

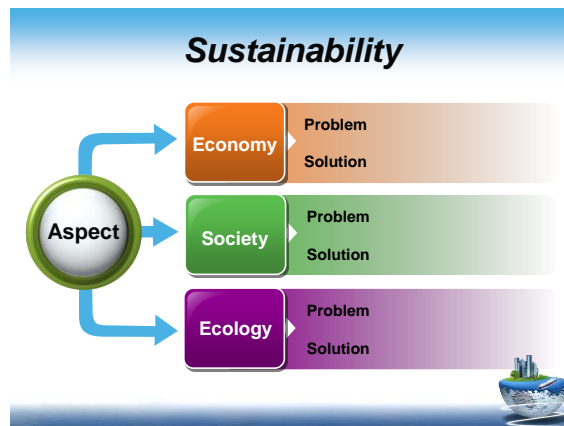
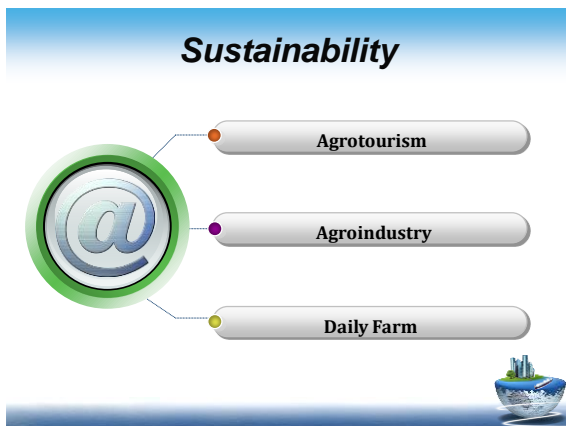
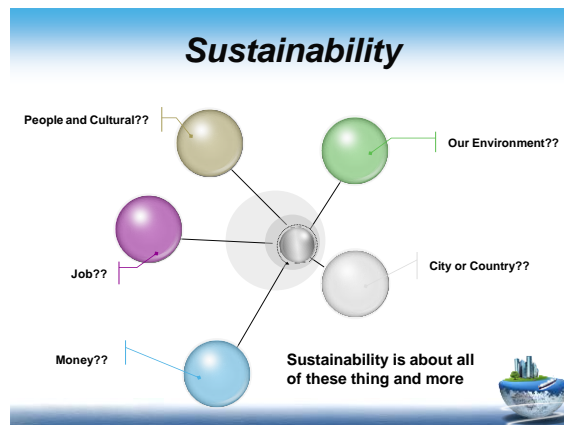
**International Summer Course Program 2015**  
**"Practical Bio-resources & Agricultural Sciences Toward Regional Sustainability"**  
 Bogor, Indonesia, 18-25<sup>th</sup> August 2015

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**Sustainability**

meeting the needs of the present without compromising the ability of future generations to meet their own needs.





### SUSTAINABILITY IN KAMPUNG WISATA CINANGNENG

#### ECOLOGY

- ❑ Pest managements
- ❑ Crop rotation
- ❑ Drainage from river
- ❑ Soil enrichment
- ❑ Diversification of plant
- ❑ Utilization of buffalo

#### SOCIAL

- ❑ Improve social welfare
- ❑ Creates jobs
- ❑ Preserving culture
- ❑ Increase skill to communicate with tourist
- ❑ Keep local wisdom
- ❑ Improve creativity the people around kampung wisata

#### ECONOMY

- ❑ The life quality is enough for people in kondang village

### PROBLEM AND SOLUTION IN KAMPUNG WISATA CINANGNENG

#### ECOLOGY

PROBLEM	SOLUTION
<ul style="list-style-type: none"> <li>❑ Use chemical fertilizer</li> <li>❑ Limited land</li> <li>❑ Domestic waste and cattle waste</li> <li>❑ Unavailable area for nursery</li> <li>❑ Less riparian vegetation</li> </ul>	<ul style="list-style-type: none"> <li>❑ Use the biomass and waste of the buffalo for fertilizer</li> <li>❑ Verticulture technic , Hydroponic, aquaponic</li> <li>❑ Recycle the waste, composting</li> <li>❑ Build green house area</li> <li>❑ Planting bambu tali</li> </ul>

### PROBLEM AND SOLUTION IN KAMPUNG WISATA CINANGNENG

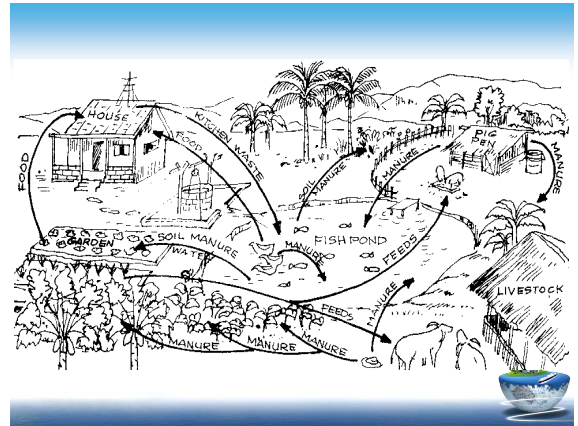
#### SOCIAL

PROBLEM	SOLUTION
<ul style="list-style-type: none"> <li>❑ Limited information about kampung wisata</li> <li>❑ Limited land</li> <li>❑ Unhealthy condition around kampung wisata</li> </ul>	<ul style="list-style-type: none"> <li>❑ Promotion with magazine, social media etc</li> <li>❑ Need policy from the stakeholder</li> <li>❑ Give information about environment healthy</li> </ul>

### PROBLEM AND SOLUTION IN KAMPUNG WISATA CINANGNENG

#### ECONOMY


PROBLEM	SOLUTION
<ul style="list-style-type: none"> <li>❑ Raw agriculture product</li> <li>❑ Less information about marketing</li> <li>❑ Low income</li> <li>❑ Useless land</li> <li>❑ The product does not attract the attention of customers</li> <li>❑ Limited application of herbal plant</li> </ul>	<ul style="list-style-type: none"> <li>❑ Create the innovative product</li> <li>❑ Increase marketing of the product with media social</li> <li>❑ Diversification product , example: by applying mina padi system</li> <li>❑ Gardening, the expansion of a livestock</li> <li>❑ Build market to make visitor interest to buy souvenir etc</li> <li>❑ Make a product from herbal plant such as simplisia</li> </ul>





### Characteristic of plantation :

1	Topography	Wavy and hills
2	Soil	Latosol and podsolik
3	Elevation	64-751 M DPL
4	Rainfall	HH : 141-214 day/year CH : 2657-5664 mm/year
5	Soil pH	4.5-6.0



Soybean, corn, and horticulture plants are difficult to cultivate in this topography

### ACTIVITY IN CIKASUNGKA

- ❖ **Planting oil palm**  
Planting area consist of 6 districts and 500 ha at each (12 block)
- ❖ **Fertilizing**  
Base on age plants  
1 year old plants : 5 times fertilizing/year  
2 years old plants : 4 times fertilizing/year  
3 years old plants : 3 times fertilizing/year  
4 years old plants - : 2 times fertilizing/year
- ❖ **Assesment for fertilizing**  
Sampling of leaves number 9 and 17 for proper fertilizing (balance dosage)



- ❖ **Harvesting**  
One plant harvesting 4 times per month, up to 30 kgs FFB
- ❖ **Loading FFB to mill**
- ❖ **Mill production**  
Company product : CPO and Kernel






### SUSTAINABILITY IN CIKASUNGKA

#### ORGANIC WASTE (BIOMASS) MANAGEMENT

- ❖ **Dry sludge for soil fertilization**



Organic waste (shells and fibers) for fuels in a mill



Composting from empty fruit bunch and stalks

#### WEEDS MANAGEMENT

Weeds control in a plate (*piringan*) area for fertilization

#### WATER MANAGEMENT

Water reservoir in a mill



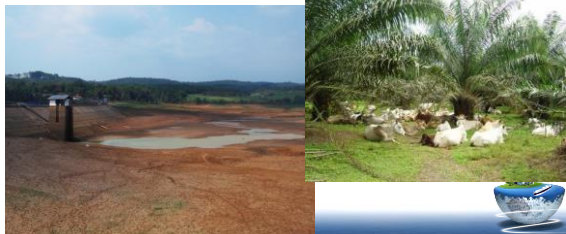

#### Sustainable palm oil agriculture for a society and nation welfare



## PROBLEM IN CIKASUNGKA

### Ecology

- ❖ Water supply (lack of clean water)  
Due to high needs of water for the factory
- ❖ Between plantation and husbandary is not yet integrated
- ❖ Soil moisture need to be maintance
- ❖ Pest and diseases management



### Economy

- ❖ Manual transporter (workers to collect FFB) to temporary collection
- ❖ Oil quality control
- ❖ Unprocessing kernel as a PKO



### Social

- ❖ Hard work for workers (working time management)
  - ❖ Workers safety
- SOP (standard operating procedures) for a safety of harvesting workers



## SOLUTION IN CIKASUNGKA

### Ecology

- Filtering and irrigation system for water supply to the mill
- Pest control using biological predator  
*Turnera subulata* L. planting aside along plantation it's a predator of "ulat api"
- Bioherbicide for weeds  
weeds in a plate (*piringan*) have to be removed for fertilization purpose and farmers are using chemical fertilizer (glyphosate)
- Organic wastes together with microbes (mychorrhiza) to improve soil moistures

### Social

- Management time worker
- Integrated husbandary and plantation
- Using safety tool  
Glove, glasses, helmet etc

### Economy

- Using biocatalis (enzyme)  
Efficiency of conversion of palmitate to oleat. Switching off the palmioyl ACP transferase
- Using machine to collect branch (transporter)  
transporter machine, truck and etc.
- Biofertilizer from biomass in plantation  
composting rate of biomass is low, so need to be improved by using composting microbes (microbes producing selulose and xylanase)

## DAIRY FARM

PT. Sari Rejo Bumi Unit Tapos

The company has different business unit including dairy business



## HISTORY

In the beginning, the land that's use as a dairy farm Sari Rejo PT Bumi Unit Tapos, was a dry and unused land. The former Indonesian president (Soeharto) was giving mandatory to import cows and utilize the organic wastes to fertilize these land. Thus, this land now is useful and became fertile

## ACTIVITY IN DAIRY FARM

Management of Dairy Farm PT Sari Rejo Bumi Unit Tapos is very good, because cultivation, feeding, milking, mating, birth has been done correctly and according to the rules.



## SUSTAINABILITY IN DAIRY FARM

### Economic

- As main sources for milk, beef, calf, and fertilizer.
- Various processed product Milk UHT



## SUSTAINABILITY IN DAIRY FARM

### ❖ Social

- Achieve the need of the national fresh milk (local milk supply 70% import)
- Help educate of the children on the nation as a source of animal protein
- Manure (faeces) used as organic fertilizer



## SUSTAINABILITY IN DAIRY FARM

### ❖ Ecology

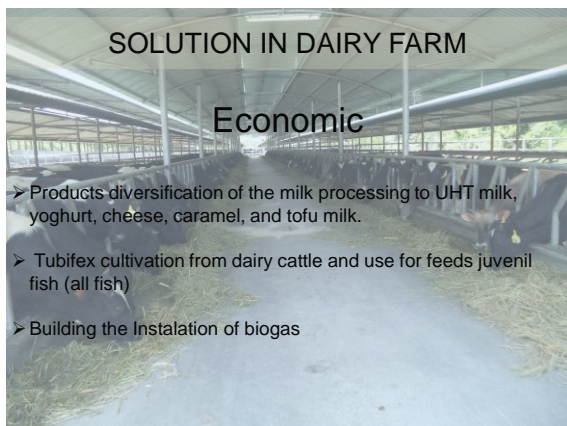
- Forest conservation
- Utilization of waste corn plants (leaves and stems) as feed for dairy cows
- Irrigation channel and drainage from mountain to the farm



## SOLUTION IN DAIRY FARM

### Economic

- Products diversification of the milk processing to UHT milk, yoghurt, cheese, caramel, and tofu milk.
- Tubifex cultivation from dairy cattle and use for feeds juvenil fish (all fish)
- Building the Instalation of biogas



### Social

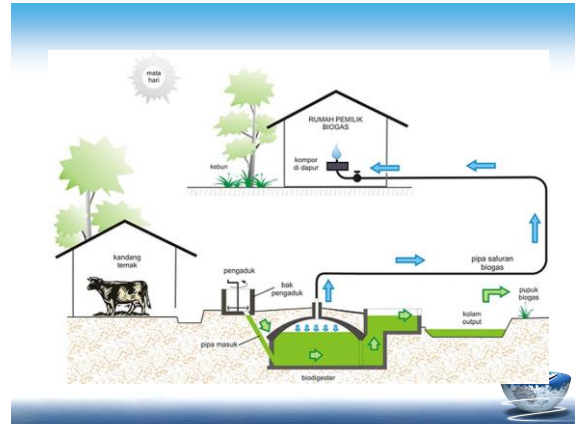
- ❖ The installation of biogas to be used by the local community (The installation of biogas to be used by the local community)





## Ecology

- ❖ Optimization of the composting system
- ❖ Irrigation channel and drainage from mountain to the farm
- ❖ Integration with zalacca palm



## CONCLUSION

Kampoeng wisata (agrotourism), PTPN VIII (agroindustry), and PT Sari Rejo Bumi Tapos (dairy farm) are 3 different types of agriculture which have their own characteristics but they have the same purpose: to create a sustainable environment, improve the economic condition, and society welfare. Sustainable agriculture can be improved in the future by integration from all aspects (ecology, economy, social).

**Thank You**

**Arigato Gozaimasu**

