

How to live sustainably

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Each one of us should live sustainably in order to conserve the resources of this world. The consumptive life style of western societies is putting tremendous pressures on the world resources besides increasing earth warming and pollution. For example an average [US citizen consumes 306 GJ/yr. of energy](#). If every citizen of this planet wants to have the wasteful and consumptive life style of an average American then we will need the [resources of 4 earths to sustain us](#).

Also those of us who work in the areas of sustainable development should try to live sustainably ourselves. I would therefore like to share with you my experiences in living a sustainable but decent and emotionally satisfying life. This lifestyle has evolved slowly over time and required some effort. I had lived in US for many years in 1970s and had imbibed the consumptive lifestyle of US. Coming and living in rural India taught me many things among which was [spirituality](#) and frugality. Both these things go hand in hand and have helped me live in the way I describe below.

I live in a small rural town called Phaltan in district Satara, Maharashtra, India where I run a small NGO called [Nimbkar Agricultural Research Institute \(NARI\)](#). We work in the areas of agriculture, renewable energy, animal husbandry and sustainable development.

My experiments in sustainable living for the last 30 years are as follows:

1. I live in a house designed by me and constructed in 1984. It is built of stone with 18" thick walls which allow tremendous thermal lag-time so heating and cooling due to ambient atmospheric temperature is delayed.

It is passively cooled in the summer by laying old jute gunny sacs on the roof and sprinkling water on them two times a day. These sacs are very cheap and cost Rs. 10/m². The evaporating water

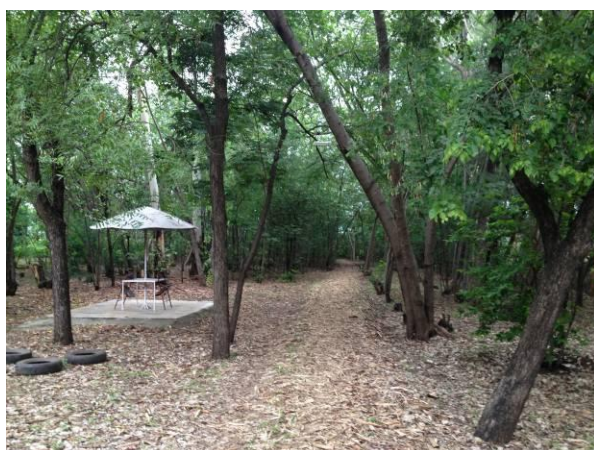


from the sacs cools the roof from where 80% of thermal load comes into the house. Thus when the outside temperatures are about 40-45⁰C the house is cool in the afternoon with average temperatures of rooms ranging from 25-30⁰C. This is mostly because of thick walls and cool roof. Besides we also close all the windows and draw the drapes over them so that hot air and radiation from outside does not come inside the house. The trees surrounding the house also help.

2. In a couple of years or so the gunny sacs are worn out because of the salts left behind by the evaporating water. These old gunny sacs are either used as mulch in the garden or burned in our hot water boiler, which supplies water for our daily bath. The water boiler is a grate-type multifuel boiler with about a 10 m long chimney attached to it. This chimney height gives an excellent draught and hence burns the wood and other material quite cleanly. In fact the water boiler is used for burning lots of different things as explained below. The ash from this boiler is used as a fertilizer in our garden either by putting it directly or in composting pit.
3. Phaltan is about 800 m above sea level and is 100 km south-east of Pune or 300 km south-east of Mumbai. [Its climate](#) is very mild. Still in some years during winters the minimum temperatures can reach 7-8 ⁰C. Our

house is not heated. We close the windows at night if needed and wear warm clothes and socks. It keeps us warm and comfortable.

4. All our kitchen waste is composted in a pit (dimensions of 1 m X 1 m X 1 m) and within 2-3 months it provides excellent fertilizer for the garden. Till couple of years ago we used to feed the kitchen waste to the rabbits (about 25-30 of them) who were in a cage in our garden and they provided manure for the garden much rapidly than the compost pit. However two years ago our garden was flooded with torrential rain and they all perished.
5. We never waste any food. Whatever we take on the plate is eaten. The leftovers are either used next day or fed to our two dogs and 3-4 cats. There is no special food for the pets. They eat whatever we eat.



6. We have a 2-acre plot on which our house is located. It mostly contains trees planted by us. Their leaf litter rots in the soil during rainy season and provide nice mulch. The dead branches and trees

provide us the wood for heating our bath water in the boiler. In fact we always have surplus of wood so that we sell it and make a nice tidy sum.

7. When we purchased this land in 1981 it was completely barren and the quality of land was so poor that there would be huge cracks – big enough for whole sheep to disappear in them. We planted about 30 different types of trees. With time the trees have grown so that the garden is presently like a tropical forest. Last count showed that there are about 40 different types of birds which either live in our garden or take refuge during migratory phase. The leaf litter from the trees and the compost fertilizer

has improved the soil quality and it has therefore become springy and quite fertile.

8. Most of our groceries and vegetables are grown within 10-15 km of our home. The eggs are from free ranging chickens, milk from cows across the road and vegetables and groceries from the local market. Most of these things are grown in Phaltan area. We use safflower seed produced on our Institute farm for crushing in the local mill for oil. Thus the oil is fresh and without any chemicals. We also consume some fruits grown in our own garden.
9. Till very recently I drove my 31 year-old Maruti 800cc car which transported me from point A to B comfortably. After being driven 150, 000 kilometers it has been retired since it cannot be insured and neither can I get spare parts for its repair. So now I drive an efficient Maruti Alto which gives me between 18-20 km/liter and is small enough to go in the smallest of lanes and by- lanes of Phaltan town. For long distance driving to Pune or Mumbai (300 km from Phaltan) I use Maruti Esteem which also gives average of 18-20 km/liter.
10. We have few clothes and they are worn till they get torn. They are then used in the house as dusters and wipers and after becoming tatters are used in the water boiler to heat the water.
11. Mostly I wear khadi or cotton spun in cottage industries. Thus I buy the cloth for my bush shirts and they are stitched by my tailor in Phaltan. This makes these shirts much cheaper than the ones purchased in the market. Khadi is a very comfortable material to wear and also makes excellent dusters and wipers after the shirts get torn.
12. Similarly all the papers in the office are used for writing on both sides and the used ones are brought to our house to again heat our bath water. Thus everything is recycled.

13. We use electricity sparingly – which till recently was facilitated by the Government of Maharashtra since we used to have 3-4 hours of power cut everyday! We have battery-powered inverters both in the offices and at home which supply enough juice during power cuts for lights, fans and computers only. So no TV or refrigerators run on them. During electricity cuts we walk, talk or read. This provides a good quality time to catch up on reading and discussions. Sometimes I think this is for the best as 24-hour electricity with TV and other electronic media running continuously causes distraction.
14. We do not travel very much but communicate more by phones and internet and believe that this is much more energy-efficient way of keeping in touch. With availability of broad-band internet connection both at home and in the office, it is an excellent communication and information medium.
15. We bring most of our groceries and vegetables in cotton carry bags and hence have little garbage of plastic. Nevertheless we cannot get away from plastic as most things come already packed in it and this is the biggest nuisance we have. We have no way to recycle it. Presently we take the plastic bags and bottles to the local garbage dump from where they ultimately go to the recycling center. Still I feel we use much less plastic than most people. The technology for recycling of plastics in rural areas is not available and is very much needed.
16. We are teetotalers and drink only water, which is boiled. Thus the plastic bottles and cans of soft drinks do not litter our garden. Drinking only water is not only healthier but also helps the environment by not producing plastic bottle litter.
17. We buy only those things which are needed and since we live simply we do not need to buy too many things. We still use one of our 25-30 year old refrigerator and try to get most of our gadgets repaired rather than throwing them away when they stop working. This reduces the garbage production and at the same time is easy on the pocket book. However

India is rapidly developing into a throwaway society and hence it is becoming increasingly difficult to get the old gadgets repaired.

18. The main external inputs we use are electricity, petrol and LPG for cooking. Our per capita energy consumption (from last 2-3 years data) is 14.5 GJ/yr. for electricity (both in offices and home), 10.8 GJ/yr. in transport (mostly for petrol for 2 cars) and 2.1 GJ/yr. in cooking gas. Thus we personally consume ~ 27.4 GJ/person/year of energy. To this should be added the energy in India's infrastructure which comes to about 10 GJ/person/year. Thus our total commercial energy consumption is ~ 37.4 GJ/person/yr. Contrast this with about 306 GJ/person/year that an average U.S. citizen uses. Thus in $1/8^{\text{th}}$ the energy that is used by an average America citizen we can live quite decently in a modern industrial society.
19. Our low electricity consumption results since we use only fans and LED/CFL lamps and evaporative roof cooling system. Even in our offices we use evaporative roof cooling. We do have an air conditioner (AC) in our bedroom and in office but it is hardly used because of evaporative roof cooling system. Last 8-10 years data show that we have used AC for 15-20 days a year during the humid weather. The low energy usage in transport is because on an average we travel between 15-17 thousand km/yr.
20. If air travel is added to the above energy then the consumption increases drastically. With the energy norm of 1.3 MJ/passenger-km for air travel a trip to US from Mumbai consumes 28.3 GJ/person of energy while each domestic air travel consumes ~ 3 GJ/person. Thus last year we made 4 domestic and one foreign trip and hence the total energy used was 86 GJ/person. This is still less than $1/3^{\text{rd}}$ the energy consumed by a US citizen. Though our air travel is quite limited but still it is the biggest user of energy in our case. Interestingly [one earth is sufficient to provide every person this energy consumption.](#)

21. Similarly our average water consumption is 180 liters per person/day for household purposes. This is almost one-fourth that used by a U.S. citizen.
22. Thus a satisfying and decent life style can be maintained in much less energy and water usage as compared to that in western societies and this is a lesson for our leaders who are hell bent on following the Chinese and US patterns which are both very consumptive and unsustainable.

We can make the life style even more sustainable by producing electricity, [liquid and gaseous fuels from agricultural residues](#) so that our household gadgets and mobility machines can run on locally produced fuel. Similarly [electricity production from solar energy](#) can further help in this process. However both these things will require a community effort together with certain policy changes by the Government of India. Nevertheless if all of us become [internally secure](#) through spirituality then it can help us reduce our greed for materials and resources and help us in living sustainably. And with proper planning and enlightened policy of the Government, Indians can enjoy a very high quality of life without becoming over consumptive.

HOME

This article is an avatar of the original article published in 2009 in the book ["Nature of Human Thought"](#).