

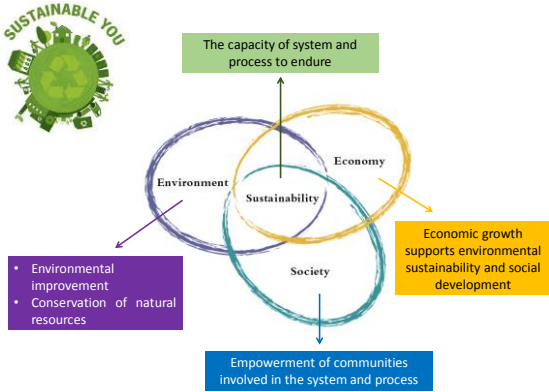
Practical Bio-resources & Agricultural Sciences Toward Regional Sustainability

Field-work Report

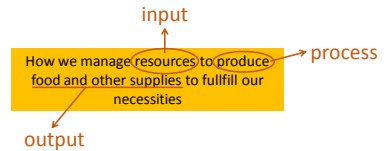
GROUP B

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International Summer Course Program 2015



AGRICULTURE → system



Sustainable Agriculture

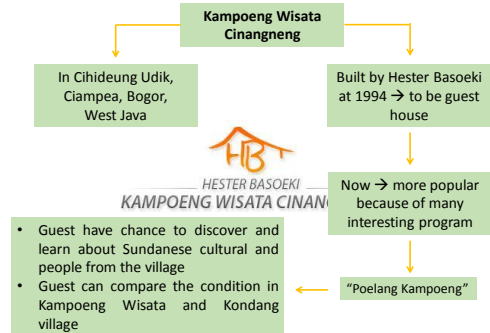
- Have to sustain the input
- Have to sustain the process
- Get the sustain output

Agrotourism “Kampoeng Wisata Cinangneng”

19th August 2015



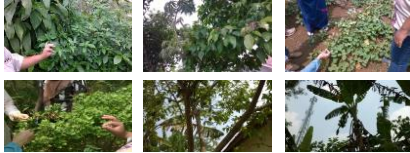
COMPANY PROFILE



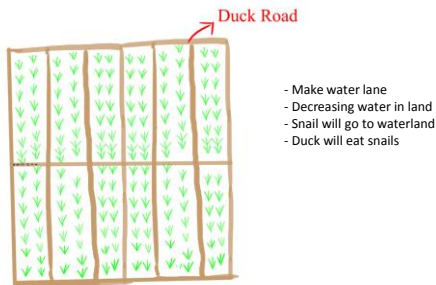
(www.kampoengwisatacinangneng.com)

ENVIRONMENT

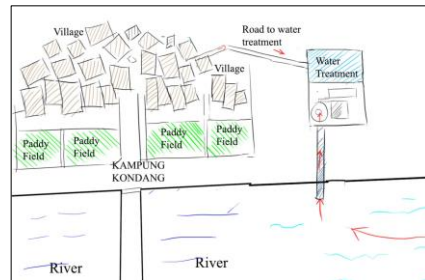
Positive	Suggestion
High biodiversity in both of village	Villagers have to manage the biodiversity around them so can keep the sustainability of biodiversity
Minimum tillage of soil in both of village	Keep doing that method to do farming cultivation
Irrigation system is quite good	Increasing the cleanness of irrigation canal so can save more water



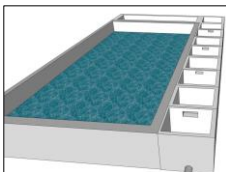
Negative	Problem solving
Many plant infected by pest and pathogen	Using biological control and rotation cultivation to manage population of plant pest and pathogen, ex : use duck to control snail (<i>Pomacea</i> sp.)
Minimum usage of herbal plant in Kondang village	Improving post-harvest management in herbal plant
Minimum usage of house yard in Kondang village at dry season	Villagers try to plant others crop, such as: corn, peanut, long bean, etc
Kondang village is not as clean as Kampoeng wisata	Kampoeng wisata give a waste management education to villagers to keep clean the village, ex : separation between organic & anorganic waste
Over exploitation of resources in Cnangeng river	Subtitute exploitation activity with other activity, such as : "keramba ikan"
Villagers do not get clean water	Make traditional water purified facilitated by Kampoeng wisata
Kondang village become dirty because of chicken kampoeng fesses	Maximize farming of chicken kampoeng by using cage



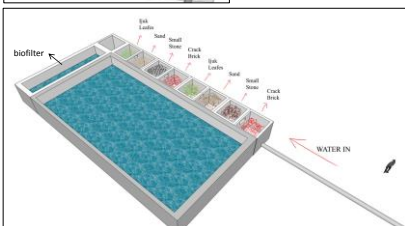
Water Treatment



Villager had lack of clean water, why don't we use traditional water treatment?
We can fulfill water from river with some treatment.



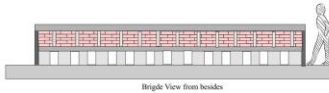
Design using natural material, same as aquifer principal. Use natural to neutral the water (recharge).



SOCIETY

Positive	Suggestion
Increasing relationship activity between villagers from Kondang village with people who visit Kampoeng wisata	Villagers have to be more interactive to introduce their village
Kondang village become more famous because of Kampoeng wisata	Increasing the promotion about Kampoeng wisata
Increasing knowledge of villagers in Kondang village	Give an education to villagers about many aspects in agrotourism
Decreasing the number of unemployment in Kondang village	Increasing their skill so employee can work better

Negative	Problem solving
Kondang village too much depend on Kampong wisata.	Kondang village can develop their village by their self and not too much depend on Kampong wisata. Villagers can make an organization to manage their home industry product.
Villagers of Kondang village do not have good behavior about waste management	Kampong wisata can give some education about waste management to villagers, example: separation between organic and an-organic waste.
Minimum agriculture education in Kondang village	Kampong Wisata must give an agriculture education to villagers, so they can explain about the agriculture condition in their village.
"Poelang Kampong" bridge is not interesting because it does not represent village condition	Kampong wisata must renovate the bridge become more interesting, so it can be symbol of Kampong Wisata.
Scenery of tourism track in kondang village is not interesting	Make beautiful garden in the houseyard of villagers so Kondang village become more interesting, ex : vertical garden
Kampong wisata does not have satisfaction parameter from visitor	Make quisioner to know visitor satisfaction



Old Bridge:
 - No Taste Village
 - Standart Bridge

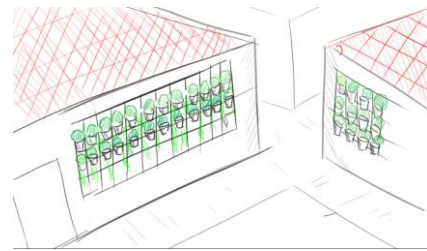
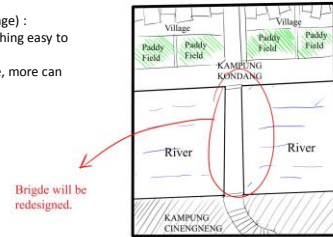


New Bridge:
 - More eco-friendly
 - more village design
 - Taste of kampong

Re-Design Bridge Construction

From civil engineering view, more be good, if bridge renovate to similar with Cinangng village, the concept use **Rebranding**, can affect physiochological, to give more taste of Cinangng Village.

The concept :
 (renovate-reimage) :
 - Made something easy to remember
 - More unique, more can remember



Design of green wall with vertical garden

Survey Form

Visitor survey

Brand Management

We are conducting a visitor survey today and would like to evaluate your views. We value your feedback and information and your answers to answer some questions on the Kampong Wisata. The results will be used to improve our program for our visitors. The results will be confidential. your name will not be recorded.

Section 1: Brand

1. How you related this village brand?
 a. Yes
 b. No

2. How frequently have you been to this village brand?
 a. Yes
 b. No

3. How long have you been there today? (Please)

4. What type of brand do you purchase? (Please tick one or more options)

Section 2: Brand Management

5. How you enjoy the visiting today?
 a. I am probably be visiting again within the next 12 months.
 b. I am probably not be visiting again within the next 12 months.
 c. No

6. Would you recommend this Kampong Wisata to others?
 a. Yes
 b. No

7. If not, who do you think would enjoy a visit?
 a. Not a brand any particular reason?
 b. Other (Specify)

8. How did you travel here today?
 a. Foot
 b. Bicycle
 c. Car
 d. Other (Specify)

9. How did you hear about us?
 a. Recommendations from friends
 b. Travel brochures
 c. Travel agents
 d. Directly from our website
 e. Other (Specify)

10. Where did you see this visit today?

11. How did you spend here today?
 a. Foot
 b. Bicycle
 c. Car
 d. Other (Specify)

12. What facilities have you visit today? (Tick all that apply or appropriate)

13. How many parking you visit today?
 a. 100
 b. 200
 c. 300
 d. 400
 e. 500
 f. 600
 g. 700
 h. 800
 i. 900
 j. 1000
 k. 1100
 l. 1200
 m. 1300
 n. 1400
 o. 1500
 p. 1600
 q. 1700
 r. 1800
 s. 1900
 t. 2000
 u. 2100
 v. 2200
 w. 2300
 x. 2400
 y. 2500
 z. Other (Specify)

14. Did you make any purchases here today? (Tick all that apply or appropriate)

15. How many purchases have you made?
 a. 1
 b. 2
 c. 3
 d. 4
 e. 5
 f. 6
 g. 7
 h. 8
 i. 9
 j. 10
 k. 11
 l. 12
 m. 13
 n. 14
 o. 15
 p. 16
 q. 17
 r. 18
 s. 19
 t. 20
 u. 21
 v. 22
 w. 23
 x. 24
 y. 25
 z. Other (Specify)

16. Did you enjoy the visit today?
 a. Very much
 b. Quite much
 c. Somewhat
 d. Not much
 e. Not at all
 f. Other (Specify)

17. How do you feel about the visit today?
 a. Very good
 b. Good
 c. Fair
 d. Poor
 e. Very poor
 f. Other (Specify)

18. How do you feel about the visit today?
 a. Very good
 b. Good
 c. Fair
 d. Poor
 e. Very poor
 f. Other (Specify)

19. Are you a member of our Friends Society?
 a. Yes
 b. No

20. Can you tell me where you live?
 a. Your address or house ID (if appropriate, include what country)

21. Please indicate which age group you belong to.

22. Sex
 a. Male
 b. Female

Quisioner form

ECONOMY	
Positive	Suggestion
Kampong village can increase income of villager	Increasing more cooperative system like: traditional market to sell farmers product
Tourism package system well done	Making more package system for increasing income and add more agricultural activity
Villagers can produce handcraft from re-use material	Making a center shop in village to sell handcraft product so villager do not need to go city



Negative	Problem solving
No data record about income	Making data record to evaluate economic sustainability
Minimum income from kampoeng chicken	Maximizing farming of kampoeng chicken by using cage
Minimum post harvest management	Making a home industry to process agricultural product to increase product value
Herbal plant is not commercialized	Making a herbal medicine from herbal plant and sell it to increase the income



CONCLUSION

- “Kampoeng Wisata” already developed 3 main factors: Economy, Society, and Environment but the 3 main factors were not sustain
- Kampoeng wisata and Kondang village must work together to realize sustainability



Agroindustry “PTPN VIII Kebun Cikasungka”

20th August 2015



PALM OIL ECOLOGY IMPACT

Conversion of land for large-scale oil palm plantations is basically a major cause of the loss of a number of Indonesia's forest cover.

The establishment of vast monoculture oil palm plantations has a number of environmental impacts.

The two most serious are:

1. large-scale forest conversion
2. loss of critical habitat for endangered species

Other impacts include:

1. soil erosion
2. air pollution
3. soil & water pollution
4. climate change



Palm oil social impacts

New plantations can also create social conflicts if the rights and livelihoods of local communities are ignored. Not only can this cause negative external impacts but it can also affect the companies involved, and hamper the ability of the companies to expand as planned.



So....

How about Cikasungka Palm oil plantation?

Are they were sustain?

(Society, Economy, Environment)

Are they were concepted Zero emission?





Company Profile Kebun Cikasungka PT Perkebunan Nusantara VIII-Bogor

- Established at 2001, first harvest 2005
- Owned by Government for total area 114.434 ha consist of Palm field and Factory
- Product : Crude Palm Oil (CPO) and Palm Cernel Oil (PCO)
- Convetion : Rubber plantation→Palm Plantation.

CPO and PCO Process



Sustainability analysis (Economy point of view)

Positive

- Contribute income to local government
- Totally increasing worker from before (Rubber plantation)
- Increasing acquisition economy worker
- The second produsen prefer buy CPO and PCO from Cikasungka due to near.
- Have applied blocks of plant by age to make easy in sampling the mature bunch. it makes efficient in time.

Sustainability analysis (Economy point of view)

Suggestion

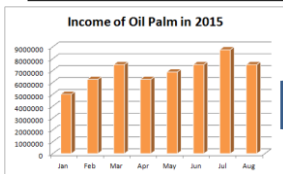
Make a data documentation of profit every month to forecast the next income and do the action if the forecast result is decreasing

Apply remote sensing in every trees by given high tech tools to detect the mature bunch.



Simulation of Economic Calculation

Income Record Per Month of Oil Palm Cikasungka					
Year	Month	Income	Maintenance	Net benefit	Difference
2015	Jan	1000000	500000	500000	1250000
	Feb	11250000	500000	6250000	1250000
	Mar	12500000	500000	7500000	-1250000
	Apr	11250000	500000	6250000	625000
	May	11875000	500000	6875000	625000
	Jun	12500000	500000	7500000	625000
	Jul	13750000	500000	8750000	1250000
	Aug	12500000	500000	7500000	1250000



By descriptive analysis we can see that the income is increase, but can we believe that it really sustainable??

Sustainable in statistics means the difference of benefit each month does not decrease.

Formal test by t-test:

H0: D >= 0 (The income could be stagnant or increase)

H1: D < 0 (The income is decrease)

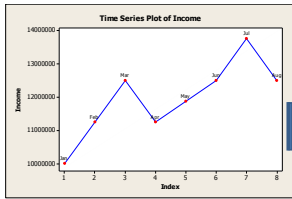
$$t\text{-test} : t\text{-value} = \frac{\bar{d} - d_0}{Sd} = \frac{357142.9 - 0}{1132908.7} = 0.3152442$$

$$t\text{-table} = 2.447$$

Conclusion : Because then we are not reject H0. It means that the existence of Cikasungka was sustained along year 2015.

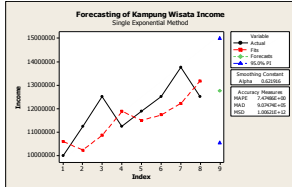
Do we want the company is sustain? Of course YES!!

Sollution: Do the forecasting for income



That is the Time series plot of Plantation Income in 2015 from January until August.

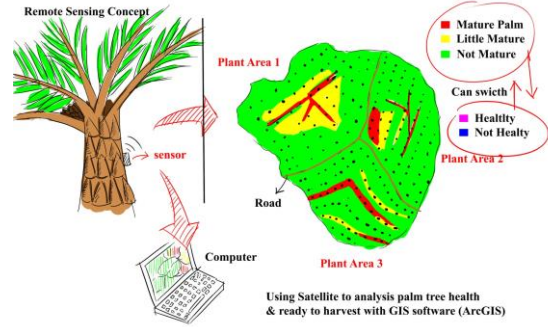
Next purpose : Forecast Income for September and October 2015



Green dot is a forecasting value for September and the blue dot is a lower border and upper border of the income forecast. The value for lower border, income forecasting and upper border is Rp.10.528.977, Rp.12.752.249 and Rp.14.975.520 respectively.

From the result of forecasting, Plantation management can make some strategy of selling to get income around the forecasting income.

How to make the income sustain? We can distribute the questionnaire for visitor satisfaction. So we can improve the quality as we want.



Sustainability analysis (Environment point of view)

Positive

➤ Waste from leaves and zero bunch are good for keep soil humidity.

➤ Negative

Liquid waste processing result are still dumped into the environment which is feared would endanger for human, animal & plant who lived around.

Sustainability analysis (Environment point of view)

Suggestion

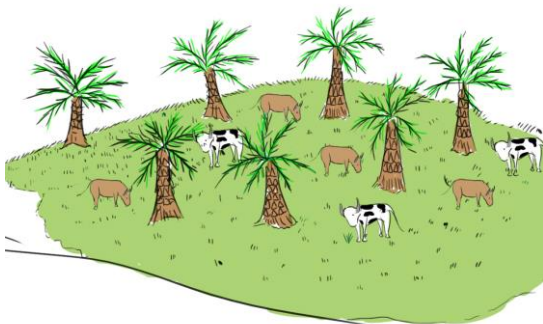
Don't put too much waste to the palm tree because it can make host which will cause a disease

Integration local cattle with palm plantation. Cattle give organic fertilizer to plantation & plantation give grass to the cattle.

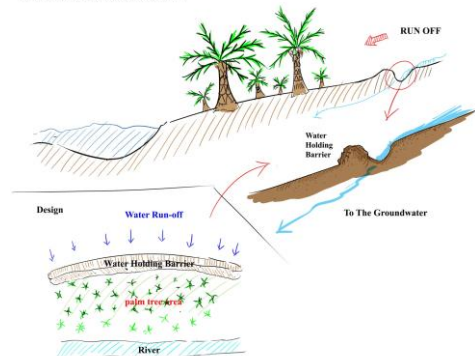
Water holding management to prevent run off

Do the sampling of around ecology whether it still in good condition or not, and doing action to keep them good.

Intergration Cattle with Palm Plantation



WATER HODLING CONCEPT



Sustainability analysis (Society point of view)

Positive

- Open the opportunity to local people in getting a job at palm plantation.
- As the place for student do the education visit and explore the system of factory.

Negative

- Environment near plantation become hot and dusty in the air
- Employee's body pain because carry heavy bunch everyday.

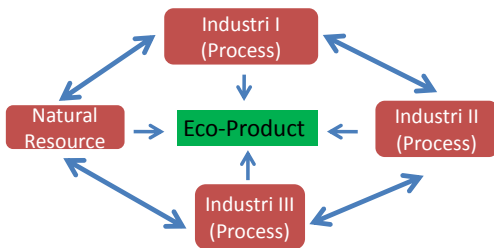
Sustainability analysis (Society point of view)

Suggestion

- Avoid using too much energy from employee because it makes pain for their body. It prefer using machine to harvest the mature bunch.
- Using local machine technology from IPB namely Fastrex to carry bunch after harvesting to the Trace Collecting (TC).
- Planting the conservation plant to absorb pollution and give fresh air to the environment.

What suggestion for overall system to Cikangunka Palm oil Plantation?

Zero Emission = Integration System



Conclusion

For economy and social system have Sustainability but the ecology system not sustanaibility due to zero emission have not aplicated.



Dairy Farm "PT. Rejosari Bumi Farm"

21st August 2015



COMPANY PROFILE

History

- Since 1974 belong to government land with 751 ha → private company

Location

- Tapos village, Ciawi, Bogor at 800-1000 masl

Commodity

- Beef cattle (Santa gertudis) → Dairy cattle (Jersey and Holstein)
- Cattle sperm



Holstein Bull → beef cattles



ENVIRONMENT	
POSITIVE	SUGGESTION
Has own forage plantation	Optimizing sorghum plantation by increasing maintenances
There is availability of water	Keep forest biodiversity
Farm areas in highland which is temperature suitable for cattle	
There are horticulture plant	Increasing maintenance of horticulture plant



Forage (King grass)



Water pond

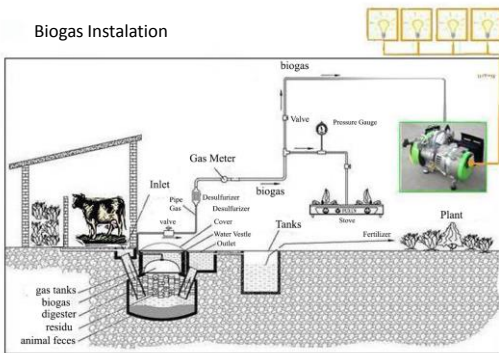




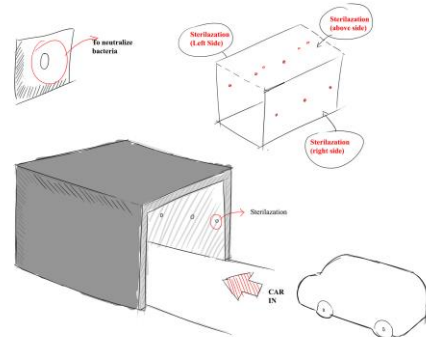
ENVIRONMENT

NEGATIVE	PROBLEM SOLVING
Doesn't have waste treatment	Setting up biogas installation
Planting sorghum continuously can out break diseases	Makes plant rotation or intercropping
Lack of maintained controlling pest and diseases of forage (sorghum and king grass)	Apply technology for control pest and diseases
Doesn't have sterilization gate	Make sterilization gate to prevent diseases for cattle

Biogas Instalation



Sterilization gate → Avoid disease contamination



ECONOMY

POSITIVE	SUGGESTION
Dairy cattle management already good	Adding cattle population Making quality control for next factory
Has post harvest product	Making innovation products Continuously makes product not only by order Surveying what product people wants Making their own brand
Has own forage plantation	increasing maintenances of forage plantation
Has organic fertilizer from manure	Setting up biogas installation
Has steers, bulls, and rejected cows to increasing income	



NEGATIVE	PROBLEM SOLVING
They use electricity from government electricity	Reduce usage electricity from government by setting up biogas
Concentrate for cattle is expensive	Use waste of bean sprouts husk
Low price of milk	Make innovation products
	Survey what products people wants
Poor management of horticulture plant	Make a better management for horticulture plant so the yield can be sold to increasing income factory



SOCIETY	
POSITIVE	SUGGESTION
Dairy cattle management already good	By Adding cattle population can open job opportunity to communities
Has own forage plantation	By increasing maintenances of forage plantation can open job opportunity to communities
Has post harvest product	By Make innovation products, Continuously makes product not only by order, Make their own brand can open job opportunity to communities
Have contribution for employee health	
Have contribution for communities activities such as organization, education	
NEGATIVE	
Pollution of water	No complain from villagers

CONCLUSION

- This factory has already sustain for short term but has to improve the management of farming system, product processing, forage management, and land management.



Arigatou gozaimasu
Terima kasih

