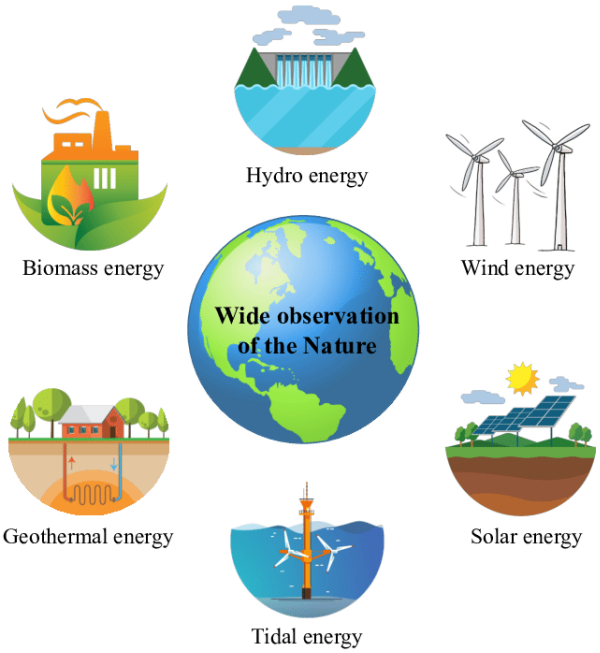
Vivekananda Kendra
Natural Resources Development Project
Kanyakumari

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

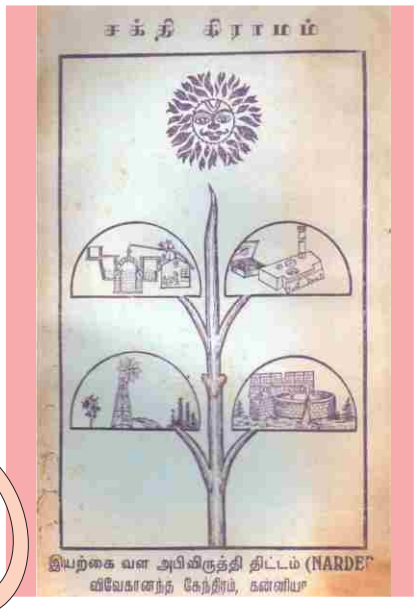
In the initial years, we did lot of work by installing smokeless chulas different wind mills for drawing water as well as for producing electricity as well as propagation of solar cookers, solar pumps, energy plantation,PV modules etc., However, finally we concentrated on Bio-Methanation technology and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

1986-88 Energy plantation

1987-89 Urjagram -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

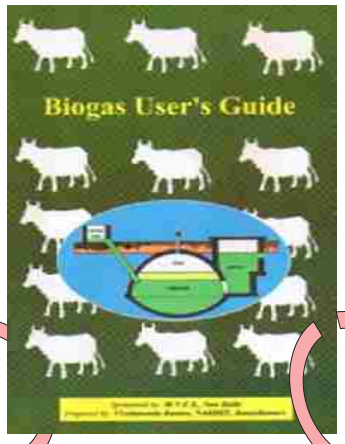
1991-96 Integrated rural energy planning programme- - more than 3000 Smokeless Chulas installed in Kanyakumari and Tirunelveli Dists.



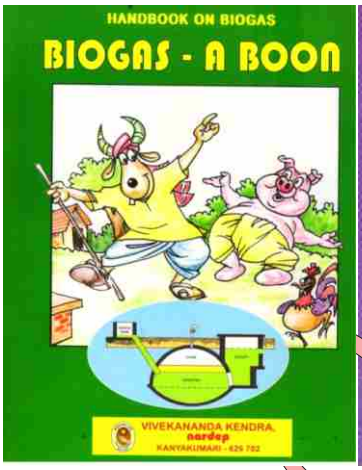
1992-99 Bio-Gas mason training programme and construction of plant
17 programme 10 masons each

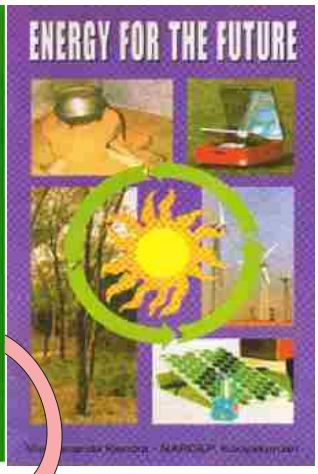
National study of biogas plants. Monitoring and evalution of installed biogas plants

Publication of Repair and Maintenance manual for biogas plants, projects of MNRE , New Delhi



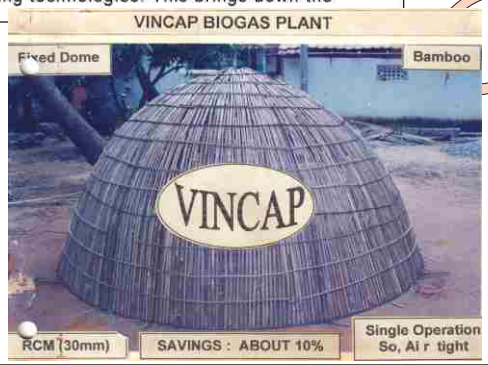
Workshops on Renewable Energy Sources with demonstration of Solar Kit, Repair & Maintenance of Bio-Gas Plant & Wind Energy from different districts of Tamil Nadu @ 50 villages



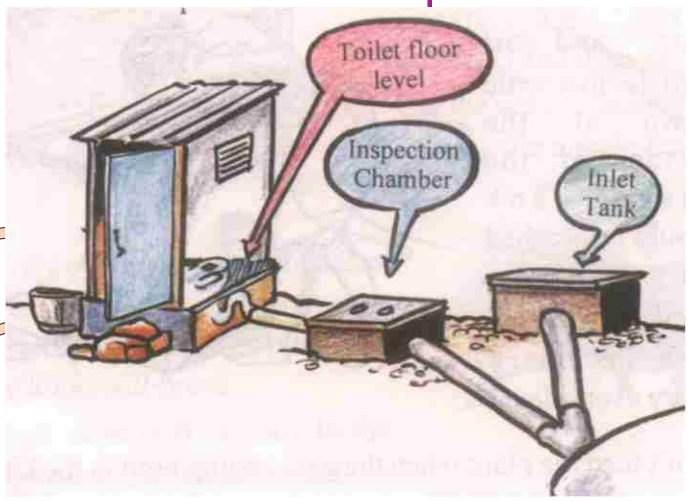


Developed VINCAP (Vivekananda Kendra NARDEP & CAPART) Bio gas plant (Bamboo based Biogas plant)
- Installed 100+ plants all over India and trained many masons

VINCAP model developed by VK-NARDEP uses locally available and cost-effective building technologies. This brings down the cost by 12-20 percent



Installed Toilet Linked Bio gas plants at hundreds of places



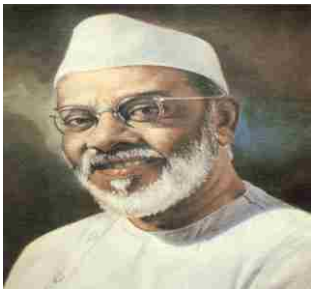
1999-2001

Bio gas plant construction with Ferro Cement Technology

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

2006 - 2007

Received Ashden Award
for Advocating Bio-Manure Plant

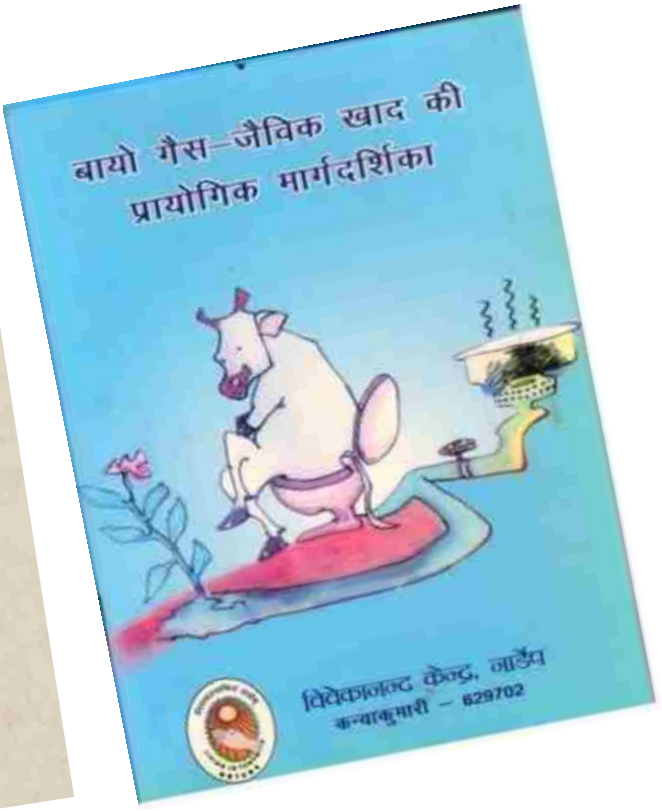
the **Ashden Awards**
for sustainable energy

Award Winner
The International Awards
2006

Vivekananda Kendra
India

These Awards recognise outstanding achievement in using sustainable energy to improve quality of life and protect the environment. The Awards aim to encourage the wider take-up of local sustainable energy solutions across the developing world and in the UK.

Signed .....
Sarah Butler-Sloss
Executive Chair, The Ashden Awards for Sustainable Energy



2007-2008

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.

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

2009-2010

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

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 -Methantion

2010-2011

Compressed Bio gas plant

Successfully tried proto-type at Sevaiyur , Virudhunagar Dist.

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

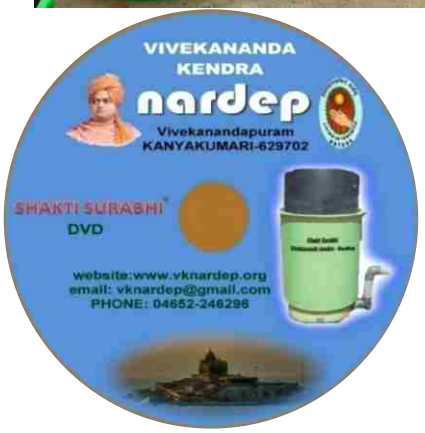
Repair and maintenance of Bigger size biogas plants

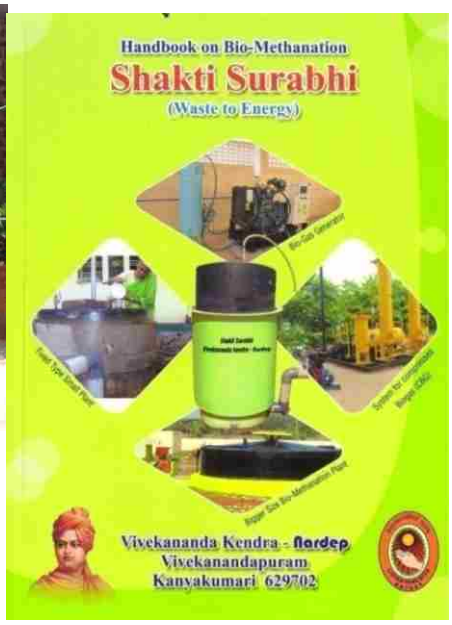
Taken many assignments in Tamilnadu

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

2014-16

Brahmos project -Rameswaram

Awareness programme : 406

Shakti Surabhi Plant construction : 104

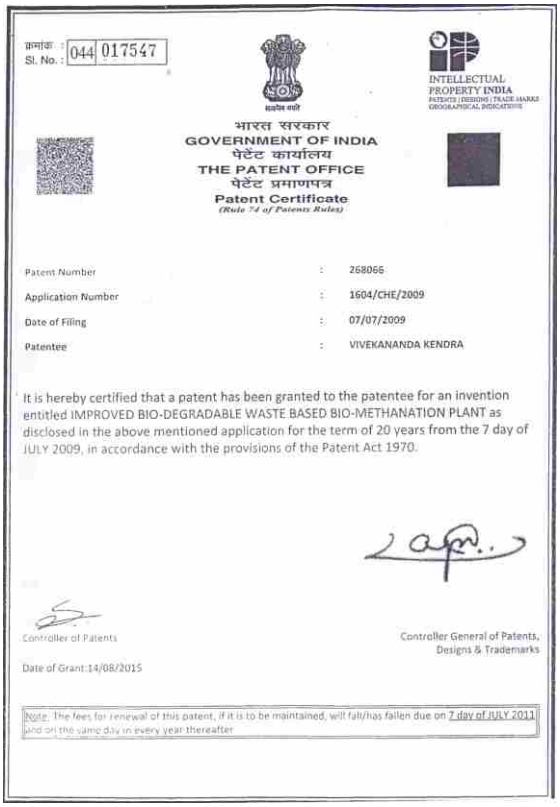
(1 cum Fixed model -100 nos and 6cum - 4 nos)

Published book on Shakti Surabhi bio gas plant -Tamil

2009-2015

Patents for Shakti Surabhi Plant

Indian patent -2009



क्रमांक : 044 017547
Sl. No. :

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS | GEOGRAPHICAL INDICATIONS

भारत सरकार
GOVERNMENT OF INDIA
पेटेंट कार्यालय
THE PATENT OFFICE
पेटेंट प्रमाणपत्र
Patent Certificate
(Rule 74 of Patents Rules)

Patent Number	:	268066
Application Number	:	1604/CHE/2009
Date of Filing	:	07/07/2009
Patentee	:	VIVEKANANDA KENDRA

It is hereby certified that a patent has been granted to the patentee for an invention entitled IMPROVED BIO-DEGRADABLE WASTE BASED BIO-METHANATION PLANT as disclosed in the above mentioned application for the term of 20 years from the 7 day of JULY 2009, in accordance with the provisions of the Patent Act 1970.

Controller of Patents

Controller General of Patents, Designs & Trademarks

Date of Grant:14/08/2015

Note: The fees for renewal of this patent, if it is to be maintained, will fall/has fallen due on 7 day of JULY 2011 and on the same day in every year thereafter

South Africa patent -2013

REPUBLIC OF SOUTH AFRICA — REPUBLIEK VAN SUID AFRIKA

PATENTS ACT, 1978

CERTIFICATE

In accordance with Section 44(1) of the Patents Act, No. 57 of 1978, it is hereby certified that

VIVEKANANDA KENDRA

Has been granted a patent in respect of an invention described and claimed in complete specification deposited at the Patent Office under the number

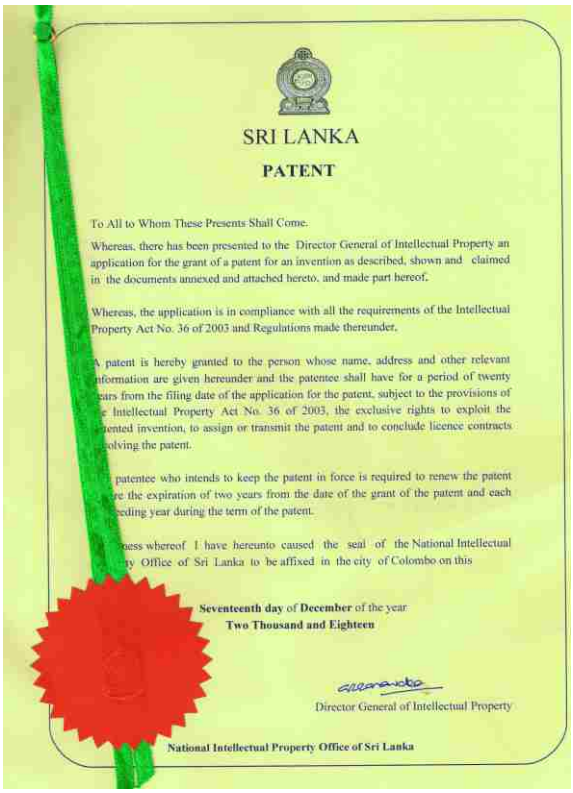
2012/00072

A copy of the complete specification is annexed, together with the relevant Form P2.

In testimony thereof, the seal of the Patent Office has been affixed at Pretoria with effect from 26 June 2013

Registrar of Patents

Sri Lanka patent -2012



SRI LANKA

PATENT

To All to Whom These Presents Shall Come.

Whereas, there has been presented to the Director General of Intellectual Property an application for the grant of a patent for an invention as described, shown and claimed in the documents annexed and attached hereto, and made part hereof.

Whereas, the application is in compliance with all the requirements of the Intellectual Property Act No. 36 of 2003 and Regulations made thereunder.

A patent is hereby granted to the person whose name, address and other relevant information are given hereunder and the patentee shall have for a period of twenty years from the filing date of the application for the patent, subject to the provisions of the Intellectual Property Act No. 36 of 2003, the exclusive rights to exploit the patented invention, to assign or transmit the patent and to conclude licence contracts involving the patent.

The patentee who intends to keep the patent in force is required to renew the patent before the expiration of two years from the date of the grant of the patent and each succeeding year during the term of the patent.

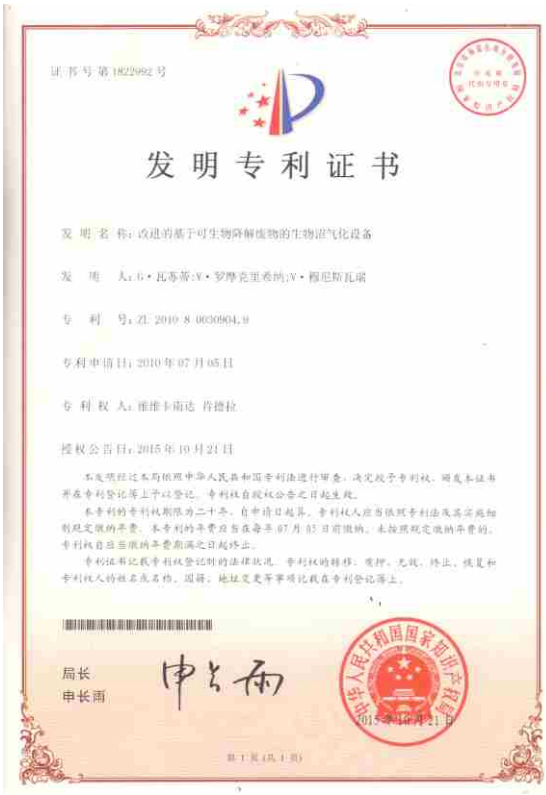
In witness whereof I have hereunto caused the seal of the National Intellectual Property Office of Sri Lanka to be affixed in the city of Colombo on this

Seventeenth day of December of the year Two Thousand and Eighteen

Director General of Intellectual Property

National Intellectual Property Office of Sri Lanka

China patent -2015



证书号第1822992号

发明专利证书

发明名称：改进的基于可生物降解废物的生物沼气化设备

发明人：G·瓦苏蒂;V·罗摩克里希纳;V·穆尼斯瓦瑞

专利号：ZL 2010 8 0030804.9

专利申请日：2010年07月05日

专利权人：维维卡南达 肯德拉

授权公告日：2015年10月21日

局长
申长雨

2015年10月21日

第1页(共1页)

2014-16

BrahMos project

Solar lights at Dhanuskodi – 200 houses

2013-20

IFAD project

IFAD
INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT

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

2015-20

Portable cow dung based plant -R & D project

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.

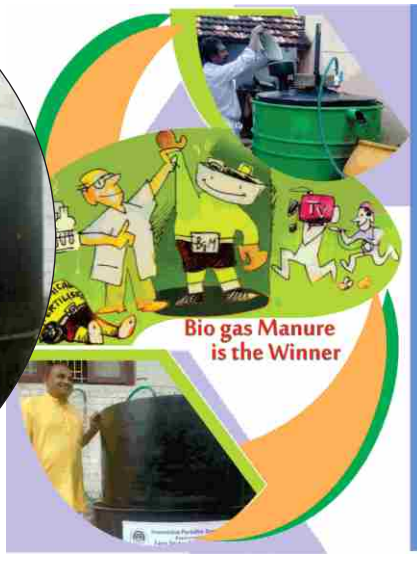
Conventional Bio gas model is not only costly but also not possible to construct due to non availability of trained masons and quality material like Bricks and sand. We prepared a mould so that the dimensions will remain perfect and no chance of error

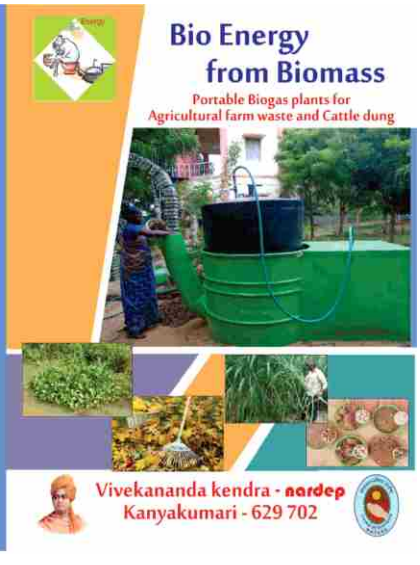
Designed the plant for small family

Biogas plant for Agricultural Farm Waste

"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 expermentation, 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)

Bio-Toilet System at VK-Nardep Office

In this system Toilet is directly attached to the Biogas system

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

2021-2022

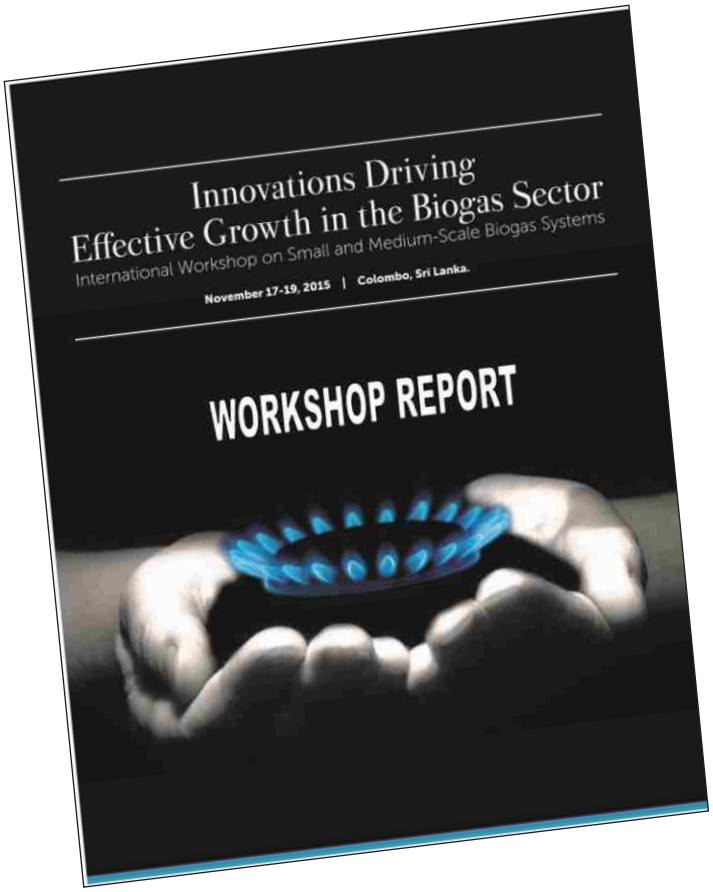
Bio Methanation Plants in Urban Areas

60 plants installed at Semmancherri Chennai for poor people with support of Hand in Hand inclusive development services

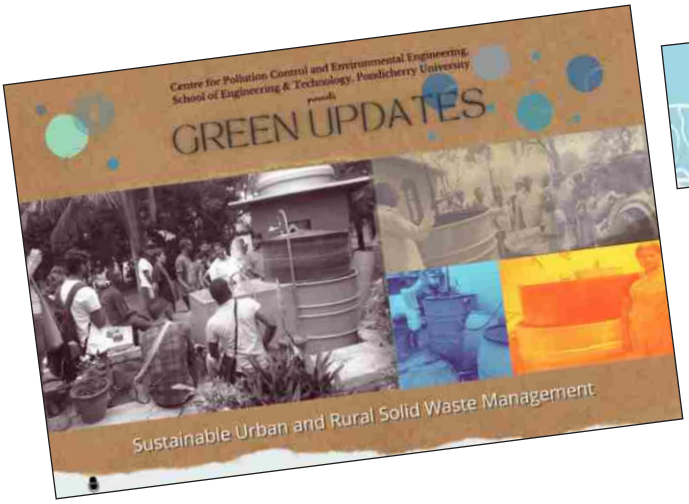
Supplied 320 + Biogas plants to Householders, Hotels, Restaurant, educational Institutions, Research stations etc., in different parts of India

International Seminars and Workshops

Sl.No	Subject	Place	Dates	Name of the presenter
1.	International workshop on Biogas technology	Beijing, China	18th to 21st October 2005	Shri.G.Vasudeo
2.	International workshop on the use of Bio-slurry	Bangkok, Thailand	27th and28th September 2006	Shri.G.Vasudeo
3.	Innovations driving effective growth in the Biogas sector	Colombo, Sri Lanka	17th and 18th November 2015	Shri.V.Ramakrishnan



- Several papers presented all over India
- Print Media gave a good coverage from time to time
- Gave talks on local station s of All India Radio and Doordarsans private tv stations etc.,



Industrial partner in Tezpur University in the Below mentioned Project :

ePPMS

Multi-crop Residue Processing Technology Package for production of Fuel and Fertilizer

Shakti Surabhi Biogas Plant

Patent - PCT/IN2010/000449

5 in 1 solution

1. Liquid organic Manure

2.Saving of money

3.Gas for Cooking, CBG Electricity Generation

4. Pollution control

5. Reduction of Green House Gases

Vivekananda Kendra -nardep Trust,
(Natural Resource Development Project)
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web: www.vknardep.org Email :vknardep@gmail.cor..