

Echoes of Eco

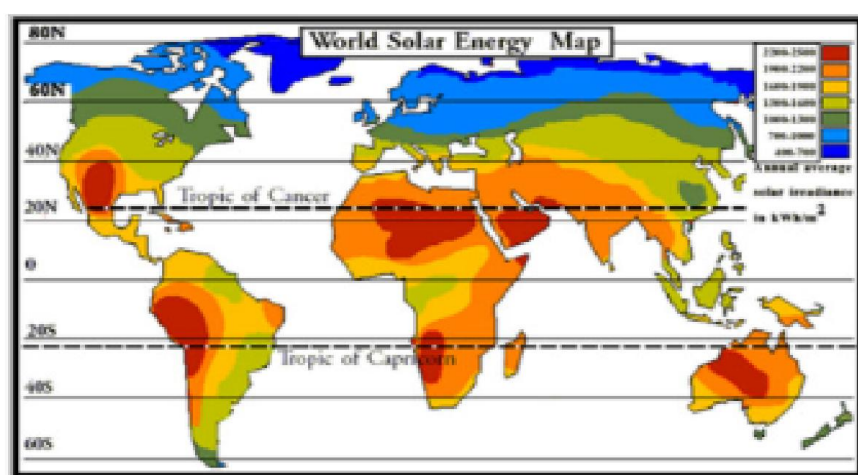


February, 2015

Vivekananda Kendra- **nardep** Newsletter

Vol:6 No:12

Renewable Energy Scenario in India



Solar energy can be harnessed at different levels around the world, mostly depending on distance from the equator.

Renewable energy in India is guided under the purview of Ministry of New and Renewable Energy. In early 1980s, India became the first country in the world to set up a ministry separately for non-conventional energy resources. India's cumulative grid interactive or grid tied renewable energy capacity has reached 32 GW, of which 66.4% comes from wind, while solar contributed nearly 7.78% of the renewable energy installed capacity in India.

Cumulative Installed Capacity (MW)

Technology	Mar-10	Mar-11	Mar-12	Mar-13	Mar-14
Wind	11807	14158	17365	19051	21141
Small Hydro	2737	3042	3300	3630	3700
Biomass & Cogeneration	2199	2664	2914	3600	4394
Solar	8	33	504	1690	2478
Waste To Power	0	46	71	100	107
Total	16751	19943	24154	28071	31820

In March 2014 the total installed grid connected solar power was to 2478MW and India expects to install an additional 10,000 MW by 2017 and a total of 20,000 MW by 2022.

In this issue:

- Renewable Energy scenario in India
- Green Rameshwaram: Conducting Street Plays
- The Happenings-I
- The Happenings-II
- From our Publications
- Visions of Wisdom:
 - New Economy
 - Service Economy
 - Ecological Economy

Breath of Life



When Breath of Life in due season roars o'er the plants, all things on earth rejoice with great rejoicing.

When Breath of Life the broad earth with rain bedews, the cattle exult: We shall have plenty, they say.

The plants converse with this Breath, drenched by his moisture: Our life is prolonged, for you have made us all fragrant.

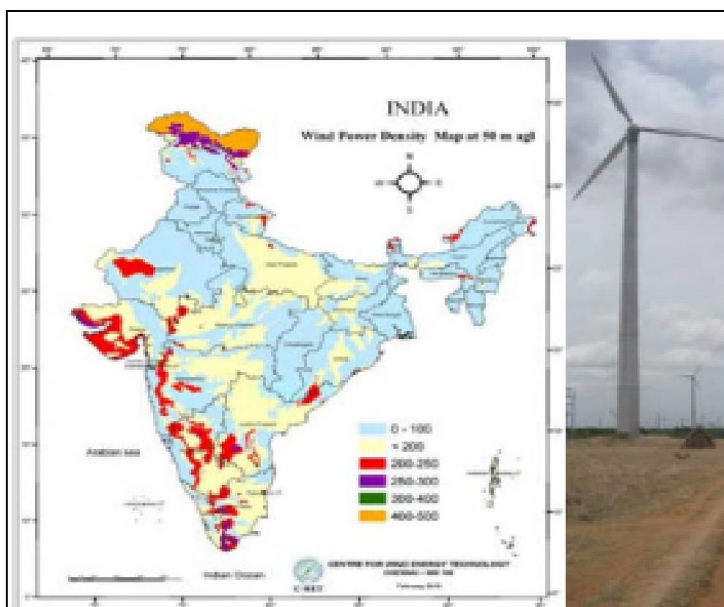
-Atharva Veda IX.IV.4-6





We can't leave people in abject poverty, so we need to raise the standard of living for 80% of the world's people, while bringing it down considerably for the 20% who are destroying our natural resources.

- Jane Goodall



The Indian wind energy sector has an installed capacity of 21,141.36 MW (as on March 31, 2014). In terms of wind power installed capacity, India is ranked 5th in the World. Today India is a major player in the global wind energy market. Globally in 2013 the roughly 168 million megawatt-hours generated by wind energy avoided 95.6 million metric tons of carbon dioxide emission.

The shaft power from the wind turbine can be utilized for a wide variety of purposes, including electricity, direct pumping, direct mechanical work, etc. The most common wind turbine system involves a tower mounted, multi-bladed rotor facing into the wind, rotating around a horizontal axis, and turning an electrical generator or a mechanical gearbox connected to its axis.

Applications range from small scale use in rural and remote communities interconnected with other power plants to large scale generation of electricity which is fed into electric utility networks. For standalone use, diesel back-up and energy storage in the form of pumped hydroelectric systems would be necessary so as to assure supply during periods of little wind. It can also be used for battery charging, to supply electricity to isolated communities, weather stations, navigation and communication aids, etc.



'Wind Mill Park at Muppandal, Kanyakumari District of Tamil Nadu: considered one of the biggest in Asia'.

Biological Conversion: This process involve enzymatic or bacterial breakdown by micro-organisms at a relatively low temperature and pressure. Such techniques can be utilized notably for production of methane and biogas from a wide variety of plant, animal, human and industrial wastes during the process of anaerobic digestion.



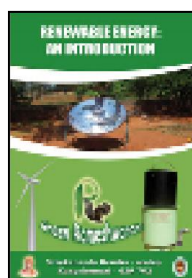
How does a Bio-Methanation plant work?

The organic waste feed goes to the digester and spreads to the entire digester surface. This is because of the inlet pipe extending from the gas holder itself. Here the bacterial reactions generate the gas. This gas uplifts the gas holder. The

Innovative Feature of Shakti Surabhi Bio-Methanation Plant.

- The inlet pipe is at the top of the plant and extends deep inside the plant so this doubles as scum breaker facilitating faster reaction. Further in the digester scum does not form any layer preventing gas collection in the drum.
- The guide pipe and support pipe ensure that with gas accumulation and raising of the gas holder it does not tilt in its position.
- U-shaped outlet pipe makes sure that complete digestion takes place and there is no short-circuiting of inputs.

counterweights on top of the gas holder provide enough pressure for the gas to go the stove through the gas outlet and hose pipe. The biogas slurry can be collected at the slurry outlet and this is essentially a nutrient concentrate. So this should not be fed directly to the garden plants. But it has to be well diluted before feeding.



The above are excerpts from our book titled: '*Renewable Energy : an Introduction*'. The book provides an insight into the means of making the ancient island energy self-reliant. It also explores the various renewable energy resources available and also the renewable energy technologies used to harness them. Of particular importance are the solar energy and bio-energy. The book shows how the organic waste generated - which is quite a problem in the island- can be converted into an energy source through the bio-methanation plant and how solar energy which is abundant in many parts of this island with shining sandy coast can be made use of to create energy independence. The book has been published as part of the 'Green Rameshwaram' project and UNICEF's 'WaSH' initiative.



Not in matter but in thought, not in possessions nor even in attainments but in ideals, is to be found the seed of immortality. Not through material acquisition but in generous diffusion of ideas and ideals can the true empire of humanity be established.

-Acharya Jagadish Chandra Bose



Green Rameshwaram: Conducting Street Plays



Local youths energetically conducting street play
[above]



Street plays on Green Rameshwaram receive good support from local communities.



They are local youths who cherish the heritage of their island. They have no prior experience in theatre or art performance. However they are fired with the determination to make Green Rameshwaram happen. Hence they came forward to conduct the street plays which will inculcate ecological values, importance of hygiene. These local youths were trained by professional theatre choreographers. Then they went around different places and conducted the street plays making people realize the importance of a clean and Green Rameshwaram to both the residents as well as the visiting pilgrims. They also distributed green literature.

Rameshwaram project contact: Secretary, Vivekananda Kendra-nardep, Vivekananda puram, Kanyakumari -629702: Phone: 9442646296.





Man of science seeks to resolve the links between art, aesthetics, and the science. The man of science ...seeks to resolve [nature's] infinite complexities in to a few simple principles or elements of action which he calls the laws of nature. ... Science... is a fusion of man's aesthetic and intellectual functions devoted to the representations of nature. It is therefore the highest form of creative art. – C.V.Raman



**Happenings this month:
SUSTAINABLE
AGRICULTURE**



**Happenings this month:
Networking**



**Happenings this
month:
Water Management**

"Capacity Building for Adaption of Technology" was conducted at TRC, Kalluvilai from 19th to 21st with 43 persons getting the training. The programme was through NABARD assistance, Chennai. Dr.P.Kamalasanan Pillai and his team were the resource persons.

"Entrepreneurship development programme in N.P.K. rich Bio-manure" was conducted through NRDC, New Delhi at TRC, Kalluvilai on 27th and 28th. The resource Persons were Dr.P.Kamalasanan Pillai and his team. 91 persons attended.



Azolla training workshop (above)
hands-on bio-manure preparation
(below)



Advisory Committee Meeting of the Govt. Polytechnic College, Nagercoil was held on 16th of this month. Shri.V.Ramakrishnan attended as a member,

2015 Year of the SOIL : SOIL facts for you

The U.N. General Assembly declared 2015 the International Year of Soils (IYS) to increase awareness and understanding of the many important roles of soil.

The soil is every bit as non-renewable as oil, and it is essential for human survival. Healthy soil is the foundation for food, fuel, fiber, and medical products, and is a vital part of ecosystems. It stores and filters water, provides resilience to drought, plays an important role in the carbon cycle, and is the foundation of agriculture and food production.

According the U.N. Food and Agriculture Organization (FAO), the synergies between the International Year of Family Farming (IYFF) and the International Year of the Soil (IYS) are evident: family farmers depend on healthy soils as much as soils depend on them. We need both for a healthy planet and food security.

Our present ways of agriculture are not sustainable, and so our food supply is not sustainable. We must restore ecological health to our agricultural landscapes, as well as economic and cultural stability to our rural communities.

– Wes Jackson
(Plant Geneticist)

- Tested water from 14 wells in Kanyakumari Dist. as a part of the programme of Central Ground Water Board, Chennai.

Eco-Fact: Did You Know?

The U.N. Food and Agriculture Organization (FAO) has implemented the **Food Wastage Footprint project**, designed to address food loss and waste using the concept of full-cost accounting, which emphasizes the inclusion of all costs, including environmental and societal, into the price of food.



**Happenings this month:
Cost-effective construction**

Workshop on "Cost effective housing" was conducted for the Govt. Polytechnic, Konam Kollamkodu at the Training center on 10th of this month with 54 students. The Resource person was Shri.V.Ramakrishnan.



Green Health Home of VK-nardep functioned for 6 days and treated 158 patients.



To know more about 'Green Rameshwaram Pilgrimage' Project contact:
Secretary, Vivekananda Kendra - Nardep, Vivekanandapuram, Kanyakumari-629702; Phone:04652-246296, 9442646296
Email: vknardep@gmail.com



You carry Mother Earth within you. She is not outside of you. Mother Earth is not just your environment. In that insight of inter-being, it is possible to have real communication with the Earth, which is the highest form of prayer.

- Thich Nhat Hanh



Renewable Energy this month:



Bio-methanation plants installed this month:

Rameshwaram	Fixed type 1 cum - 8
IFAD	Fixed type 1 cum - 15
Others	Portable type 1 cum - 2
Others	Portable type 0.5 cum - 2
Others	Portable type 0.25 cum - 3



SanthiRurbini Magazine from Thiruvananthapuram Kerala Published article on "Varmam" written by Dr. V. Ganapathy



Renewable Energy this month:

Seven Awareness Programmes on "Kitchen waste based Bio-methanation Plant" were organized through the auspices of IFAD, of different districts at the Gramodaya Park, Vivekanandapuram

IFAD District	Date	Number attended
Kanyakumari	9 th	42
Kancheepuram	10 th	31
Thiruvalluvar	12 th	38
Kanyakumari	13 th	43
Cuddalore	16 th	54
Cuddalore	28 th	55

Training programme on "Organic waste based Bio-methanation plant" was conducted with DST - Core Support, New Delhi at TRC, Kalluvilai on 28th and 5 persons attended. Er. Ramakrishnan was the resource person.



Green Rameshwaram Media: Report



Popular Tamil newspaper Dinamalar also carries every Sunday an article on 'Green Rameshwaram'



Under the auspices of UNICEF Eco-awareness programmes were conducted this month at the following places:



No	Venue	Date	Number of people attended	Programme conducted
1.	Vivekananda Kendra, Rameshwaram	11 th	07	Eco Awareness Programme
2.	Vivekananda Kendra, Rameshwaram	21 st	22	Eco Awareness Programme
3.	Vivekananda Kendra, Rameshwaram	22 nd	20	Eco Awareness Programme
4.	Panchayat Union Middle School, Rameshwaram	12 th	200	Extension Activities
5.	Rameshwaram	20 th to 22 nd	20	Street play on "Environment & Ecology"
6.	Pamban Community Hall, Pamban	21 st	60	Awareness Programme on "Kitchen waste based Bio-methanation Plant"
7.	Hotel Tamilnadu, Mahabhalipuram	7 th and 8 th	30	Solid waste management training programme



If we want to address global warming, along with the other environmental problems associated with our continued rush to burn our precious fossil fuels as quickly as possible, we must learn to use our resources more wisely, kick our addiction, and quickly start turning to sources of energy that have fewer negative impacts.

- David Suzuki



From our Publications



Our publication 'Samagra Vikas'(Development with a Human Face) has a section on holistic green health systems which have developed indigenously. This month we bring eco-toons which bring out the necessity of the green health systems which assume major significance with the so-called development ushering us into an age of life threatening life-style diseases and health also has an economic dimension.

Green Health : The need for Holistic Medicine

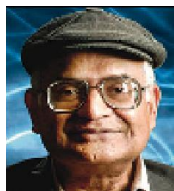


THE DOMINANCE OF WESTERN MEDICINE WILL BE REPLACED BY EQUAL SCOPE FOR TRADITIONAL MEDICINE, TRIBAL MEDICINE, AYURVEDA, HOMEOPATHY, UNANI AND SIDHA SYSTEMS



Environment - Health Economics

All over the world, there are 11million avoidable deaths. 25% of global deaths are environment related. The mosquito is public enemy number one. Malaria claims 3 million lives annually. Asia and Africa take the risks. In developed countries 80 million people are exposed to air pollution. Asthma, food borne illness and hepatitis B wreck the citizens' health. Urban areas of developed nations lose anything between 500 million to 3500 million dollars due to outdoor air pollution. City children of rich nations too suffer from blood - lead poisoning. In the poor countries pesticide poisoning (five million deaths) unclean foods (3 million deaths) take heavy tolls. Total loss in India's GDP because of environmental degradation is Rs.24,000 crores per year.



What does evolution do? It takes us further and further in terms of the capacity for the positive. That is evolution. Evolution is very positive. It takes us toward better utilization of the energies of love, better ability to live by ethics, better ability in ecology, and better ability to respond to spiritual matters. That is our future.

—Amit Goswami (Quantum Physicist)



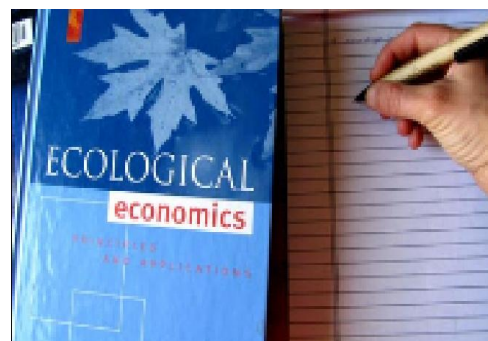
New Economy

At the beginning of the last century, growth in the world economy was measured in billions of dollars. Today annual growth is measured in trillions of dollars. The sad fact is that the environmental trends that we monitor—shrinking forests, expanding deserts, falling water tables, collapsing fisheries, deteriorating grasslands, eroding soils, rising temperatures, melting ice, rising seas, dying coral reefs and disappearing species—are all manifestations of a civilization that is putting more demands on the Earth than it can bear. The overriding challenge facing our generation is to restructure the global economy so that economic progress can continue. This means replacing the fossil fuel-based, automobile-centered, throwaway economy with one that is powered by renewable sources of energy, that has a much more diversified transport system and that reuses and recycles virtually everything. ... Sustaining our early-21st-century global civilization now depends on shifting to a renewable energy-based, reuse/recycle economy with a diversified transport system. Business as usual—Plan A—cannot take us where we want to go. It is time for Plan B, time to build a new economy and a new world.



Service Economy

These are the five types under which we may develop the idea of economic activities, namely, parasitic, Predatory, enterprising, and gregarious and the service stages. The principles connected with each one of them will differ. In the parasitic stage, it is all self-centered and does not think that the wealth created belongs to him personally because he himself has laboured. There is a sense of oneness and a sense of working for a group. India had been subjected politically to Great Britain. This is an illustration of Parasite economy. Economic subjugation of others—Financial penetration of America is a good instance of predatory economy. Enterprise—The agricultural economy which had been practised in our country in olden days is an instance of the enterprising economy. It is a self-sufficient economy. Gregarious economy—Soviet Russia and Nazi Germany may come under this category to a large extent. Service Economy—a mother is the best instance of this. The mother works for the child. She does not expect any return. Service is its own reward. ... We then come to the question of the utilization of Natural Resources. In the case of the use of these resources, again, as we move towards service economy from parasitic economy the measure of violence will steadily decrease. That is how non-violence could be promoted.



Ecological Economy

Ecology as the basis for design is the framework of this new economic order. This approach needs to be combined with a view in which the earth is seen as a living entity—a Gaian worldview—and our obligations as humans are not just to ourselves but to all of life. Earth stewardship then becomes the larger framework within which ecological design and technologies exist. One day it may be possible for political and social systems to mirror the broad workings of nature, and current divisions of left versus right, centralist versus decentralist, expansionist versus steady state, bioregional versus nation-state will be transformed into a systemic Gaian world organization and order. But change, even on a Gaian scale, has to begin with small, tangible, and concrete steps. When I first began working at the New Alchemy Institute with ecological concepts that might serve humanity, my associates and I started with two questions: "Can nature be the basis of design? If so, are there ecological models to prove this?" ... The larger workings of nature provided us with clues. ... As patterns gradually emerged, this effort proved directly fruitful. This was significant because humans normally destroy their biological capital.



— *Lester Brown*
— Environmental Analyst



— *J C Kumarappa*
Gandhian Economist



John Todd
Biologist