

# Community based Renewable energies in VN

## - How to develop CRE in Viet Nam(2)-

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# Outline

- 1 Introduction: Purpose and Investigation
- 2 Present state of Household scale Renewable Energies(HRE) in VN



- 3 How to develop HRE to Community based RE(CRE)
- 4 Conclusion
- 5 Discussion



# Introduction

Purpose was to define present situation of RE in VN



4+1 study trips (06/2016)

Bio Gas

- Moc Chau\*
- Kim Bang
- Vinh Yen
- Van Giang
- Tien Kien(03/2015)

Interviewed with about 100 HHs

\*Data about Moc Chau in process of collecting

Pico Hydro

- Tham Dao

Interviewed with about 11 HHs



Questions

- HHs with RE – Initiator, costs, benefit, trouble...
- HHs without RE- Obstacle, reason, future plan....

# Present state of Biogas

19 with Biogas 12 without it in Ha Nam  
 15 and 15 in Van Giang  
 15 with Biogas and 15 without in Vinh Yen

**1.Costs of Bio Gas**  
 -Initial Cost (average)  
 Kim Bang(19Hs)=13.4mil VND  
 Van Giang(15Hs)=11.4mil VND  
 Vinh Yen(15hs)=12.0mil VND  
 -Assist  
 Only in Vinh Yen, 2mil VND assist from MONRE  
 Running Cost= 0!



**2.How did you know Biogas and install?**  
 - Program by MONRE (Vinh Yen)  
 - Heard from neighbors



**3. Why did you install Biogas?**  
 - Save money on LPG  
 - Save time on gathering firewood  
 - **Dispose manure**

**4.Degrees of satisfaction.**  
 1.Very unsatisfy~5.Very satisfy  
 Ha Nam(19Hs)=4.5  
 Van Giang(15Hs)=4.5  
 Vinh Yen=(15hs)4.7  
**Most HHs are very satisfied**

**Benefits of Biogas**

- 1.Reduce LPG bill by 60%  
Average LPG bill/month
2. Reduce Firewood – Saving forest
3. Protect local Environment

Family type	Biogas	No Biogas
2 generation	18,700VND (23Hs)	80,000VND (16Hs)
3generation	46,000VND (16Hs)	94,000VND (23Hs)

Households without Biogas

**Q. Why do you not use Biogas?**  
 - Needless (18% in VY, 17% in KB)  
 - Expensive (6% VY, 46% KB)  
 - No source of Biogas (75% VY, 38% KB)

**Q. Do you want to introduce Biogas?**  
 - Yes(25% VY, 24% KB)

**NO PIG PLAN, NO BIOGAS PLAN!**



# Present state of Pico hydro: 11 households with PH

## 1. When did you install PH?

1989= 3 households  
 1990~1995= 4 Hs  
 1996~2000= 2Hs  
 2001~= 2Hs  
 Some of them upgraded their PH systems from 0.3~0.5kw to 2~3kw

## 2. Costs of Pico Hydro

-Initial Cost (average)  
 1.4mil VND/ 0.5kw turbine  
 3.0mil VND/ 3kw turbine  
 + if needed  
 Cost for constructing dam  
 Cost for Cable(0.4~1.0mil VND)  
 -Running Cost  
 100~250thous\*2times/year

## 3. How did you know PH?

- First household saw it in China
- Some of others saw it in a shop
- The others heard from neighbors



Most Hs installed their PH by themselves as DIY.

**4. Degree of satisfaction**  
**4.5**  
**Most Households are satisfied**

## Benefit

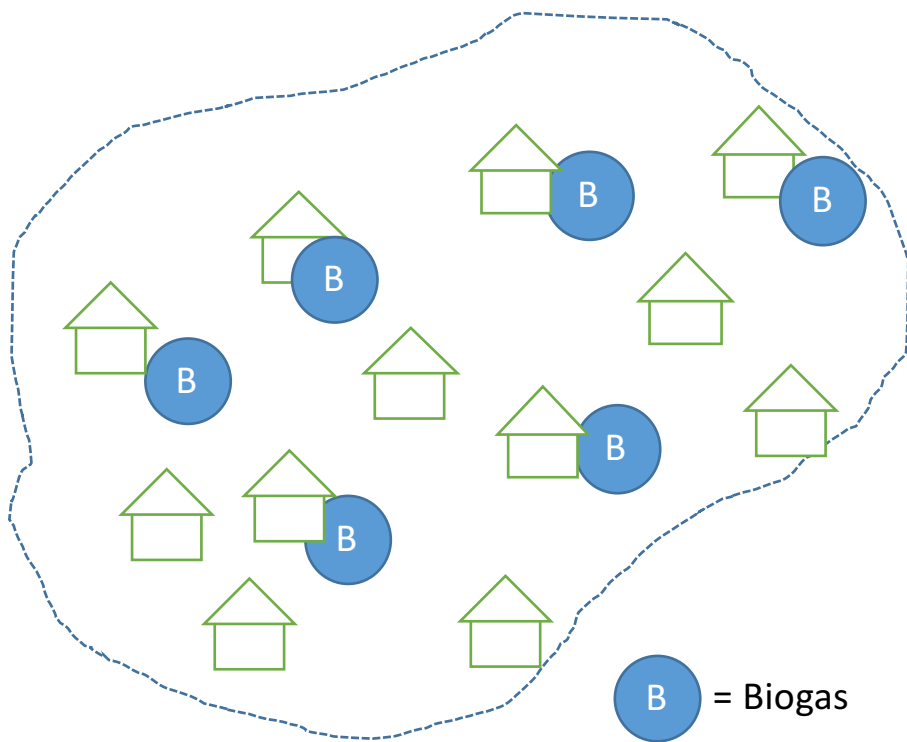
3kw x 3 turbines for Lighting,  
 2 freezers, 1 TV, 4fans  
 →Reduce electricity bill by **95%** (compared with Hs without PH)

## ! Troubles with PH!

- Unavailable in flood season
- Clogged with leaves or trash
- Get an electric shock
- Electronics in house are broken and fire
- Bite by a snake

# Present state of Biogas: One of the most popular RE in VN

## Present state of Biogas (Household scale Biogas)



1. Each household has its Biogas system.
2. There is no connect between Biogases.
3. Biogas is used for cooking mainly.



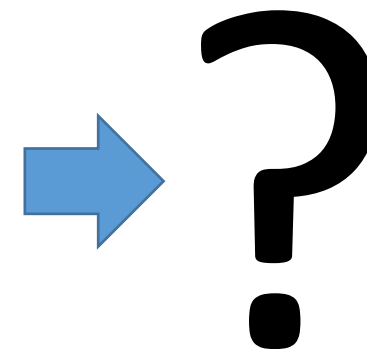
### Advantage

- Household can do with its Biogas independently

### Disadvantages

- Some of gas is wasted (especially, in summer)
- Poor household with no pig have to gather firewood.
- ...etc

## Community based Biogas

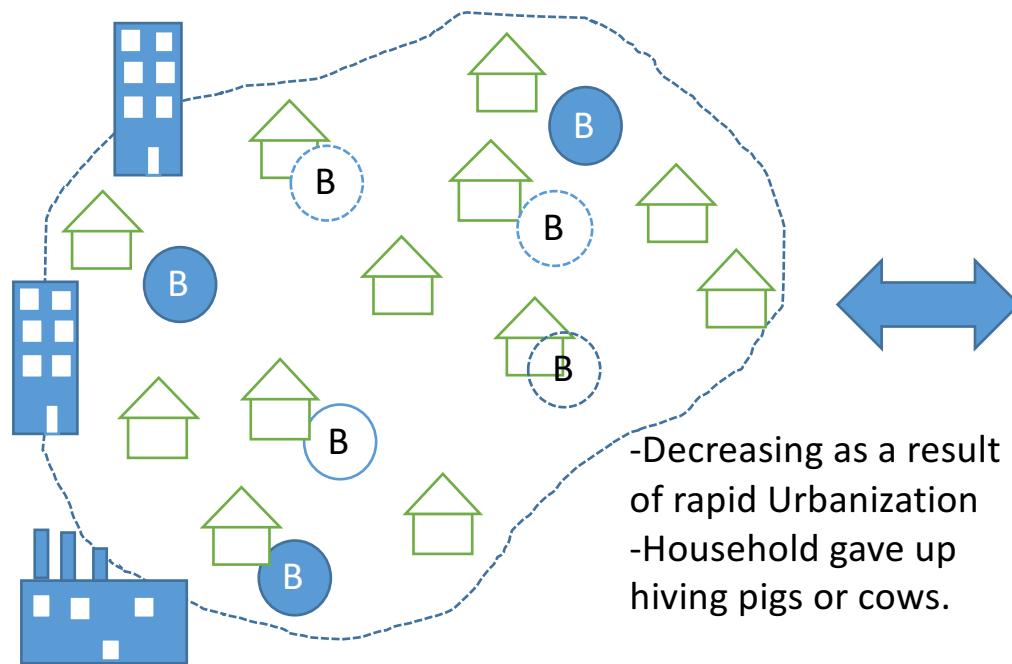


Impossible  
or Needless  
in VN?

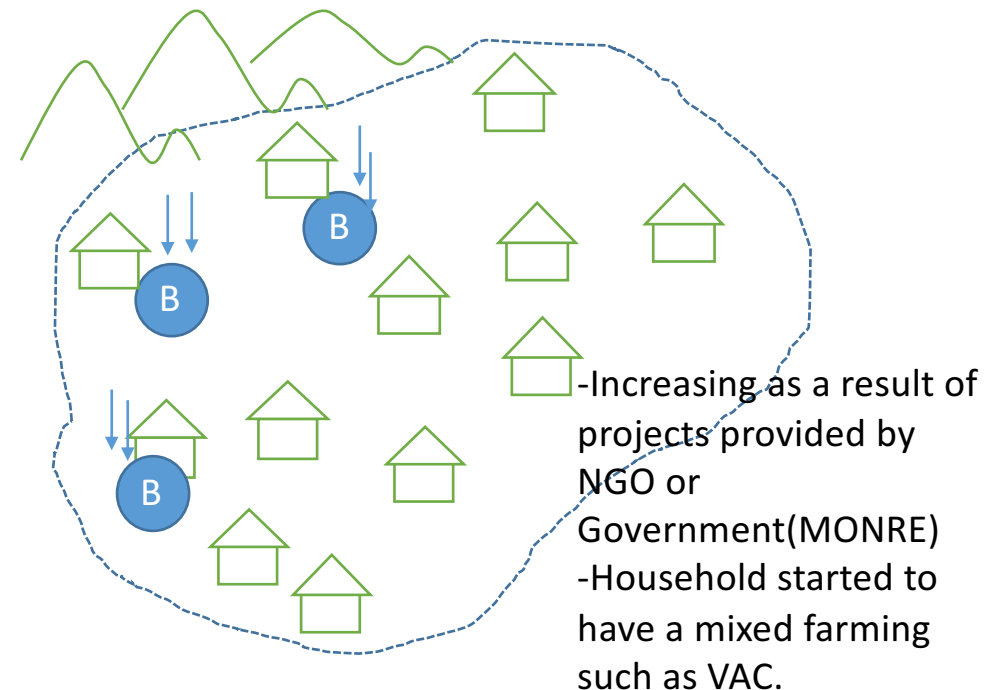


# Household scale Biogas is decreasing or increasing?

Rural around large cities such as Ha Noi

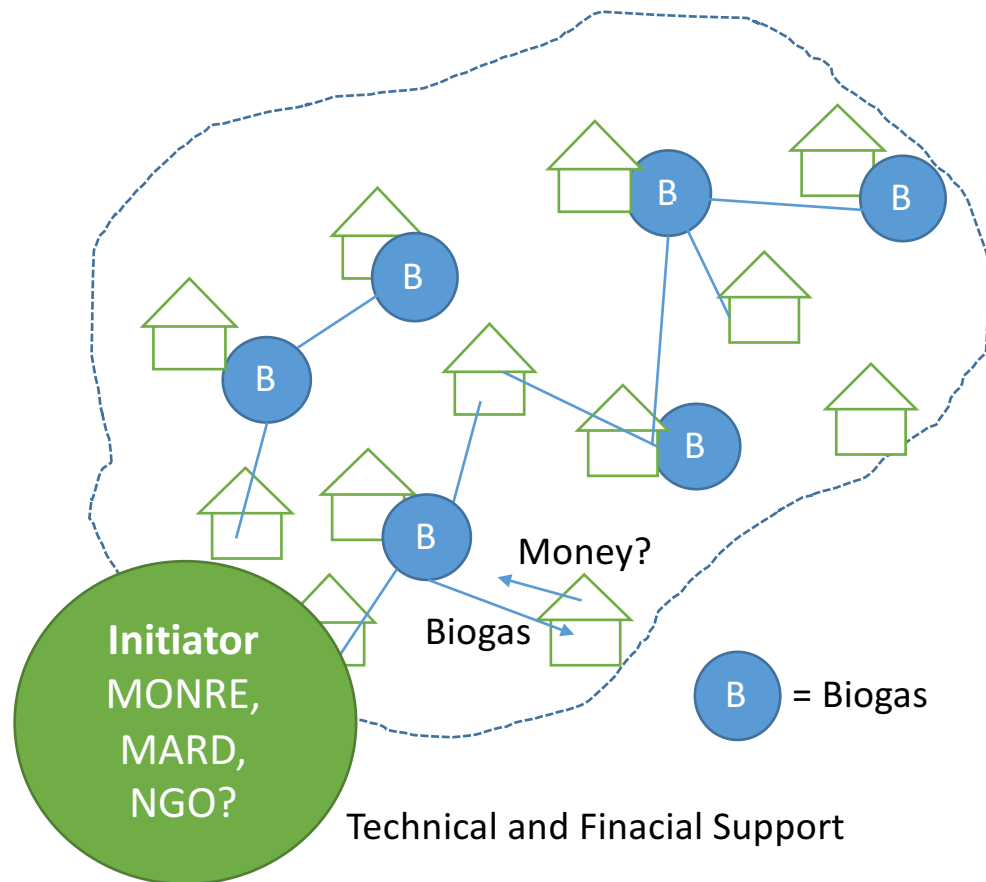


Rural far from urban



We have to appreciate difference between 2 types of rural.  
Different options should be taken to each type.

# Is it possible to connect household Biogas?



- Is there any case like this picture?
- To construct a system like this is difficult in VN?

Household scale: present situation

1. NGO or Government
  2. Household
  3. Household
  4. Household
- Benefit: Household- cooking gas

1. NGO, Government or University?
  2. Household, NGO
  3. Household
  4. Household
- Benefit
- Household with no Biogas system - cooking gas  
Household with Biogas system – earn money?



# Pre-CRE: A few Hs sharing RE voluntarily



A nephew run shop

Sharing RE between households  
2 cases in Hung Yen  
2 cases in Vinh Yen  
Many cases in Tham Dao(Pico)

Case in Hung Yen



For free

Biogas Cable along electric wires  
(Installation cost was paid by the receiver)  
street



A nephew

For free



Household has many(100) pigs

Households without Biogas

**Q. If neighbors wants to use your Biogas, are you willing to supply it?**

Hung Yen= 13/15 Yes

Vinh Yen=7/15 Yes

- Surplus Gas is too much
- No way to provide

**Should we encourage them to connect?**

Households without Biogas

**Q. If someone wants to supply Biogas to you, are you willing to use it?**

Hung Yen=12/15 Yes and 3 are willing to pay for it

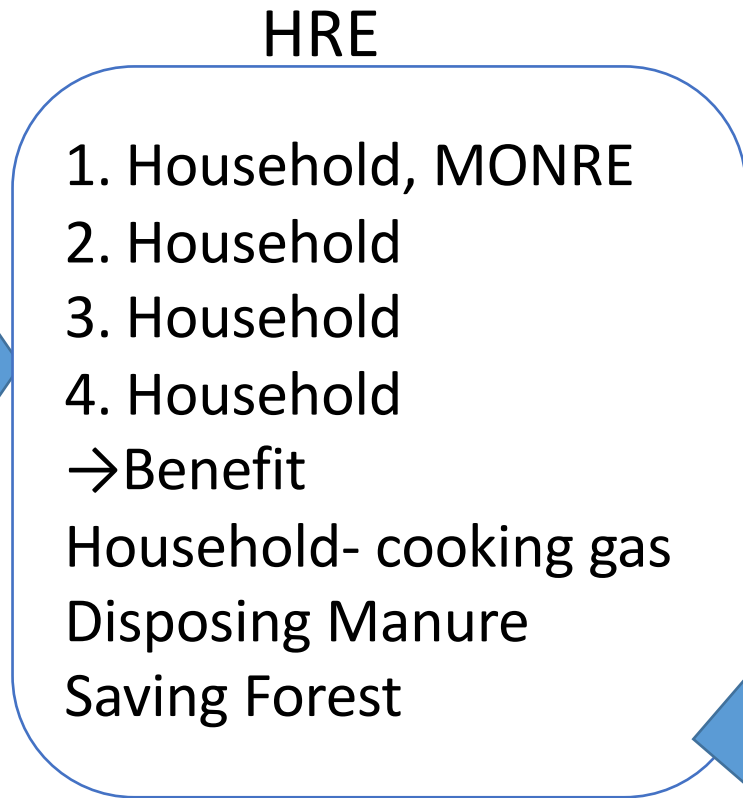
Vinh Puch=16/16 Yes and 10 ...

- If the cost is lower than LPG

What will be an Initiator, owner, manager, operator of CRE in VN? Who will benefit from CRE?

### Four factors of CRE

- 1. Initiator
- 2. Owner
- 3. Manager
- 4. Operator
- Benefit
- Challenges



**If there's no care, Decrease...Diminish<sup>10</sup>?**



## Conclusion: Steps to develop HRE to CRE

### 1. No pig plan, No Biogas plan. No stream, No Pico hydro.

- Biogas is only secondary product. Income from raising pigs is the primary.
- Present states of agricultural activities must be taken into account.
- CRE based on Pico hydro is limited by geographic features.

### 2. Define benefits of introducing CRE

- Most HHs with Biogas or PH are very satisfied with the present situation.
- They are not so much interesting in 4 distributions of CRE.
- If there is no clear benefits for them, HHs are not willing to change.

### 3. Initiator will be the key factor

- In Vinh Yen, MONRE played a large role in introducing Biogas.

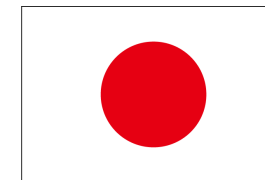
### 4. Demonstration effect will be large

Unlike Japan, household scale RE is familiar and well introduced in rural Viet Nam. That may be both an advantage and disadvantage to CRE.

Household scale



RE → CRE



RE → Non- RE  
→ CRE

# Discussions

## About CRE

1. What is “Community” in VN ? (Self-governance by local people is more limited than other Southeast Asia countries.)
2. What will be an Initiator, owner, manager, operator of CRE in VN? Who will benefit from CRE?
3. Hop Tac Xa has the potential of playing an important role?

## About Biogas

1. Household based Biogas will decrease or increase?
2. Household based Biogas has the potential for CRE?