Vivekananda Kendra
Natural Resources Development Project
Kanyakumari

Work in the field of New & Renewable Energy

Milestones
New and Renewable Energy

Keeping in mind the problem of pollution and Energy Crisis, VK-nardep started its activities in 1986 by propagating New and Renewable Energy such as wind, solar and Bio Energy.

In the initial years, we did lot of work by installing smokeless chulas, different wind mills for drawing water as well as for producing electricity as well as propagation of solar cookers, solar pumps, energy plantation, PV modules etc., However, finally we concentrated on Bio-Methanation technology and got excellent results.
1986-88  
Energy plantation

1987-89  
Urajagram - Energy village
Work starts on biogas technology
Energy center with wind and solar harvesting technologies

1990-97  
Commissioning, installation and maintenance of more than
3000 Deenbhandu and KVIC biogas plants mainly in southern Tamilnadu with
the support of CHF - AFPRO

1991-96  
Integrated rural energy planning programme - more than 3000 Smokeless Chulas
installed in Kanyakumari and Tirunelveli Dists.
1992-99

Bio-Gas mason training programme and construction of plant
17 programme 10 masons each

National study of biogas plants. Monitoring and evaluation of installed biogas plants
Publication of Repair and Maintenance manual for biogas plants, projects of MNRE, New Delhi

Workshops on Renewable Energy Sources with demonstration of Solar Kit, Repair & Maintenance of Bio-Gas Plant & Wind Energy from different districts of Tamil Nadu @ 50 villages

Developed VINCAP (Vivekananda Kendra NARDEP & CAPART) Bio gas plant (Bamboo based Biogas plant)
- Installed 100+ plants all over India and trained many masons

Installed Toilet Linked Bio gas plants at hundreds of places
Bio gas plant construction with Ferro Cement Technology

1999-2001

2001-2006

Bio Gas plant to Bio Manure plant
Bio gas dissemination coupled with bio gas slurry enriched Agro formulations package by VK-nardep

Dr. J.C. Kumarappa, the first to advocate Bio-Manure Plant

Various usages of Biogas Slurry

BGA
Azolla
Vermi compost
Vermi wash
Coirpith compost
Living water
Pancha Gavya
NADEP compost
Received Ashden Award
for Advocating Bio-Manure Plant
Launch of Bio Methanation plant designed by VK-nardep work on Kitchen waste based input materials named as “Shakti Surabhi”

16 plants installed for Research and Development

2007 -2008

Awareness and Training programmes started for organic waste input based biogas plants - 1000 + people attended
2008-2009

**Bio Diesel and work on biogas with non edible oil seed cakes**

Bio-fuel (Neem oil) used in diesel engine for generating electricity at VK-NARDEP Technology Resource Centre, India.

**2009-2010**

'Bio-Methanation Plant with Water Hyacinth, Ipomoea and sea weed as input material' project.

slurry coming out from Biogas plant (nonedible oilseeds) is useful as an organic pest repellent as well as growth promoter.

Presented Paper, received an award of Rs. one lakh from NRDC, New Delhi
2010-2011...

Bigger size Biogas plants

Construction of Bigger size Cow dung and Kitchen Waste biogas plant started in 2010 at Milestonez hotel, Chennai so far 18 plants installed up to 2022

(size 10cum to 100cum)

Hand in Hand inclusive Development Project at Mahabalipuram

Electricity Generation from Bio-Methanition
2010-2011

Compressed Bio gas plant
Successfully tried proto-type at Sevaiyur, Virudhunagar Dist.

Vacuum pressure swing Absorption (VPSA) system with 2 stage compressor, control panel and CBG cylinders - supported by Ford Foundation

Repair and maintenance of Bigger size biogas plants
Taken many assignments in Tamilnadu
2010-2012

NABARD - Rural Innovation fund project - Installed 104 Shakti Surabhi Bio gas plants all over India - Different Agro climatic conditions

Published Hand book and Documentry on Bio-Methanation plant

2011-2012

Developed Fixed type Kitchen waste based Shakti Surabhi Biogas plant

Energy village concept - Sivasubramaniapuram - 26 plants installed
Brahmos project - Rameswaram
Awareness programme : 406
Shakti Surabhi Plant construction : 104
(1 cum Fixed model -100 nos and 6cum - 4 nos)
Published book on Shakti Surabhi bio gas plant - Tamil
Patents for Shakti Surabhi Plant

Indian patent -2009

[Image of Indian patent certificate]

South Africa patent -2013

[Image of South Africa patent certificate]

Sri Lanka patent -2012

[Image of Sri Lanka patent certificate]

China patent -2015

[Image of China patent certificate]
BrahMos project

Solar lights at Dhanuskodi – 200 houses
IFAD project

2013-20

Awareness programme - More than 5000 + participants
Training programme: More than 2000 + participants
Shakti surabhi Biogas plants construction: 1182 stakeholders
Districts- Kanyakumari, Tirunelveli, Thoothukudi, Ramanathapuram, Pudukottai, Thanjavur, Tiruvarur, Nagapattinam, Cuddalore, Villupuram, Kancheepuram, Tiruvallur of Tamilnadu

Training programme on biogas plant for Masons

Repair and maintenance of biogas plant

- 2016-17 - 32 participants &
- 2018-19 - 31 participants
Technology Transfer

Shakti Surabi Bio gas Plant installed in Gorakhnath Ashram, Gorakhpur - Chief Minister Yogi Adityanath inspecting the unit

Vijaya Industries, Udupi for Karnataka
Kasi Sewa Sadan Samiti, Kasi for Uttar Pradesh
There is a demand for small portable plant using cowdung as majority of the small farmers and householders are having one cow and a calf. Conventional Bio gas model is not only costly but also not possible to construct due to non-availability of trained masons and quality material like Bricks and sand. We prepared a mould so that the dimensions will remain perfect and no chance of error. Designed the plant for small family.
“Innovative portable Biogas plant from Agricultural farm waste”, supported by NABARD, Chennai. We made a series of experiments on different farm waste before finalising the prototype. Based on the results, we field tested six portable bio gas plants with cow dung as an input material and seven Bio-methanation plants based on farm waste.

During our experimentation, we found that fixed batch type model is better for farm waste rather than portable plant. We also published a book and documentery of our work.
Use of Biogas slurry as an organic fertiliser, growth promoter or pest repellent

VK-Nardep made a series of experiments with the help of a regular Shakti Surabhi plant by feeding fine powders of the following:

i. Non-edible oil cake such as Pongamia, Neem etc.
ii. CO4 Napier grass
iii. Nochi
iv. Gliricidia etc.

We found the Napier Grass as well as Elephant grass of the same family is ideal for producing Bio-Methantion. while Non edible oil cake works as a wonderful growth promoter and Nochi as a pest repellent.
2018-2019

Installed 24 nos. 1cum capacity of portable biogas plant & 4 nos. of 6cum capacity plant at Rameswaram
(NSE and Hand in Hand inclusive Development Services)

Advantages of Bio toilet system are:

1. No infestation of cockroaches and flies.
2. No maintenance required.
3. Reduction in faecal matter by 90%.
4. No need of removal of solid waste.
5. No contamination of water table.
6. There is no need of soak pit or septic tank.
7. Slurry coming out is harmless and can be used for backyard garden.

Bio-Toilet System at VK-Nardep Office

In this system Toilet is directly attached to the Biogas system.
2021-2022  Bio Methanation Plants in Urban Areas

60 plants installed at Semmancherri Chennai for poor people with support of Hand in Hand inclusive development services
Supplied 320 + Biogas plants to Householders, Hotels, Restaurant, educational Institutions, Research stations etc., in different parts of India

International Seminars and Workshops

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Subject</th>
<th>Place</th>
<th>Dates</th>
<th>Name of the presenter</th>
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<tbody>
<tr>
<td>1.</td>
<td>International workshop on Biogas technology</td>
<td>Beijing, China</td>
<td>18th to 21st October 2005</td>
<td>Shri.G.Vasudeo</td>
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<td>3.</td>
<td>Innovations driving effective growth in the Biogas sector</td>
<td>Colombo, Sri Lanka</td>
<td>17th and 18th November 2015</td>
<td>Shri.V.Ramakrishnan</td>
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+ Several papers presented all over India
+ Print Media gave a good coverage from time to time
+ Gave talks on local stations of All India Radio and Doordarsans private TV stations etc.,

Industrial partner in Tezpur University in the Below mentioned Project:

Multi-crop Residue Processing Technology Package for production of Fuel and Fertilizer
Shakti Surabhi Biogas Plant
Patent - PCT/IN2010/000449

5 in 1 solution

Guide Pipe
Inlet arrangement
Counter weight
Gas outlet
Gas Holder
Digester
Outlet pipe

1. Liquid organic Manure
2. Saving of money
3. Gas for Cooking
4. Pollution control
5. Reduction of Green House Gases

Emergency Slurry Drain
Water Drain

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