सत्यमेव जयते

CLIMATE FRIENDLY LIFESTYLE PRACTICES IN INDIA

प्रकृति रक्षति रक्षितः
Nature Protects if She is Protected

Ministry of Environment, Forest and Climate Change
Government of India

Background

The environmental consequences of unsustainable lifestyles and patterns of production and consumption are now widely acknowledged. According to the Intergovernmental Panel on Climate Change (IPCC), anthropogenic greenhouse gas emissions (GHG) are mainly driven by population size, economic activity, lifestyle, energy use, land use patterns, technology and climate policy. Further, vulnerability to climate change, GHG emissions and the capacity for adaptation and mitigation are strongly influenced by livelihoods, lifestyles, behaviour and culture. Emissions can be substantially lowered through changes in consumption patterns, adoption of energy saving measures, dietary change and reduction in food wastes.[1]

Unsustainable consumption leads to pressure on natural resources and long-term impacts on the environment. While a section of the globe and the society faces a lack of basic necessities, the high consuming and unsustainable lifestyles of another section places immense stress on the environment. This imbalance in global consumption patterns is reflected in a situation where the richer sections over exploit the available resources, and the poorer segments are unable to even meet their food, health, housing and educational needs.

Changing consumption patterns require a multipronged strategy focusing on demand, meeting the basic needs of the poor, and reducing wastage and the use of finite resources in the production process.[2] It is essential to facilitate a shift to sustainable lifestyles in favour of reduced consumption and cleaner products and services so as to stay within the earth's carrying capacity. There is a need for change in the overall attitude and behaviour towards sustainability, especially amongst the richer sections of society.

In India, traditional practices that are sustainable and environment friendly continue to be a part of people's lives. India has a history of low carbon footprint and lifestyle. These need to be encouraged, rather than replaced by more modern but unsustainable practices and technologies. This is also applicable to other developing countries where there is a growing interest in alternative models of development, and on reviving green consciousness drawing on traditional cultures.

This pamphlet aims to document some of these traditional, sustainable and climate friendly lifestyles for wider outreach and dissemination.

Indians are the top-scoring environmentally sustainable consumers in the 2014 National Geographic/GlobeScan Consumer Greendex.

(A scientifically derived sustainable consumption index of actual consumer behavior and material lifestyles across 18 countries)

Source: http://environment.nationalgeographic.com/environment/greendex/

"A sustainable lifestyle means rethinking our ways of living, how we buy and how we organize our everyday life. It is also about altering how we socialize, exchange, share, educate and build identities. It means transforming our societies and living in harmony with our natural environment. As citizens, at home and at work, many of our choices – on energy use, transport, food, waste, communication and solidarity – contribute towards building sustainable lifestyles."

- Report of the Marrakech Task Force on Sustainable Lifestyles led by the United Nations Environment Programme (UNEP) and the United Nations Department of Economic and Social Affairs (UNDESA)

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[1] IPCC. 2014. Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. IPCC, Geneva, Switzerland, 151 pp.

[2] UN. 1992. Results of the World Conference on Environment and Development: Agenda 21. UNCED United Nations Conference on Environment and Development, Rio de Janeiro, United Nations.

Habits and Culture

The Indian conception of life is embodied in a coherent world-view in which all its aspects exist in a state of inter-related harmony, being governed by a universal order that is reflected in all realms of human experience. The human being is part of a well-ordered system in which all aspects of life and nature have their place, and are not in opposition, but in harmony with each other. This harmony between humans and nature is integral to the Indian tradition and ethos.

In India...

People have a general inclination towards need-based consumption and an ingrained sense of responsibility which resists wasteful consumption and propagates respect for life.

It is estimated that 70 per cent of people live in rural areas. Communities close to nature follow a frugal lifestyle which is not based on high consumption. Many of the skills still practised in India are passed on from one generation to the next in a master-to-disciple tradition. To fulfil their basic needs, people are dependent not on high-energy-based products, but on organic farming, skilled labour and individual craftsmanship. Most daily use products are hand-made and made from locally available materials. This decreases dependence on electricity and other sources of power. For example, handlooms are preferred to power-loom, and *Khadi* or homespun fabric is popular among large number of Indians across class, gender or generations.

Recognising the sacredness of nature and its ecosystem, people maintain their houses of worship such as temples, gurudwaras, churches and mosques with surrounding areas including bathing ghats, gardens, ponds and sacred groves.

Food and Agriculture

Food Waste

Food production, processing, marketing, consumption and disposal have important environmental externalities because of energy and natural resource usage and associated GHG emissions. The global volume of food wastage is estimated at 1.6 gigatonnes (Gt) of 'primary product equivalents', while the total wastage for the edible part of food is 1.3Gt. The global carbon footprint of food wastage, excluding land use change, has been estimated at 3.3GtCO_2 equivalent (FAO, 2013). Upstream wastage volumes, including production, post-harvest handling and storage, represent 54 per cent of total wastage, while downstream wastage volumes, including processing, distribution and consumption, are 46 per cent.[3]

Overall, on a per-capita basis, much more food is wasted in the industrialised world than in developing countries. Loss or wastage of food is mostly at the retail and consumer levels.

The per capita food waste by consumers in Europe and North-America is 95-115 kg/year.[4]

In developing countries, greater focus is required on reducing post-harvest losses early in the supply chain. However, food waste at the consumer level is limited.

The per capita food waste by consumers in South/Southeast Asia and sub-Saharan Africa is only 6-11 kg/year.[4]

General aversion to food wastage and respect for food are deeply ingrained in Indian psyche. Children in Indian homes are taught about respect for food at a young age.

Local Food

Food transportation is one of the biggest and fastest-growing sources of GHG emissions worldwide. The decreasing share of locally produced goods, in particular locally grown foods, is an important lifestyle choice affecting resource consumption.

[3] FAO. 2013. Food Wastage Footprint Impact on Natural Resources. Summary Report. Food and Agriculture Organisation, Rome

[4] FAO. 2011. Global Food Losses and Food Waste – Extent, Causes and Prevention. Food and Agriculture Organisation, Rome

Ready to eat, packaged food is popular in developed countries as compared to locally grown food. Packaged food and drink consumption in Europe is projected to grow by three per cent a year to 953 billion packages by 2020.[5]

In India...

Locally grown food (vegetables and fruits) sourced from nearby rural areas is readily available in local markets, thereby reducing transportation and packaging requirements. Fresh food is preferred over processed, packaged and artificially preserved food.

Diverse food habits exist in different parts of the country specific to local climate and availability of resources.

Natural food preservation techniques such as sun drying, salt application in pickles, and grain storage in indigenous structures using natural disinfectants and biopesticides such as Neem (*Azadirachta indica*) are commonly practised.

Meat Consumption

Growing meat consumption leads to an increased demand of land and water, and rising GHG emissions. Worldwide meat production has tripled over the last four decades and increased 20 per cent in the last 10 years. Meanwhile, industrial countries are consuming growing amounts of meat, nearly double the quantity in developing countries.[6]

There is a global increase in meat consumption, arising from constantly high consumption levels in developed countries and rising consumption levels in emerging nations. Global meat consumption per capita for the base period 2011-13 was 33.8kg. The global meat consumption per capita is expected to reach 36.3kg in retail weight by 2023.[7]

About 42 per cent of the households in India are vegetarian (they do not eat fish, meat or eggs).[8] The remaining households are less strict vegetarians or non-vegetarians. The per capita meat consumption in India for the period 2011-13 was 3.3kg, which is one-tenth of the global average.[7]

[5] Future of European Food and Drink Packaging to 2020. http://www.labelsandlabeling.com/news/latest/convenience-still-king-european-packaged-food-market#sthash.y0lG21em.dpuf, accessed on 15 October 2015.

[6] Global Meat Production and Consumption Continue to Rise. http://www.worldwatch.org/global-meat-production-and-consumption-continue-rise, accessed on 15 October 2015.

[7] OECD/Food and Agriculture Organization of the United Nations. 2014. OECD-FAO Agricultural Outlook 2014, OECD Publishing. http://dx.doi.org/10.1787/agr_outlook-2014-en, accessed on 11 October 2015.

[8] http://www.fao.org/WAIRDOCS/LEAD/X6170E/x6170e09.htm#bm09, accessed on 11 October 2015.

WATER FOOTPRINT

Litres of water needed to produce:

1 litre tea	100
1 litre milk	1,000
1 kg rice	3,400
1 kg cheese	5,000
1 kg beef	15,500

Source: UNESCO & UNEP 2011. Youth Xchange Climate Change and Lifestyles Guidebook

Transportation

Globally, transport accounts for approximately 23 per cent of total energy-related CO_2 emissions[9], with road transport itself accounting for 17-18 per cent.[10] In urban areas, mobility is rapidly becoming one of the greatest challenges due to increasing number of passenger cars.

It is also recognised that compact urban form combined with public transport are central to achieving a low-carbon pathway.

In affluent societies, cars are generally preferred even for short distance travel.

Majority of the western urban areas are designed with high foot prints and ground coverage. This results in higher GHG emissions in transportation and urban service (water, electricity, sewerage, etc.) delivery.

In India, pedal rickshaws, bicycles and walking are often preferred for short distance travel. Non Motorised Transport (NMT) dominates the modal share of Indian cities. Even in mega cities, with a population of over eight million, the modal share of NMT ranges from 40–50 per cent (walking and bicycling). This is attributed to the dense mixed land use patterns in Indian cities, resulting in shorter trip lengths and availability of NMT as the only accessible mode of transport for low-income households. To achieve the sustainability goals of the transport sector, it is necessary to promote the use of NMT.[11]

[9] Sims R., R. Schaeffer, F. Creutzig, X. Cruz-Núñez, M. D'Agosto, D. Dimitriu, M. J. Figueroa Meza, L. Fulton, S. Kobayashi, O. Lah, A. McKinnon, P. Newman, M. Ouyang, J. J. Schauer, D. Sperling, and G. Tiwari. 2014. Transport. In: Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

[10] United Nations Environment Programme n.d. Global Fuel Economy Initiative. http://www.unep.org/transport/gfei/autotool/understanding_the_problem/Trends_and_scenarios.asp, accessed on 15 October 2015.

[11] UNEP and UNEP RISO Centre. 2013. NMT Infratructure in India: Investment, Policy and Design, http://www.unep.org/Transport/lowcarbon/Pdf's/NMTInfrastructure_India.pdf, accessed on 10 October 2015.

Energy and Water

Global CO_2 emissions from electricity and heat generation sector allocated to residential end-use contributed to 11 per cent of the total emissions in 2012.[12]

For many people, especially in developed countries, the highest emissions are from energy used to heat or cool homes.[13]

In India...

Simple sustainable consumption values, such as switching off unwanted electrical appliances, are imbibed in homes as well as schools from a young age.

During the dry and hot summers, many Indian households still prefer to use fans or desert coolers as compared to air conditioners. During summers, people often prefer to sleep out in the open, in courtyards or on the terrace, thus leading to reduced usage of cooling appliances in homes.

For generations, earthen pots or *matkas* have been used to store water and keep it cool. This helps reduce the refrigeration requirement during summers.

The practice of sun-drying of clothes and hand washing dishes reduces the usage of energy-intensive tumble driers and dish-washers, respectively. This practice is especially followed in south-Asian and African countries. Hand washing the dishes would save around 200 to 300kWh/year assuming one cycle per day of dish washing.[14] This also results in reduced water consumption as compared to dishwashers.

People, especially in villages, and smaller towns and cities, prefer to bathe with a bucket and mug which is significantly less wasteful than bathing under shower or in bath tubs. Some people also prefer to bathe in cold water for most of the year.

Traditional structures such as *Baoris* or stepwells to collect water in arid areas are an example of efficient conservation and use of natural resources.

Cultural regulation in arid areas of western India requires water management through:

- Using terraces as catchments where none can soil the surface with shoes.
- Soiled crockery is burnished clean with soil and dry ash.
- While drinking water, the tumbler is not touched to the lips so that the remaining water can be consumed by others.

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[12] IEA 2014. CO2 Emissions from Fuel Combustion-Highlights (2014 Edition), International Energy Agency, France.

[13] UNESCO & UNEP 2011. Youth Xchange Climate Change and Lifestyles Guidebook

[14] https://www.bijlibachao.com/appliances/best-dishwasher-brand-models-ifb-bosch-samsung-siemens-lg-prices-and-their-electricity-consumption-in-india.html, accessed on 10 October 2015

Building and Construction

GHG emissions from the building sector have more than doubled since 1970 to reach 9.18 $GtCO_2eq$ in 2010. In 2010, the building sector accounted for approximately 32 per cent of global final energy consumption and 19 per cent of energy-related GHG emissions (including electricity-related).[15]

It may be noted that many of the modern buildings are highly energy intensive. Producing one tonne of portland cement releases roughly one tonne of CO_2 to the atmosphere.[16] In 2013, cement production accounted for roughly 9.5 per cent of global CO_2 emissions.[17]

Traditional building practices such as use of solar-passive orientation, thermal insulation by using mud, *jalis* or chequered windows and large courtyards for natural ventilation are examples of practices that are designed for comfort in harmony with the natural surroundings, thus reducing energy requirements.

Traditionally, Indian house construction utilises local materials like bamboo, stones and clay. The use of traditional materials is not only suitable for local climate but also contributes to GHG mitigation by reducing cement consumption and material transport.

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[15] Lucon O., D. Ürge-Vorsatz, A. Zain Ahmed, H. Akbari, P. Bertoldi, L. F. Cabeza, N. Eyre, A. Gadgil, L. D. D. Harvey, Y. Jiang, E. Liphoto, S. Mirasgedis, S. Murakami, J. Parikh, C. Pyke, and M. V. Vilariño, 2014: Buildings. In: Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

[16] United Nations Environment Programme. 2010. Greening Cement Productions has a Big Role to Play in Reducing Greenhouse Gas Emissions. http://na.unep.net/geas/getUNEPPageWithArticleIDScript.php?article_id=57, accessed on 10 October 2015

[17] Olivier JGJ, Janssens-Maenhout G, Muntean M and Peters JAHW. 2014. Trends in global CO2 emissions, 2014. Report. The Hague: PBL Netherlands Environmental Assessment Agency; Ispra: European Commission, Joint Research Centre.

Waste Management: 3Rs
(Reduce, Reuse, Recycle)

A major share of the waste generated globally is Municipal Solid Waste (MSW) originating from urban settlements (1.7-1.9 billion tonnes, or 46 per cent of the total waste generated), with 0.77 billion tonnes of this being produced by 25 OECD countries alone.[18] Waste and wastewater accounted for 1.5 $GtCO_2eq$ in 2010.[19]

In western countries, while there is an emphasis on waste recycling, the reuse of old products is limited.

The culture of repair/recycle and reuse is a part and parcel of Indian lifestyle. There exists a thriving informal recycling network that has a strong door to door collection system, as well as forward linkages to the recycling industry. Newspapers, plastic, metals, woollens, cartons, and electronic products are recycled extensively.

In their day to day life, Indian households try to minimise waste generation through material reuse. For instance, metal, plastic and glasswares used for food packaging are reused to store food grains and other groceries in the kitchen. Also, old clothes, books, toys, etc. are passed on within the family or to the needy. Even luxury items such as refrigerators and cars have a good second hand market.

[18] United Nations Environment Programme. 2011. Waste: Investing in energy and resource efficiency. http://www.unep.org/greeneconomy/Portals/88/documents/ger/GER_8_Waste.pdf), accessed on 15 October 2015

[19] IPCC. 2014. Summary for Policymakers. In: Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Health and Yoga

India is known for practicing traditional medicinal systems—Ayurveda, Siddha, Unani, Sowa-Rigpa and Homeopathy. These systems of medicine have been prevalent since ancient times and have found mention in the scriptures. Traditional health care systems are mainly plant-based, safe and cost-effective natural therapies.

Almost 70 per cent of the population in India use traditional systems of medicine for primary health care needs.[20]

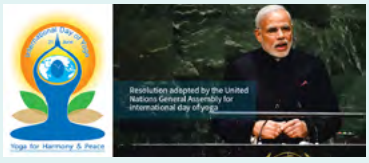
In India, several home-made health drinks like *shikanji, kanji, thandai* which rejuvenate and restore energy and health in harsh climate are also popular.

The United Nations proclaimed 21 June as the International Day of Yoga

Yoga is an ancient physical, mental and spiritual practice that originated in India. The word 'yoga' derives from Sanskrit and means to join or to unite, symbolising the union of body and consciousness. Today, it is practised in various forms around the world and continues to grow in popularity.

Recognising its universal appeal, the United Nations proclaimed 21 June as the International Yoga Day by the resolution 69/131 on 11 December 2014.

International Yoga Day aims to raise awareness worldwide of the many benefits of practising yoga.



Yoga is not just about exercise but to discover the sense of oneness with ourselves, the world and nature

GYMMING

Equipments required are not always available or affordable to have at home.

Energy consumed for air conditioning, lighting and equipment usage.

Additional travel time and resources required to visit the gym.

YOGA

No equipments required. Just some space is needed to practise various asanas.

Saves travel time and resources since yoga can be practised at home.

Besides the improvement of physical health, yoga induces tranquillity and serenity of mind.

[20] Bodeker, G., Ong, C. K., Grundy, C., Burford, G., & Shein, K. 2005. WHO Global Atlas of Traditional, Complementary and Alternative Medicine: Text Volume.

Nature Conservation

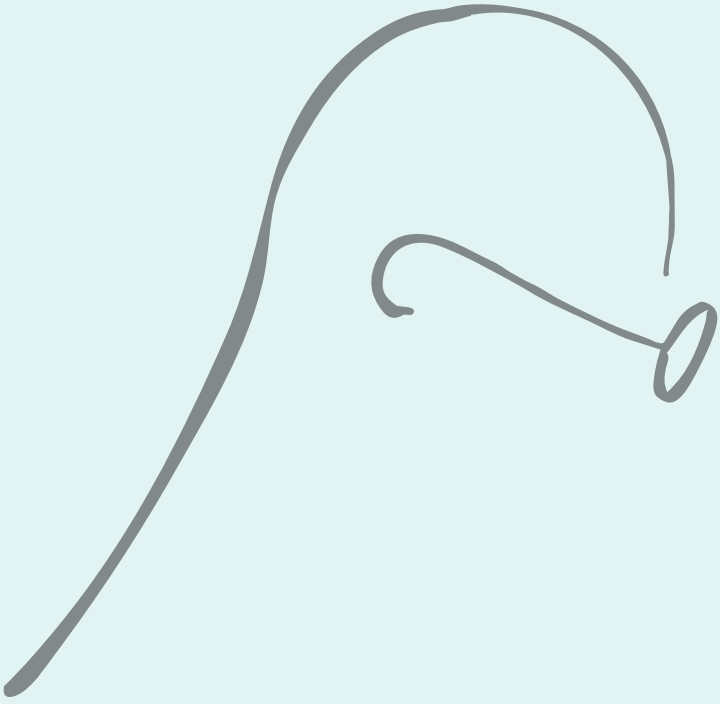
In India, forests are revered and trees worshipped. Forest and tree cover in India stand at 24.01 per cent of the country's geographical area and is on ascendance. The forests of India are a critical resource for rural and local people throughout the country, provisioning food, fuel and fodder. They have a role in stabilising soil and water resources. Forests neutralise approximately 12 per cent of India's GHG emissions.

Sacred Groves and Landscapes: Conservation of sacred species, groves, forests and landscapes has been an important aspect of the ethics of Indian culture. The Sacred Groves / Forests are important repositories of floral and faunal diversity that have been conserved by local communities in a sustainable manner. The sacred groves in Himachal Pradesh, Maharashtra, Kerala, Karnataka, and elsewhere not only highlight community managed conservation efforts but also offer potential for carbon sequestration.

Planting of trees is seen as *Punya* or a 'karmically' rewarding activity resulting in plantation drives or *van mahotsavs* annually.

Bishnoi is a social group found in the Western Thar Desert of India, who follow the tenets of conserving biodiversity of the area and ensuring a healthy eco-friendly social life for the community. For them, harming the environment means harming themselves.

In Rajasthan, a desert state of India, the *Khejri* tree (*Prosopis cineraria*) is valued for its moisture-retaining properties, and it is not axed even if it comes between the constructions. The live example of this is seen in Salasar Balaji temple in Sikar district.



"Earth provides enough to satisfy everyone's need, but not for anyone's greed"

-Mahatma Gandhi

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