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WORLD EARTH DAY 2015

Our Earth is the only planet in the Universe where life is possible till date. It is very necessary to maintain the natural assets of the earth in order to sustain the life on the earth. World Earth Day is observed to remind each of us that the Earth and its ecosystems provide us with life and sustenance. World Earth Day is observed every year as an annual event by the people all across the world on 22nd of April in order to enhance the awareness among people about the environment safety as well as to demonstrate the environmental protection measures. First time, the world earth day was observed in the year 1970 and then started observing annually all across the globe by almost 192 countries. The theme of World Earth Day 2015 is **"Water Wonderful World"**.

Less than 2% of the Earth's water supply is fresh water. Of all the earth's water, 97% is salt water found in oceans and seas. Only 1% of the earth's water is available for drinking water. Two percent is frozen. The human body is about 75% water. A person can survive about a month without food, but only 5 to 7 days without water. People from all over the world observe Earth day for creating awareness among people on the dangers of Earth and environment deterioration, like air and water pollution, ozone layer deterioration rapid industrialization, without pollution control measures, deforestation, large scale utilisation and production of pesticides etc. The earth day 2015 specifies the significance of water and its wise use.

Compared to national average, Kerala receives 2.78 times of rainfall and compared to Rajasthan and Tamil Nadu, Kerala receives five and three times of their rainfall respectively and also the land is blessed with 44 rivers. The total catchment of all these rivers is only 28739 sq. kms. and have a discharge of 72873 MCM. Even though the total fresh water availability of any country or a basin remains more or less constant but the population in those geographical boundaries increases thereby the per capita fresh water availability decreases with time. The gorundwater status of Kerala shows the ground water levels of wells represented by groundwater table at many places of Kerala wells have declined within a range of 30 cm to three mts within a period of five years . Demand for groudwater is increasing day by day and the recharge is decreasing with time. Better management measures like popularisation of rainwater harvesting, ground water recharge and of course optimising the growth the population etc. should be practised while observing the World Earth Day with focal them as "Water Wonderful World". The great potentials of water whether it is tourism, agriculture, fisheries, transporation, hydel projects, energy generation, drinking water and scio-economic benefits must be done with careful study and scientific basis.

SOLID WASTE MANAGEMENT

Sanitation is not only a critical element of human well being but also a mandatory component for the fundamental right to life, to be realized in the fullest sense. Basically sanitation is both an obligation and a right. As it is closely linked to the way of life, it has to come from within the people; as it is absolutely essential for a healthy life and better civic society people have to be facilitated to attain it. The following elements define the package of practices which together constitute sanitation. They are (i) Safe disposal of human excreta (ii) Solid waste management (iii) Liquid waste management (iv) Safe handling of drinking water (v) Home sanitation and food hygiene (vi) Personal hygiene (vii) Community environmental sanitation including adequate drainage facilities.

These are universally accepted as the seven components of sanitation. The guiding principles for sanitation programme compiled by UNICEF highlight the importance of hygiene, safe drinking water, waste management and latrine coverage with emphasize on appropriate technology and gender sensitive social engineering. Over the years the State has taken various initiatives to improve latrine coverage and waste management. However, these initiatives are yet to catch up with increasing population, emerging challenges and evolving environment.

Solid Waste

Solid waste is generated by every day human activities. Solid waste may be in the form of household garbage, leftovers of food and other wastage that include old house hold items such as papers, plastic waste in the form of kitchen equipment or any other products that are consumed during every day activities. The emergence of solid waste can be dated back to the beginning of human civilization, when early man began to consume animal products and generated garbage in the form of bones and other parts of animal they used to slaughter. With the advancements in the human cycle of growth more and more products came into existence that included wood, metals and other items and the waste generated became a more complex in nature.

Types of Solid Waste and its status in Kerala

The types of solid waste may be divided into different categories depending up on their sources. There are degradable and non-degradable wastes. Degradable wastes are mainly organic substances. There are hazardous and non-hazardous wastes. As far Municipal waste is concerned, a major chunk of it emanates from households, hotels, schools, institutions, marriage parties, slaughter houses etc. Further, there are E-wastes as well.

The sources and types of solid wastes generated in Kerala is shown in Table 1. Considering the composition of the Municipal Solid Waste (MSW) 80% of them are biodegradable and the rest of the 20% includes hazardous, plastic and paper wastes. The graphical representation of the composition of MSW is shown in Figure 1.

Sources	Types of solid wastes
Residential	Food wastes, paper, cardboard, plastics, textiles, leather, yard wastes, wood, glass, metals, ashes, special wastes (e.g. bulky items, consumer electronics, white goods, batteries, oil, tires), and household hazardous wastes
Industrial	Housekeeping wastes, packaging, food wastes, construction and demolition materials, hazardous wastes, ashes, special wastes
Commercial	Paper, cardboard, plastics, wood, food wastes, glass, metals, special wastes, hazardous wastes
Institutional	Paper, cardboard, plastics, wood, food wastes, glass, metals, special wastes, hazardous wastes
Construction and demolition	Wood, steel, concrete, dirt, etc
Municipal services	Street sweepings, landscape and tree trimmings, general wastes from parks, beaches, and other recreational area, sludge
Process	Industrial process wastes, scrap materials, off specification products, slag, tailings
Agriculture	Spoiled food wastes, agricultural wastes, hazardous wastes (e.g. pesticides)
Source: What A Waste : Solid Waste Management in Asia . Hoornweg, Daniel with Laura Thomas. 1999. Working Paper Series Nr. 1. Urban Development Sector Unit. East Asia and Pacific Region. Page 5.	

Table 1: Sources and types of solid wastes generated in Kerala

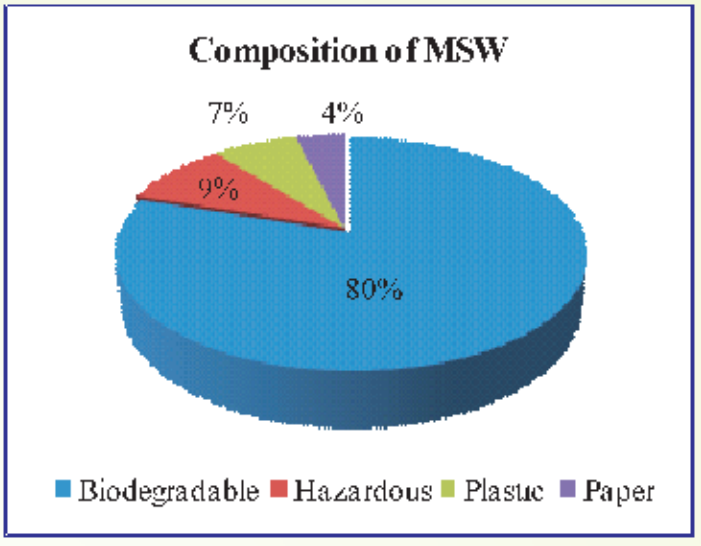


Figure 1: Composition of MSW in Kerala

Solid Waste Management

The Municipal Solid Waste Management (MSWM) is one of the major environmental problems in Kerala. According to the reports of Kerala State Pollution Control Board, the generation of municipal solid waste is about 432963 t/a and the quantity treated is about 219365 t/a. Thus, 49% of the MSW is disposed in low-lying areas without taking any precautions or operational controls. The generation of MSW is projected to increase at a rate of 3 to 5 percent per annum in the coming years because of the rising population, rising incomes, changing life styles and increased use of packaging material, particularly plastics. The share of plastics in municipal solid waste is expected to continue rising rapidly in the years to come.

A strict criteria should be practised to implement the Municipal Solid Waste (Management & Handling) Rule, 2000, which envisages segregated storage of waste at source, collection from source, protected transportation to the treatment facility, establishment environmentally safe treatment system and its operation and maintenance and safe disposal of inert rejects. The responsibility of solid

waste management in the State is vested with Local Self Government Institutions both in the urban and rural areas. The provisions of solid waste management in the Urban Local Bodies (ULBs) are detailed in the Kerala Municipality Act, 1994. Ministry of Environment Forests, and Climate Change, Government of India had notified (September 2000) the Municipal Solid Waste (Management and Handling) Rules, 2000 (MSW Rules) entrusting the Municipal authorities the responsibility for collection, segregation, storage, transportation, processing and disposal of municipal solid waste. As per these Act and Rules, the ULBs, State Pollution Control Board (SPCB) and District Collectors are entrusted with specific responsibilities, roles and functions.

The management of solid waste typically involves its collection, transport, processing and recycling or disposal. Collection includes the gathering of solid waste and recyclable materials, and the transport of these materials, after collection, to the location where the collection vehicle is emptied. This location may be a material processing facility, a transfer station or a landfill disposal site. Waste disposal today is done primarily by land filling or closure of existing dump sites. Modern sanitary landfills are not dumps; they are engineered facilities used for disposing of solid wastes on land without creating hazards to public health or safety, such as the breeding of insects and the contamination of ground water.

Several best practices have emerged with the onset of decentralization both in rural and urban areas. These have become models and provide learning experience for adaption and repliation in different local governments in the State. Solid Waste Management in Mangalapady Village Panchayat in Kasargode District (an example of multi-Village Panchayat Partnership), Decentralized Solid Waste Management in Chunakkara Village Panchayat in Alappuzha District (an example of Panchayat- NGO - Community Partnership), Decentralized Solid Waste Management in Alappuzha Municipality (an example of community based Solid Waste Management in an urban situation) Introduction of door to door collection in Kozhikode Corporation (an example of a socially beneficial outsourcing to a Community Based Organization of poor women), Zero waste campaign at Kovalam (an example of citizen demand leading to constructive action) are some of the success stories in Kerala.

Recommendations

- A system should be there, for estimating the current capacity to handle the solid waste and ensure that additional capacity of waste infrastructure is created for safe disposal.
- There should be a mechanism to segregate the wastes generated and to study the impact of the waste which causes pollution on a regular basis.
- Regular monitoring of waste disposal facilities like compost plants, incinerators etc., should be done.
- Segregation should be given greater emphasis by means of publicity and awareness campaigns with housing associations and non-governmental organisations.
- Periodic monitoring of dumpsites

against contamination of environment should be made mandatory.

- Identification of land for setting up landfills should be done on priority basis and landfill should be developed according to a time bound programme.
- People should give more importance to waste reduction, reuse and recycling rather than waste disposal. For waste reduction they shall promote installation of micro level biogas plants. Feasibility of including recycling units as part of solid waste management projects shall also be considered.
- Conduct awareness programmes on solid waste management and aware about the role of people in SWM.

Tips for effective disposal off solid waste

- Keeping the streets, sidewalks and other public places free from garbage by utilizing the garbage bins thus keeping the streets clean and free from litter and debris.
- Placing the solid waste from households in a single location so that the garbage is easily picked up by the garbage collection personal.
- Using kitchen waste in the form of food scraps as a compost heap to be used in the garden or giving it to garbage collection personal.
- Reusing shopping bags and baskets whenever going for a grocery shop or a super market until they are no longer fit for reuse and disposing them in a proper way.
- Medical waste must be disposed off properly by disposing them in a drop boxes or supervised collection sites and incinerator centers.
- Recycling waste products will help in reducing the impact of solid waste on the environment. The business of recycling of solid waste is a billion dollar industry in the developed countries.
- A proper fecal sludge management for disposing off the fecal matter in another way managing solid waste.
- Using recycled paper and stationery products will go a long way in reducing the solid waste.
- Reusing the plastic boxes, bags, glass containers, postal material etc.
- Maintaining and repairing items such as appliances, cloths so that they last longer is another way of managing or reducing the impact of solid wastes.

Reference: Suchitwa Mission, Kerala

ATTINGAL MUNICIPALITY WINS PCB AWARD

The Kerala State Pollution Control Board (KSPCB) has selected the Attingal Municipality for the 'first prize' for adopting best practices in managing solid waste for the fifth time in a row. The municipality had put in place a proper mechanism for collection and disposal of waste as per the Municipal Solid Waste (Management and Handling) Rules, 2000, a press release issued by the KSPCB said. Municipal vice-chairman said the civic body had a system for the collection and disposal of solid waste from residences and commercial establishments. Around 16 tonnes of waste collected at its yard was processed scientifically each day. Further decentralising garbage disposal, the municipality had distributed more than 400 biogas plants, with a capacity to process 5 kg of waste a day, to households. Two such plants, each with a capacity to process 1,000 kg of waste a day had been installed in public places. The work on establishing a sanitary landfill facility for the disposal of non-biodegradable waste one acre of land near the existing treatment plants at Chudukad had been completed.

ENERGY RECOVERY FROM WASTE

Energy recovery from waste is the conversion of non-recyclable waste materials into useable heat, electricity, or fuel either bio conversion or thermal conversion techniques. Common technologies adopted are combustion, gasification, pyrolization, anaerobic digestion, and landfill gas (LFG) recovery. This process is often called waste-to-energy (WTE).

The bio-conversion process is applicable to the organic fraction of wastes, to form compost or to generate biogas such as methane (waste to energy) and residual sludge (manure). Various technologies are available for composting such as aerobic, anaerobic and vermi-composting. The thermal conversion technologies are incineration with or with out heat recovery, pyrolysis and gasification, plasma pyrolysis and pelletization or production of Refuse Derived Fuel (RDF).

Energy recovery from waste is part of the non-hazardous waste management hierarchy. Converting non-recyclable waste materials into electricity and heat generates a renewable energy source and reduces carbon emissions by offsetting the need for energy from fossil sources and reduces methane generation from landfills.

Technology options on treatment and waste to energy solutions have widened in recent years. Choice of a specific technology for converting waste to energy depends on the quantum and nature of the waste as well as whether it is possible to transport segregated waste to the plant or deliver only un-segregated waste to the site. Large number of private firms play key role in the waste to energy process. The Kerala Government has also decided to convert waste into energy through air-fed gasification.

It must be noted that technologies are available in developed countries for converting solid wastes into enegy without any pollution to the environment. Kerala has great scope to adopt such technologies for dealing the solid waste management and generating electricity for augmenting the energy pool.

Bibliography

Title: Spatial Variations and Composition of Solid Waste Generation in Thodupuzha Municipality, Idukki District, Kerala State

Authors and Affiliation: Dr.Lancelet. T.S, Nija K.C, Sree Sankaracharya University of Sanskrit,Kalady, Kerala

Journal: Scholars World, ISSN 2320-3145, Print: ISSN 2319-5789

Abstract: Municipal Solid waste management constitutes a serious problem in many Third World cities. Most cities do not collect the totality of wastes generated, and of the wastes collected, only a fraction receives proper disposal. The insufficient collection and inappropriate disposal of solid wastes represent a source of water, land and air pollution, and pose risks to human health and the environment. Among all the wastes (solid, liquid and gas), solid waste is the most popular and most difficult to manage locally. This is because solid waste does not flow, evaporate, diffuse, dissolve or be absorbed into the surrounding unlike liquid and gaseous wastes. This is the effort of a detailed investigation regarding the methods of practices associated with sources, composition, quantity generated, collection, transportation, waste treatment and disposal of municipal solid waste in the Thodu puzha.

IMPORTANT DAYS

WORLD WETLAND DAY 2015

It marks the date of the adoption of the Convention on Wetlands on 2 February 1971, in the Iranian city of Ramsar on the shores of the Caspian Sea. Each year since 1997, government agencies, non-governmental organizations, and groups of citizens at all levels of the community have taken advantage of the opportunity to undertake actions aimed at raising public awareness of wetland values and benefits in general, and the Ramsar Convention in particular.

This year's theme "Wetlands for our

Future" draws attention to the urgent need for actions that will slow, stop, and reverse wetland degradation. Latest estimates indicate that 64% of wetlands have been lost in the last century. We must reverse that trend so as to secure the future of our wetlands and our futures as we cannot achieve sustainable development without healthy wetlands. Wetlands play crucial role in the ecosystem by (i) preventing flooding by absorbing water (ii) ensuring that the soil provides a unique breeding ground for vegetation that feed fish (iii) giving shelter to animals (iv) purifying water by removing sediment etc.

Kerala State Council for Science Technology and Environment (KSCSTE) had given financial assistance to 25 agencies for organising Wetland Day 2015.

WORLD WATER DAY2015

World Water Day highlights a specific aspect of freshwater. The theme for the year 2015 is 'Water and Sustainable Development' which highlight water's role in the sustainable development.

Centre for Water Resources Development and Management (CWRDM) in association with Pamba River Basin Authority observed World Water Day 2015 on 23rd March 2015 at the Banquet Hall, Govt Guest House, Thycadu, Thiruvananthapuram. The one day workshop was inaugurated by the Hon'ble Water Resources Minister of Kerala Shri. P.J. Joseph and the programme was presided over by Dr. N.B. Narasimha Prasad, Executive Director, CWRDM. The key note address was delivered by Dr B Ashok, IAS and the felicitation was given by Dr KK. Ramachandran, Member Secretary, KSCSTE .

During the technical session various scientists from Government departments, KSCSTE and Pampa River Basin Authority discussed different aspects of water management programme, its implementation and policy matters.

EARTH HOUR

The WWF-India World Wide Fund for Nature/World Wildlife Fund) has tied up with the Department of Environment and Climate Change, Kerala State Electricity Board (KSEB) and Energy Management Centre (EMC) to observe the Earth Hour 2015 which falls on March 28. Earth Hour is to raise awareness for the need of sustainable energy. The campaign urges households and business establishments across the to turn off their non-essential lights and electrical appliances for an hour at the appointed time (8:30 pm to 9:30 pm).

INTERNATIONAL CONFERENCE ON CLIMATE CHANGE AND NATURAL DISASTERS

Climate Change and Natural Disasters are a threat to the humanity and the planet earth. Clear understanding of these natural phenomena is essential to chalk out mitigation measures and evolve effective global policies. Observation analysis modeling and forecast are integral to management of such complex interactive processes. Space based systems play a vital role in addressing these issues. Knowledge and Data sharing among the 'haves' and 'have-nots' pose major international policy implications.

The Conference, jointly organized by the International Academy of Astronautics (IAA), the International Institute of Space Law (IISL),Department of Earth Sciences (MoES), Govt of India and the Kerala State Council for Science, Technology and Environment (KSCSTE) proposes to address all technical and policy matters related to Climate Change and Disaster Management. This Conference seeks to bring together scientists and policy makers from all over the globe and synthesize opinions in preparation of an IAA Heads of Space Agencies Summit on September 14-15, 2015 in Mexico.

The conference addressed scientific and technical as well as policy, programmatic and legal issues in international cooperation.

INTERNATIONAL DAY OF FOREST DAY 2015

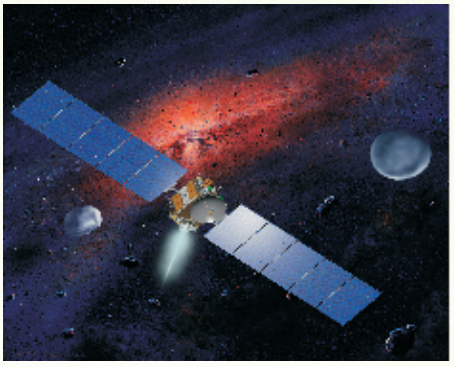
Forests and trees are the major elements that sustain and protect us different ways. Neither they provide the clean air to breathe nor they provide water to drink. They host and safeguard the planet's biodiversity and act as our natural defence against climate change. Life on earth is made possible and sustainable thanks to forests and trees. Forests cover one third of the Earth's land mass, performing vital functions around the world. Around 1.6 billion people including more than 2,000 indigenous cultures depend on forests for their livelihood. Forests are the most biologically-diverse ecosystems on land, home to more than 80% of the terrestrial species of animals, plants and insects. They also provide shelter, jobs and security for forest-dependent communities.

The theme of the 2015 International Day of Forests (IDF) is Forests | Climate | Change, chosen purposely to highlight the ways in which forests and climate change are linked, and to rally global support for greater action and change.

WORLD NEWS

NASA'S DAWN SPACECRAFT MOVES IN ON DWARF PLANET CERES

(DECCAN CHRONICLE, 06-03-2015)



The largest celestial body in the asteroid belt between Mars and Jupiter welcomes its first visitor Friday. NASA's Dawn spacecraft was due to slip into orbit around Ceres for the first exploration of a dwarf planet. Unlike other orbit captures that require thruster firings to slow down, the latest event is ho-hum by comparison, unfolding gradually and automatically. Since Dawn is out of contact with Earth during the encounter, flight controllers won't receive confirmation until hours later. "The real drama is exploring this alien, exotic world," said mission chief engineer Marc Rayman at the NASA Jet Propulsion Laboratory, which manages the $473 million mission. Once circling Ceres, Dawn will spend the next 16 months photographing the icy surface to determine whether it's active today. Ceres is the last and final stop for Dawn, which launched in 2007 on a voyage to the main asteroid belt, a zone littered with rocky leftovers from the formation of the sun and planets some 4.5 billion years ago. Dawn earlier spent a year at Vesta exploring the Arizona-sized asteroid and sending back stunning close-ups of the lumpy surface before cruising on to Ceres. The double trips are made possible by Dawn's ion propulsion engines, which provide gentle yet constant acceleration and are more efficient than conventional thrusters. As Dawn approached Ceres, it beamed back puzzling images revealing a pair of shiny patches inside a crater - signs of possible ice or salt. Scientists hope to get a better glimpse when the spacecraft spirals closer to the surface to study whether previously spotted plumes of water vapor continue to vent. Dwarf planets lately have become the focus of exploration. This summer, another NASA spacecraft - New Horizons - is set to make the first visit to Pluto, which was demoted to dwarf planet. Dawn almost never made it out to the inner solar system. The mission endured funding-related project cancellations and launch delays before it received the green light to fly.

INDIA NEWS

INDIA'S FOREST COVER UP BY 5,871 SQ KM

(THE HINDU, 15-02-2015)

Of the 5,871 sq km increase in the forest cover of India, West Bengal accounts for nearly 64 percent of this rise, reveals the latest report of Forest Survey of India. A study conducted by the Forest Survey of India that was recently published points out that West Bengal's forest cover has increased by 3,810 sq km, which is followed by Odisha where increase in forest cover has been 1,444 km and Kerala where the increase has been about 622 sq km. Commenting on the increase in forest cover in West Bengal, Principle Chief Conservator of Forest, West Bengal, Azam Zaidi told

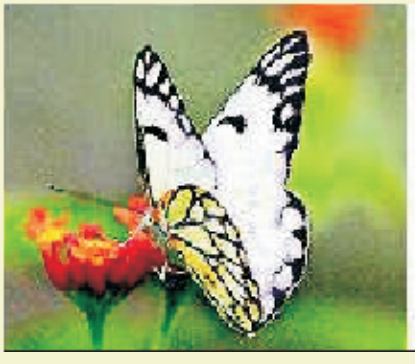
The Hindu that along with other steps the State's joint forest management, which involves the participation of the local people, is one of the reasons for the increase. "Increase in the forest cover of the State is mainly due to coppice growth (dense growth of small tress) and afforestation inside the forests, growth of commercial plantations and shade trees in tea gardens," the FSI report states. West Bengal, a state with high population density, has only 18.93 percent forest cover.

Interestingly States from northeast like Nagaland, Arunanchal Pradesh, Tripura and Manipur, whose forest cover comprises over 75 percent of the State's area, have shown a decrease in forest cover. "The current assessment shows a decrease in forest cover to the extent of 627 sq km in the north eastern region. The main reason for this is attributed to the biotic pressure and shifting cultivation in the region," the report says. In Andhra Pradesh, a State with 16.77 percent of its area covered by forest, there has been a decrease of 273 km of forest area. While the forest cover has decreased by 176 sq km in Madhya Pradesh and 53 km in Chhattishgarh, it has increased by 496 sq km in Jharkhand and 446 sq km in Bihar. The Satellite based remote sensing data that has been used for estimating the change in forest cover has shown that that there has been an increase of 31 sq km of 'very dense' forest cover compared to the last assessment carried two years ago. It has also revealed that 'moderately dense' forest has decreased by 1,991 sq km while 'open forests' have increased by 7,891 sq km, putting the overall increase at 5,871 sq km. □

KERALA NEWS

ON A COLOURFUL BUTTERFLY TRAIL AT CHINNAR

(THE HINDU, 08-03-2015)



The Chinnar Wildlife Sanctuary is preparing a butterfly calendar after tribal members of eco-development committees (EDCs) recorded the features, density, nature of migration, and details of the host plants through a year-long project. Munnar Wildlife Sanctuary Warden G.Prasad told The Hindu that the Chinnar Wildlife Sanctuary was host to a wide variety of butterflies due to its unique topography and climatic conditions. The main feature noticed in the survey, conducted with the help of experts, was the migratory character of butterflies and those species exclusive to the sanctuary. The calendar would have details of areas with a high density of certain species and the seasonal presence of certain other species. Mr. Prasad said there was migration of some species from the high temperature area of Tamil Nadu to the plains of Chinnar. "Some species appear for the breeding season and the growth of larva to full-grown butterflies was noticed by surveyors. Chinnar will be in a drought-like situation during the main rainy season in Kerala. The flowering and seeding season is different in Chinnar, which might be conducive for many butterfly species exclusive to the sanctuary," he said. "Much hard work was involved, as the tribal members surveyed the transit route of the butterflies with much care and dedication," Mr. Prasad said.

REGIONAL EVALUATION WORKSHOP FOR SOUTHERN ENVIS CENTRES

Regional Evaluation and Training Workshop for ENVIS Centres (located in Southern Region) was held on 5th - 6th February, 2015 at Institute of Forest Genetics and Tree Breeding (IFGTB), Coimbatore, Tamil Nadu. This workshop is being organised to evaluate the functioning of the ENVIS Centres as per the Guidelines of the ENVIS Scheme, framed by the Ministry of Environment, Forest & Climate Change, Government of India. Around 50 participants of thematic as well as State/UT ENVIS Centres particpated in the Workshop. Speaking on the occasion, Economic Adviser, Shri M. Kannan stressed on the need to evolve the ENVIS Scheme as a one of the tools of Decision Support available to the Government of India for formulating various environmental policies and decisions. Dr Kamlalakshan Kokkal, ENVIS coordinator presented the achievements and accomplishments of the ENVIS Kerala for the previous financial year.