

# Echoes of Eco



August, 2009

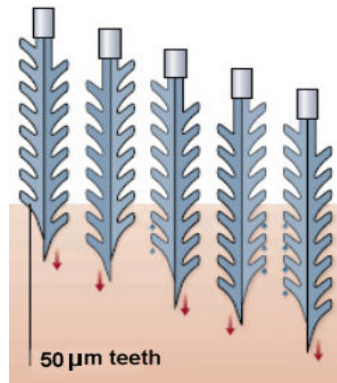
Vivekananda Kendra- ~~newspaper~~ Newsletter

Vol:1 No:6

## Why Science needs Bio-diversity



wood wasp (Siricidae)



Why should we conserve nature? Even for very practical reasons we should conserve nature. Hidden in myriad adaptations that billions of years old organic Evolution has posited upon life, are such sophisticated technological achievements that the cutting edge of technology is beginning to learn now only. That is another one good reason, why Bio-diversity is important.

The female wood wasp's of the *Siricidae* family use a needle-like ovipositor to deposit eggs inside pine trees. This has two dovetailed shafts, each covered in backward facing teeth. To bore into wood, the wasp rapidly oscillates each shaft backwards and forwards.

As the shaft is pulled backwards, its sharp teeth catch in the wood's tissue and prevent it from retreating, so with each oscillation the ovipositor takes a small step forward. The tension created by the gripping teeth braces the shaft and prevents the needle from buckling or breaking.

"It can insinuate itself into the tissue with the minimum amount of force," says Ferdinando Rodriguez y Baena at Imperial College London.

Now, a Bio-inspired nano-technology engineering team that includes Rodriguez y Baena is mimicking this mechanism to create a medical probe. The researchers have developed a prototype silicon needle consisting of two shafts with 50-micrometre-long fin-shaped teeth. **Motors oscillate the two shafts to propel the device forwards in the same way as the wood wasp's ovipositor.** (See diagram above).

Unlike existing rigid surgical probes, the device will be flexible enough to move along the safest possible route, bypassing high-risk areas of the brain during surgery, for example. It could also reduce the number of incisions needed to deliver cancer therapies to different parts of a tumour, as it can burrow its way to hard-to-reach areas.

Courtesy: New Scientist

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## Water – the Miracle for Life



**Waters contain all disease-dispelling medicaments, useful for the upkeep of our body, so that we may live long to enjoy the bright sun.**

**Know that there is ambrosia in waters; there is healing balm in them; and there are medicinal herbs; Know this all, And by their proper use become wiser.**

- Rig Veda





## Green Architecture & construction technology

### The Principles:

The salient features of such technology are avoidance of excessive use of cement and steel and usage of locally available material. The innovative shapes of doors, windows and domes lend aesthetic appeal and beauty to these "Love-able, Live-able and Affordable" homes.

Green buildings are not only designed for present use, but consideration is also been given to future uses as well. An adaptable structure can be "recycled" many times over the course of its useful life. If specific technical issues prevent use of the building for a new function, then the materials used in its construction are designed to facilitate ease of recycling and reprocessing of materials.

Buildings consume a variety of materials in their construction. Green design reduces the dependence on resource intensive products and materials. Today, there are an increasing number of products available made from efficient, earth-friendly, or recycled materials. In a green building, consideration is also given to the construction process itself. Materials that minimize waste or can be recycled help contribute to an efficient and environmentally sensitive construction process.

Based on the above principles Green architecture camp was conducted at the Technological Resource Center (TRC) of Vivekananda Kendra-Natural Resources Development Project (VK-NARDEP) from 09th Aug to 11th Aug, 2009. The camp was designed for those with engineering and architectural background and 40 persons participated in it.

## Ecological Economical and Beautiful

### The Syllabus:

The topics covered included the following:

- Climate Changes and Carbon credits
- Embodied Energy, Operational Energy and Life Cycle Assessment
- Energy Audit and survey
- Calculating energy from the modal home
- Eco-friendly construction practices.
- Renewable energy systems for efficient home.
- Roof water harvesting
- Waste water treatment
- Eco sanitation
- Solid waste management.
- Case studies and Field visit.



### The Presentations made at the training camp:

#### a) Embodied Energy:

Presenter: Er. Himanshu Tulpule

The presentation explained the indicators that are necessary to evaluate the sustainability of any operation namely: Social, Financial and Ecological. It went on to explain the concept of embodied energy and provided the method to calculate the embodied energy of conventional building materials thus bringing out the hidden costs .

## Opening up the new world of Eco-technology

### b) Biogas Engineering and waste water treatment:

Presenters: Dr.S.Kamaraj, Professor of Bio-energy at Agricultural Engineering College & Research Institute, (TNAU) Coimbatore

This presentation dealt with such varied aspects as Kyoto protocol, the evolution of water usage in different sectors, reduction of biochemical oxygen demand (BOD) and suspended solids (SS) to acceptable levels, different methods of waste water treatment, the conventional methods as well as ecological alternatives, and how to generate power from waste water.

### c) Sustainable Solid Waste Management:

Presenter: Dr.S.Kamaraj, Professor of Bio-energy at Agricultural Engineering College & Research Institute, TNAU, Coimbatore.

The presentation provided detailed explanations on the concept of renewable energy, biomass based energy and he concentrated on the thermo-chemical combustion of biomass and its efficient transformation through various technologies. He also explained the energy status of Tamil Nadu and the government policies with regard to renewable energy utilization and also sustainable waste management.





## Green Construction Technology



Sponsored by : BMTPC, New Delhi and  
Organized and conducted by  
Vivekananda Kendra-NARDEP

### d) Eco-Friendly Construction Technology:

Presenters: Sri. Rahul Rawat & Er.V.Ramakrishnan

This presentation provided various aesthetically pleasing and ecologically and financially viable ecological technologies like arches vaults and domes, filler slabs, rat trap bonds, brick jalis, rammed earth constructions, compressed soil earth blocks, bamboo stick based architecture, earth bags, cob, wattle and daub, thatch, straw bale, tire as building material, use of glass bottles or cans as building material, etc, This was a visual presentation that showed the diversity and aesthetic appeal of green architecture.



### e) Renewable Energy Homes:

Presenter: Architect-Rahul Rawat.

This presentation provided ideas of how building technology can be used to harvest energy. This includes the following: small solar electric systems, Solar water heater, solar panels used as a shading device, Roof integrated solar panels, Solar thermal panels used in balconies on apartment complexes, Small Wind electric System, Geothermal loops, Geothermal energy, Micro-hydro electric system,



Inauguration by District Collector Sri. Rajendra Ratnoo

### f) Rain Water Harvesting Presentation:

Presenter: G. Vasudeo [Secretary, VK-NARDEP]

This presentation provided a detailed visual insight into how rain water can be harvested through technological components incorporated into the building technology through such technologies as roof water harvesting, traditional methods of rainwater harvesting, and the components of the technology as well as aesthetically integrating the technology with the buildings.

### Video Sessions:

**Bamboo Shelter: Building success in India:** This video showed Bamboo Mat corrugated sheet (MMCS) technology developed by IPIRTI.

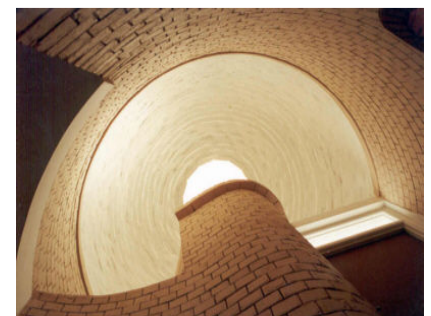
**Building with Earth in the world:** Using earth based technology for building construction (Auroville)



A session in progress on eco-construction



Another session on waste management in progress.



An Eco-design shown at the presentation.



District Collector viewing the various eco-technologies



*Thou art the dark-blue bird and the green parrot with red eyes.  
Thou hast the lightning as thy child. Thou art the seasons and the seas. - Upanishad*

## Happenings this month:



### Holistic Health

- Green Health Home of VK-**nardep** treated 275 patients in 8 days.
- Free (Siddha Varma) Medical camp was held by VK-**nardep** at Vivekanandapuram on 25th this month and 62 patients got benefited: the resource person was Dr. V. Ganapathy and his team.



Above: Inauguration of Siddha workshop by Dr. N. Punniya Murthi



### Siddha Varma Camp

- The camp was held on 25<sup>th</sup> and 26<sup>th</sup>.
- 188 participants including Siddha doctors, vaidhyas and Siddha students attended the workshop.
- Demonstrations and multimedia presentations on Varma therapy was held at the workshop.
- Resource person: Dr.V.Ganapathi and team.



Above: Live Demo of Varma therapy in the workshop.



### Shakthi Surabhi Training

- The camp was held on 21<sup>st</sup> August.
- 6 participants attended the workshop.
- Sri Munneswaran was the resource person.



Above: Free Siddha Medical camp.

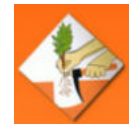


### Waste to Energy

- A seminar on waste to energy was held at RAAC office Coimbatore on 21<sup>st</sup> of August. The Resource persons: Sri. G. Vasudeo and Er. Ramakrishnan. There were 75 participants.

### Refresher Course for TWAD Board

- A refresher course for TWAD board staff was conducted at TRC, Kalluvillai for four days (24<sup>th</sup> to 28<sup>th</sup>). 32 persons participated in the course.



### Zen of Biogas slurry

Pathumadai is a village in Thirunelveli district. Not just another village though. It is the birth place of Swami Sivananda. Today there exists a service mission hospital run by the monks of Swami Sivananda Ashram. For the in-house patients as well as for resident doctors and staff the food is entirely organic.

Swami Jagadishwarananda, the head farmer and gardener of Swami Sivananda Hospital smiles at us eating a bun prepared in the bakery unit run on biogas from the VK-NARDEP plant and points to the carts that carry biogas slurry to the organic garden attached to the hospital. Then like the wisdom of the Zen master he quips, "All you need for healthy living is spirituality" and adds with smile after a pause, "and biogas slurry".



This effective sustainable agriculture revolution happening silently in this remote southernmost corner of India has nevertheless drawn international attention. 'Slurry from biogas plants boosts productivity and reduces dependence on chemical fertiliser for farmers in southern India' informs the press release of the prestigious Ashden awards for the sustainable energy for the year 2006.

### Events this Month

Four Workshop on Azollas were held of which two were sponsored by NABARD, Chennai and another one was sponsored by LEAD, Trichi.



### Workshops Held

- 1.**

  - Date: 6-Aug-2009
  - Resource person: Smt.S.Premlatha
  - Venue: Thazhakudi
  - Participants: 23 [NABARD, Chennai]
- 2.**

  - Date: 7-Aug-2009
  - Resource person: Smt.S.Premlatha
  - Venue: Marunkur
  - Participants: 09 [NABARD, Chennai]
- 3.**

  - Date: 17to 19 -Aug-2009
  - Resource person: Smt.S.Premlatha
  - Venue: TRC, Kalluvillai
  - Participants: 23 [LEAD Thiruchi]
- 4.**

  - Date: 17to 19 -Aug-2009
  - Resource person: Smt.S.Premlatha
  - Venue: TRC, Kalluvillai
  - Participants: 23 [VK-NARDEP]

### Fish Amino-Acid Formulation



This local method was originally revived by the 'Organic Farmers Movement and Organization' in the village of Pulliankudi in Thirunelveli district. The method is thus part of indigenous knowledge system of southern Tamil Nadu. Now two farmers have taken up this technology in Kozhikodupothai. This is a very effective growth promoter when used in small doses.

#### Needed ingredients:

Waste fish collected from fish market/rejected fish in the kitchen: 1 kg; Country jaggery: 1 kg.

**Method of preparation:** The fish and the jaggery are put in a plastic bucket and then water is poured into the bucket. Only onetime the contents are well stirred. Then this is closed tightly. This formulation is kept intact for 20-25 days. Then when opened after 25<sup>th</sup> day, the fermentation would be complete. The solution will contain no fish bones nor will be any detectable foul smell.

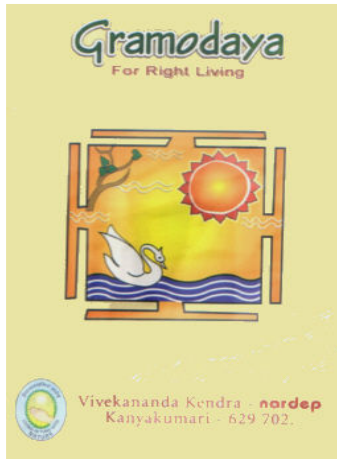
**Method of Application:** Per litre of water one ml of fish-amino is added and sprayed on crops. Alternatively fish-amino can be added to the water that is used for the irrigation of horticultural plants.





*Attain complete emptiness; Maintain steadfast quietude; All things flourish. But each one returns to its root. This return to its root means tranquility. – Lao Tzu*

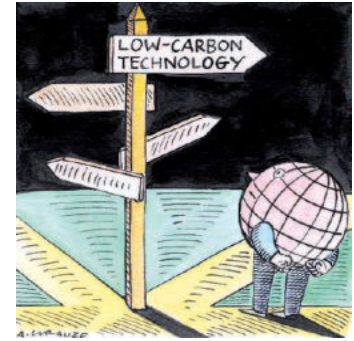
## From Our Publications



There are 26 panels depicting these aspects for cost effective construction technology; 22 panels for water management; 25 panels for sustainable agriculture and 26 panels for holistic health. The book is an absolute have for students of sustainable development as well as general public interested in the survival of humanity and the planet.

### Gramodaya for Right Living:

112 – Pages depicting 99 multi-color panels of eco-technologies in four vital fields.  
Published by: Vivekananda Kendra-nardep.  
Price: Rs 300/-

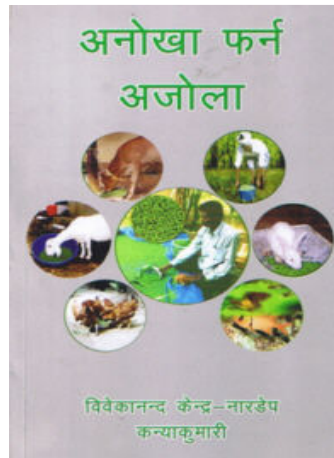


This book is a reproduction of the panels of the permanent exhibition – Gramodaya Park in Vivekananda puram, Vivekananda Kendra, Kanyakumari.

The panels represent a sustainable rural development models in a few chosen fields where the institution has made some humble contributions. The fields are:

1. Shelter
2. Water Management
3. Sustainable Agriculture and
4. Indian System of Medicine.

IN each field the first few panels depict what the particular field aims for all human beings. The next series of panels show the present scenario, highlighting how our present model of development has brought lopsided growth and ecological crisis. The rest of the panels in each field show how the malaise can be healed through alternative ecologically oriented technologies where modern science and traditional knowledge base are fused seamlessly.



**New Release:**  
**Cost-effective backyard Azolla technology for livestock and farmstead is explained in detail in this book which has been now brought in Hindi. This is a must read for every farmer. For copies, contact the address at the end of the newsletter.**





## The Awakening

Awakening...the process of dialogue itself as a free flow of meaning among all the participants....

In the beginning, people were expressing fixed positions, which they were tending to defend, but later it became clear that to maintain the feeling of friendship in the group, was much more important than to hold any position. Such friendship has an impersonal quality in the sense that its establishment does not depend on a close personal relationship between participants.

**A new kind of mind thus beings to come into being which is based on the development of a common meaning that is constantly transforming in the process of the dialogue.**

People are no longer primarily in opposition, nor can they be said to be interacting, rather they are **participating in this pool of common meaning** which is capable of constant development and change.

*-David Bohm*



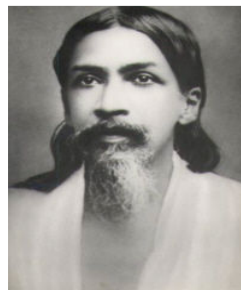
## The Evolution

The new type, the divine body, must continue the already developed evolutionary form; **there must be a continuation from the type Nature has all along been developing, a continuity from the human to the divine body, no breaking away to something unrecognisable but a high sequel to what has already been achieved and in part perfected.**

The human body has in it parts and instruments that have been sufficiently evolved to serve the divine life; these have to survive in their form, though they must be still further perfected, their limitations of range and use, removed, their liability to defect and malady and impairment eliminated, their capacities of cognition and dynamic action carried beyond the present limits.

New powers have to be acquired by the body which our present humanity could not hope to realise, could not even dream of or could only imagine. Much that can now only be known worked out or created by the use of invented tools and machinery might be achieved by the new body in its own power or by the inhabitant spirit through its own direct spiritual force.

*- Sri Aurobindo*



## The Education

Teach ecology early on. Let it be understood that the earth's life is a **system of interdependent creatures, and that we do not understand at all how it works.** The earth's environment, from the range of atmospheric gases to the chemical constituents of the sea, has been held in an almost unbelievably improbable state of regulated balance since life began, and the regulation of stability and balance is somehow accomplished by the life itself, like the autonomic nervous system of an immense organism. We do not know how such a system works, much less what it means, but there are some nice reductionist details at hand, such as the bizarre proportions of atmospheric constituents, ideal for our sort of planetary life, and the surprising stability of the ocean's salinity, and the fact that the average temperature of the earth has remained quite steady in the face of at least a 25 percent increase in heat coming in from the sun since the earth began. That kind of thing: something to think about....**The central task of science is to arrive, stage by stage, at a clearer comprehension of nature, but this does not at all mean, as it is sometimes claimed to mean, a search for mastery over nature.**

*-Lewis Thomas*

