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Case studies of Community Renewable Energy (CRE) in Vietnam

-How to develop CRE in Vietnam 1-

from www.eupedia.com

Introduction

Introducing myself and the progress so far

- a Ph.D. student at Kyoto University
- the research projects supported the Toyota Foundation
 - 2015: Renewal of rural areas with using RE. Quantitative analysis, Business model, and Comparison with some Southeast Asian Countries
 - 2016: CRE model and Energy Self-governance in Japan, Vietnam, Thailand, and Korea
- 2015 Project, Vietnamese Team
 - Review of the overall framework of RE in Vietnam
 - Case studies in Suoi Trang Small hydropower plant
 - Community Biogas model in Nam Cuong, Tien Hai, Thai Binh

Why we chose this topic?

Energy development paths

- Energy development in the course of the economic growth
 - Centralised energy system (especially in the coastal area)
 - Depopulation and the decline of the rural economy

- Is it possible to change to a decentralised energy system?
- Prevent the decline of rural areas?

- cf. Japanese Case
 - Centralized energy system → Stagnation of the local economy
 - → Decentralization of the energy system (Local Energy Governance)

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Blueprints for CRE in Vietnam: “downwards” and “upwards”

2

What kind of cases are included in “downwards” type?

3

Case 1. Small hydropower plant in Moc Chau, Son La

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Case 2. Biomass power plant in Tan Chau, Tay Ninh

5

Conclusion

6

Discussions



1. Blueprints for CRE in Vietnam “downwards” and “upwards”

1. Blueprints for CRE in Vietnam

Review of Community Renewable Energy (CRE)

- CRE= Community (based) Renewable Energy
 - The use of renewable energy (RE)
 - with community involvement
 - for creating community benefit

- Contributions (4D)
 - Decarbonising/ Decentralising/
Democratizing/ Demonstrating

- In South East Asia?
 - Electrification/ Stabilisation of electricity
 - Activation of community
 - Stable income from electricity selling

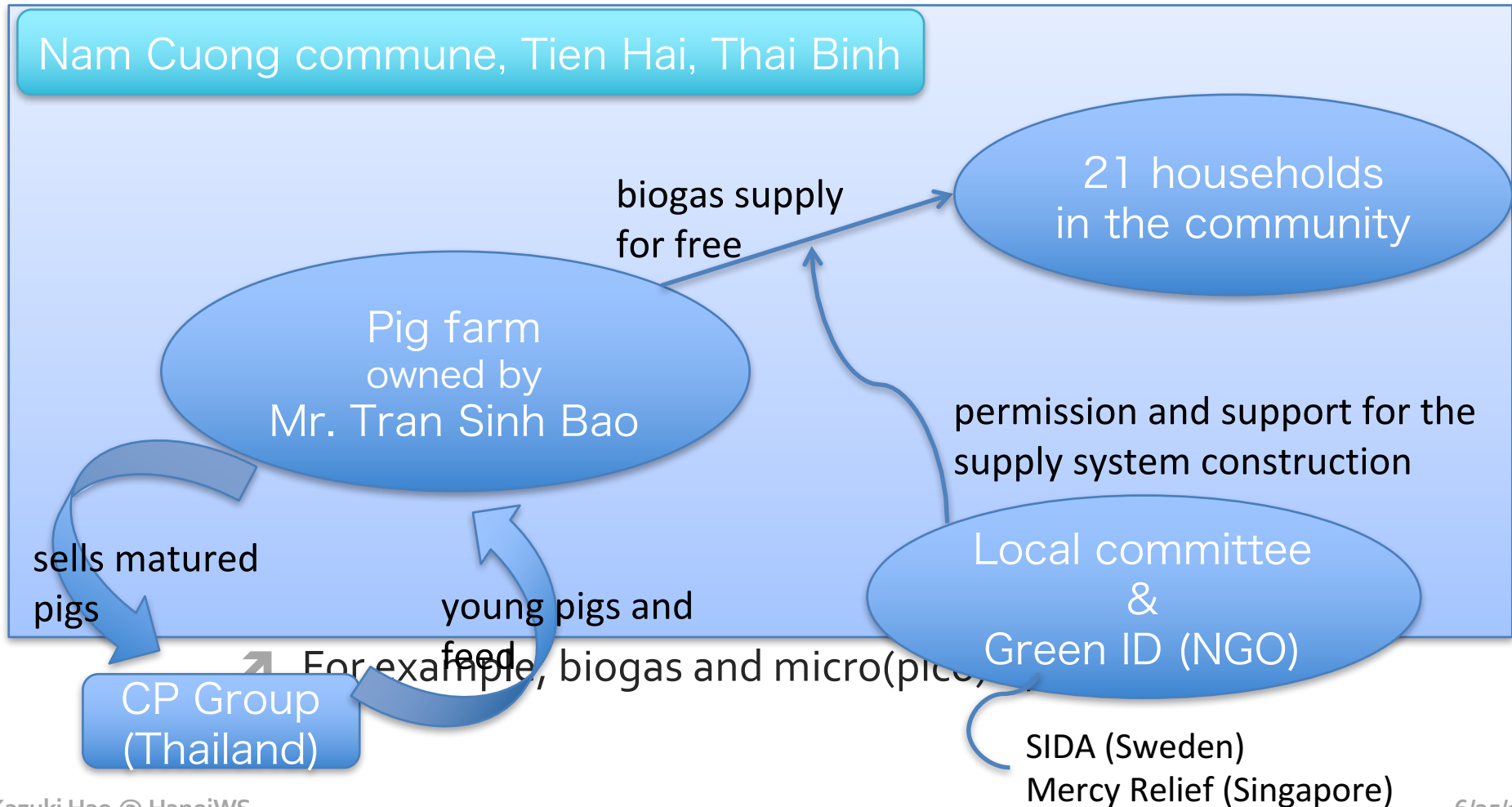
1. Blueprints for CRE in Vietnam

Background information for CRE in Vietnam

- Basic background
 - Electrification rate is high
 - 99% of population has the access (the World Bank, 2012)
 - Electricity price is low compared to other countries in SE Asia
- Definition of the term “community”
 - Top-down structure in the national and local authority
 - Difference of “Local authority” and “Community”
 - Self-governance
=involvement of local residents

1. Blueprints for CRE in Vietnam

Hypothesis: "Downwards" and "Upwards" to CRE (1)



1. Blueprints for CRE in Vietnam

Hypothesis: “Downwards” and “Upwards” to CRE (1)

Enterprise RE

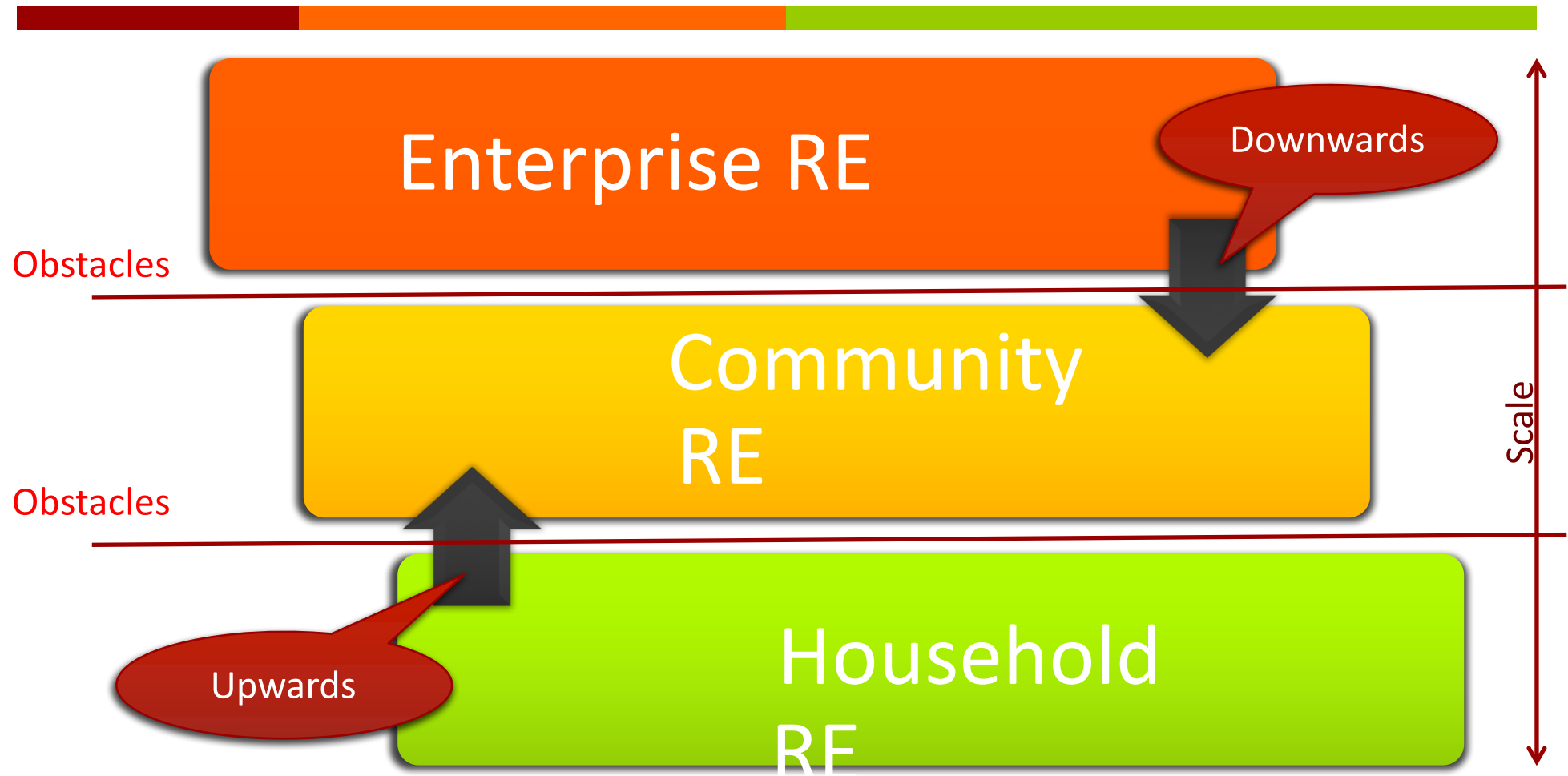


Household RE



1. Blueprints for CRE in Vietnam

Hypothesis: "Downwards" and "Upwards" to CRE (2)



1. Blueprints for CRE in Vietnam

Methodology: What we did in the field survey in May

- Field survey
 - Period: 18 May~1 June, 2016
 - Participants: Kazuki Hao, Ryo Takeuchi, Dr. Dang Thanh Tu, and other supporters
 - Location:
 - Small hydropower plant in Moc Chau, Son La province
 - Biomass power plant in Tan Chau, Tay Ninh province
 - Biogas systems in Ha Nam, Vinh Phuc, Hung Yen (and Son La)
 - Pico hydropower systems in Vinh Phuc
 - Methods:
 - Interviews and questionnaires (2 types for ERE and HRE)



2. What does “downwards” mean? Characteristics of Enterprise RE (ERE)

2. What does “Downwards” mean?

Characteristics of Enterprise RE (ERE) (1)

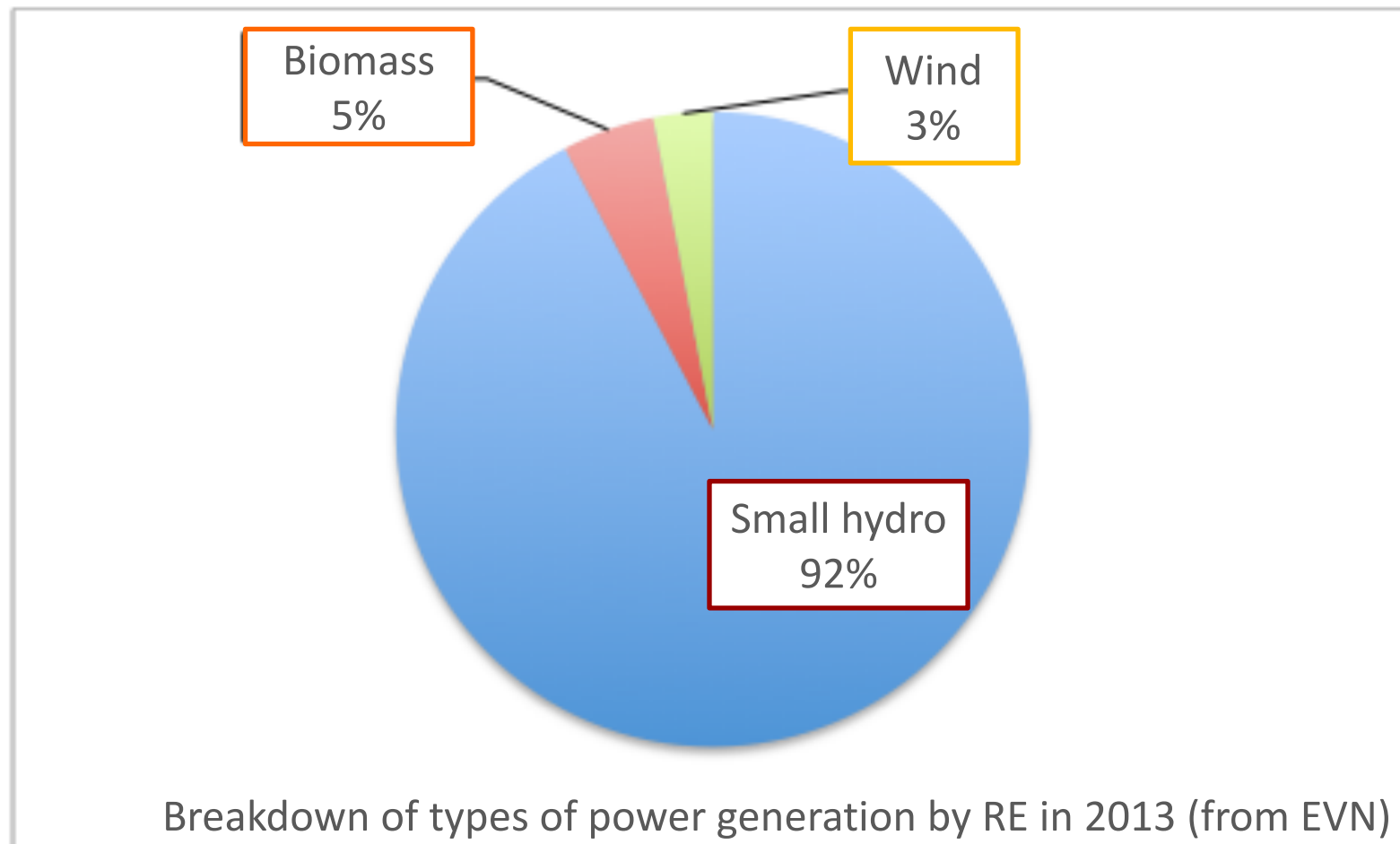
- What is Enterprise(based) Renewable Energy (ERE)?
 - RE that is held and managed by enterprises
 - Purpose is to get a monetary profit
(Note: some enterprises use RE in its own factory)
 - There is no (or almost no) involvement of the local residents
 - Examples are small hydropower and biomass power

- All ERE is sold to EVN. (Nguyen, N. T., and Ha-Duong, M. 2009)

Energy Source	Estimated Economical Potential	Current Capacity (2012)
Small Hydro	2–4 GW	1,589MW
Wind	20GW	52MW
Biomass	1-1.6GW	81MW
Solar	1GW	0MW

2. What does “Downwards” mean?

Characteristics of Enterprise RE (ERE) (2)





3. Case 1: Small hydropower plant in Son La
4. Case 2: Biomass power plant in Tay Ninh

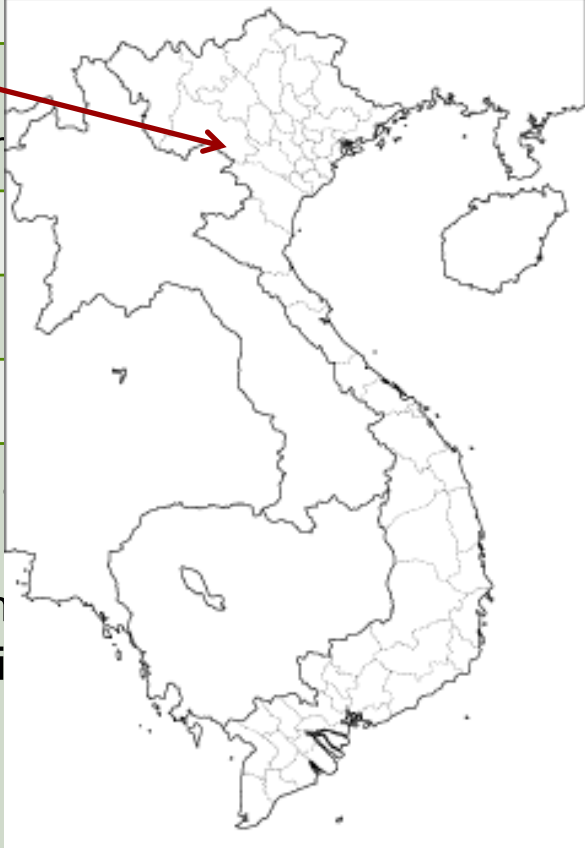
3. Case 1: Small hydropower in Moc Chau, Son La

How it looks like



3. Case 1: Small hydropower in Moc Chau, Son La

Basic information

Location	Muong Sang Commune, Moc Chau district, Son La province	
Owner	Muong Sang company - Private domestic joint stock com	
Operation	Started from 2006	
Capacity	2.4 MW (800kW × 3turbines)	
Initial cost	35 bil VND (1億7500万円/1.75 mi	
Profit	<ul style="list-style-type: none"> - All electricity is sold to EVN b - Dry season: 2850 VND/kWh - Rainy season: about 610/kWh - Profit in 2015: 7.26 bil VND wi (about 33.5 thousand USD) 	

3. Case 1: Small hydropower in Moc Chau, Son La

Key indicators

Key Item	Comments
Initiator	Company Mr. Le Trung Thuy, CEO at Muong Sang JSC and 12 other investors (from outside of the Commune)
Ownership	Company
Management	Company Hiring 20 people. 1 manager and 10 workers are from Muong Sang Commune
Benefit	Company
Challenges	Very limited benefit for whole the commune Effect on local agriculture Technical problems for maintenance?

4. Case 2: Biomass How it looks like

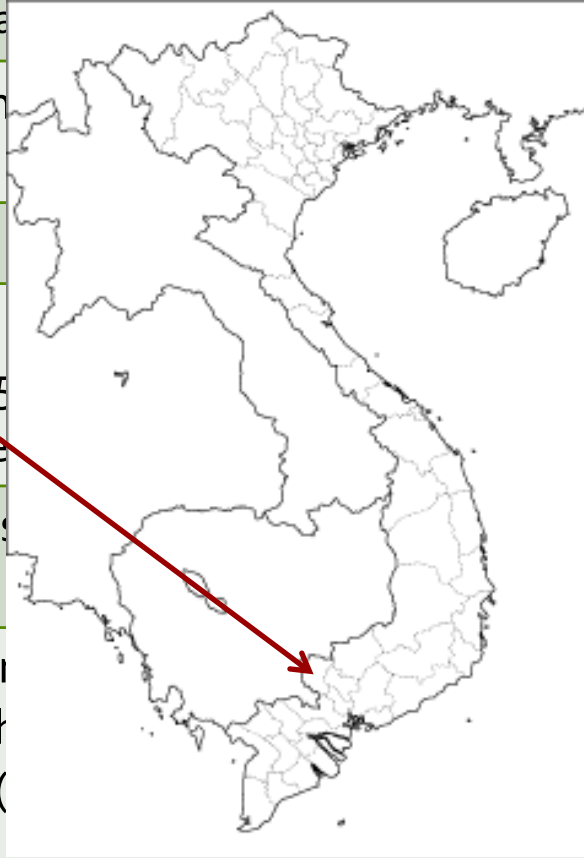
Tay Ninh



4. Case 2: Biomass power plant in Tan Chau, Tay Ninh

Basic information

Name	TTC Sugar Thermolectric Center
Location	Tan Hung village, Tan Chau district, Ta
Owner	TTC Tay Ninh Joint Stock Compan - Private domestic company
Operation	started from 2010
Capacity	24 MW (12MW × 2turbines) using Bagas 95% and Rice husk 5 Total production 40,000MWh/ye
Initial cost	Couldn't get information (now as All factories cost 100 mil USD
Profit	<ul style="list-style-type: none"> - Sells all electricity to EVN from - at the price of 1,200VND/kWh - profit is about 120VND/kWh (calculation)



3. Case 1: Small hydropower in Moc Chau, Son La

Key indicators

Key Item	Comments
Initiator	Company TTC Tay Ninh Sugar Joint Stock Company
Ownership	Company
Management	Company Hiring 30 people during the operation time 30 % is from the district and 70% is from Tay Ninh city
Benefit	Company
Challenges	Very limited benefit for the commune Effect on local agriculture (heat waste)

3-4. Review of the case studies

Obstacles for ERE to become CRE

- Regulation
 - All electricity have to be sold to EVN through the national grid
- Financial system
 - Preferential corporate tax
Tax rate is 0% for the first 4 years, and 11% for the following 9 years
 - Provincial government collect the tax
No incentives for District or Commune authority
- Human resource
 - Human resource is limited in the community



5.Conclusion / 6.Discussions

5. Conclusion

- CRE is very rare in Vietnam. One of the reason is the mind of self-governance in community is weak
- RE in Vietnam can be classified not as CRE, but as RER or HRE. These 2 types of RE does not benefit local residents very much
- Obstacles for ERE to be CRE are:
 - ✓ Regulation that all electricity have to be sold to EVN
 - ✓ Lack of autonomy, especially in terms of financial system
 - ✓ Limited human resource in the community

6. Discussions

- What is the definition of Community in Vietnam?

- What are the hindering obstacles for ERE and HRE to become CRE? (Here I would like to focus on ERE-CRE)

- Why is “CRE” necessary or important for Vietnam?
 - we have to discuss from the 2 aspects



Thank you for kind attention.