



กระทรวงพลังงาน
MINISTRY OF ENERGY

Community-Based Renewable Energy Development In Thailand

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10 Yrs.

1,245 Local
Administrations



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MINISTRY OF ENERGY

Concerning Energy Sector

6.Enhancing Thailand's Economic Competitiveness

6.9 Price structure of all types of feedstock is to be reformed to conform to investment costs and to impose tax burden system that suits each type of fuel and consumers. **This is to enforce an efficient use of energy in the nation** and to bring about consumers' awareness to prevent a diffuse use of energy. Furthermore, a new round of exploration and production of natural gas and crude oil is to be executed onshore and offshore. Also, a number of power plant constructions by both public and private sector is to be put forth, with the use of fossils and **all types of renewable energies** as feedstock. This will be implemented in a **disclosed, transparent, fair and environmentally-sound fashion**, as well as under the cooperation with neighboring countries in terms of energy development.

People must be



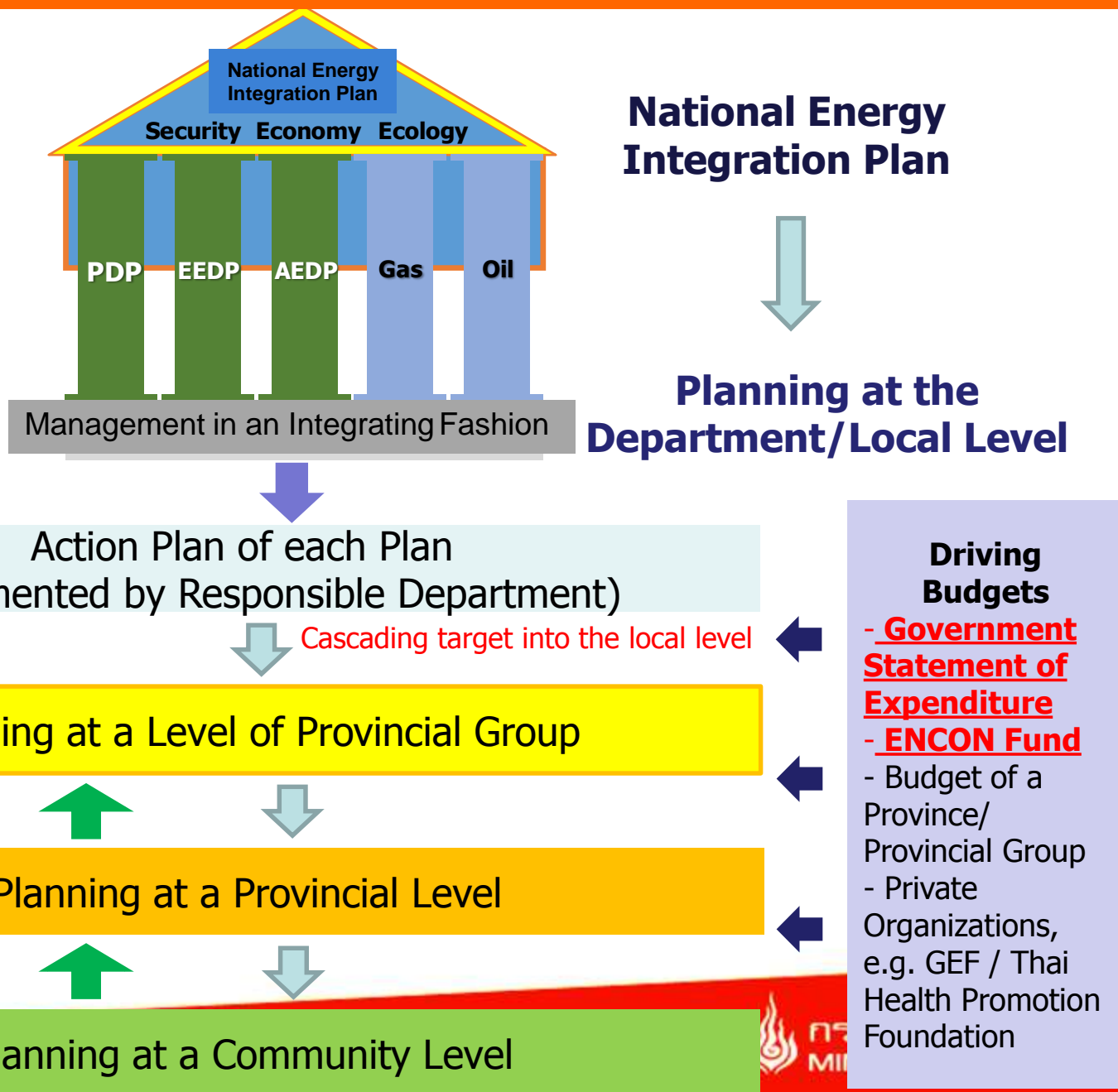
secured
with energy supply
(Availability)

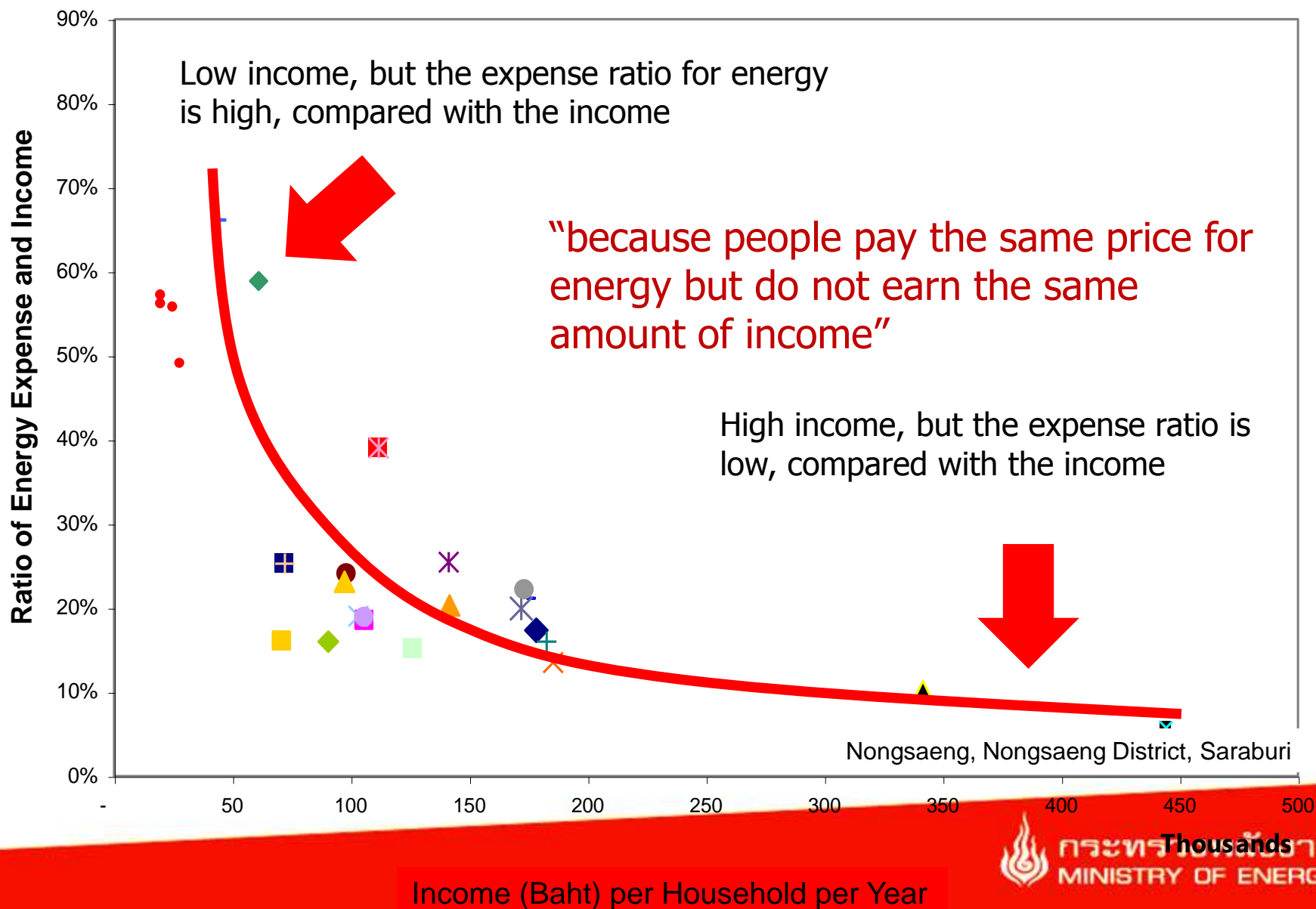


able to access
the energy source with
reasonable price
(Affordability)



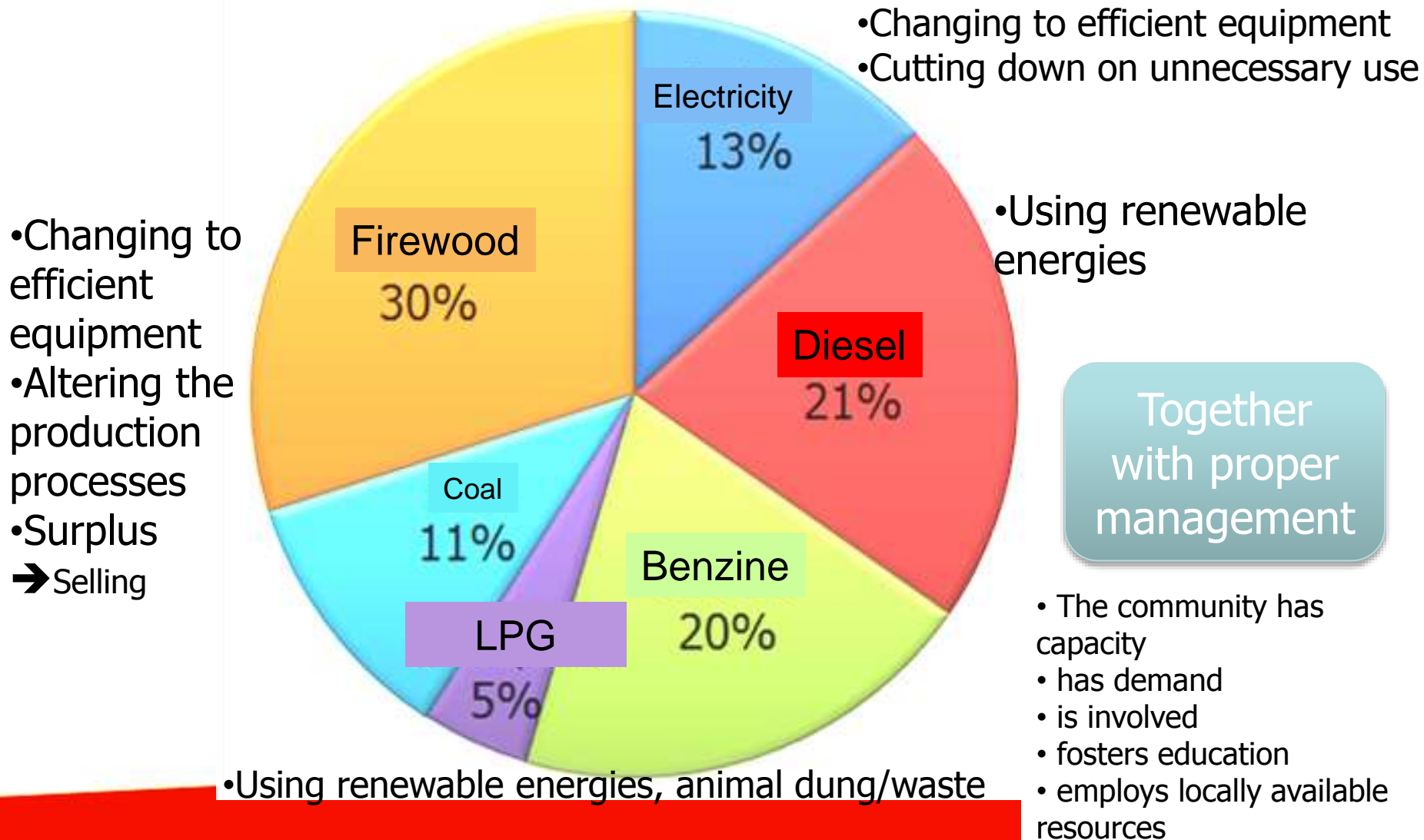
sustainably
accepting and trusting in the supply and
management of energy sector
(Acceptability)





How?

Reduce Costs, Increase Opportunities, **in Terms of Energy**



How?

To bring about sustainability and continuity

1. Participatory promotion
2. Proper management
3. Clearly-assigned responsible person
4. Conforming to local lifestyle/context
5. Integrating other aspects of the community
6. Employing the Sufficiency Economy Philosophy

Local
Energy
Planning

New Concept of Bottom-Up Energy Management Scheme

How?

Local energy planning is

a process that encourages the involvement of the community in terms of energy, environment and local budget management in order to bring about more efficiency in the future. It focuses on local capacity under the path of self-sufficiency and appropriateness of each particular locality.



How?

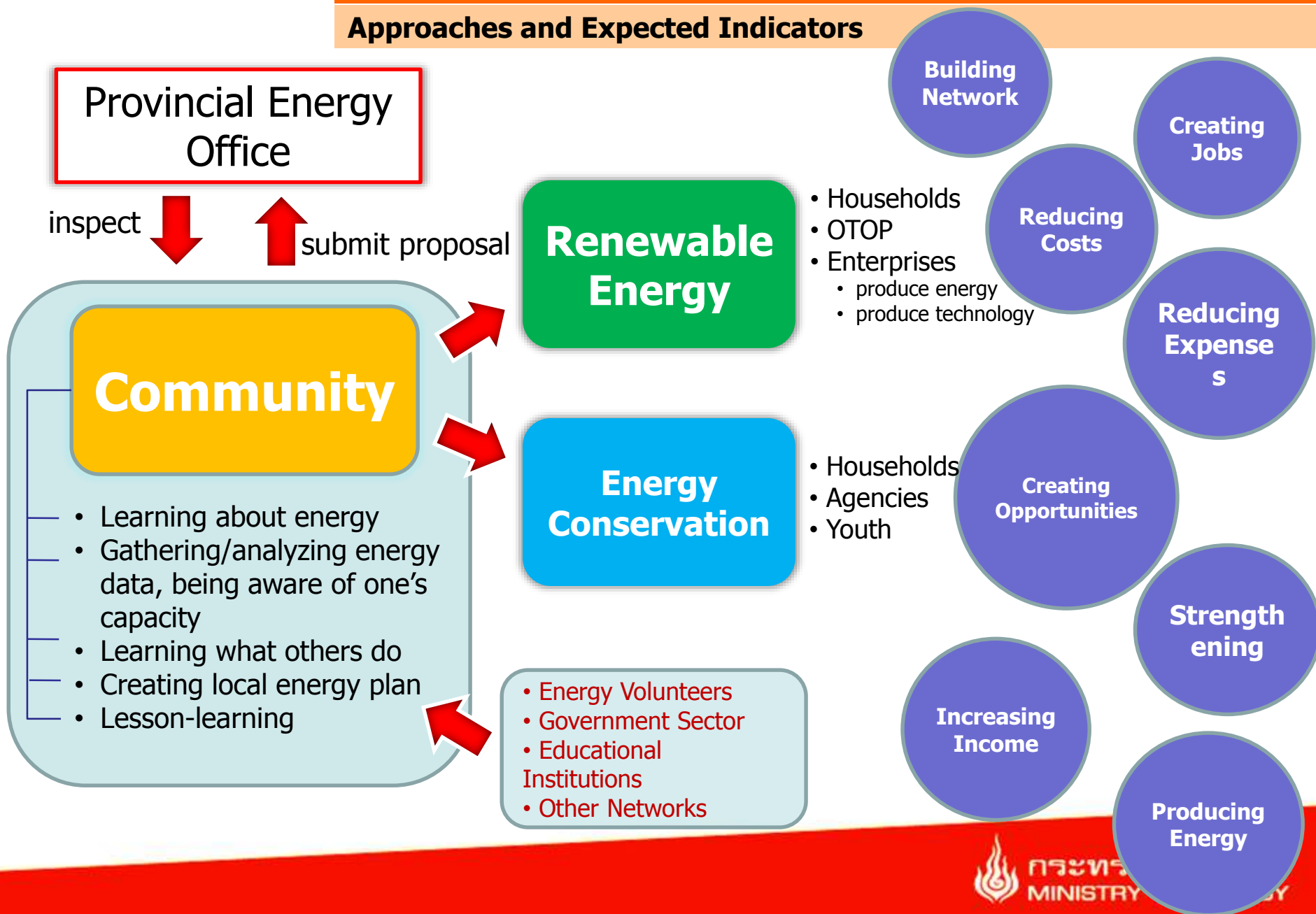
Objectives

1. To build **capacity of the community in terms of skills and knowledge** in the area of energy and environment management that suits the capacity and readiness of the community;
2. To **enhance local involvement in the implementation, promote democracy** and strengthen the community through the local energy planning processes;
3. To promote the implementation processes in terms of **energy conservation and energy efficiency** as well as to campaign sustainable energy consumption
4. To enhance the performance of the Ministry of Energy on **catering the demand of the people**





Approaches and Expected Indicators





What happened?

Output 1: Working Group/Community Organization/Energy Volunteers



Cooperation and participation are enforced, because the community that wishes to participate must form a working group to work with the Provincial Energy Office.

Today, there are 5,952 community energy volunteers nationwide.

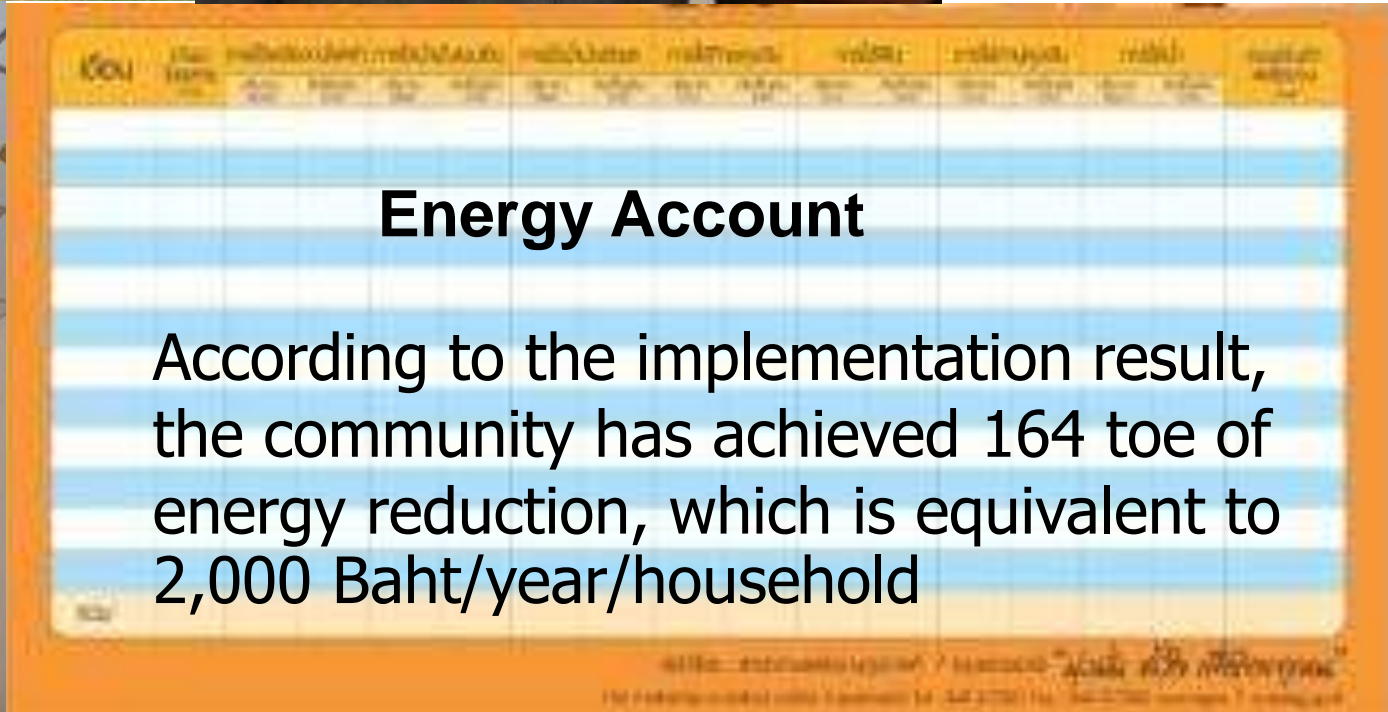


What happened?

Output 2: Model Household



To set an example for the neighbors



Energy Account

According to the implementation result, the community has achieved 164 toe of energy reduction, which is equivalent to 2,000 Baht/year/household



What happened?

Output 3: Local Curriculum/Integrating the topic into school's self-learning hours



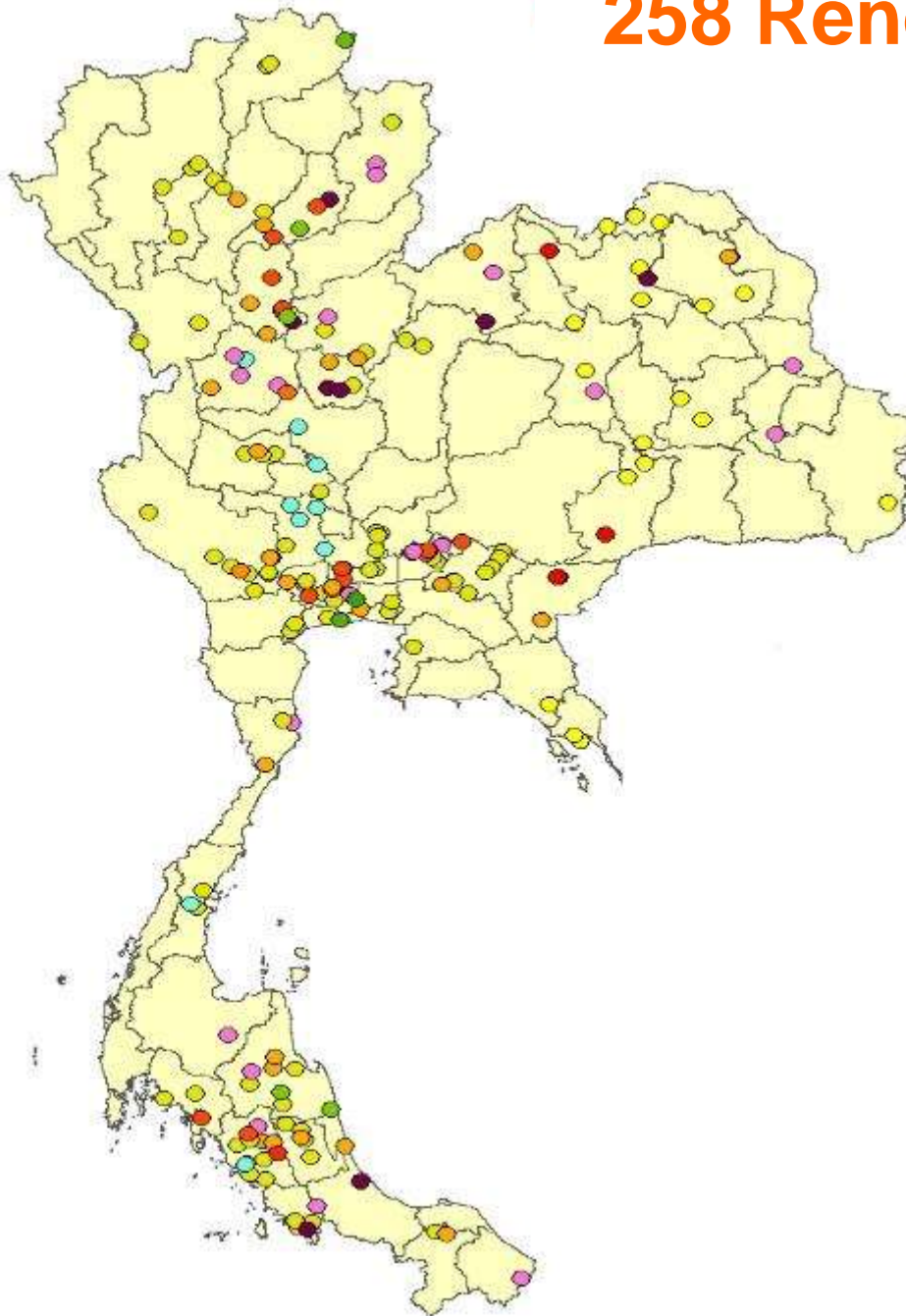
What happened?

Output: 4 Learning Center



Today, there are 184 community's energy learning centers nationwide that tackle 10 aspects regarding energy sector. Most of them are living learning center, that is, a learning center that puts the topic into practice in everyday life.

258 Renewable Energy Learning Centers



- High Efficiency Stove Production Group 11
- Processed Products Group from Solar Dryer 1
- Biomass Stove Production 4
- Hydro Power Production 1
- Biogas Fermentation Tanks 22
- Wind Energy Washing Pump 1
- Solar PV Power Production 1
- Stove Molding 12
- Renewable Energy Learning Center 148
- Bio-Diesel Learning Center 28
- Non-Smoke Grill, "Kao-Larm"* Roater 1
- 200-Liter Charcoal Stove, High Efficiency Coal 26
- Gasifier Technology 1
- Biomass Power Plant 1

*Kao-Larm = glutinous rice roasted in bamboo joints

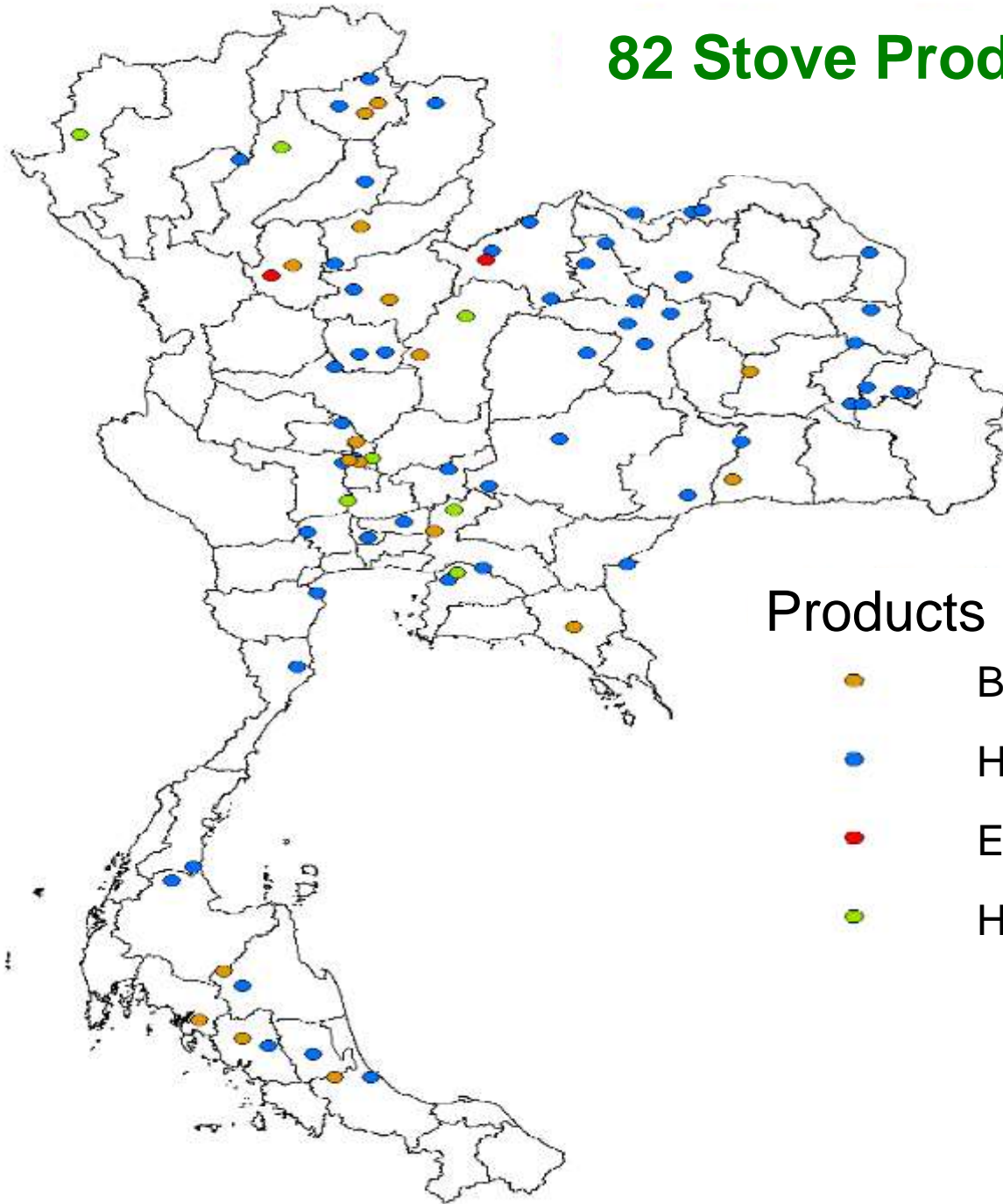
What happened?

Output 5 Occupational Groups → creating new career opportunities
→ Strengthening the community's occupational groups













Today, there are 18 occupational groups in the field of energy in 93 communities.

82 Stove Production Enterprise Groups









Products







-  Biomass Stove
-  High Efficiency Stove
-  Economic Stove
-  Husk Gas Stove

Province	Type of Product	Technology Used before Improvement	Technology Used after Improvement	Energy Reduction (%)	Value of Energy Reduction Baht/Year
Kalasin	Gaba Rice			60 %	5,984 (no costs for husk because there is a mill)
Kamphaeng Phet	Mushroom Chunk Krayasat (Sweet Cereal Bars)	 Direct Steaming/ Iron Cupboard	 Steaming System/ Iron Cupboard	86 %	91,488
		 Steaming System/ Concrete Tub	 Steaming System/ Concrete Tub		







Areas of OTOP/SME/Community Enterprise/Household Industry

Province	Type of Product	Technology Used before Improvement	Technology Used after Improvement	Energy Reduction (%)	Value of Energy Reduction Baht/Year
Khon Kaen	Boiled Corn			50%	78,000
Chantaburi	Local Spirits			28%	100,000
Tak	Local Spirits			40%	80,000

Areas of OTOP/SME/Community Enterprise/Household Industry

Province	Type of Product	Technology Used before Improvement	Technology Used after Improvement	Energy Reduction (%)	Value of Energy Reduction Baht/Year
Trang	Dried Fish/Shrimp			50%	72,000
Nakhon Ratchasima	Silk Silk Soap			26%	9,721
Nakhon Si Thammarat	Fermented Catfish			50%	12,000

Areas of OTOP/SME/Community Enterprise/Household Industry

Province	Type of Product	Technology Used before Improvement	Technology Used after Improvement	Energy Reduction (%)	Value of Energy Reduction Baht/Year
Phichit	Preserved Pomelo	 	 	50%	217,600
Mukdahan	Germinated Brown Rice Naturally-Dyed Cotton			29%	36,500

What happened?

Output 6 Creating Opportunities / Innovations



What happened?



Solar Dryer House for Rubber



What happened?

Reduce 50 % of time, increase value of 10-20 baht per one rubber sheet



Solar Dryer House

What happened?



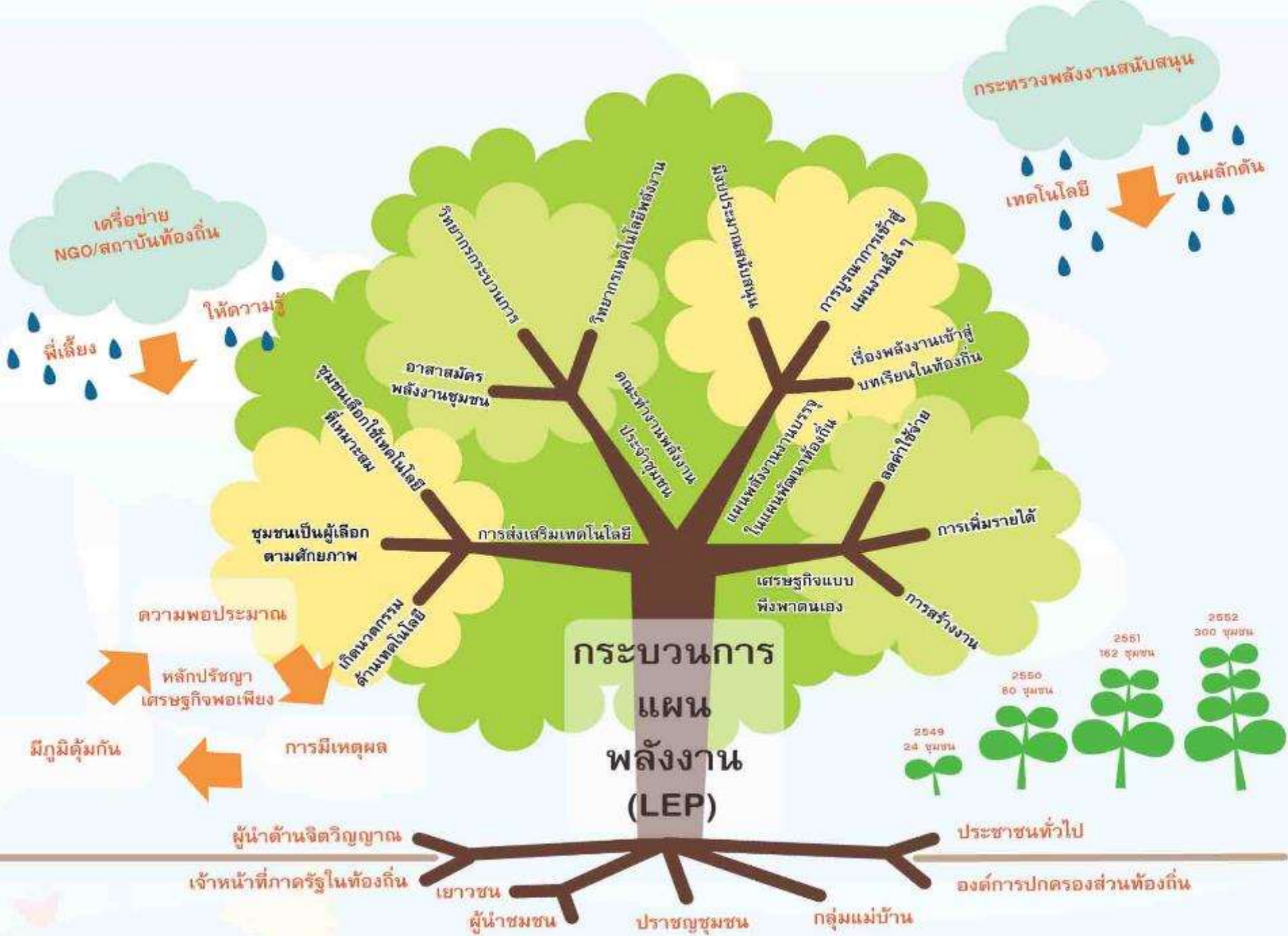
What happened?



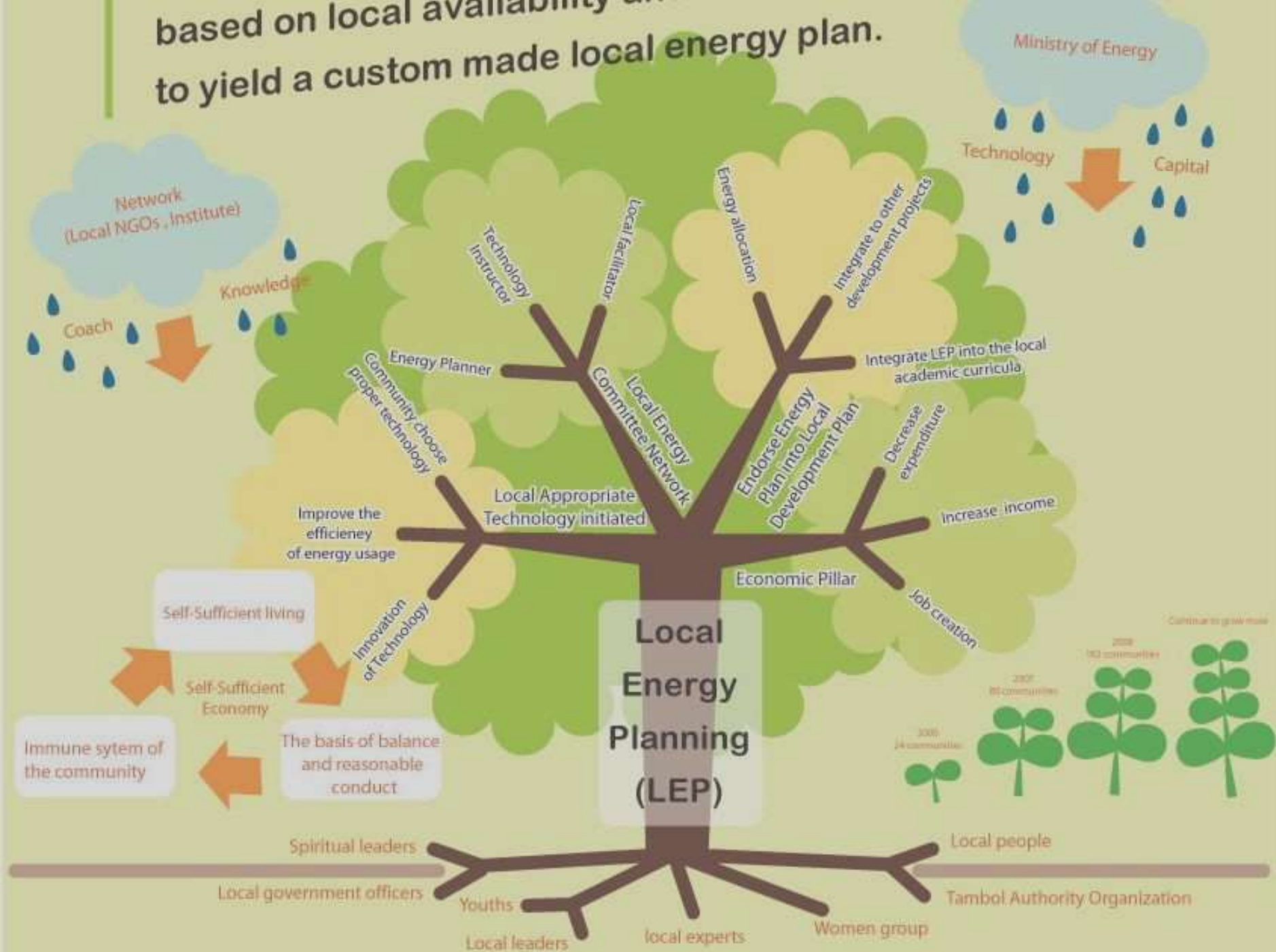
To produce brown rice soup, the old stove required a lot of firewood



The change into using applied economic stove (Roi Ed) helps reduce more than 50% of firewood, saving 80 kg. of firewood/day or 24,000 kg./year, that means saving 80 Baht/day or 24,000 baht/year.



based on local availability and
to yield a custom made local energy plan.



Overview of the Past Implementation



2006 – 2013

1,095 local
Administrations



2 0 1 4

9

- 36 areas with energy capacities
- 36 community enterprises
- 76 areas can save energy

2 0 1 5

10

Target Groups



- 30 areas with energy capacities



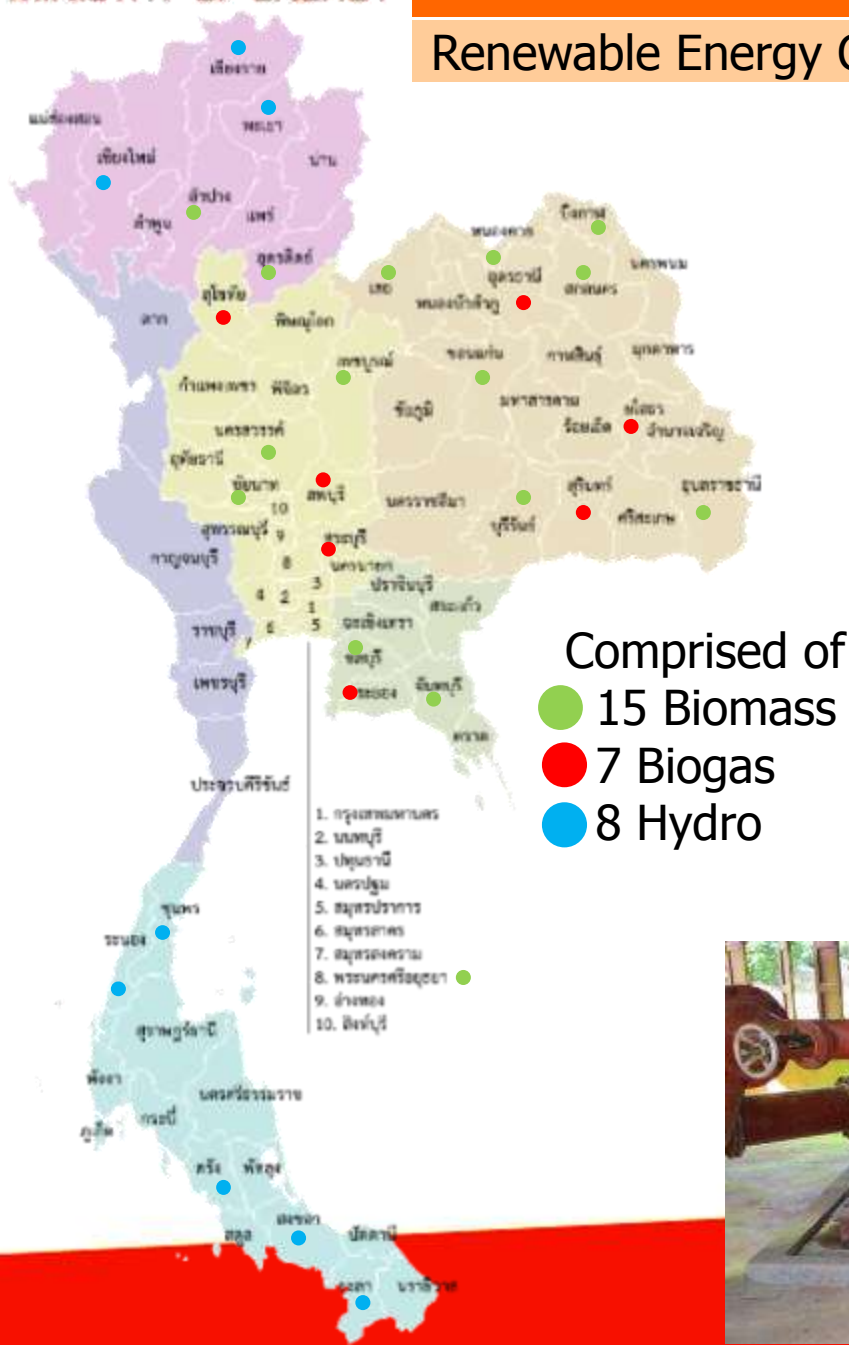
- 76 community enterprises



- 76 areas can save energy



Renewable Energy Capacity Group in 2015



Output

- Researchers on Community-Based Energy
- Reporting feasibility result for power production
 - investment
 - production
 - management
 - feedstock management
- The community has a positive attitude toward energy production and has a chance to hold an ownership of energy supply

NSO will apply for funding from other funding sources, e.g. DEDE/ENCON/UN DP



Number	Source	Type	Capacity	Unit	Budget (M baht)	TAO	Province	
1	Mini Hydro	Electricity	53	Kw	15	ท่าชะมวง	สงขลา	
			206	Kw	21			
			160	Kw	21			
2				530	Kw	10	นาชุมเห็ด	ตรัง
3				50	Kw	15.6	บ้านนา	ระนอง
4				140	Kw	9	ป้อมมั่ง	ยะลา
5				14	Kw	1.26	ละแม	ชุมพร
6				10	Kw	2	แม่ตึ่น	เชียงใหม่
				95	Kw	7.745		
				28	Kw	2.52		
7				30	Kw	2.38	บ้านดุ่น	พะเยา
8				97	Kw	15	ห้วยชมพู	เชียงราย
9	Waste	RDF	1.5	Ton	35	บ้านกล้วย	สุโขทัย	
10		Oil	5000	Ton	50	ศรีฐาน	เลย	
11		Electricity	250	Kw	27	เกาะสีชัง	ชลบุรี	
12	Biogas	Electricity	2600	Kw	198.28	ลำพญากลาง	สระบุรี	
13		Biogas Network	1788	ลบ.ม.	7.5	ซากบก	ระยอง	
14			300	ลบ.ม.	4	ท่ามะนาว	ลพบุรี	
15			100	ลบ.ม.	0.673	ทับกุง	อุดรธานี	
16			1000	ลบ.ม.	19	เมืองลิง	สุรินทร์	
17			200	ลบ.ม.	0.65	สวาท	ยโสธร	
18	Biomass	Electricity	250	Kw	30	ปงเตา	ลำปาง	
19			300	Kw	40	บ้านกลาง	เพชรบูรณ์	
20			500	Kw	50	เนินขาม	ชัยนาท	
21			500	Kw	50	บุเปือย	อุบลราชธานี	
22			1000	Kw	100	คลองใหญ่	จันทบุรี	
23			1000	Kw	100	บ้านด้อง	บึงกาฬ	
24			1000	Kw	90	ทับน้ำ	อยุธยา	
25			1000	Kw	100	บ่อแก้ว	สกลนคร	
26			1000	Kw	110	วัดธาตุ	หนองคาย	
27			Wood Pellet	1	Ton	1.823	หนองบัว	นครสวรรค์
28		115		Ton	2.353	โนนสุวรรณ	บุรีรัมย์	
29		หญ้าเนเปีย	1000	Kw	100	ข่อยสูง	อุดรดิตถ์	
30			600	Kw	48	หนองเสาเล้า	ขอนแก่น	
Sum All			527	TOE	1,286.78	Million baht		



Renewable Energy Capacity Group in 2014-2015

What happened:

- The community is eager to be the power producer
- Community Energy Researchers
- Energy Sharing (Biogas Network)
- Feedstock Production Community
- The staffs have learned how to conduct basic feasibility study for power production

Limitations:

- The community lacks of confidence to co-invest
- Issues of grid/ city planning/reservation zone/ power purchase system
- Lack of mechanism to connect funding sources-prospective investors-technology providers-community
- the staffs are in need of further training on how to conduct feasibility study for power production, in the technical areas and analytical skill to assess the value of the project, which will contribute to the quality of the studies
- Lack of confidence in the technology

