



Extension of Vetiver Grass Cultivation in Highland

By Ms.Namtip Kantawong

Highland Research and Development Institute (Public Organization)

Highland Research and Development Institute (Public Organization), HRDI was established by the Government of Thailand to support and strengthen the **Royal Project Foundation's** research and development activities and extend its success in sustainable highland development to other highland areas throughout the country. **The focus of HRDI lies on sustainable economic, social and environmental development of Thai highlands.** According to the Royal Decree on the establishment of HRDI, Thai highland refers to an area with **altitude over 500 meters (gradient 16–75%).** Thailand has **approximately 62.22 million rais** of highland or **53 percent** of total areas of **20 provinces covered 3,829 clusters in 14 main river basins and 128 distributary river basins.** Most of highland communities situated in the areas of water source forest which about 88 percent of them confront with difficulty accessibility, thus it cause governmental authorities cannot monitor these communities inclusively. Moreover, **shifting cultivation, continuing of deforestation, agricultural method with inappropriate use of chemical, surface soil erosion, decadent agricultural land** and contaminant caused by livelihood of local people surrounding natural resources are still the major problems of highland development. Therefore, ***HRDI gives precedence to highland problem solving with river basin management system in order to improve livelihood of highland people as well as rehabilitate and conserve abundant watershed forest.***

Target Operational Areas of HRDI



Main River Basin	Operational Areas (Clusters)	Areas (km ²)
1. Ping	555	5,361.64
2. Nan	96	445.88
3. Salawin	284	2062.09
4. Kok	138	378.54
5. Khong	114	282.16
6. Mae Klong	16	433.75
7. Yom	22	35.99
Total	1,232	9000.04

At present, covered 593 clusters

Operation of Vetiver Grass Extension

General agricultural areas in highland



Areas Analysis

Operation of Vetiver Grass Extension

Land use correctly Based approach conservation of natural resources and the environment by the participation of community

1. The development of fundamentals



1 Water for consumption

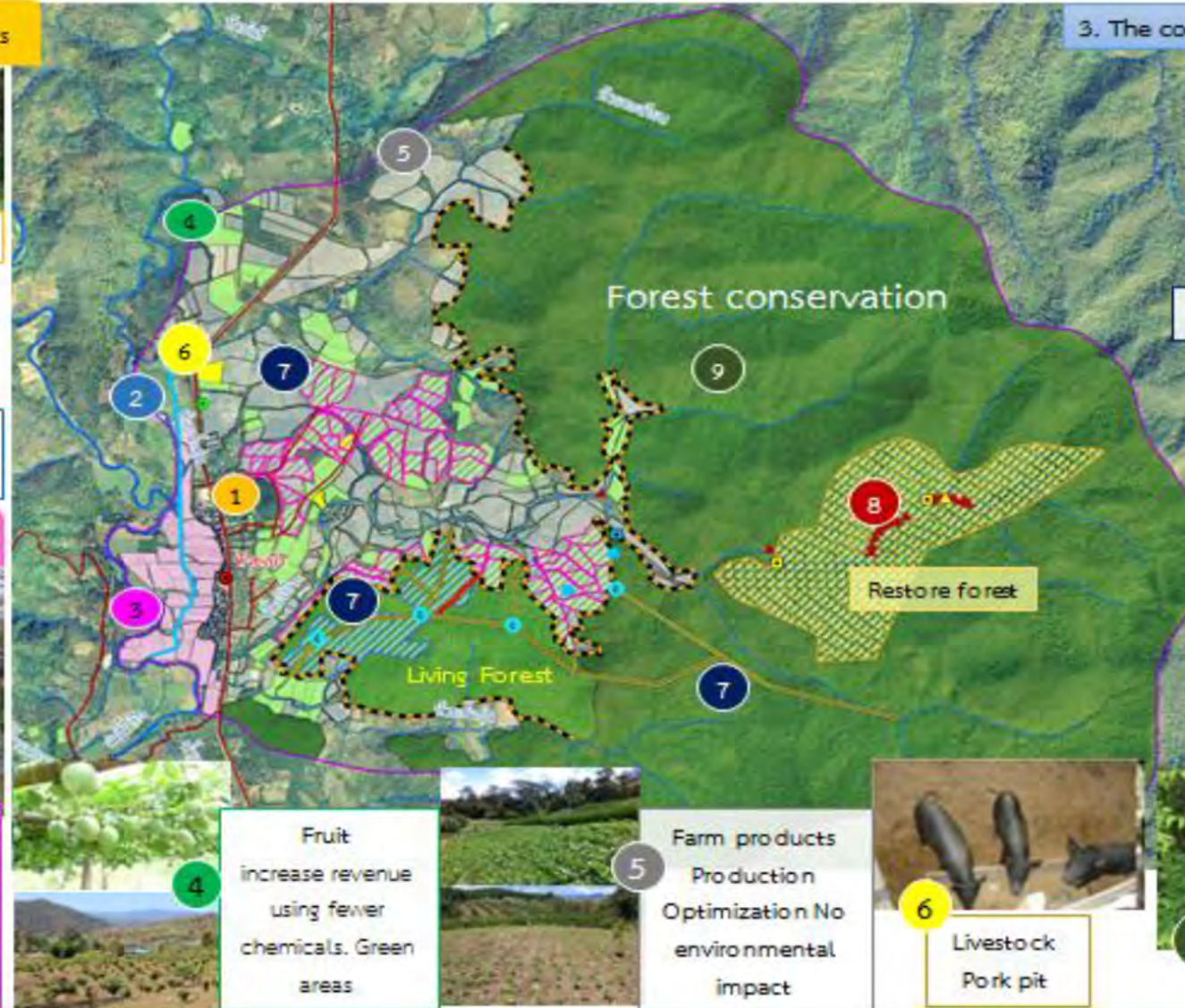


2 The system sends water to the paddy field

2. Remodel occupation



3 Vegetable
Using appropriate technology
Reduce the use of chemicals to
improve productivity and
increase revenue.



4 Fruit
increase revenue
using fewer
chemicals. Green
areas



5 Farm products
Production
Optimization No
environmental
impact



6 Livestock
Pork pit



9 Forest Buffer

3. The conservation and restoration of natural resources



7 Soil and water conservation

Development of small water distribution system



Vetiver Grass Cultivation



8 Incorporating dike / semi-permanent dike

Operation of Vetiver Grass Extension

Vetiver grass extension activities can be divided into 2 methods

- ❖ Vetiver grass extension in farmers' agricultural land which located in high gradient areas
- ❖ Vetiver grass extension in communities' public areas



Process of Vetiver Grass Extension

- ❖ Conducting meeting to establish farmers' understanding, organizing knowledge transferring training on vetiver grass cultivation
 - ❖ Supporting vetiver grass seedling production
 - ❖ Supporting vetiver grass cultivation learning center in farmers' agricultural land
 - ❖ Vetiver grass extension in communities' public areas



Operation of Vetiver Grass Extension

Encouragement for Farmer Participation

❖ Supporting infrastructure

❖ Supporting fruit tree seedlings

❖ Supporting meal, materials for training and launching environmental conservation campaign

❖ Supporting vetiver grass seedling production center



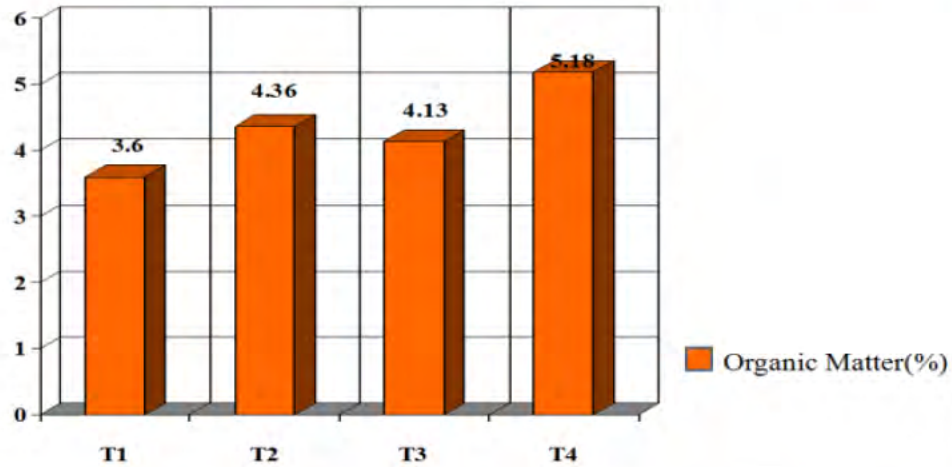
Achievements and Benefits Generated from Vetiver Grass Extension in Highland

According to fertility analysis of soil from maize cultivation with legume cropping system

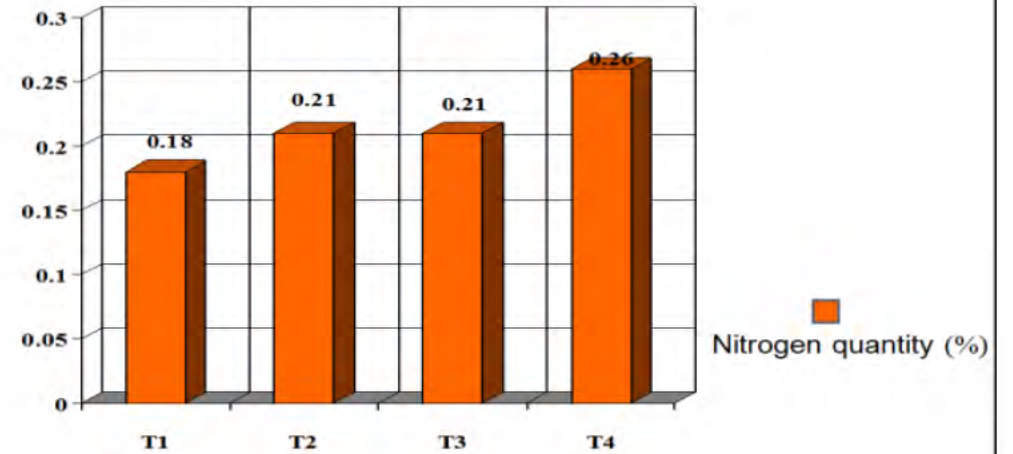
Experiment	Soil Analysis Results				
	pH	organic matter (OM%)	nitrogen (N%)	phosphorus (P,ppm)	potassium (K,ppm)
T1: Maize cultivation solely	5.70	3.60	0.18	13.67	120.25
T2: Maize cultivation with red bean and lablab bean cropping system	5.62	4.36	0.21	34.33	79.00
T3: Maize cultivation with red bean cropping system and vetiver grass cultivation for soil conservation	6.00	4.13	0.21	24.00	271.50
T4: Maize cultivation with red bean cropping system and vetiver grass and pineapple cultivation for soil conservation	5.88	5.18	0.26	14.50	141.25

Achievements and Benefits Generated from Vetiver Grass Extension in Highland

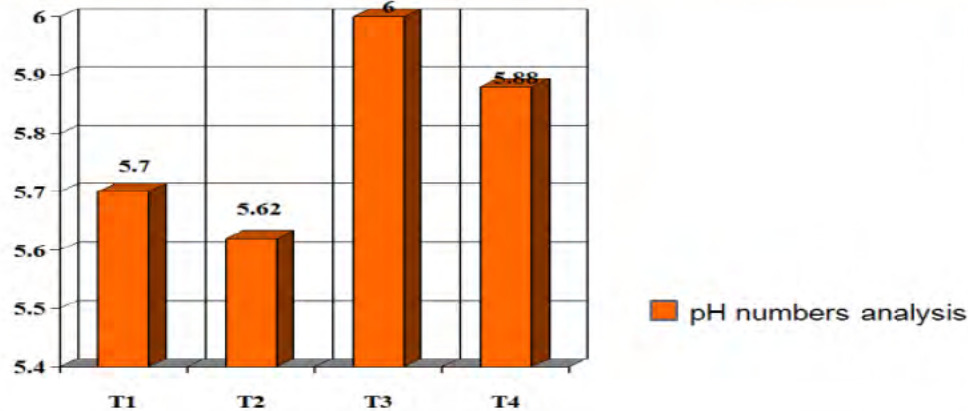
Organic Matter Analysis



Nitrogen quantity analysis

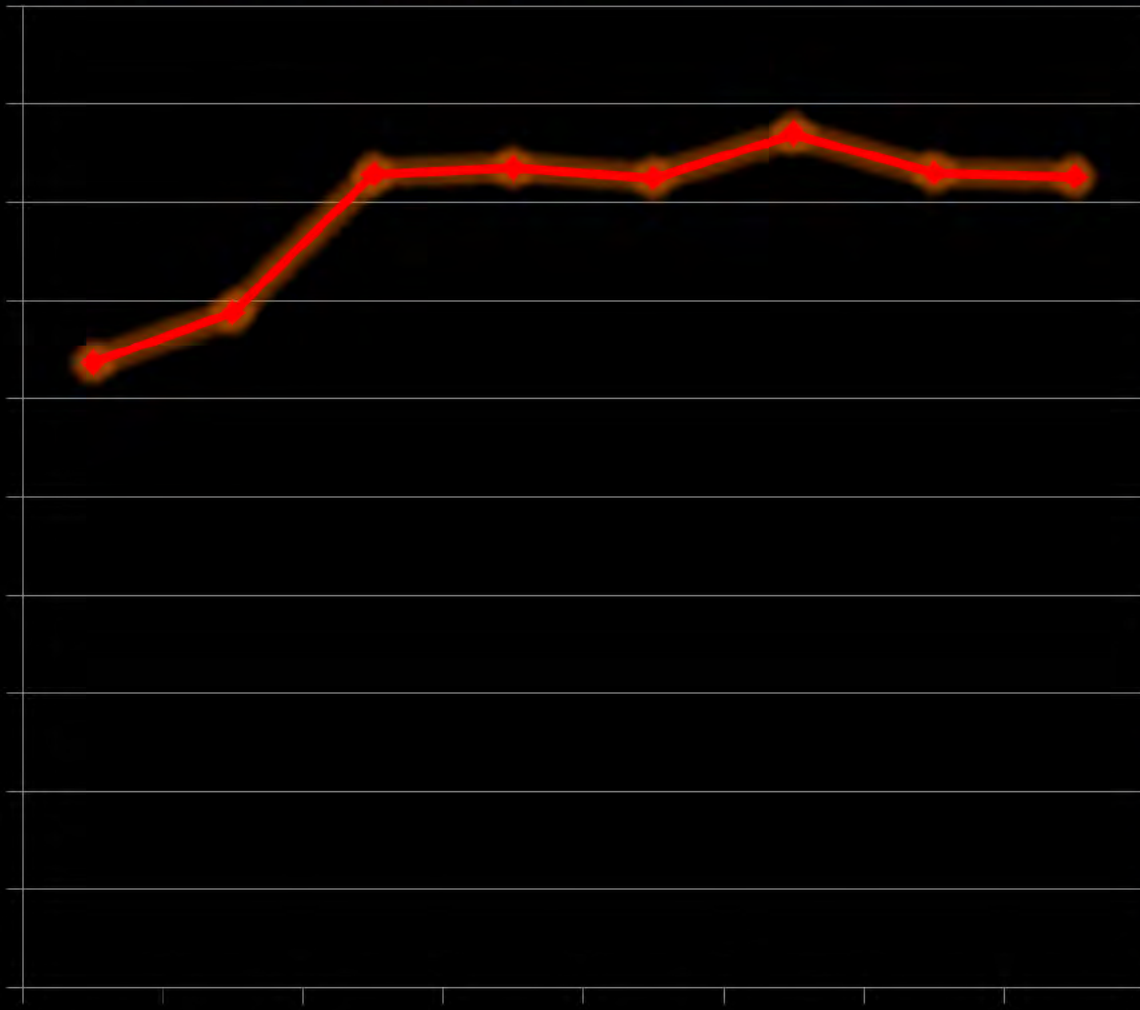


pH numbers analysis



Achievements and Benefits Generated from Vetiver Grass Extension in Highland

experiment result in higher productivity of maize (kilogram per hectare)



Achievements and Benefits Generated from Vetiver Grass Extension in Highland

Analysis result of general water chemical quality test during 2011 – 2014 at the Royal Project Extension Project Pang Dang Nai

Analysis Results of WQI (General Water Quality Index) Fiscal Year 2011-2014

Center	Year	Water way	Sample collecting point	WQI*		Problems/Causes		
				Amount	Value of WQI	Micro organism	Chemical	Heavy metal
Pang Dang Nai	2011	E-go Creek	source of river	86.92	good			
		E-go Creek	middle part of river	78.47	good		DO (3.97 mg/l)	
		E-go Creek	end of river	90.04	good			
	2012	<u>Maejorn</u> Creek	source of river	83.41	good			
		<u>Maejorn</u> Creek	middle part of river	82.45	good			
		<u>Maejorn</u> Creek	end of river	86.18	good			
	2013	E-go Creek	source of river	81.78	good			
		<u>Maejorn</u> Creek	middle part of river	84.48	good			
		<u>Maejorn</u> Creek	end of river	73.6	good			
	2014	<u>Maejorn</u> Creek	source of river	82.46	good			
		<u>Maejorn</u> Creek	middle part of river	81.06	good			
		<u>Maejorn</u> Creek	end of river	81.66	good			

Achievements and Benefits Generated from Vetiver Grass Extension in Highland

farmers of the Royal Project Extension Project Huay Pao received blood test for find out chemical remaining in blood

Operational Year	Level of Huay Pao Farmers' Blood Test in 2009-2011 (percent)			
	Normal	Safe	Risk	Dangerous
2009	9	21.5	36.5	34
2010	25	36.5	30.5	8
2011	52.5	31.5	12	3

Local communities gather into natural resources and environmental conservation group operating conversation activities by using participatory approach in order to strengthen their own societies and communities and also realize the significance of natural resources and environmental conservation on their livelihood.

Achievements and Benefits Generated from Vetiver Grass Extension in Highland

community gained many awards from various agencies which brought self proud to all villagers

1. Overcome community capacity evaluation standard of air pollution and smog management and outdoor burning (Standard Community and No burning Village Project Award 2012)
2. Honorable Mention Award in Provincial Level of “Green Community Award” for Smog Crisis Solving Project in Upper Northern Provinces Group 1 in 2012
3. Honorable Mention Award from “The Royal Project Extension Project Award 2012”
4. Network community as learning center for smog crisis solving by Community Capacity Building for Solving Smog Crisis Project from Faculty of Political Science and Public Administration, Chiang Mai University
5. Winner of “Clean Village and Strength Community Award” from the Royal Project Foundation

Achievements and Benefits Generated from Vetiver Grass Extension in Highland

Extending the knowledge to a third party

1. The farmers under the Technical Cooperation Thailand – Laos to develop the renewable narcotic.
2. Scholarship Foundation of Thailand – United States (Fulbright Thailand)
3. Organization administrators in Thailand.
4. Faculty of Agriculture international Embassies.



Example of Vetiver Grass Extension Areas (Pang Dang Nai communities)





All questions please send mail to me. I'll get back to later.
: namtip_bow01@hotmail.com

Thank

YOU.