



“Seven Billion Dreams. One Planet. Consume with Care.”

The well-being of humanity, the environment, and the functioning of the economy, ultimately depend upon the responsible management of the planet's natural resources. Evidence is building that people are consuming far more natural resources than what the planet can sustainably provide.

Many of the Earth's ecosystems are nearing critical tipping points of depletion or irreversible change, pushed by high population growth and economic development. By 2050, if current consumption and production patterns remain the same and with a rising population expected to reach 9.6 billion, we will need three planets to sustain our ways of living and consumption.

The World Environment Day theme this year is therefore “Seven Billion Dreams. One Planet. Consume with Care.” Living within planetary boundaries is the most promising strategy for ensuring a healthy future. Human prosperity need not cost the earth. Living sustainably is about doing more and better with less. It is about knowing that rising rates of natural resource use and the environmental impacts that occur are not a necessary by-product of economic growth.

The goal of sustainable development is to increase the quality of life for all people without increasing environmental degradation, and without compromising the resource needs of future generations. We can do this by shifting our

consumption patterns towards goods that use less energy, water and other resources, and by wasting less food. While substantial environmental impacts from food occur in the production phase, households influence these impacts through their dietary choices and habits. This consequently affects the environment through food-related energy consumption and waste generation. 1.3 billion tonnes of food is wasted every year while almost 1 billion people go undernourished and another 1 billion hungry. The consequences of such imbalance are:

- ◆ Over consumption of food is detrimental to our health and the environment. 1.5 billion people globally are overweight or obese.
- ◆ Land degradation, declining soil fertility, unsustainable water use, overfishing and marine environment degradation are all lessening the ability of the natural resource base to supply food.
- ◆ The food sector accounts for around 30% of the world's total energy consumption and accounts for around 22% of total Green House Gas emissions.
- ◆ Increased consumption adversely affects food security by increase in food prices. Upsurge in production methods that use more resource-intensive food products.
- ◆ Resource-intensive foods deplete the agro-ecological resource base, affecting its ability to produce plentiful food.

Traditional Knowledge: A key to Sustainability

Dr. H. Malleshappa ,I.F.S. & Dr. Jayanthi M., I.F.S.,*

Sophisticated knowledge of the natural world is not confined to science. Human societies all across the globe have developed rich sets of experiences and explanations relating to the environments they live in. These ‘other knowledge systems’ are today often referred to as traditional ecological knowledge or indigenous or local knowledge. They encompass the sophisticated arrays of information, understanding and interpretations that guide human societies around the globe in their innumerable interactions with the natural milieu: in agriculture and animal husbandry; hunting, fishing and gathering; struggles against disease and injury; naming and explanation of natural phenomena; and strategies to cope with fluctuating environments.

Tamil Nadu State with its unique geographic location and weather patterns is a climate change hotspot, with many parts receiving low and erratic rainfall. The State is projected to have rising sea levels and shifting of the shoreline. Traditional knowledge and practices are considered to have great potential to provide communities with adaptation and/or coping strategies in the face of changing climate. Local strategies may not succeed completely given the compulsions of market forces and complexity of the problems and the limited time window to take critical decisions relating to climate actions in the future. The local communities will undoubtedly need much support to adapt to the changing climate. Nevertheless, the wide array of coping strategies and practices developed over millennia would serve as the basis for designing our future strategies in a warming world with the aid of modern science.

Examples of Traditional Knowledge based sustainable practices

1. Direct seeding for growing Rice

Direct seeding method, though traditionally practiced in hilly tracts of the state, was unheard of by Cauvery

delta farmers. During the severest drought year of 1987, the Department of Agriculture in collaboration with the delta farmers association popularized the direct seeding method as no water was available in the Mettur dam. Due to this food shortage was avoided.

Advantages

- Through direct seeding methods farmers were able to get an average yield comparable to transplanting method which is possible only with good rains.
- Is suitable when less than normal rainfall is experienced and
- Has wider relevance to rainfed agriculture.
- It is a known fact that agriculture acts as a driving force for climate change through the emissions of GHGs. Development of cultivars emitting less methane and adoption of direct seeding coupled with better water management will promote sustainability and avoidance of emissions from fields.
- Also this reduces the cost of labour as well as reduces the dependency on more labourers. This is because conventional method would ask for transplanting, weeding, and other operations

2. Conservation of indigenous cattle breeds

The Kangeyam bull is noted for its sturdiness, majestic look and capacity for hard work. It can withstand heat conditions and is mostly used as a draft animal. It can feed on kolukkattai grasses which are not browsed by other breed.



* Department of Environment, Govt. of Tamil Nadu.

Advantages

- In India cattle are specifically adapted to different agro-climatic conditions.
- Kangeyam bulls are resistant to excess heat and diseases and can thus survive under extreme temperatures.
- It is an excellent draft animal; the milk of the cow, though low in quantity, has a higher fat content and the products made from this milk is highly valued in the area. These are “draught” breeds. Females yield less than 500 kg per lactation (poor yield).
- Under extreme conditions, when there is less income from normal agricultural operations, milk yielded by this breed would supplement their income.
- Males are cart pullers with a walking speed of 5-7 km/ hour and covers 30-40 km/ day.
- These can pull twice the weight of pneumatic rubber tube carts.
- These require very less feeding and therefore will require less investment for feed per animal.
- The gene pool therefore is worth preserving in order to build better breeds with more resistance, to cope with future Climate Change and adapt to the prevailing condition.

3. Traditional Knowledge for soil and water conservation

In Kumaragiri village of Tuticorin district farmers plant marvel grass (*Dichanthium annulatum*) and elephant grass (*Pennisetum purpureum*) on field bunds during rainy season to arrest runoff and soil loss. Besides checking soil erosion and runoff, the grasses provide fodder for cattle.

In Velacheri village, cuttings of Kiluvai are planted manually on field boundaries at a depth of 15-20 cm with a spacing of 30 cm during April-May. This method of fencing reduced velocity of run-off besides acting as live fencing and helped in moisture conservation.

Advantages

Besides conserving moisture, checking soil erosion and runoff, the grasses provided fodder for cattle during rainy season. Vegetative measures for soil and moisture conservation are cost effective and environment friendly.

Availability of fodder also helps farmers' livelihoods by maintaining nutrition for the cattle which is essential for livelihood security, an important element of climate change adaptation.



4. Intercropping of cotton with black gram

Farmers of Aruppukottai village of Viruthnagar district practiced intercropping of cotton with black gram. Seeds of cotton and black gram are sown in 1:1 ratio manually through seed hoppers, with a row spacing of 30 cm and plant spacing of 15-20 cm.

Advantages

The practice promoted nitrogen fixation, soil moisture conservation, weed control as well as nutritional security. The methods can be refined further to reduce runoff and improve soil moisture.



5. Use of Traditional Knowledge in restoration of sacred groves

In Nenmeli village of Kanchipuram district, at the foothill of the hillock, a 10 acre plot belonging to the Sree Rathina Muthumariamman Temple was once a fertile area used by the villagers for grazing their cattle. This land also acted as a catchment area for rainwater coming from the hillock. The water used to recharge the underground aquifer and supply the adjoining tanks. However, soil excavation and removal for house building made the land barren and undulating, causing heavy run off and erosion of top soil.

The restoration was undertaken involving the local community. Main activities were fencing, live fencing with agave, contour mapping and bunding, gully, plugging, stone check walls, tree plantation, construction of percolation tank, sowing of rush grass, herbal garden etc.

Advantages

The results of restoration work indicate the close link to Climate Change Adaptation. Ponds and tanks in adjoining areas have been recharged, ground water levels have increased and the 10 ha. plot has been fully greened



6. Preserving gene pools while extracting natural resources

Traditional honey hunters are highly skilled and their activity has evolved over a long period to suit local resources and local bees. Honey hunting has a rich array of indigenous methods of harvesting honey. The practice is intrinsic to tribal cultures and is accompanied by traditional folklore and elaborate ritual. The climbing gear diversity ranges from using bamboo pegs to ropes made of local forest vines.

Advantages

- The environment friendly and resource conserving practices of tribal people can contribute both to climate change mitigation as well as adaptation
- By preserving habitats, productivity of the forests could be enhanced and maintained as they yield income and help cope harsh climatic changes

Conclusion

There is overwhelming evidence that establishes beyond doubt that a lot of traditional knowledge which the communities have the potential to get converted to the level of adaptive capacities and capitalise on new opportunities brought about by climate change. Examples of such traditional and innovative adaptation practices include shoreline protection and reinforcement, rainwater harvesting, supplementary irrigation, traditional farming techniques, protect watersheds, crop and livelihood diversification, and community-based adaptation strategies. In particular, their knowledge systems have not been recognized as critical to the sustainability of the various development measures taken for adapting to climate change and other environmental changes.

Source: Final Report 2013- Assessing Relevance of Traditional Knowledge for Climate Change Adaptation in Tamil Nadu- Submitted by Prime NET Consulting Group.

State Level workshop on the occasion of International Biodiversity Day

The State Level workshop on Biodiversity conservation was conducted by the Tamil Nadu Forest Department on the occasion of the International Biodiversity Day at Anna Institute of Management, Greenways Road, Chennai on 22nd May 2015. Thiru. Vinod Kumar, I.F.S., Principal Chief Conservator of Forests (Head of Forest Force), delivered the welcome address. Thiru. Hans Raj Verma, I.A.S., Principal Secretary to Govt., Environment and Forests Department, Government of Tamil Nadu and



Thiru K. Skandan, I.A.S., Chairman, TNPCB delivered special addresses. Prof. Dr. K. Ramasamy, Vice Chancellor, Tamil Nadu Agricultural University delivered the Presidential address. Prof. M.S. Swaminathan, Founder Chairman, MSSRF delivered the key note address. A book on biodiversity authored by Dr. T. Sekhar, I.F.S. (Retd) was released during the function. Dr. H. Malleshappa, I.F.S., Director of Environment made a presentation on the various initiatives taken by the Department of Environment to remediate water bodies.

Brain storming session on “Livable Cities”

In view of World Environment Day 2015, a brain storming session on “Livable Cities” with reference to Chennai city was held on 05.06.2015 at 4.00 pm at the chamber of the Principal Secretary to Government, Environment and Forests Department, Fort St. George, Chennai. Thiru Hans Raj Verma, I.A.S., Principal Secretary to Government, Environment and Forests Department, welcomed the gathering and introduced the topic for brainstorming. He stated that the quality of life in Cities are deteriorating and mentioned Chennai is one of the cities in India with Green cover of only 2% and the air quality of the City is very poor. He posed a question and started the brainstorming by stating “How ethical we are? Are we doing justice for our future generation?



and importantly what are we doing to make Chennai city as a Sustainable city?”

Thiru Skandan, I.A.S, Chairman, Tamil Nadu Pollution Control Board, advised that all the ideas should go with the existing institutional framework and existing resources. Dr. S. Balaji, I.F.S, Principal Chief Conservator of Forests, Dr. H. Malleshappa I.F.S, Director, Department of Environment and other officer from the Tamil Nadu Forest Department, Department of Environment and various other Departments of the Government participated in the brain storming session. The staff of the ENVIS centre along with experts from various NGOs, Research Institutions, Corporate Offices etc., participated in the programme.

Meeting to strengthen the collaboration between the various ENVIS Centres

A meeting was organized by the ENVIS Centre of the Department of Environment, Government of Tamil Nadu to strengthen the collaboration between the various ENVIS Centres in Chennai. Dr. H. Malleshappa, I.F.S., Director, Department of Environment along with the staff of the ENVIS centre, Department of Environment, visited the ENVIS Centre of the Institute for Ocean Management (IOM), Anna University, Chennai at 10.00 A.M on 10th June 2015 to discuss the various activities of the Centres. Dr. S. Srinivasalu, Director, IOM, made a brief presentation of their ENVIS activities. The importance and the need for collaboration among the ENVIS Centres in Chennai to enhance the activities of both the Centre's were highlighted. Further such meetings are planned for future improvement of ENVIS activities in Tamil Nadu.



Training Programme on ICZMP

Training programme on Integrated Coastal Zone Management Plan (ICZMP) for line department staff, local bodies & NGO's have been conducted on 17.06.15 & 19.06.15 at Kancheepuram and Tiruvallur respectively by the Department of Environment, Government of Tamil Nadu through the Care Earth Trust Chennai. In Kancheepuram, District Collector Dr. V.K. Shanmugam I.A.S., inaugurated the training programme. In Tiruvallur, District Collector Thiru K. Veera Raghava Rao, I.A.S., inaugurated the training programme. Dr. Jayanthi M., I.F.S., Additional Director, Department of Environment welcomed the



participants and briefed them about ICZMP. Thiru D. Senthil, Environmental Scientist, DHI gave a detailed presentation on ICZMP, followed by presentations on various topics such as Coastal Biodiversity, Alternative Livelihoods, Shore line Management, Marine Pollution, Eco-tourism, Coastal vegetation by various experts from different institutions like SDMRI, NCSCM, Care Earth etc.

Brain storming session for the preparation of “State of Environment Report for Tamil Nadu

The brain storming session for the preparation of “State of Environment Report for Tamil Nadu” was conducted by the ENVIS Centre, Department of Environment on 22nd June 2015 at the Forest Department Conference Hall, Panagal Building, Saidapet, Chennai 600015. Shri M.P. Johnson, Advisor (MoEF&CC) chaired the Brainstorming Session. Dr. Jayanthi .M I.F.S., Additional Director of Environment welcomed the gathering and gave an outline about the preparation process of the SoE Report and emphasized its importance. Dr. K.S.Kavikumar, Professor, Madras School of Economics, Consultant made a brief presentation highlighting the structure of the SoE report. Dr. J.D.Marcus Knight, Senior Program Officer, requested all the participants to send their respective updated information, photographs, comments and suggestions on the SoE report to the ENVIS Centre by e-mail at the earliest.



Ten simple steps for a sustainable lifestyle



Air dry your clothes. Line-drying clothes during the non-rainy months instead of using a dryer can reduce 320 kilograms of carbon dioxide emission a year.



Get rid of old, energy inefficient appliances. A high-efficiency refrigerator will reduce 225 kilograms of carbon dioxide emission a year.



Replacing just three frequently used bulbs in your home with Compact fluorescent bulbs can reduce 140 kilograms of carbon dioxide emission a year.



Reducing and recycling your garbage by 25 percent will reduce carbon dioxide emissions by 450 kilograms per year.



Inflate car tyres, properly inflated tyres can reduce as much as 110 kilograms of carbon dioxide emission a year.



Do not leave the computer in stand-by mode. Shut it down and reduce 450 kilograms of carbon dioxide emissions a year.



Even when a plugged-in electronic appliance is turned off, it can use energy. Unplug appliances and reduce more than 450 kilograms of carbon dioxide emission a year.



Use fuel efficient vehicles. The potential carbon dioxide reduction for a car that gets 17 kilometres per litre is 2,500 kilograms per year.



Trees help suck up the carbon dioxide, plant a tree and remove 1,000 kilograms of carbon dioxide from the atmosphere.



Using the bicycle or public transport, just two days a week to go to work, you can reduce your carbon dioxide emissions by 720 kilograms a year.

*"There is enough on earth for everybody's need,
but not for everybody's greed"*

~ Mahatma Gandhi



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Disclaimer: The information in this newsletter has been compiled from various sources and does not necessarily depict views of the ENVIS Centre, Department of Environment, Government of Tamil Nadu.