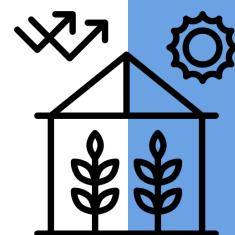
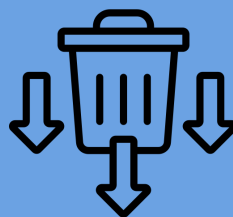
- Prefer pressure cookers over other cookware
- Cook with the lid on
- Close tap while using soap
- Take the stairs instead of elevator where possible
- Avoid single-use plastics
- Carry your own bottle of water

#### **Build, buy or rent a green home**

When building a home, consider the following green building principles starting from the concept stage. When buying or renting a home, look for the same features.

#### **Smart window design:**

- **Window location:** When buying apartments, avoid ones with mostly East and West



facing windows. The low-angle sun in the East and West streams into the rooms and warms them uncomfortably. If you are building a new home, make sure your home has rooms with mostly North and South facing windows. Additionally, ensuring the area of the window is 40% or less of the exterior wall area keeps the home temperature comfortable.

- **Openable Windows:** The openable area of the window should be 30% or more than the room area. As far as possible, rooms should have windows on opposite or adjacent walls to allow for cross ventilation.
- **Shaded windows:** Look for exterior shading devices on all the windows. This will keep out the rain as well as cut out direct sun into the room. All this will reduce the air-conditioning load, and lower the electricity bills.
- **Stop the heat with your walls:** Go for thick or insulated walls. Autoclaved Aerated Concrete (AAC) blocks give better thermal insulation and are easy to incorporate in new construction.
- **Stop heat from the roof:** Use light colored roof tiles or apply a cool-roof coating on your terrace or roof. These too will keep your home temperature comfortable, and reduce your air-conditioning bills.

#### Value water like life:

- **Use water efficient fixtures:** Put aerators on taps and showerheads to optimize water flow. Using water-efficient dual flush toilets is a popular and easy-to-implement eco-solution. You can also look into IAPMO's WEP-I star rating for faucets, showerheads, and toilets as a useful guide.
- **Keep rainwater on your property:** Design the building to collect all rainwater from roofs and terraces and direct it into recharge pits. This is inexpensive and probably the best thing you can do for your local environment. If you are looking for an apartment, choose a large development that recycles wastewater with on-site treatment plants

#### Protect your home: Make your home resilient.

- Avoid buildings and sites that sit in frequent flood-prone areas.
- Raise your floor level to avoid regular flooding, and install pumps and electrical equipment above the flood level.
- Secure underground water tanks so that flooding does not contaminate your water.
- Tie down canopies, awnings and other elements so that they are secured for storms and cyclones.

## WHAT ARE THE RESOURCES TO GREEN MY HABITAT?



Scan the QR code to find more information on green building and living.

