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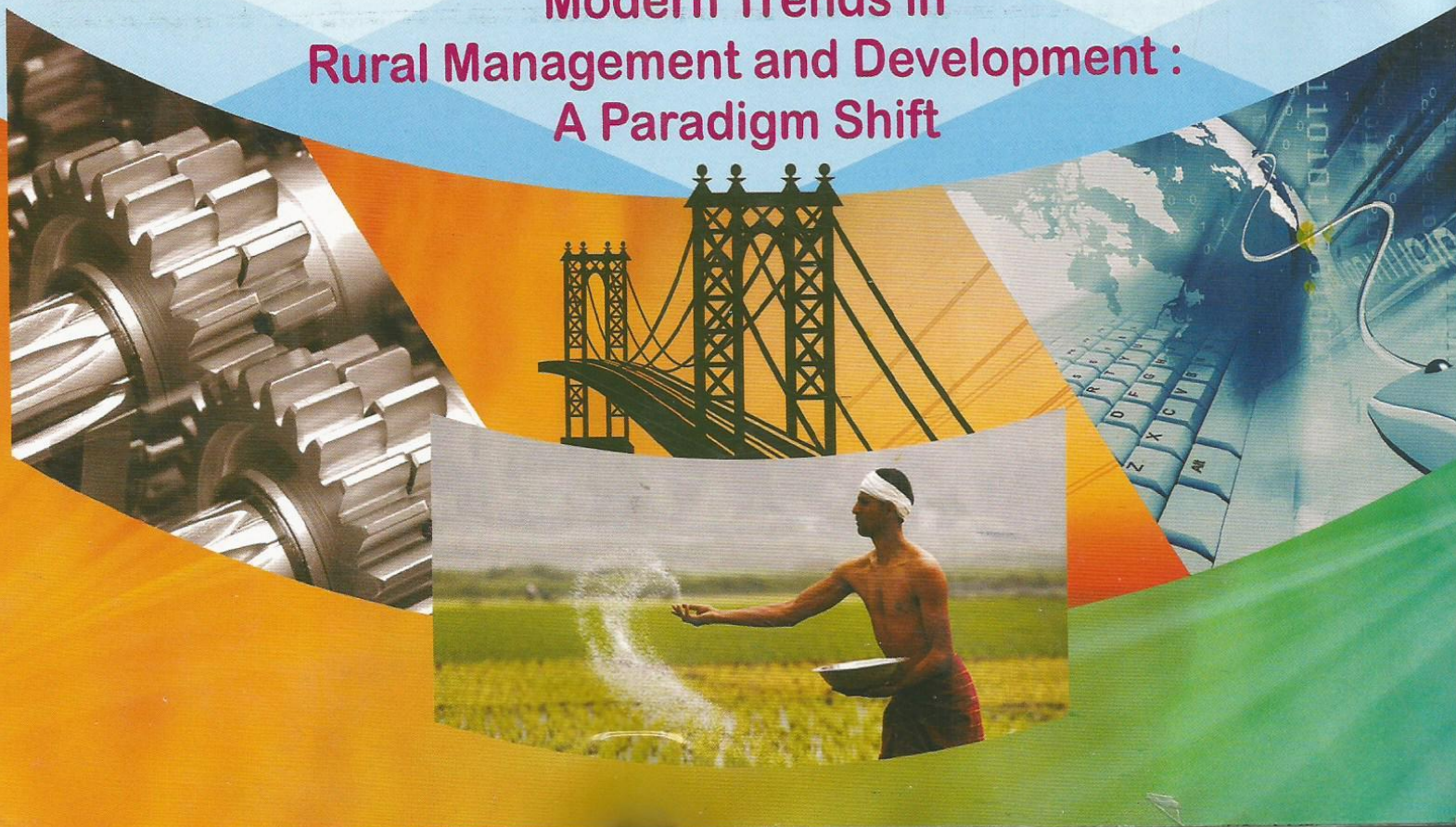
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## **National Conference**

on

### **Modern Trends in Rural Management and Development : A Paradigm Shift**





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# Application of Integrated Biogas, Nadep, Vermicompost, Energy Project (BNVCEP) for Rural Development in India

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## Abstract:

India is mainly agriculture based Country. The living of the most of Indians is dependent directly or indirectly only on agriculture. But during some recent period there is uncertainty on a large scale due to changed natural environment in the agriculture business. Recently there is a large quantity use of chemical fertilizers and pesticides for agriculture. Due to it, agriculture products are polluted and its bad effect has been shown on public health. Therefore organic farming got special importance again. The Biogas Nadep Vermicompost Energy Project is a necessity of Rural Development in India.

**Keywords:** Biogas RCC, Nadep compost unit, Vermicompost, Energy Project.

## 1. Introduction:

The organic farming is the main aspect of sustainable agriculture and its baseline activities are Biogas RCC, Nadep compost unit, Vermicompost, Solar Energy Project. Crop residues are primarily used for livestock feed, soil mulching, Biogas generation, Bio compost, mushroom cultivation, Energy Production for domestic fuel. The large portion of crop residues are burned on farm for cleaning the field for sowing of next crop. The burning of crop residues impacts on soil properties, soil nutrients and generates air pollution. The pyramid of Rural Development (refer fig-1).

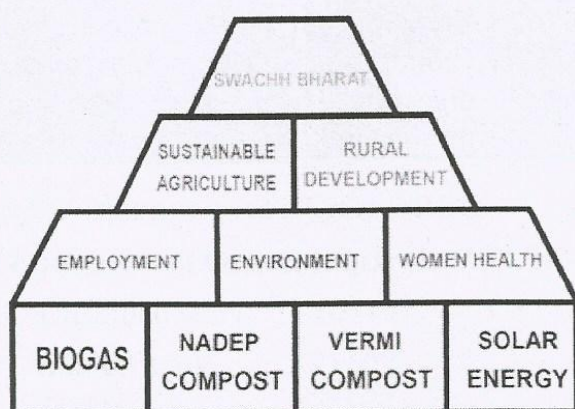


fig-1 Pyramid of Rural Development

## Application Of Biogas R.C.C. Unit, Nadep Compost Unit, Vermicompost Unit, Solar Energy Project (BNVCEP) :

I have done much study regarding agriculture.

With this view, I have got some thoughts to do some new researches regarding agriculture. I have understood most difficulties of farmers. I have got novel inventions of B.N.V. Composting and Energy project which is modern and can be much useful for farmers. I have done deep research study in the project. Now I have got experience that this B.N.V. Composting and Energy project is useful for baseline project of Organic farming.

If the farmers get in practice this less expensive project, they will get self-employment in production of organic fertilizer, dairy milk production, energy at home. This project is baseline for organic farming. The project will be much useful to women self-help groups. Through this project permanent employment will surely give hand to financial progress of women and supporting to environment and can be project in short place and less expense.

Biogas R.C.C. Unit, Nadep Compost Unit, Vermicompost Unit, Solar Energy Project (BNVCEP)



B – BIOGAS RCC  
 N – NADEP COMPOST  
 V – VERMICOMPOST  
 C – COMPOSTING PROCESS  
 E – SOLAR ENERGY  
 P – PROJECT

### Layout Integrated BNVCEP:

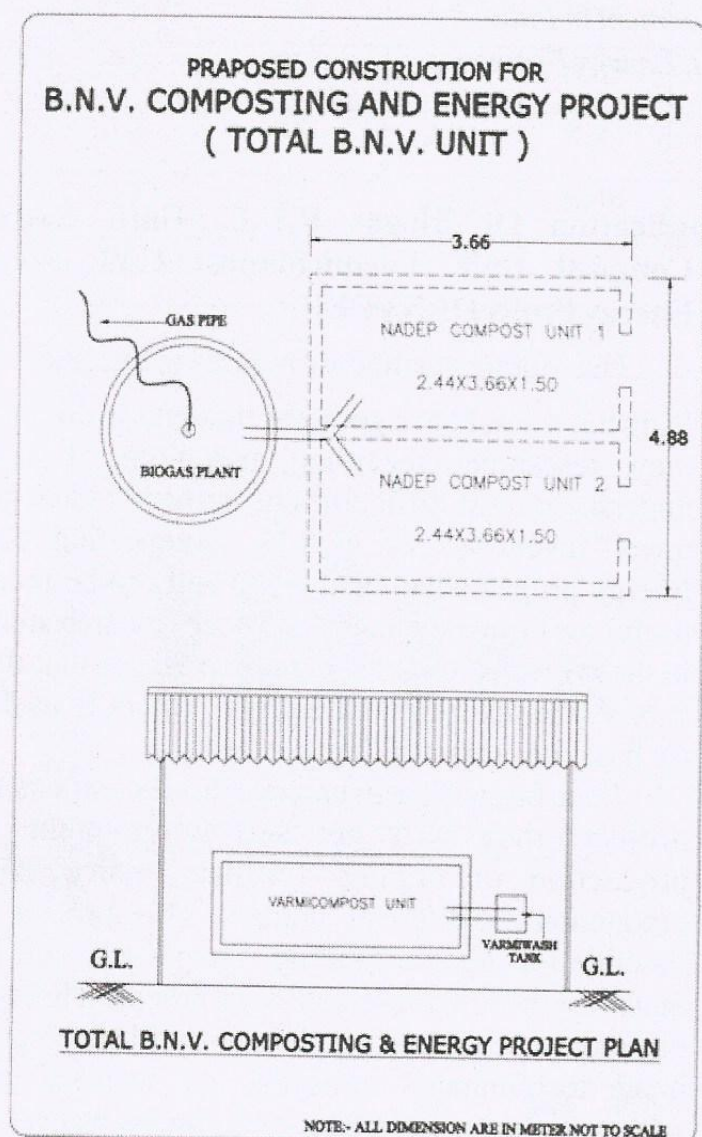


fig-2 Layout of BNVCEP

### 1. Biogas R.C.C. Unit

Today in rural area Biogas energy has become much need full due to the scarcity of power and electricity. "Cow dung, animal excreta and kitchen waste items are decomposed in the dome under anaerobic condition and can generate methane gas and this gas is called Biogas or Natural gas."

Day by day increasing cost of L.P.G. and at the same time its scarcity for this sure optional energy available in Biogas plant.

### 2.1 Types of Biogas Plant:

- 1- Khadi Village Industries Commission (KVIC)
- 2- Janata Type Biogas RCC Unit

### 2.2 Application of Biogas:

- \* To supply Biogas for cooking
- \* To use traditional energy sources.
- \* As stated in Integrated Energy Policy to generate necessary energy for cooking
- \* To develop living of rural women and lessen their trouble.
- \* To help to keep rural area clean by join toilets to biogas plant
- \* To control changes environment by lessening removing of methane and carbon dioxide.
- \* To keep natural balance by control of cutting trees
- \* To provide family need by creating energy through Biogas

### 2.3 Raw Material for Biogas:

Cow dung, Animal excreta, Kitchen sewage, Vegetable Waste

### 2.4 Working of Biogas:

The treatment of any slurry or sludge containing a large amount of organic matter utilizing bacteria and other organisms under anaerobic condition is commonly referred as anaerobic digestion. The microbial digestion in the bio waste digester and



microbes are finally produced in the gas mixture of methane ( $\text{CH}_4$ ) and carbon dioxide ( $\text{CO}_2$ ) by the bacteria are strictly anaerobes these bacteria are called methane fermentations and methane gas is used for home fuel in rural area.

Working Steps Figure of RCC Biogas

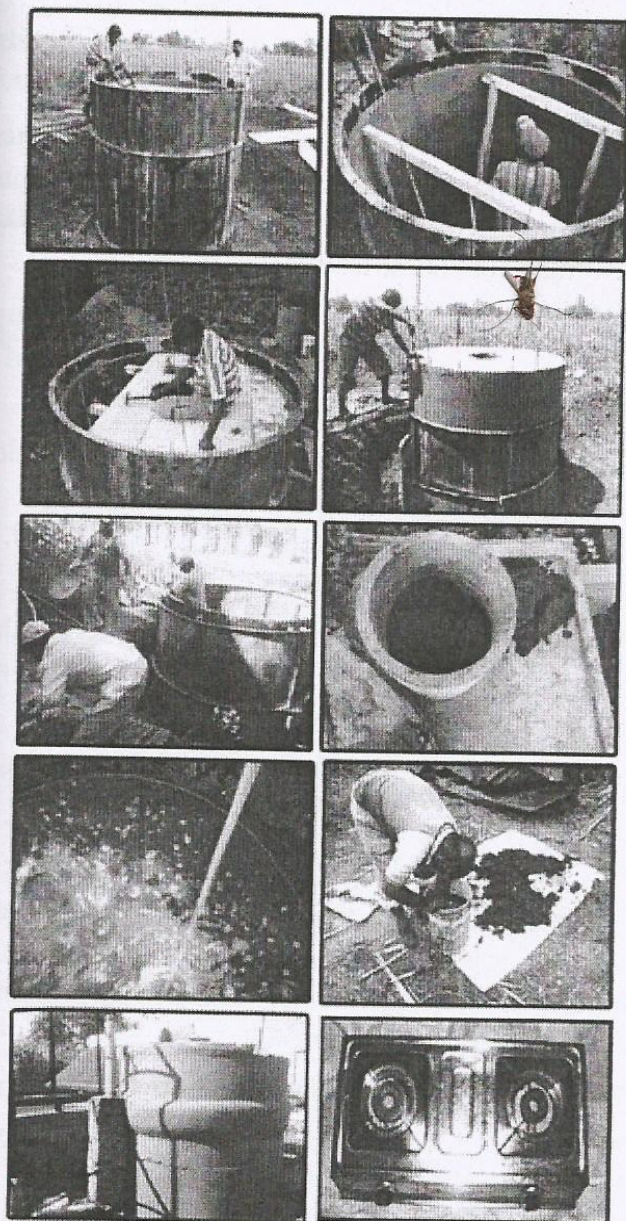


Fig-3 Working steps of BIOGAS RCC

## 2.5 Employment Generation from RCC Biogas:

Unskilled work	- 10314
Skilled work	- 25607
Total Cost	- 35921
Man days creates	- 44

## 1. Nadep Compost Unit:

Gandhi follower farmer Shri. Narayn Devraj Pandhripande A/p- Pusad, Tal- Yavtmal has developed Nadep compost system through his research work in his Godhan centre this is named after his name as NADEP compost system is to get good compost within short time.

### 3.1 Construction of Nadep compost unit in BNVCEP:

- \* At first removing the soil surface and P.C.C. ring of 0.10m height and 0.25m width should be made ready at the bottom in 3.66m long 2.44m wide and 1.50m height and 0.15M width of having size of concrete cement bricks wall should be built (refer fig-4).
- \* Constructing wall the unit should be made strong by putting cuts of plastic pipes. At certain distance with cement and small coarse aggregates i.e. option for sand and these material is easy available on stone crusher.
- \* According to Nadep compost unit layout plan two Nadep tanks should be build attached one by one. These should be kept some open pace in two tanks to coming out to take out ready compost in them.
- \* The top surface of nadep unit walls covered with the RCC coping should be done helping its strength.
- \* The burned bricks layer at the bottom level of nadep tanks Due to it, the soaking of water in slurry done neatly.

### 3.2 Raw Material for Nadep Compost Unit:

Biogas slurry, Dry leaves of crops, Animal waste fodder, Kitchen waste, Vegetable stubbles.

### 3.3 Working of Nadep Compost Unit:

- \* The Nadep units in BNVCEP is to make use of slurry coming from biogas, dry leaves from field and other degradable argil waste creating compost in aerobic condition of decomposition.
- \* The argil waste from the field should be dropped in Nadep units. On it the layers of slurry removed from biogas coming out will be gathered on it. In this way the first tank of Nadep will be filled completely within 2-3 months.



- \* After completion of first tanks, the second Nadep tank filling in the same procedure should be followed.
- \* Within 45 days the first filled tank is ready with good decomposed material. The compost from this tank is useful of further process that is for making of vermicompost.

Working Steps Figure of Nadep Compost Unit in BNVCEP:

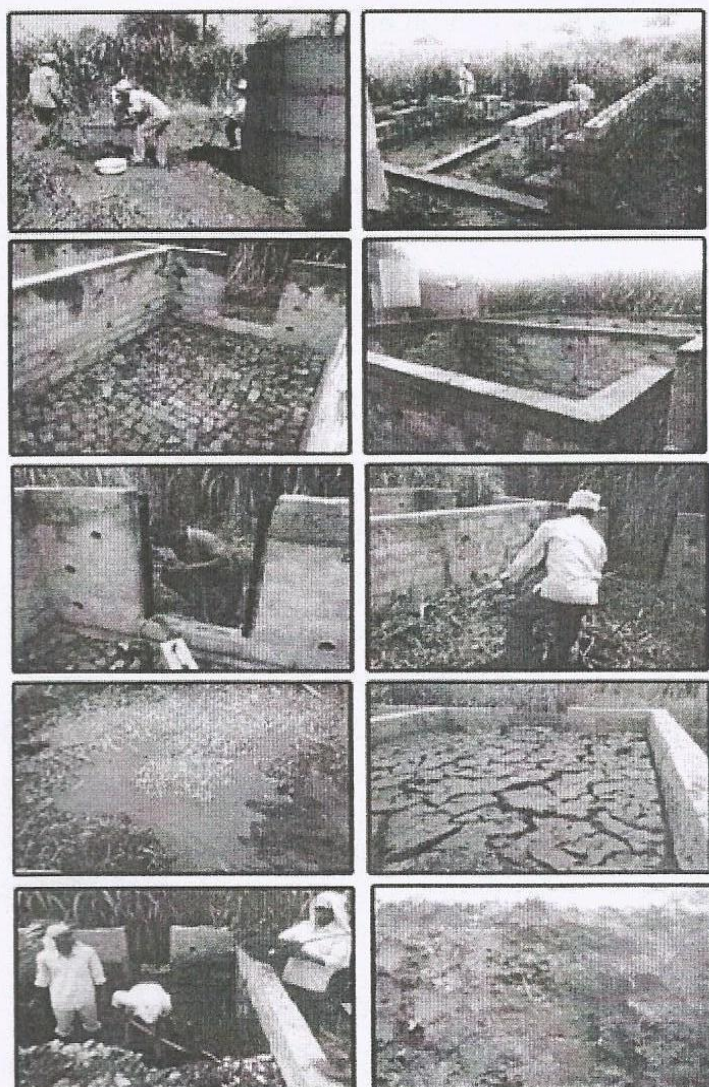


Fig-4 Working steps of NADEP Compost

### 3.4 Employment Generation from Nadep Compost Unit in BNVCEP:

Unskilled work	- 12726
Skilled work	- 24178
Total Cost	- 36904
Man days creates	- 70

### 1. Vermicompost:

Before the arrival of chemical fertilizers farmers kept the fertility of soil by cow dung compost, frequently rotation of crop, using many types of neem cakes but as the excessive use of chemical fertilizers is increased and its bad effects are noticed on crops and on soil the farmers are attracted using the vermicompost. The main reason for this is the highly increased rates of chemical fertilizers.

#### 4.1 Construction of Vermicompost Unit in BNVCEP:

- \* First keeping the high foundation the bed concrete should be made in the shed at the same time for the storage of Vermiwash two tanks of 0.30x0.30mx0.30m should be made (refer fig-5).
- \* Bed Concrete should be on one side of beds sloping edge. The construction of vermicompost shed and tank should be done as per plan.
- \* The inside size of vermicompost tank should be 3.50m long 1.25m wide and 0.75m high The construction of walls should be built with 0.15m breadth of cement or burned bricks.
- \* While constructing tanks small wholes should be kept. The aertion will be playful and growth of worms will be good condition.
- \* After completion of construction of tanks the coping of 0.10m height should be done on it. The plastering of inner side of vermicompost tanks.
- \* The slope at the bottom of tank should be kept at one side and much spread water through adjusted pipe should be collect into the Vermin wash Tank of 0.30mx0.30mx0.30m of size.
- \* Collected water through varmicompost bed should be used as Verminwash for spray increasing the productivity of crops.

#### 4.2 Raw Material for Vermicompost Unit:

Water, Nadep compost, Vermiculture, Decomposed leaves. Waste Vegetables

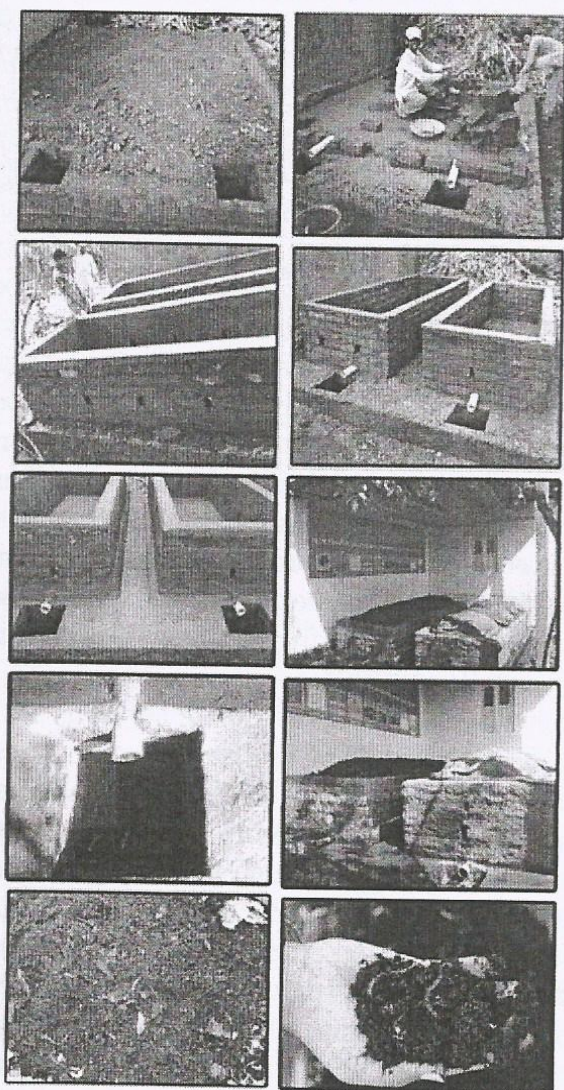
#### 4.3 Working of Vermicompost Unit

- \* First the layer of 0.15m hight with dry leaves, sticks and trashes should dropped at the bottom.



- \* Spraying water on compost taken out from Nadep compost tank the second layer of 0.30m high should be put on the first layer
- \* Vermiculture should be spread on this the layer, 0.10m high of vermi compost spread on it.
- \* The halfly decomposed dry leaves should be used to make layer of 0.10m high useful effective microorganisms to be used.
- \* The layer of 0.40m high of nadep compost taken out of Nadep tank should be spread on it the vermin culture should be used on top layer.
- \* In this way from one decomposed Nadeptank covered the two tanks of vermicompost it is ready for use within 50-60 days.

#### Working Steps Figure of Vermicompost Unit in BNVCEP



#### 4.3 Employment Generation from Vermicompost Unit in BNVCEP:

Unskilled work	- 13161
Skilled work	- 33862
Total Cost	- 47023
Man-days creates	- 67

#### 1. Conclusions:

BNVCEP improves soil fertility and productivity.  
 BNVCEP improves soil texture and reduce soil erosion.  
 BNVCEP increases growth of useful micro-organisms.  
 BNVCEP creates rural employment and sustainability in farming system.  
 BNVCEP reduces rural on farm soil, air pollution problems.  
 BNVCEP creates fixed assets on farm in rural area and improve rural health problems.

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  3. Dr. Sanjay Chahande YASHADA "Yashmanthan" July 2014.
  4. Amol Koli "Vishv Bharati Yashshree" January 2015.
3. Note: This work was registered as patent. If you want more details, please visit [www.bnvcep.org](http://www.bnvcep.org)

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3		AGRI WASTE MANAGEMENT PROJECT (Category : Sanitation related)	The natural energy & organic farming is main aspect of sustainable agriculture Biogas RCC, Nadep compost unit, Vermicompost, Solar Energy Project. Crop residues are primarily used for livestock feed, soil mulching, Biogas generation, Bio compost Energy Production for domestic fuel <a href="http://www.brncp.org">www.brncp.org</a>	Url -- Document <a href="#">Download</a> Presentation <a href="#">Download</a> MP3 -- Video <a href="http://www.youtube.com/watch?v=N8FWz9jASjI">http://www.youtube.com/watch?v=N8FWz9jASjI</a>	Name : AMOL ANANDA KOLI Mobile : 9403964253 Email : amolkolic@gmail.com
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