

## Combating climate change by common-sense

By P.B.Sahasranaman

Nowadays, we are all concerned about the impacts of climate change and how to overcome it. There are several simple, common-sense methods which we can all apply in our daily routine to help combat climate change. For example, the traditional Indian way of drying clothes directly under the sunlight is better than using a clothes dryer. Wherever possible, one should travel by bicycle rather than a motor vehicle. These measures not only save energy and reduce emissions, but are also very economical for the household.

Nature is at the centre of our supreme planetary system and the source of our very sustenance. Below are some more practical methods which we can all adopt to help in protecting our environment.



### ***PLANT MORE TREES***

Planting more trees is an ideal solution to combat global warming. A tree can absorb up to a tonne of carbon dioxide over its lifetime and filter up to 27 kg of pollutants from the air, so tree-planting is an easy way to mitigate climate change. Trees provide natural shelter from the heat, and they can even reduce the annual cost of heating and cooling your household.

You can also fence your home with eco-friendly materials such as bamboo trees, vines, or plants with flowers and thorns. These materials will make your house look beautiful and shade your home in the hot weather.

## ***HOME GARDENING***

Use your terrace, balcony or backyard as a space for your own home garden. Try and grow as many vegetables and herbs at home as possible, as they can be used for cooking at least once a week. You can also compost any food waste for your garden. Composting is a simple form of recycling and reduces the amount of biodegradable waste that is unnecessarily sent to landfill.

## ***SHOP LOCALLY AND ORGANICALLY***

Large amounts of fuel are used to transport food to different parts of the country. Wherever possible, try and buy vegetables, meat, milk, wine, cakes, and other groceries from your local farmer. Avoid buying imported groceries.

You can also shop for organic groceries. Organic produce is more eco-friendly and nutritious, as it is not grown using chemical fertilizers, pesticides or herbicides.

## ***ELECTRONIC EQUIPMENT***

Keeping the television, computer, and other electronic equipment on standby mode consumes surprisingly large amounts of energy.

A television consumes about 12 watts of power on standby mode. If it is connected through a voltage stabilizer, the consumption on standby mode increases to 18 watts. A computer with a screen saver will absorb 100 watts of power on standby mode, compared with 10 watts in sleep mode. Switching these items off at night or whenever they are not being used saves both energy and money. Switching off all your electrical equipment even just for one hour at night can save substantial amounts of energy. For example, Delhi's power demand fell by 10000MW during Earth Hour 2009.



If you are buying a new computer consider purchasing a laptop. Laptops use half the amount of electricity consumed by desktops.

Make your refrigerators consume less energy by filling up any unused freezer space with water bottles, which will reduce the area that needs to be kept cold.

Most water heaters that are more than five years old are constantly losing heat and wasting energy because they lack internal insulation which is very essential in cold weather. Wrapping the heater in an insulated blanket or thermal jacket can reduce your annual household emissions.

Clear the air filters of air conditioners to reduce energy consumption. You should also use a ceiling fan in combination with your air conditioner, as it can then operate on a lower setting. Do not turn your air conditioner immediately to the coldest setting when you switch it on. Wait for it to warm up some time before lowering the temperature setting. Avoid placing lamps and other warm appliances near air conditioning thermostats.

Although it is possible to operate electronic equipment with inverters, this is not recommended. Inverters require large amounts of energy for charging. An electrical inverter needs to be charged for a long time in order to work effectively during extended power cuts.

### ***GLASS PANES***

Glass panes should be used only if you require natural light in the room. They invite more heat into the home and will compromise the energy efficiency of your air conditioner.

It is advisable to use insulated reflective glass, shade screens, or bamboo blinds on the windows of air conditioned rooms. Dark curtains can also be used, although they prevent natural light from entering the room. Allow the sunlight only in required quantities.



## ***ECO-FRIENDLY BUILDINGS***

Insulating walls using improved ventilation methods that do not lose heat can reduce greenhouse gas emissions by 80-90%. Solar architecture was first used by the Greeks and Chinese, who would build their house facing south to provide light and warmth.<sup>1</sup>



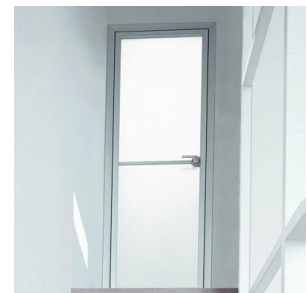
The most recent approach to solar design uses computer modelling to tie together solar lighting, heating and ventilation systems in an integrated solar design package.

Oversized residential buildings should be avoided. Big houses require more building materials, and consequently, more energy for their construction and ongoing maintenance.

Fix the windows in accordance with the natural air flow. Open a window instead of running your air conditioner. Ceiling fans use approximately 1/10<sup>th</sup> the wattage of air conditioners. Reverse rotation ceiling fans have also been developed. These fans can also be used in winter months as they draw warm air down from the ceiling.

Aluminum frames are not recommended for doors and windows in the home as they attract heat. Wooden door and window frames are more eco-friendly.

It is better to ask a building expert to conduct an energy audit of your home. A building expert can identify how eco-friendly your home is and what alterations need to be made to improve its energy efficiency. For example, they may recommend very simple measures, such as using mirrors to deflect heat in the home.



## **USE LOCAL MATERIALS**

Making use of local building materials reduces the

unnecessary consumption of fuel in transportation. Sand, stones, bricks, granites, tiles, etc that are locally available can be used. This will also significantly reduce building costs.

Making building materials from scratch is very energy intensive, so builders are now using a mix of 55% concrete and 45% slag (a waste product from blast furnaces). Mixing slag with concrete saves energy and makes concrete stronger.



### **TAPPING NON-CONVENTIONAL ENERGY SOURCES**

Our present reliance on fossil fuels is responsible for about 40 per cent of global carbon emissions. There are many ways to minimise the use of fossil fuels. The three main methods include energy efficiency, fuel switching, and using renewable energy sources - predominantly solar and wind power.

Solar energy involves using radiant energy from the sun through solar panels. Solar energy is an effective alternative to electricity that does not generate any carbon emissions. Solar power can adequately meet the energy requirements of a household and is extensively used.



Solar power is completely free. However, users do initially need to purchase the equipment necessary to operate a solar power system. More investment in solar energy is leading to the development of better power system models that capture more energy and cost less to produce. Items such as solar water heater, lamps, torches, cookers, etc are not yet available on the market.

Wind power is more commonly used in many parts of India, such as in Tamil Nadu and Gujarat. Though it is unreliable on certain occasions, it is expected to meet

more than 30% of the global demand for electricity. The use of wind power prevents the generation of approximately 1.5 billion tones of carbon emissions annually, and is projected to save over 10 billion tones by 2020.<sup>2</sup>

### ***GENERATE ENERGY FROM WASTE***

Most waste can be recycled or turned into compost. “Reduce, recycle and reuse” is the popular mantra, turning food into fuel.

Waste wood can be used as bio-fuel. Bio-gas stoves (powered by methane generated from rotting organic waste) have also been developed which reduce the amount of methane that is released into the earth’s atmosphere.



### ***DRIVE EFFICIENTLY***

You can save energy by driving your vehicle smoothly. Avoid accelerating or breaking too harshly. Use the correct gear. Do not slam the brakes or clutch.

Drive at an average speed of 50 km/h. The faster you go, the more wind resistance your vehicle will face. If you go at speeds above 60 Km/h, you will waste fuel.



The engine of your vehicle should be kept in proper condition. A regular check on emission levels will indicate its present condition. Ensure that the tyre pressure, battery level, radiator liquid, etc are all at proper levels. Underinflated tyres can make your engine work harder, consuming more fuel.

If you are purchasing a new car, make sure you choose an energy efficient model. Big SUV's are not recommended as they consume excessive amounts of fuel

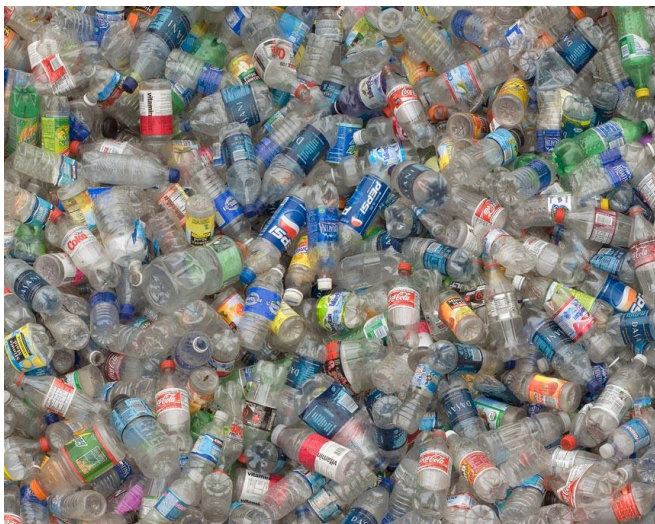
You can also arrange car pools with your work colleagues and for your school-children in order to save fuel. Do not use mobile phones when you drive.



### ***DO NOT GENERATE UNNECESSARY WASTE***

Frequently upgrading your mobile handset, camera, computer etc generates harmful e-waste. The plastic and cadmium released from these gadgets and appliances contaminate the earth.

Avoid purchasing packaged food and drinks, especially bottled water. Packaged food generates a significant amount of plastic waste. Over half of the 45,000 tonnes of plastic waste dumped in the oceans every year comes from packaged food items. Plastic waste takes a long time to decompose and releases harmful toxins into the environment. Try and purchase products that are made from recyclable plastic.



Plastic bags, made of polyethylene, normally end up in landfills or clogging up our storm water and drainage systems. Every year, more than 500 billion plastic bags are distributed. Less than 3% of these bags are recycled. Recycle and reuse your plastic bags. Try and avoid using

them altogether. For example, you can carry cloth bags for your grocery shopping, carry food in reusable packages instead of throw away aluminum foils.

### ***USE NATURAL CLEANING LIQUIDS***

Traces of chemicals that are used in cleaners and detergents pollute our ecosystem and have been detected in fish and milk products. To prevent these chemicals from entering our food chain, you should use white vinegar, lime juice, or baking soda, instead of synthetic cleaning products.



### ***ENERGY SAVING IN KITCHEN***

Keep all of your cooking ingredients within immediate reach to shorten cooking time. Shallow and wide cooking vessels can save fuel as they give out heat to the surroundings. Placing lids on vessels also saves energy and cooking time. Certain cooking vessels, such as pressure cookers and milk boilers, are extremely energy efficient and should be used as often as possible.



Use the correct quantity of water for various dishes to avoid unnecessarily wasting energy and water. When excess water is drained, precious nutrients are lost. When boiling starts, you can reduce the heat to a low simmer to further save energy.

Use fresh foods in cooking as much as possible. About 10 times more energy is required to produce frozen food than fresh food.

Try and reduce your meat consumption. Livestock farming is methane intensive and requires vegetation to be cleared for grazing.

### ***SUSTAINABLE WATER USE***

A dripping tap can waste up to 10 litres of water per day. Keep your taps in proper condition and ensure that





they are tightly closed at all times.

Grey water from your laundry can be re-used to flush toilets or clean your car.

Use your dishwasher and washing machine only when they are full.

When the nature gives water in its own way, through rain water, why should we buy it. Make use of the same by rainwater harvesting .

### ***USE ENERGY SAVING LAMPS***

Compact Fluorescent Lamps (CFL's) are more expensive than conventional incandescent bulbs, but they are still more economical as they last 10 times longer than traditional bulbs and consume 30% less electricity. Many 7 watt CFL's are comparable to a regular 40 watt bulb, 26 watts is the typical CFL equivalent of 100 watts and so on. Switching at least 10 bulbs in your home will save approximately 1.5 tonnes of carbon emissions and reduce your electricity bill.

However, each CFL bulbs contain about 5 mg of mercury and must be disposed of carefully. Putting them in a recycling bin is an ideal solution.

Light Emitting Diodes (LED's) do not present the same disposal problems as CFL's. Using only a few LED's will provide necessary lighting equivalent to normal bulbs in the home. LED's are effective as accent and task lights, and you can also buy LED desk and floor lamps. LED's may initially cost more, but again, they are more economical as they can last for more than five years without upkeep.



Cities can save significant amounts of money and energy by using these eco-friendly LED lamps.

## ***IMPOSE CARBON TAXES***

As a regulatory measure, a tax or fee can be imposed on products to reduce carbon emissions. For example, a tax could be imposed on diesel vehicles. This would reduce the use of such vehicles, and consequently limit the release of carbon emissions into the atmosphere.

Tax concessions can also be granted for the development of eco-friendly buildings. Tree-planting and eco-friendly landscaping should be encouraged in urban development. Tree-planting should be made mandatory by incorporating suitable provisions in the law.

Subsidies or grants should be provided to support the use of green energy. For example, in the United States, renewable energy certificates allow consumers to purchase green energy from other parts of the country.

## ***GREEN CERTIFICATION***

*“What is the fuel efficiency?”* That is the question typically asked when you buy a car. The same question should be asked about the energy efficiency of many products. Initiatives such as green certification will encourage manufacturers develop more energy efficient products. The more commonplace this practice becomes, the more consumers and producers are likely to be discouraged or feel guilty for supplying carbon intensive products.

## ***USE A CLOTHES LINE***

Use ropes for the purpose of drying clothes. Clothes dry very quickly when placed directly under the sunlight. Avoid clothes dryers and follow the traditional Indian practice.

### ***CREATE A PAPERLESS OFFICE***

Avoiding creating an unnecessary paper trail by using internet banking and paying your bills online. Online banking avoids unnecessary travel to the banks. Transferring money online is much faster than a manual transfer. Avoid printing out emails unless they are essential. More paper usage means that more trees are destroyed. Ensure that all your waste paper is recycled. Use recycled paper at home and in the office. Even envelopes can be re-used by placing stickers over addresses.

Avoid printing out your photos. Photo albums can be shared online with your friends and family on various websites, and can also be sent by email.

Switch off your air conditioner during lunch hours.

### ***USE SEASONAL CLOTHES***

Ensure that you dress according to the particular season. This will contribute to reducing heating and cooling costs. Identify separate clothes that can be used in the summer and winter. For example, men can wear open collar clothes and remove their ties in the hot weather. Lawyers in Delhi Courts should avoid wearing black gowns during the summertime.

### ***TRANSPORT SERVICES AND VEHICLES***

Use massive road transport (MRT) and other public transport services as often as possible. Avoid using motor vehicles. Cycling tracks and pedestrian foot paths should be constructed on all major streets. This will also encourage people to avoid using motor vehicles.

## ***POPULATION CONTROL***

The larger our population, the more pressure that is placed on our precious natural resources. This can be reduced by proper family planning and encouraging smaller families.

Our excessive consumption of energy is damaging the earth's axle. To maintain the axle of our earth, we have to properly oil it and keep it away from rust. We should encourage eco-friendly practices to preserve and nurture our earth. Nature needs us and we need it to survive. It is high time that we all take responsibility and make an effort to reduce our ecological footprint through a few simple measures, so that we can overcome climate change together.

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<sup>1</sup> Butti and Perlin (1981) at page 15.

<sup>2</sup> "Global Wind Energy Outlook 2008, Published by Global Wind Energy Council (CWEC) and Green Peace International