



มูลนิธิแม่ฟ้าหลวง ในพระบรมราชูปถัมภ์
Mae Fah Luang Foundation under Royal Patronage

Final presentation ~Study visit at Mae Fah Luang Foundation~

From 3rd August to 20th ,2015

Hitotsubashi ICS Class of 2014
Yusuke Takahashi

DOI TUNG



The Global Knowledge Hub in Tokyo

Introduce myself

Yusuke Takahashi (高橋 裕典) 39ys

2000:Biotechnology: MA

American football: BA

2000:AJINOMOTO CORPORATION, LTD.

2000-2011:R&D department (fermentation process)

2011-2014:New business development (Agriculture)

2015: Hitotsubashi ICS MBA (hopefully)

2018:Ghana Ajinomoto (hopefully)

2020:???

1 wife and 1 monster

Like volunteer activity (Town revitalization)



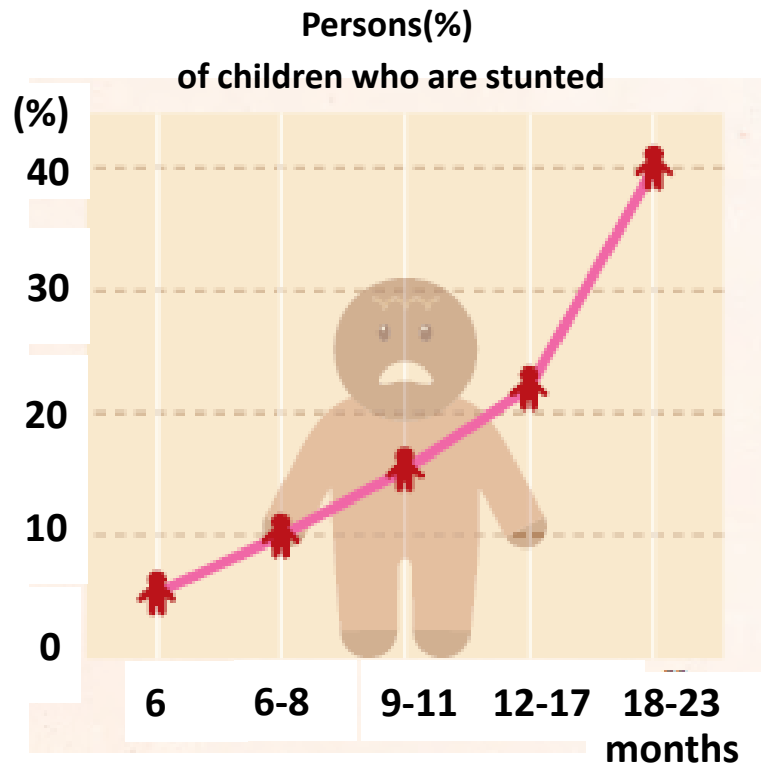
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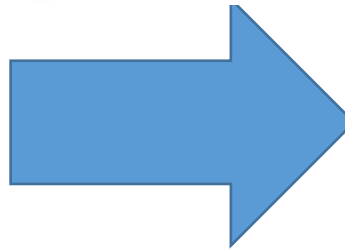
My dream

Contribute to solve food problems in the world through business

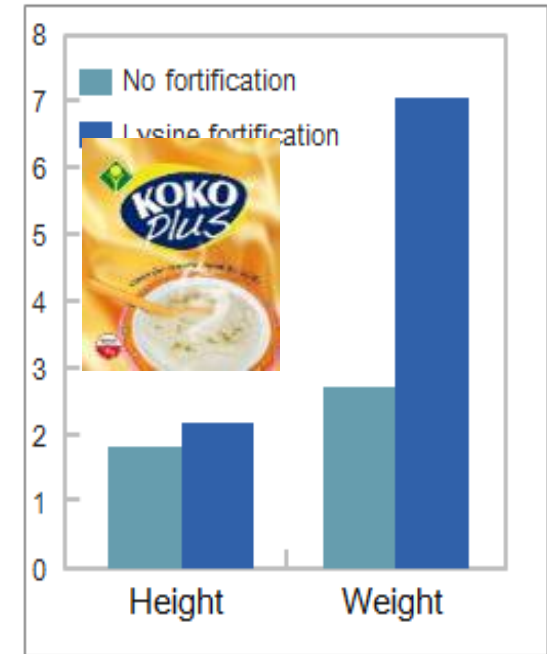
For Example)Ajinomoto Ghana project



Eat Well, Live Well.
AJINOMOTO®



Growth in height and weight of children receiving lysine fortification (%)



There are high expectations for what KOKO+ can reduce malnutrition

Objectives for study visit

~ Why I came to MFLF? ~

Module 1: Understanding

- To understand current situation
- To understand how to solve problems by foundation's leadership
- To understand how to transfer knowledge

Module 2: Suggestion

- To offer suggestions from study visit

Module 3: Contribution

- To contribute to foundation
~ Work hard! ~



Today's Agenda



What I learned



suggestion



Contribution



Conclusion



Today's Agenda



What I learned



suggestion



Contribution



Conclusion



To understand current situation

4 in-depth lectures and interviews in Bangkok, Nan province, Doi Tung, Pang Mahan

Day	Day1 August 3 rd		Day2 4 th		Day3 5 th			Day4 6 th
Location	Bangkok		Nan					Doi Tung
	MFLF office	AEON TOPVALU Thailand	Reforestat on project office	Visit Villagers And Ban Por weir	Nam Bang Weir	Reforestati on project office in Pieng Kor village	The village in Maung district	Doi Tung Area
Activities	Briefing on the work of MFLF	Interview with CEO about production policy of TOPVALU	Briefing on the work in Nan province	To know integrated farming	To understa nd how to be engaged to constructi on of the weir	To know people centric approach	To know applicati on of Doi Tung model in Nan province	To know Doi Tung activity
								

I would like to extend my appreciation to all staffs and stakeholders for my study visit

To understand current situation

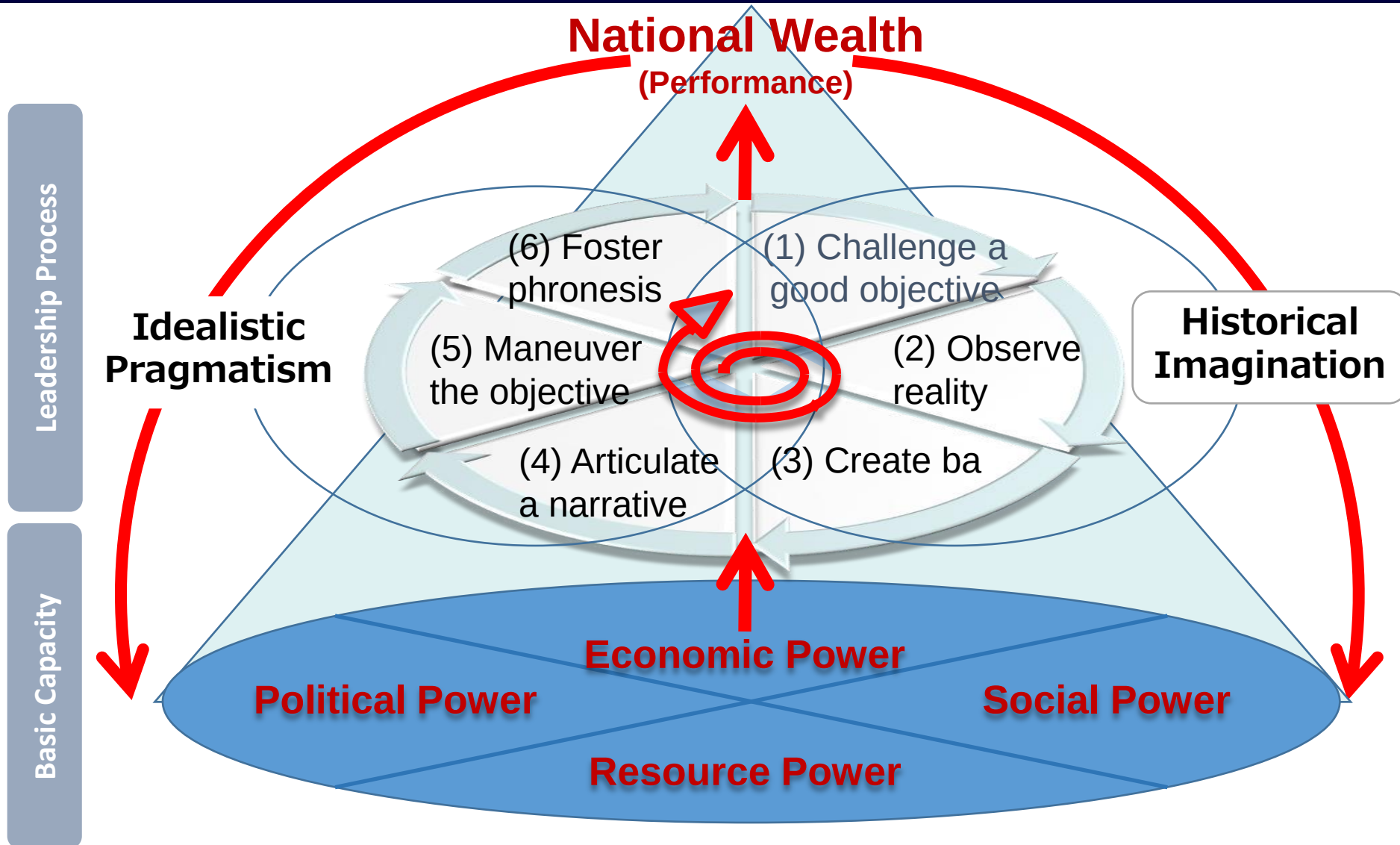
4 in-depth interviews in Bangkok, Nan province, Doi Tung, Pang Mahan

Date	Day5 7 th				Day6 8 th		Day8 10 th		
Location	Doi Tung				Pang Mahan		Doi Tung		
	Project database center	Navuti Company's coffee and macadamia plantation site1	Cottage Industry center	SAO	Pig Bank	Reforestation office	Navuti site1	Compost process area	Charcoal area
Activities	How to survey and keep track socioeconomic and environmental data	To know value chain from raw material to factory	To use and improve local wisdom	To know the role of local government	To know how to enhance pig breeding To villagers	To know upstream phase of development	To know how to compost macadamia husks	Discuss with Dr. Jack for my contribution part	Discuss with Dr. Jack for my contribution part
									

I would like to extend my appreciation to all staffs and stakeholders for my study visit

To understand how to solve problems by foundation's leadership

Model of the Nation and National Wise Leaders



Mae Far Luang Foundation(MFLF)'s Leadership

1) Build "Happy cycle" = Win&Win situation

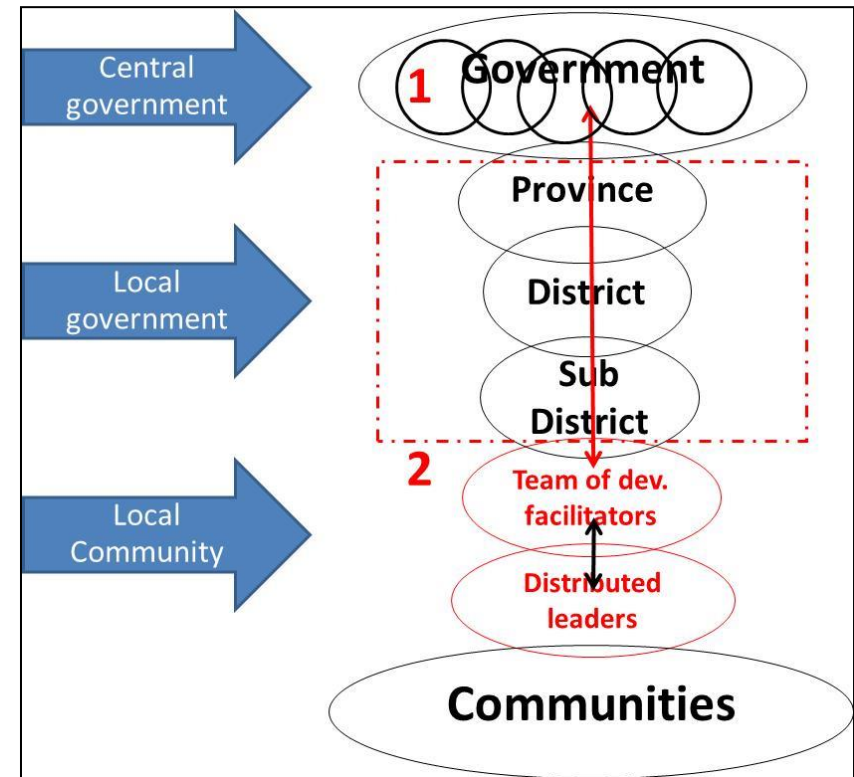
Example	Reforestation	Economic forestation	Build weir	Establish Pig Bank
Farmer side	Increase income	Increase income	Stable water supply →Improve yield →Increase income	Reduce starting risk Increase income
Government side	Avoid poverty & flood & forest decline	Avoid poverty & flood & forest decline	Avoid poverty & flood & population expansion in urban area	Avoid poverty & population expansion in urban area



Mae Far Luang Foundation(MFLF)'s Leadership

2) Connect all stakeholders & Motivate farmers to do voluntary

- ✓ Trust building
- ✓ Start with all stakeholders
- ✓ Pursue local leader
- ✓ Reduce starting risk
- ✓ Incentive to farmers
- ✓ Social psychology



Referred from Dr. Hideki Kawada 's presentation

Mae Far Luang Foundation(MFLF)'s Leadership

3) Motivate farmers to maintain activities

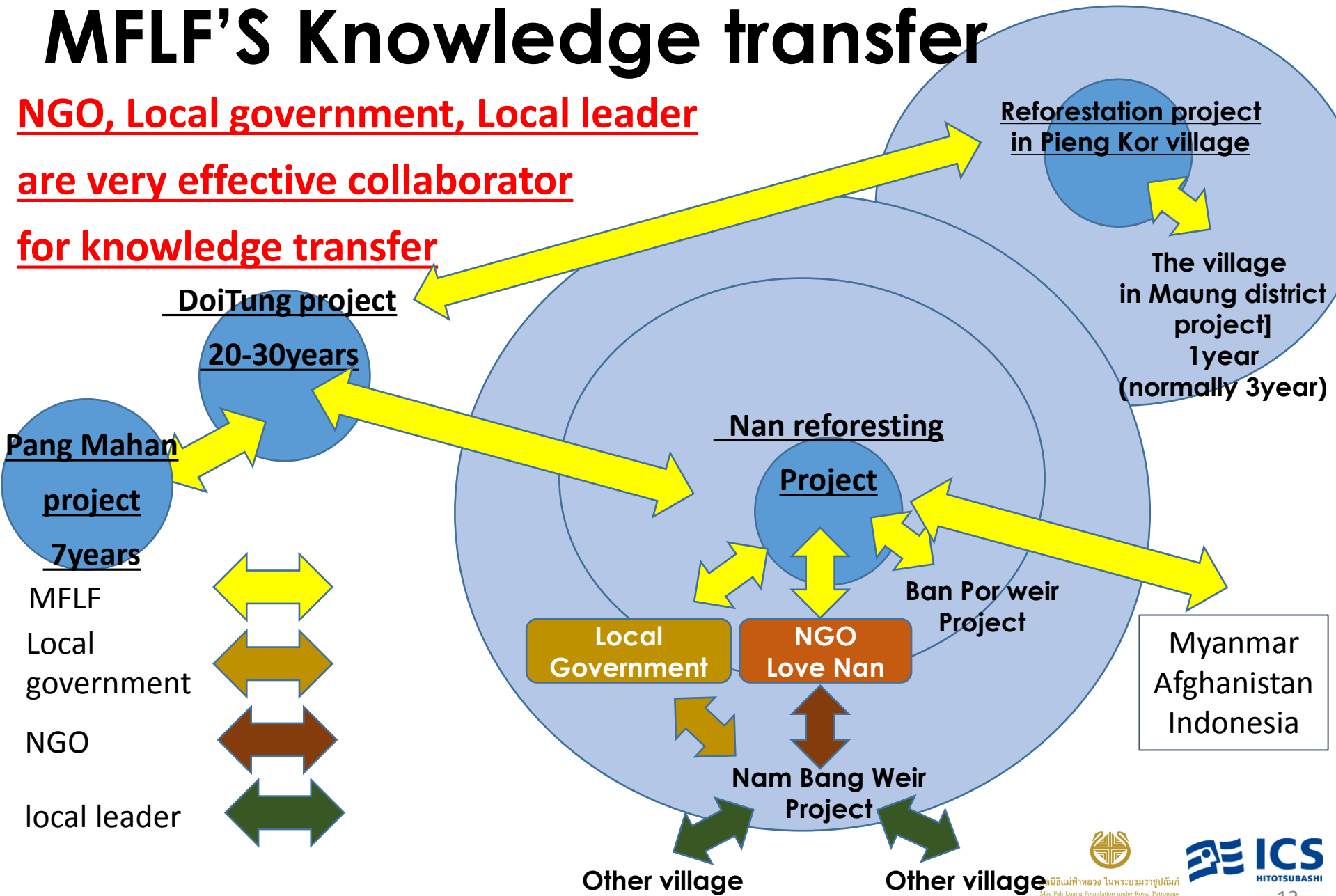
- ✓ Realize improvement of livelihood
- ✓ Incubate ownership
- ✓ Monitoring and pay
- ✓ Continue to take care farmers for evolution from survival stage to sufficient stage and to sustainable stage
- ✓ Use Social psychology



Final objective is "Help people to help themselves"

MFLF'S Knowledge transfer

NGO, Local government, Local leader
are very effective collaborator
for knowledge transfer



Today's Agenda



What I learned



suggestion



Contribution



Conclusion



4 suggestions

① Pursue CSV for villagers

>> Collaborate with Retailer by Co-branding

② Send market price information to farmers

③ New study trekking course

④ Developing new value-added compost



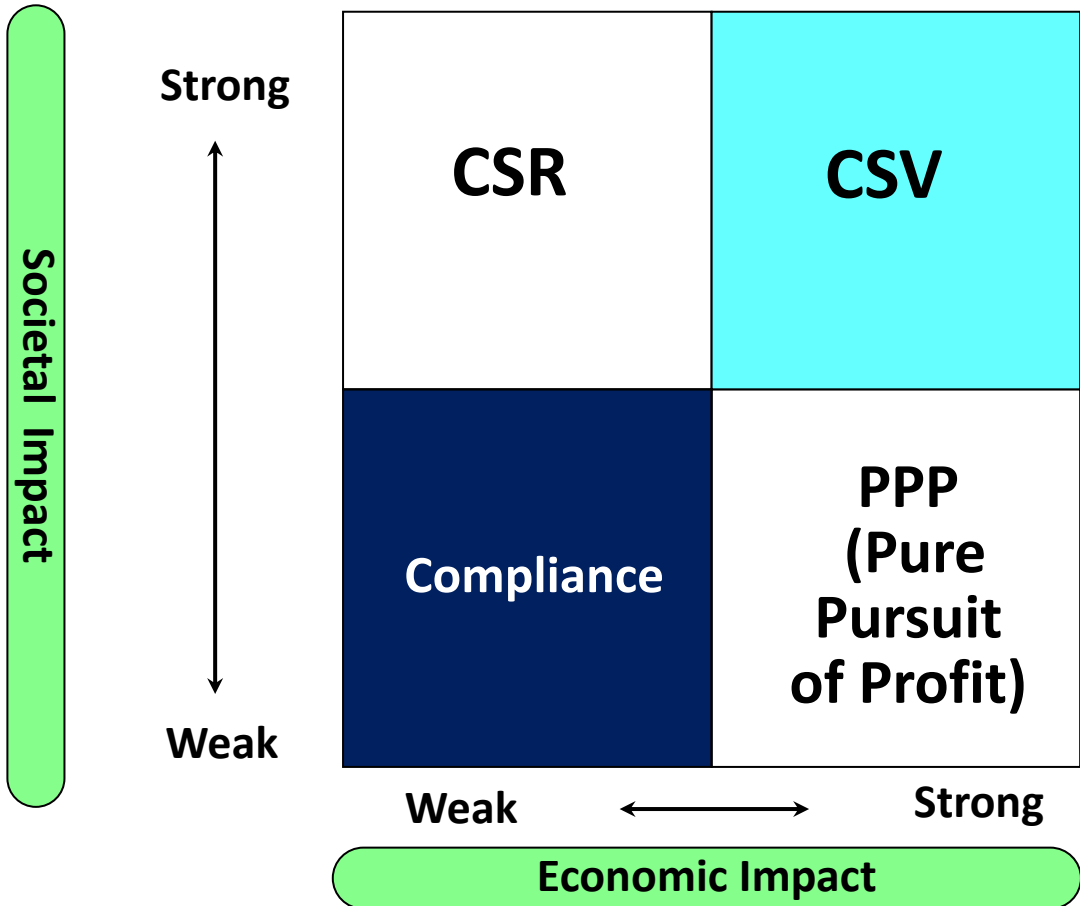
Suggestion1

Pursue CSV for villagers

What is CSV?

Creating shared value (CSV) is a business concept introduced by Michael E. Porter.

- ✓ Pursuing **BOTH** societal impact and economic impact progress has the power of improvement for villager's livelihood.



Where is the position of DoiTung coffee&nuts?

MFLF's business should maintain CSV position for sustainable livelihood growth of villagers

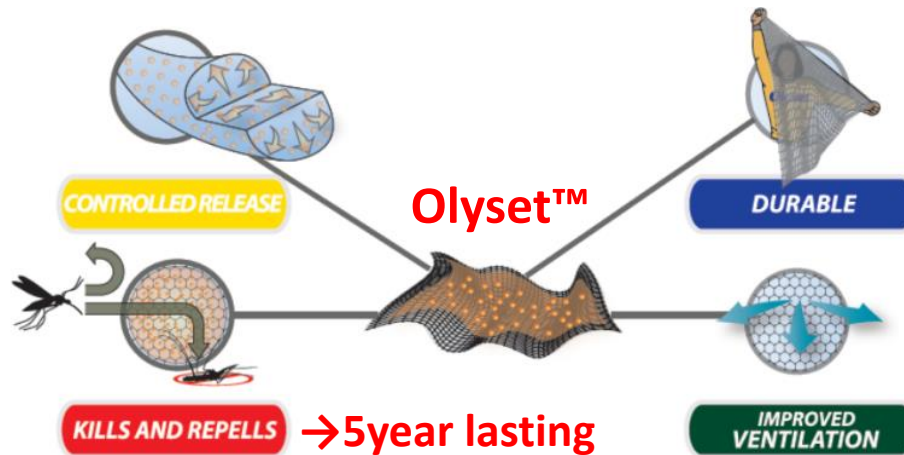
Successful example of CSV

Olyset Net business of Sumitomo Chemical



What is Olyset Net?

→ Long Lasting Insecticide-treated mosquito Net (LLIN) in order to prevent Malaria disease



How Does Olyset Net Work?

Olyset Net has a four-fold insecticidal action against mosquitoes—bite inhibition, repellency, knockdown and mortality—all of which contribute to protect people sleeping under Olyset Nets. Additionally, nets provide a substantial physical barrier.



<http://www.sumitomo-chem.co.jp/english/csr/olysetnet/malaria.html>



Successful example of CSV

Olyset business has sufficient social impact.

1) Contributing to Decrease mortality rate

For example, from 2012 to 2014, 427million LLINs were distributed by global fund, such as UNICEF. and mortality rate by Marilia drastically decreased.

Decreased mortality rate by Marilia since 2000:
Asia 47% decrease, Africa 54%.

2) Licensing technologies to local factory (A to Z CO, Ltd in Tanzania)

For free

3) Hiring many local employee with great social welfare

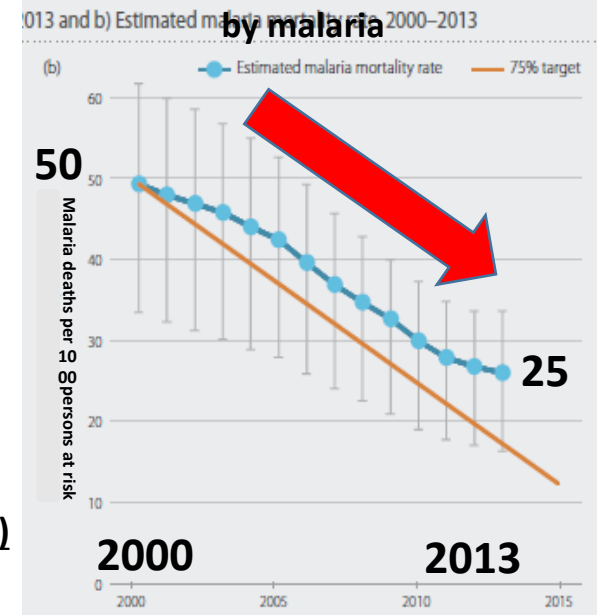
Local factory contributed to create employment opportunities for up to approximately 7,000 local people.

Employees are provided free lunch service, free transportation, medical insurance welfare, pension fund by the factory.

Interviewee of employee were satisfied with their treatments.

Source: I interview with Mr. Yamaguchi, Mr. Mizuno, AtoZ employees

▼ yearly change of mortality rate



Source: World malaria report



Successful example of CSV

**Olyset business has sufficient economic impact
by co-branding with AEON (Vietnam, Cambodia, Thailand)**



4C

Company: Sumitomo Chemical jointed with AEON

Customer: Middle income layer is increasing. (GDP per capita is \$1105)

Channel: Modern trade is becomes popular (20%). Sumitomo Chemical tried to find channel of modern trade.

Collaborator: AEON (No.1 retailer in Japan)

TOPVALU is AEON's private bland (6000 items)

TOPVALU shows security/safety and reasonable price.

4P

Product: TOP VALU Olyset™ (2014)

Place: Super market (AEON)

Price: 30US\$ (XX times compare to B to B business)

Promotion: Promotion by salesperson
and visual merchandizing by AEON



Cooperation with Supermarket (Co-branding) works well for CSV.

Suggestion1

Co-branding with AEON

TOPVALU-DoiTung macadamia nuts

TOPVALU-DoiTung Coffee



4P

Product: TOP VALU DoiTung Macadamia nuts or Coffee

Place: Japanese Super market (AEON)

Price: XXX

Promotion: Promotion by salesperson and visual merchandizing by AEON



Merit (DoiTung brand) :

1) Premium price

2) To get Japanese



**STRICT Quality Control system &
STRICT Traceability system**

Merit (TOPVALU) :

1) Raise brand value

2) Increase store royalty by original products



▲ TOPVALU Fair trade chocolate & coffee



Pursue CSV for villagers

Co-branding with AEON

TOPVALU-DoiTung macadamia nuts

TOPVALU-DoiTung Coffee



Interview with Mr. Horii at Bangkok

He visited DoiTung three years ago.

His concerns in case of Co-branding were

- 1) Volume
- 2) Stable supply :
- 3) Traceability

Raw material management

Packing material management



Mr. Horii

Ex -product general manager of TOPVALU

Now- CEO of AEON TOPVALU Thailand
(ITF Tower II ,21st Floor,Silom Road)

DoiTung will become represent of Thai brands
And also DoiTung activity gets many awards.

→More strict traceability would be essential in future



Suggestion2

**Send market price information to farmers
in order to negotiate with broker**

Africa's case

the explosive spread in the use of mobile phone



Farmers could gather market information



They has become possible to negotiate with broker



Increase farmer's income

Generate “Considerable Farmers”



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**Educate to farmers
how to gather
information**



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Suggestion3

New trekking course to know MFLF activity: Near to DoiTung



9:00 start>Economic forest> lecture of Botany> Pine tree
>forest fire>reforestation area>Laba village(lunch)
=3-4hr (Japanese will pay for 1000B as eco-tourism)



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Suggestion4

Developing new value-added compost

Variety of effective UNIQUE(only in DoiTung) byproducts are composted.

But composted SEPARATELY .→ Why don't you mix all?

Macadamia husks



Increase microbial activity
Increase pH

Coffee Pulps



Increase microbial activity
High Potassium

Goat manure



Nitrogen source

Chicken manure



Nitrogen source
Phosphate source
Decrease density (rice
husks)

**There is a possibility to produce value-added
compost by MIXing these byproducts**



Today's Agenda



What I learned



suggestion



Contribution



Conclusion



Contribution part schedule

4 works has been done day11th to18th.

Date	Day9 11 th	Day10 12 th	Day11 13 th	Day12 14 th	Day13,14 15 th ,16 th	Day15 17 th	Day16 18 th		
Location	Doi Tung								
	My room	Office	Charcoal area	Compost area	Forest near to Laba	Laba village	Compos t area	Coffee Site1	Charco al area
Activities	Make NYLA liquid	Think Experimen tal condition	Cut Bamboo	make value added compost /make charcoal	Walk econom ic forest and reforesta tion area	To realize improve ment of village's life	Teach how to make NYLA liquid	To know how to improve producti vity & quality	Start make bambo o charco al
									

I would like to extend my appreciation to all staffs and stakeholders for my study visit

3 contributions

~Work hard!~

- ① Making NYLA liquid
- ② Develop new value added compost
- ③ Improve production process for bamboo charcoal (based on Dr. Jack's idea)



Contribution 1: Making NYLA liquid

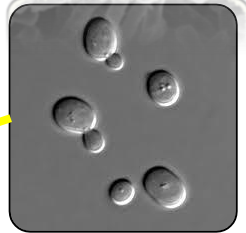
What is NYLA liquid?

- ✓ The liquid contains 4 type of bacteria.
- ✓ Japanese farmers traditionally make and use it for compost, liquid fertilizer, etc.
- ✓ There are Scientific evidences.



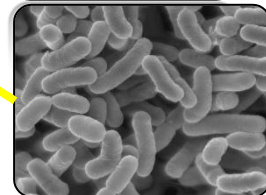
N (Natto: *Bacillus subtilis var. natto*)

2piece/L; Sold in Chiang Rai, Bangkok



Y (Yeast: *Saccharomyces cerevisiae*)

4g/L



L (Yogurt: *Lactobacillus*)

50g/L



A (Miso: *Aspergillus oryzae*)

5g/L

**Sold in
Maesai**



+

DoiTung

Pure water

20L

**Sugar
50g/L**

Contribution 1: Making NYLA liquid

How to make?

- ✓ Very easy to make
- ✓ Yeast>Yogurt>Natto (only washed solution)>Miso>Sugar
- ✓ Finish from 3days to 7days (pH3-4, good smell)
- ✓ Useable for 3month



Mix



Start
DO NOT
Close
cap



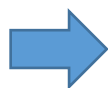
Finish (3days)



Contribution 1: Making NYLA liquid

What kind of effect does NYLA liquid have?

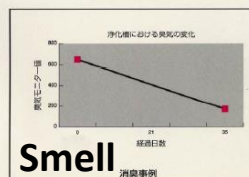
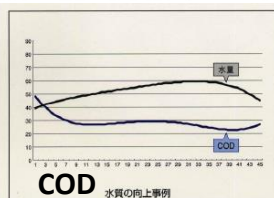
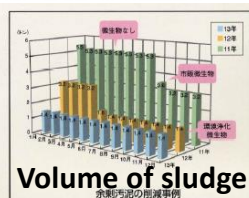
- ✓ Many effective bacteria
- ✓ Neutralization
- ✓ Accelerate fermentation



- ✓ Reduce smell
- ✓ Reduce sludge in septic tank
- ✓ Increase effective bacteria in compost
- ✓ Increase speed of composting
- ✓ Increase immunity of plants



NYLA



<http://www.pref.ehime.jp/h30103/sangiken/alls/etc/documents/ai-1.pdf>

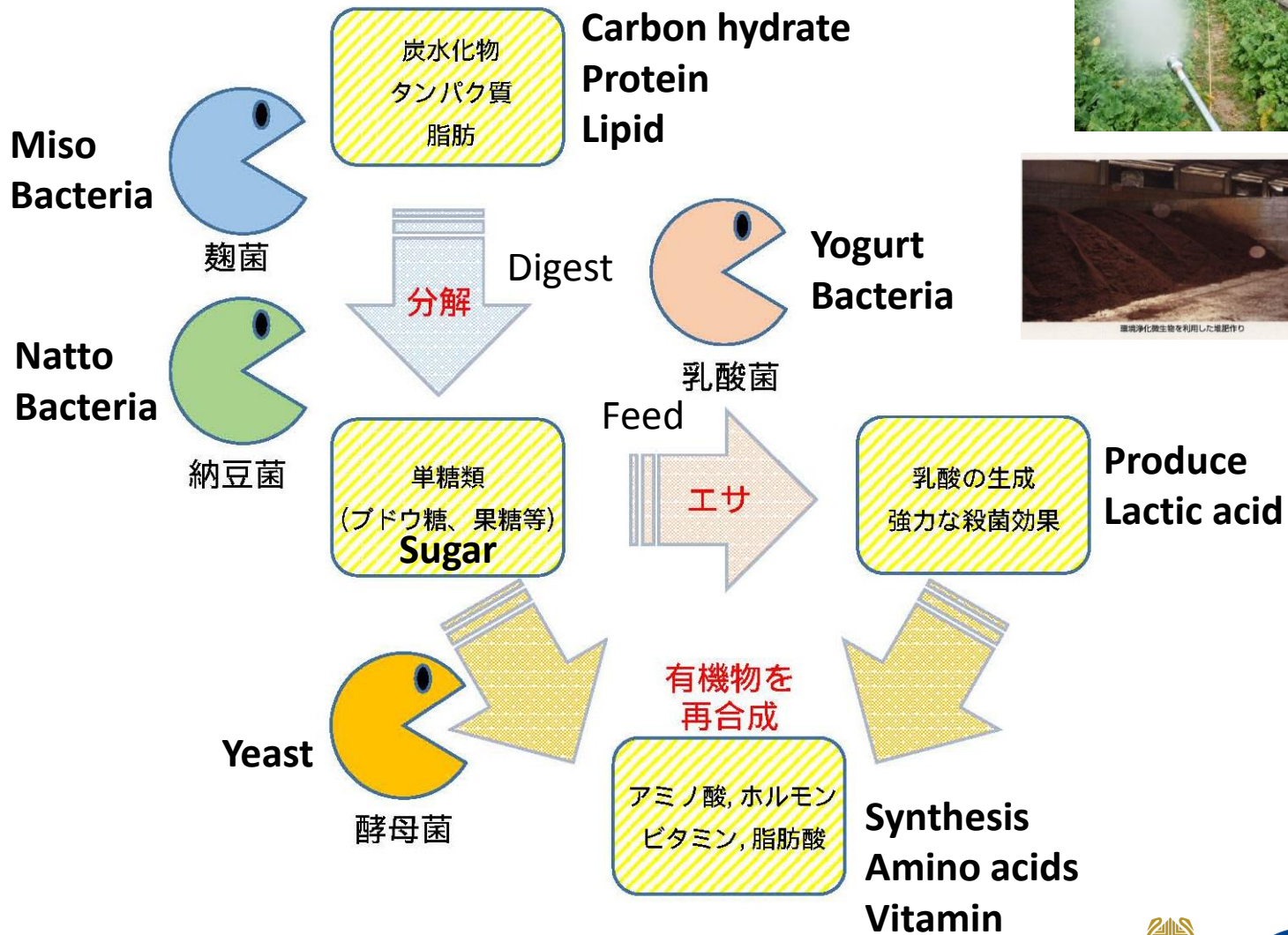
Mr. Aon and I made 50L. Please try to use!



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Appendix) role of NYLA bacteria



Contribution 2:

Develop new value added compost

Value: Increase microbial activity, water holding capacity,

Increase pH, carbon and nitrogen source

Macadamia husks



Coffee Pulps



Goat manure



Chicken manure



Increase microbial activity
Increase pH

Increase microbial activity
High Potassium

Nitrogen source
Adjust C/N

Nitrogen source
Adjust C/N
Phosphate source
Decrease density (rice
husks)

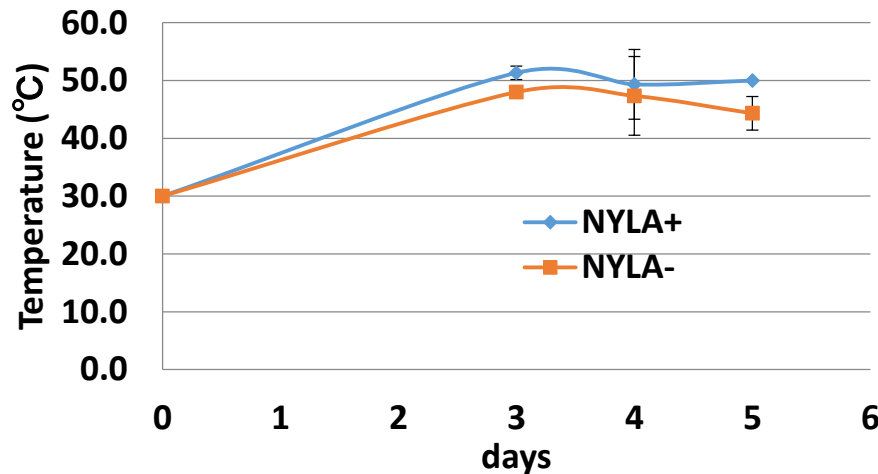
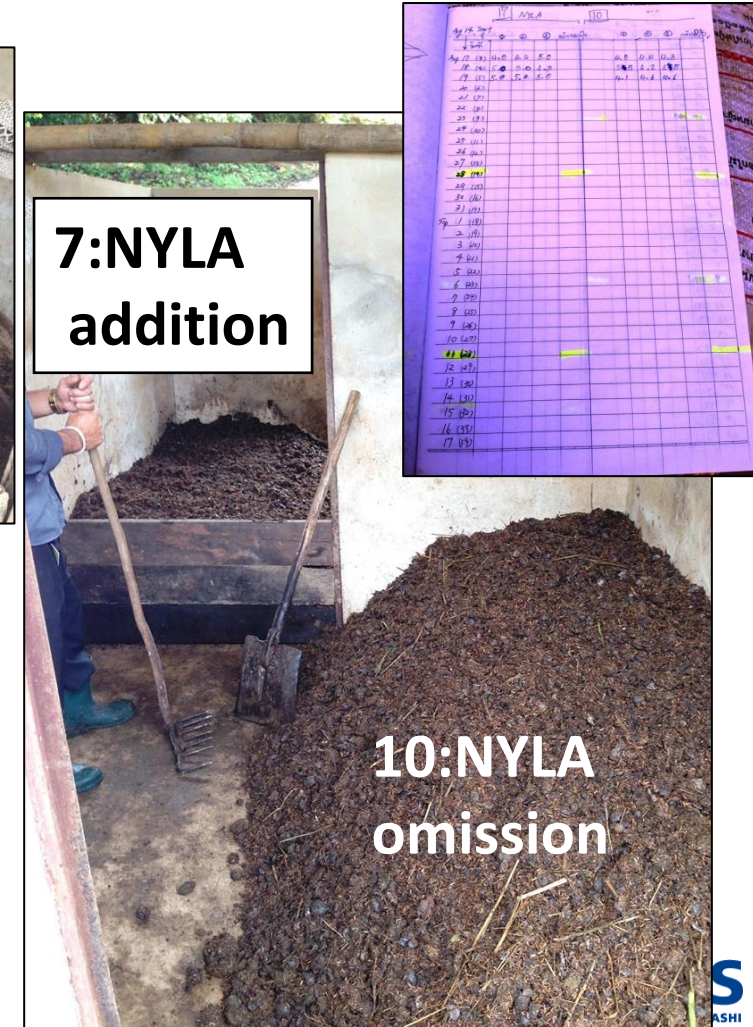
+5%NYLA



Contribution 2:

Develop new value added compost

Start at 14th Aug → Finish: 1~3 month → Test by Dr. Martin at Nursery



Contribution 3:

Improve production process for bamboo charcoal (based on Dr. Jack's idea)

Final Objective : Produce high quality bamboo charcoal which can be used for high end products (air or water purification)

Experimental condition (Iwate kiln)

	Objective	Condition
①	Improve productivity	Cut bamboo and make all of uniform length (165cm and 90cm) Remove joint
②	Improve yield	Select good bamboo
③	Improve charcoal quality by increasing maximum temperature	Add wood (50%) Push bamboo into kiln without free space

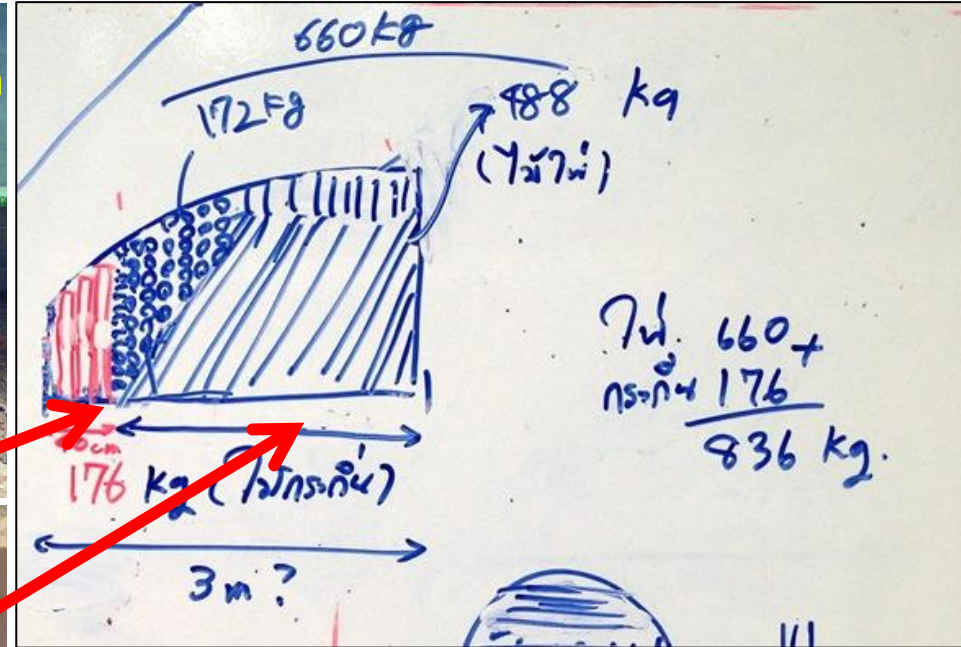


Contribution 3:

Improve production process for bamboo charcoal

Operation

- Cut bamboo and make all of uniform length (165cm and 90cm)
- Remove joint



- Select good bamboo



← Bad bamboo

- Push bamboo into kiln without free space

- Add woods



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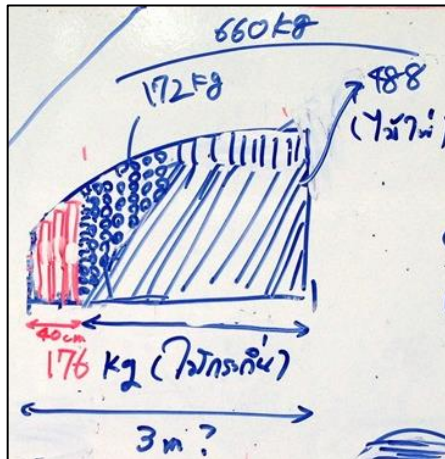
Contribution 3:

Improve production process for bamboo charcoal

Result

- ✓ We pushed 660kg bamboo and 176kg woods into kiln.
- ✓ Front temperature at 2nd day is high compare to second trial → effect of wood
- ✓ Back temperature at 2nd day is low → effect of high density of bamboo

	Bamboo (kg)	Tree (kg)	Total (kg)	Temperature (°C) at 2nd day		Productivity (kg)	Yield (%)
				front	back		
1	750	0	750	-	-	33	4.4
2	571	0	571	208.5	79.6	106	18.6
3	660 79%	176 21%	836	265.1	44.8	?	?



Concern

It takes time to cut bamboo and remove joint.

→ 15 person-day for 660kg



Today's Agenda



What I learned



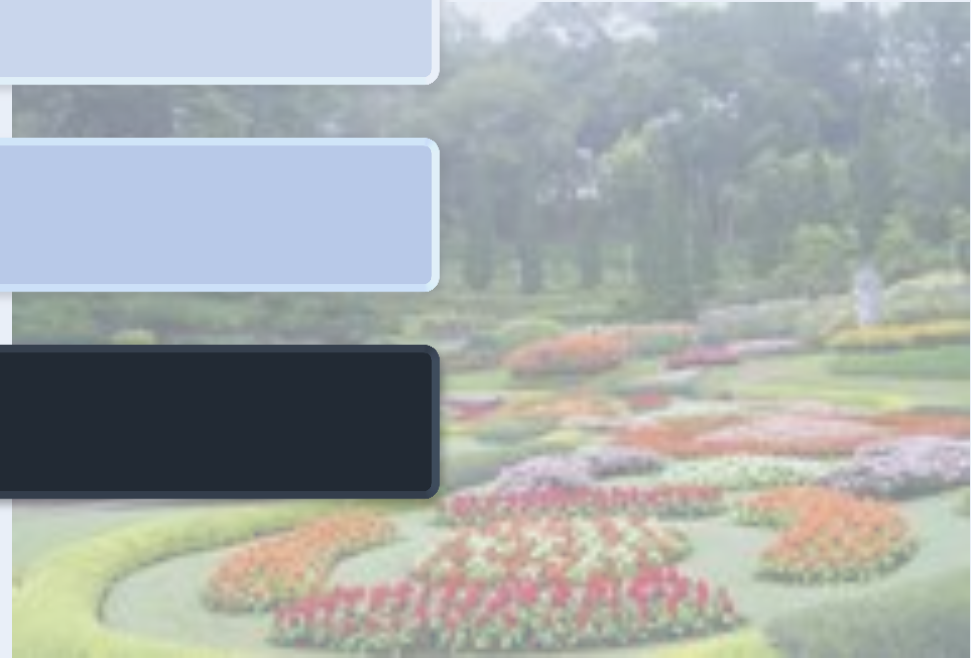
suggestion



Contribution



Conclusion



Conclusion

To understand how to solve problems by foundation's leadership

- ① Build "Happy cycle" = Win & Win situation
- ② Connect all stakeholders & Motivate farmers to do voluntary
- ③ Motivate farmers to maintain activities

Final objective is "Help people to help themselves"

To understand how to transfer knowledge

NGO, local leader are very effective collaborator for knowledge transfer

To offer suggestions from study visit

- ① Pursue CSV for villagers >> Collaborate with Retailer by Co-branding
- ② Send market price information to farmers
- ③ New study trekking course
- ④ Developing new value-added compost

To contribute to foundation

~Work hard!~

- ① Making NYLA liquid
- ② Develop new value added compost
- ③ Improve production process for bamboo charcoal (based on Dr. Jack's idea)

Finally



Social Businesses Follow Seven Principles
The Principles of Social Business Defined by Prof. Yunus



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1. Business objective will be to overcome poverty, or one or more problems (such as education, health, technology access, and environment) which threaten people and society; not profit maximization
2. Financial and economic sustainability
3. Investors get back their investment amount only. No dividend is given beyond investment money
4. When investment amount is paid back, company profit stays with the company for expansion and improvement
5. Environmentally conscious
6. Workforce gets market wage with better working conditions
7. ...do it with joy

Valuable for Nobel prize!





**Special thanks
for my study visit**



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Fin
Thank
you



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Appendix



Experimental condition				
NYLAliquid				
Seed	30L bucket	*2		
	Brown Sugar – Cane Molasses (almost 500g/L) can be used	50 g/L	Add 1000 g	
	Yeast (Yeast)	4 g/L	80 g	
	Yogurt (Lacto bacillus)	50 g/L	1000 g	
	Crushed Natto (Natto bacillus)	2 piece/L	40 piece	
	Miso (Nitrogen source, Aspergillums oryzae)	5 g/L	100 g	= 0.625 gN/L
	adjust to			
	20 L by water			
	Condition		Check	
	Agitating three times a day (Morning,Afternoon,Evening)			
	temperature:30-40degree			
	Top is wrapped but never closed perfectly (gas was generated).			
	pH= 5	5 ~ 7		
	Batch End : 3days- 1week?		Check	
	evaluation criteria			
	PH=3 ~ 4			
	Top is clear and precipitation is on the bottom.			
	Good smell (like liquor)			
Main	use 1000L tank			
	Total 800 L			
	Brown Sugar -- Cane Molasses (almost 500g/L) can be used	50 g/L	Add 40000 g	
	Yeast (Yeast)	4 g/L	3200 g	
	760 L by water			
	40 L Seed is added	5%		
	Condition		Check	
	Agitating three times a day (Morning,Afternoon,Evening)			
	temperature:30-40degree			
	Don't close cap perfectly. CO2 gas is generated.			
	Don't enter the tank (You will die by high CO2!!!!)			
	pH= 5	5 ~ 7		
	Batch End : 1week?		Check	
	evaluation criteria			
	PH=3-4			
	Top is clear and precipitation is on the bottom.			
	Good smell (like liquor)			
Final output	Use for compost, sanitization,provide to villagers			

➔

Start
pH5

Finish
pH3-4

It tank=Low oxygen!

✗

Don't enter tank even after you wash tank
Remained bacteria eats oxygen.

Main Fermentation BIG Scale 800L

Appendix)Flow sheet of NYLA Compost

Appendix)Flow sheet of NYLA Compost

Fertilizer design

Name : NYLA Compost

row material				designed value (%)					Total	
									600	kg
名称	name	ingredient amount(%)	rate (%) by weight	C/N	Density	TN	TP	TK	used amount (kg)	Reason for use
Macadamia husks	TN	1.30				0.50			300	Macadamia husk compost improved the soil health of the orchard soil by increasing microbial activity, water holding capacity, pH, carbon and nitrogen.
	TP		38.5	38	0.6		0.00			
	TK							0.00		
Coffee Pulps	TN	1.27				0.16			101	Increase fermentation by contained sugar
	TP	0.06	13.0	40	0.9		0.00			
	TK	2.46						0.31		
Goat manure	TN	1.37				0.47			273	Improve C/N ratio
	TP	0.30	35.0	14	0.9		0.10			
	TK	0.98						0.34		
Chicken manure (Almost rise husks)	TN	0.50				0.06			105	Decrease density control moisture rate
	TP		13.5	25	0.5		0.00			
	TK							0.00		
Total		design	100.0	28	0.731	1.13	0.10	0.65	780	kg
NYLA liquid			5.0	—		—	—	—	39	Increase fermentation Increase effective bacteria

http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0003/166476/compost-on-farm.pdf

<http://jairjp.com/SEPTEMBER%202014/09%20SEKHAR.pdf>

<http://www.ijappjournal.com/wp-content/uploads/2013/07/3360-3365.pdf>

<http://www.ijappjournal.com/wp-content/uploads/2013/07/3360-3365.pdf>



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Appendix)Flow sheet of NYLA Compost Ideal condition

Fertilizer design

Name : NYLA Compost

Total

row material				designed value (%)				600	kg
名称	name	ingredient amount(%)	rate (%) by weight	C/N	TN	TP	TK	used amount (kg)	Reason for use
Macadamia husks	TN	1.30	40.0	38	0.52	0.00	0.00	240	Macadamia husk compost improved the soil health of the orchard soil by increasing microbial activity, water holding capacity, pH, carbon and nitrogen.
	TP								
	TK								
Coffee Pulps	TN	1.27	10.0	40	0.12	0.00	0.24	60	Increase fermentation by contained sugar
	TP	0.06							
	TK	2.46							
Goat manure	TN	1.37	25.0	14	0.34	0.07	0.24	150	Improve C/N ratio
	TP	0.30							
	TK	0.98							
Chicken manure	TN	2.06	25.0	7	0.51	0.06	0.31	150	Improve C/N ratio
	TP	0.25							
	TK	1.24							
Total		design	100.0	22	0.98	0.07	0.48	600	kg
NYLA liquid			5.0	-	-	-	-	30	Increase fermentation decrease smell

http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0003/166476/compost-on-farm.pdf

<http://jairjp.com/SEPTEMBER%202014/09%20SEKHAR.pdf>

<http://www.ijappjournal.com/wp-content/uploads/2013/07/3360-3365.pdf>

<http://www.ijappjournal.com/wp-content/uploads/2013/07/3360-3365.pdf>



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Mae Fah Luang Foundation under Royal Patronage

