DETAILED PROJECT REPORT

(YEAR 2015-2016)

NAME OF THE PROJECT: BIO-GARDEN- CONSERVATION OF BIODIVERSITY

SPONSORED AGENCY: MEGHALAYA BIODIVERSITY BOARD; GOVERNMENT OF MEGHALAYA.

PARTNER: TYNRAI FOUNDATION

SUBMITTED BY: Mr. PIUS RANEE

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Introduction:

The name of the project is ***"Bio-garden- Conservation of biodiversity***". As per the agreement signed on 21st May, 2015; the duration of the project will be for a period of one year (May, 2015 to May 2016). In order to initiate the said project, as a researcher I proposed to implement the following activities:

Table: 1

Phase	Activities	Months
1	1. Awareness programme at the community and school levels on: ✓ The importance of organic farming ✓ The scope and importance of medicinal plant in the market ✓ Eco-tourism 2. Sample survey on the food habits being consumed by people	May to June, 2015
2	Training on organic farming (TECHNICAL INPUTS)	June to July, 2015
3	Establishment of bio garden at the household levels & school	July to September, 2015
4	Documentation on the number of households taken these initiatives, varieties of crops, traditional method of seed saving.	October,2015 to January,2016
5	Detailed Project Report	February,2016

Village profile: Target area

Dewlieh is a small village which consists of 27 households. It falls under Raid (cluster) Diengsaw, Sohra Syiemship, East Khasi Hills District. It's situated at a distance of 46Kms from Shillong. The total population of the village is 123 **(Survey 2014)**

In Dewlieh village all families belong to the Scheduled Tribes. The names of the clans are: Dohling, Diengdoh, Khongsit, Sohkhlet, Khongnain, Kharkongor, Shabong, Ranee, Wansai and Larngap.

In Dewlieh village, people do practice shifting cultivation and kitchen garden. In shifting cultivation, the crops which they grow in the field include: cereals such as maize, millet and jobstear; tuber roots such as tapioca, yam, potato, sohlah(wild potato), sweet potato;

vegetables such as cucumber, tilt seed, leafy vegetables, bean whereas in the kitchen garden mostly people plant fruits trees like blackberry, banana, local and sohshang. Besides, the above crops, broomstick is the main cash crop. Besides agriculture, people are also engaged in livestock like piggery and poultry farming.

At present; there are two schools namely: Lower Primary School and Upper Primary School. There are 2 school teachers in the lower primary school. Bah Charles Diengdoh is the Headmaster of the school whereas the Upper Primary section has three teachers namely; Bah Shaiphar Dohling, Bah Divas Khongrymmai and Kong Skipsy Dohling. The Headmaster of the school is Bah Shaiphar Dohling. The total number of students in Lower Primary School is 27 (M: 6 F: 21) and the total number of students in the Upper Primary section is 8 (M: 1 F: 5) **(Survey 2013)**

The village does have one school garden. The school garden in Dewlieh Village was initiated in the year 2011 under Sarva Shiksha Abhiyan, Upper Primary School Dewlieh

PHASE 1

In this phase; there were three major activities which took place which include the following:

1. **<u>Survey on the food habits being consumed by people</u>:** In order to find out the food items consumed by people; a sample survey of 12 households was carried out by the researcher from 25th May to 14th June with the support of the team of Tynrai Foundation. Because in future it will help to take a proactive steps in dealing the problem faced by the community. **(For the detailed report see annexture- 1)**

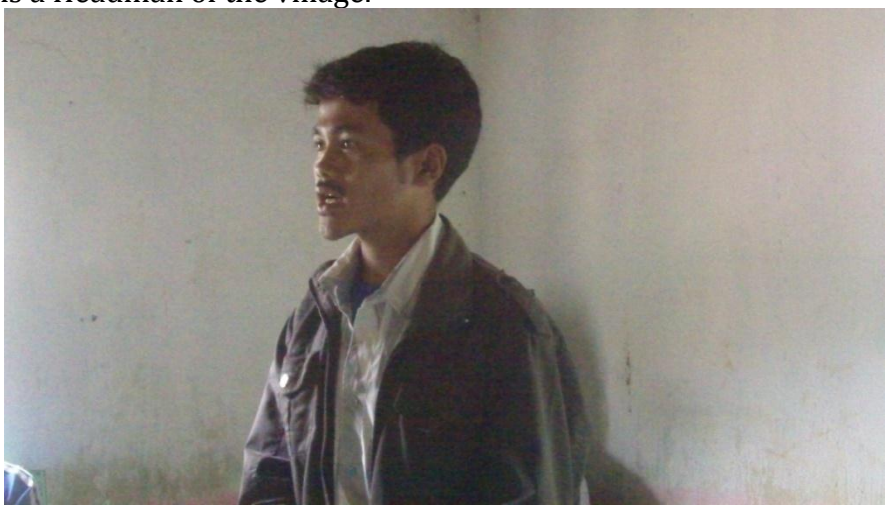
   <u>Major Findings:</u>

- People practice two types of cultivation namely: shifting cultivation and kitchen garden
- Potato, local vegetable- jaiing, maize, yam, tapioca and cucumbers are the major crops grown in shifting cultivation whereas local fruits like sohshang and black berries, squash, broom stick and guava are the major crops grown in kitchen garden.
- As per my observation; I found out; in their kitchen gardens; broomstick is being cultivated which reduces the fertility of the soil.
- Common cold and diarrhea are the common problems faced by the community members
- Onion, beans, cabbage, radish and carrot are the major vegetables bought by the people from the market.
- Jali and jarain are the only two wild edibles being introduced into their diet
- Lack of seeds exchange among the community members

- Even people grow many varieties of crops in the field but only few of them were introduced into their diet like squash, cucumber, potato, yam and local vegetable-jaiing.

2. **<u>Orientation on organic farming and eco-tourism:</u>** After understanding the problem faced by the community, an immediate action was taken by the researcher. So, on 19th June,2015 a programme on organic farming was successfully organized in collaboration with one community based organization called Tynrai Foundation. The workshop was attended by 29 people including 5 students of St. Edmund's College Shillong, Social Work Department;and 3 teachers of Upper and Lower Primary School Dewlieh.

   The programme started off with a welcome speech from Mr. Shaiphar Dohling who is a Headman of the village.

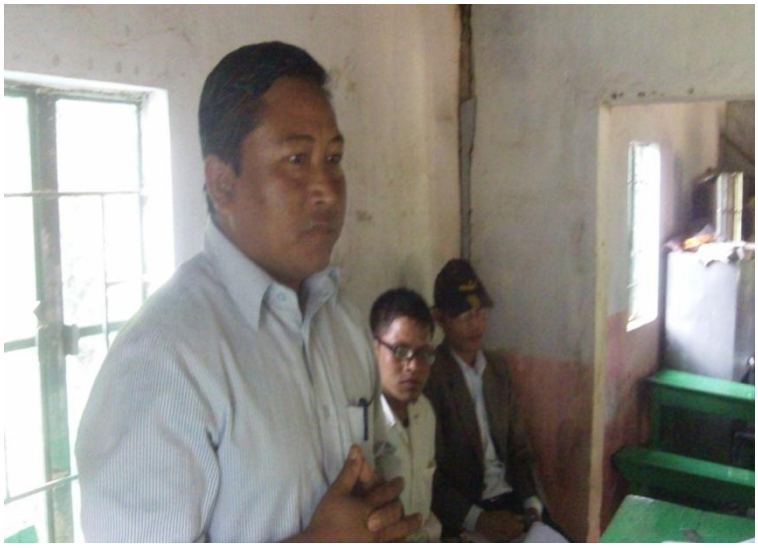


Mr.Shaiphar Dohling- Headman of Dewlieh village.

On the whole issue of organic farming, Mr.Nosiar Nongrum, Assistant Inspector, Horticulture Department, Mawkdok, spoke at length on the importance of organic farming. Because this will improve the fertility of soil and also will help people to live a healthy life. In order to do so, he stressed more on the importance of having a kitchen garden by growing different crops and in the long run this will tackle the issue of malnutrition

Mr. Nosiar Bongrum- Asst.Inspector; Horticulture Department- Mawkdok

among the family members. Also Bah Nosiar on his speech, he motivated the people to start using organic manure which is eco–friendly as vegetables and fruits being planted by using organic manure can give a better health lifestyle. He also encouraged participants to practice crop rotation and inter-cropping within their small plot of lands.



Mr. Lurshai Pyngrope-Manager Cherra Café.

In relation to eco-tourism, Mr.Lurshai Pyngrope, Manager, Cherra Cafe, tried to simplify its meaning to the participants by saying: "Eco-tourism lies on these three core areas which include: environment, animals and human being" He further stated "Organic farming/ biogarden is very much related to eco-tourism. He cited one example: Any tourist who wants to come and see our place would like to experience our culture particularly our local cuisines. If we can offer them a chemically produced food, this will help our village to increase the organic produce which can improve our local livelihood". "Now it is a high time for the people to conserve the environment for our future generation" He concluded.

Participants during orientation programme

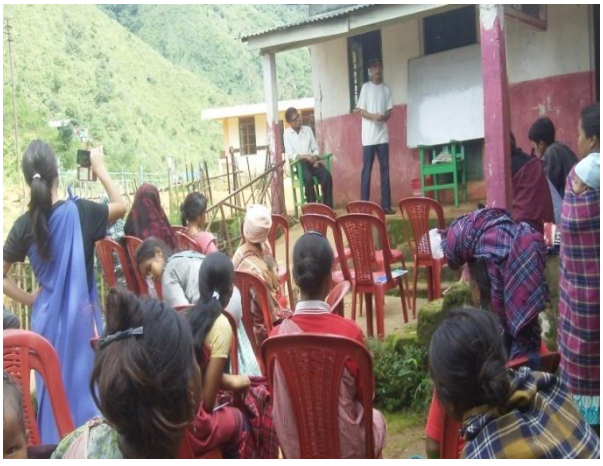
3. **A discussion with Bah Richard Ranee on the scope and importance of medicinal plant in the market**: On 24th June,2015; along with the school headmaster of Dewlieh village- Mr. Shaiphar Dohling; we went down to a village called Nongtraw to meet Mr. Richard Ranee who is a famous traditional healer in 12 shnong area. In the discussion; he spoke at length on the importance of medicinal plants within the eco system. According to him "Medicinal plants play a major role for the farmers especially in time of emergency. For example: Slajumai- can help in blood clotting. In today's context; many traditional healers faced a major problem in conserving the medicinal plants. So, he highly recommended if the school at Dewlieh can come out with a nursery of its own within the bio garden because this will not only help to preserve the plants it will also help to preserve the vast traditional knowledge. ***"This can be a practical class for the students within the school"*** He concluded.

PHASE 2

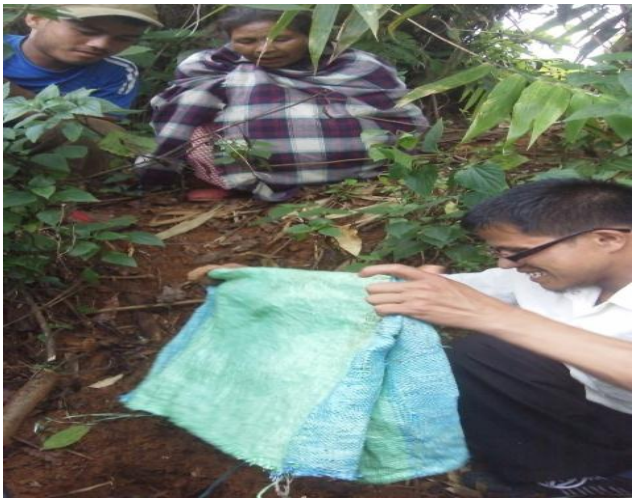
Technical inputs on organic farming: On 20th June,2015; two staffs of Bethany Society Mr. Ikmenroy Nongrum and Mr. Alkin Rynniaw took a full day session on "Natural and Organic Farming. Besides giving a theoretical knowledge, they also did a live demonstration on the different techniques which can be easily followed by the community by using the local resources.

During this process people were highly motivated to take it forward. Some of the techniques include the following:

1. Bokashi Compost/Fermented Compost
2. Liquid Manure Cum Pesticide
3. Indigenous Micro Organism (IMO)
4. Bokashi Bucket (Zero Waste Management)
5. Bokashi Piggery
6. Lactic Acid Bacteria (LAB)



Theory class on natural & organic farming.



Live demonstration on natural & organic farming.

PHASE 3

In this phase; there were three major activities which took place which include the following:

1. Home/ school visit and conducted live demonstration on basics technical inputs at household levels
2. Facilitate seed exchange
3. Distribution of local seeds

Home/school visit and conducted live demonstration on basics technical inputs at household levels:

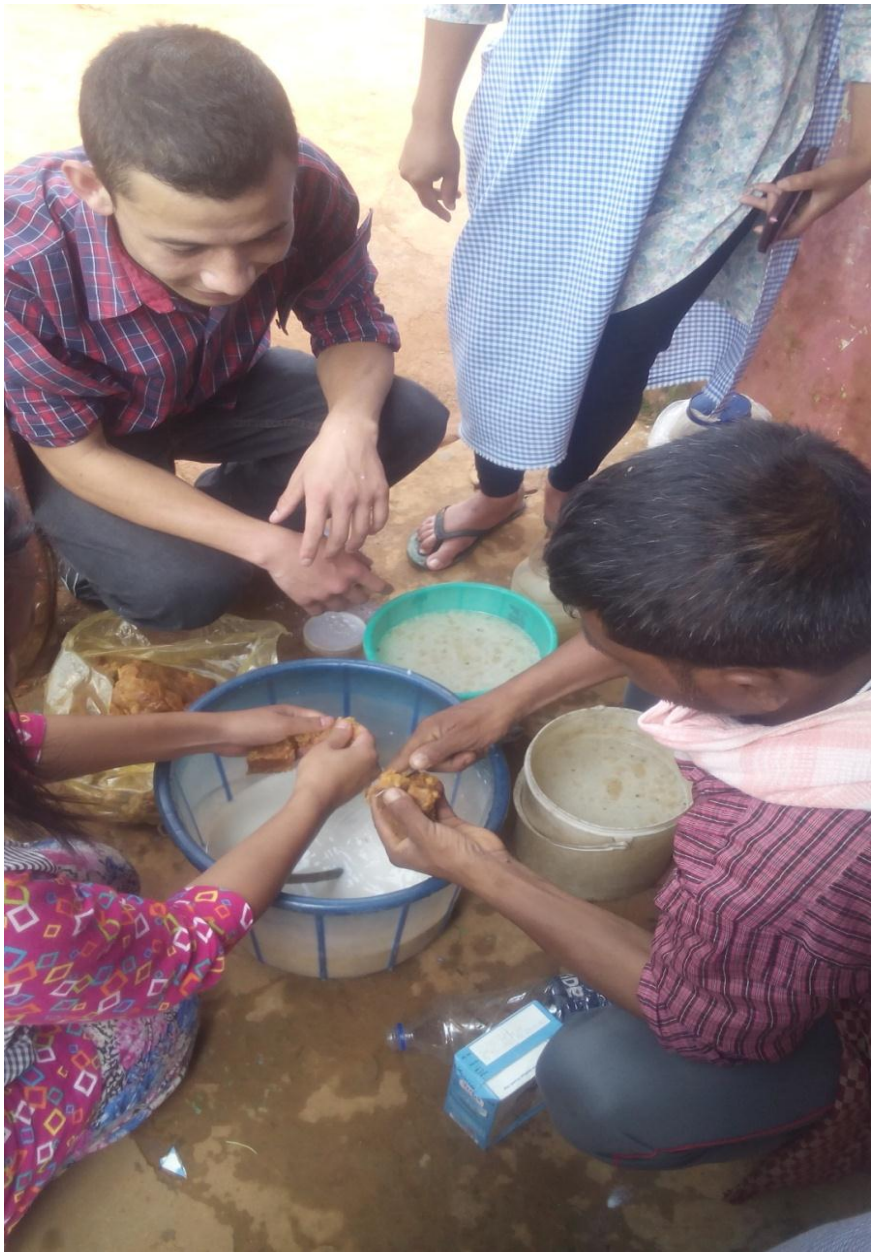
As a follow up process; soon after the technical training which took place on 19th and 20th June,2015; from 1st to 5th July, 2015; a team of 5 interns (Jonathan Blah, Ruth Sohtun, Asha Sangorala, Philia Paslein and Pdiang Hujon) conducted a home visit in order to find out the number of people who are interested to join with the project.

SUCCESS STORY: 8 families including the Sarva Shiksha Abhiyan Upper Primary School and Lower Primary school are interested to join with the project namely: Sentimary Diengdoh, Sati Diengdoh, Metilda Khongngain, Shemborlang Diengdoh, Bram Kharkongngor, Shaiphar Dohling, Sketcy Dohling, Thriolin Dohling.

On 7th August,2015; along with the team; I had a thorough discussion with the two school teachers namely: Shaiphar Dohling and Sketcy Dohling). The discussion led to the following decisions:

a. To further strengthen the school garden by planting some more local crops and some medicinal plants including wild edible plants.
b. The school authority will include the subject of school garden as part of the extracurricular activity among the students by including within the SUPW subject. Socially Useful Productive Work (SUPW) is a subject in Indian schools where students can choose from a number of vocational education activities. This process helps the students to learn to work as a team and to work with skill and deftness. It was introduced in 1978, by the Ministry of Education to promote Gandhian values and educational ideas of Mahatma Gandhi.

Side by side; the team conducted a live demonstration on some of the technical inputs like making of **Lactic Acid Bacteria (**LAB).



One of the families took part during the live demonstration on how to make LAB.

Facilitate Seed Exchange

A meeting with the interested group on 9th July; 2015; helped the researcher to find out the major problem faced by the people in conserving the biodiversity particularly: the frequent lost of local seeds from their village. This is due to the replacement of food crops with cash crop (Broom grass) which ultimately leads to mono-cropping. This became a huge threat for the farmer. In return; it led to the decrease in the number of wild edible plants and medicinal plants.

To become an example to the other farmers in the village; a group of 8 took a decision to reclaim back those lost seeds by trying to find a ways and means to overcome this problem. To counter act this problem an immediate action called ***"seed exchange"*** was taking care by the team with the strong support of 8 families.

So; on 17th July,2015 with the team; we went to a village called Laitsohpliah to meet Kong Byllaimon Swer. Kong Byllaimon Swer is one of the famous farmers who is trying to promote the importance of local seeds. One of her major achievements is the inclusion of fresh vegetables within the midday meal programme since 2013.

By meeting her; we were able to collect around 7 local seeds (cabbage, cauliflower, lettuce, Mustard leaf, carrot,bean, pumpkin) which was a great blessing for the 8 families at Dewlieh particularly the school.

Distribution Of Local Seeds

Due to the shortage of local seeds; it was a great challenge for the team in terms of seeds distribution. But the session with an interested group which took place on 1st August, 2015 led to the following conclusions:

1. The collected seeds should be first planted at the school garden. The idea was to challenge the school in doing the multiplication of local seeds.
2. Besides the school; all 8 families have taken the seeds and ready to plant within their own garden and the same will be shared within the group for further multiplication.

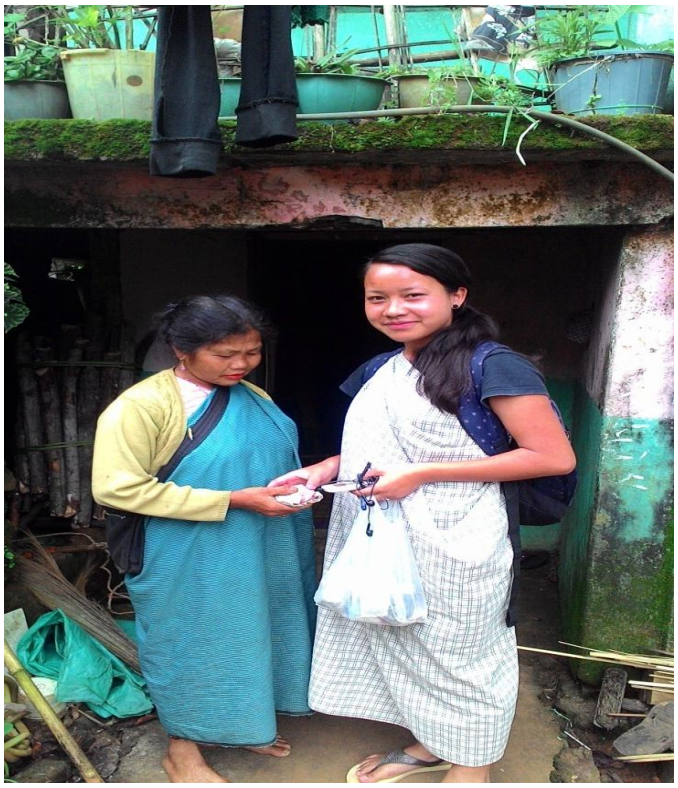
THE SUCCESS STORY OF SSA UP DEWLIEH- THE SCHOOL GARDEN

DURING SEPTEMBER -2015

DURING NOVEMBER-2015

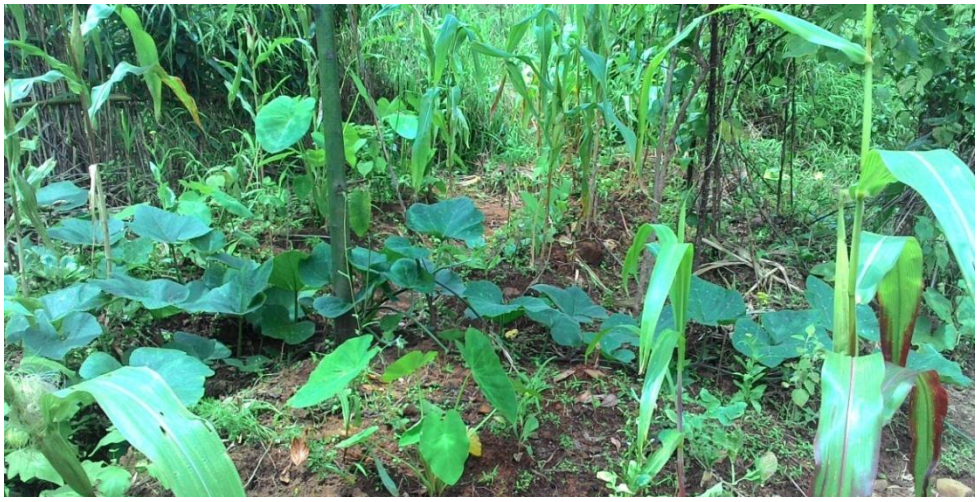
FROM SEED TO FOOD: AT HOUSEHOLD LEVEL

DURING JULY-2015



Kong T. Dohling one of the farmers who wanted to reclaim back the lost seeds.

DURING SEPTEMBER-2015



Beautiful garden of Kong T. Dohling

PHASE 4

In the beginning of the project; a survey of 12 household was carried forward in order to understand the food items consumed by people. The survey acted as a base that there is a need to carry out the different activities as I mentioned before**.**

At the end of the project; a survey of 8 households including the school was carried forward. **(For the detailed report see annexure- 1)**

Intervention at household level

Major Finding:

1. Increase in the number of diversity in their kitchen garden like: radish, coriander,cabbage,lettuce,mint,jamyrdoh,sohprew, soththliem, mustard leaf.
2. Few families have introduced some of the medicinal plants within their garden like kynbat wieh (used for parasite) and kynbat saw
3. There is less dependency on some vegetables like lettuce and chillies
4. There are some vegetables which people are still depending on the market like onion, beans, carrot, radish and tomato.
5. Diarrhea and cold are the two common diseases which need a special attention.
6. Comparing to the survey that was conducted before intervention; some people have included some nutritious food in their diet like cabbage, lettuce, mint, coriander and some wild edible plants like jalyniar, tangduma, jarain,jali.

Intervention at school level:

Table2 : Plants/ crops grown in the school garden					
Before Intervention			**After intervention**		
Crops	***Wild edible***	***Medicinal***			
1. Local potato	NIL	NIL	***Crops***	***Wild edible***	***Medicinal***
2. Pumpkin			1. Red Bean	1. Jali	1. Batwieh
3. Ja-ut			2. Local potato	2. Jakhria	2. Slapata
4. Cauliflower			3. Jobstear	3. Sohpdok	3. Sohjarem
5. Cabbage			4. Soya-bean	4. Jalyniar	4. Batpyllon
6. Ja-ing (local name)			5. Sohprew	5. Jarain	
7. Radish			6. Sweet potato		
8. Peas			7. Pumpkin		
			8. Ja-ut		
			9. Cauliflower		
			10. Coriander		
			11. Cabbage		

			12. Ja-ing (local name)		
			13. Carrot		
-			14. Sohngan		
-			15. Radish		
-			16. Peas		

If we look at the above **table 2;** we can clearly see the impact of the project even within a period of one year. The introduction of wild edible plants and medicinal plants within the school garden is a milestone that the school has taken up. Moreover the introduction of garden as part of SUPW is a well thought process because this will bring a great benefit to the students in term of local knowledge sharing.

To encourage students in learning of their own crops; a small initiative was taken up by the SSA UP school Dewlieh to document the traditional method of seed saving and the cropping patterns.

Table 3: Traditional method of seed saving

Sl No	***Different types of crops***	***Process of seed saving***	***Best month of seed saving***
1	Potato	Rynsan= a place made with the help of trees and bamboos in the middle of the field	October till Febrauary
2	Maize	Hang above the hearth, Sometime they hang outside their veranda	August till March
3	Soya bean	Kept in a small dry cloth or plastic above the hearth	November till March
4	Job tears	Kept in a big jute sack in a dry place in the house	November till March
5	Cucumber	Kept in a dry cloth, hanging above the hearth.	July-August till March
6	Yam	Kept inside the bamboo-basket and the upper part of the basket is covered with grass.	October till May
7	Tapioca	A branch from an existing tree is cut and planted to grow a new plant	April

8	Sweet potato	The leaves of the ripen plant are taken from the field and sowed to grow new plants	July
9	Millet	Kept in a big jute sack in a dry place in the house	December till March
10	Banana	A part of the trunk from an existing tree is dug out and planted to grow a new plant	May-June
11	Black berry	The naturally grown sampling of the tree are dug out from the original location, which is nearby an existing tree and planted in another location where it can grow freely and faster.	May-June
12	Sohshang	The naturally grown sampling of the tree are dug out from the original location, which is nearby an existing tree and planted in another location where it can grow freely and faster.	May-June

(Source: Dewlieh UP SSA school)

Table 4: Cropping patterns						
Sl.no	**Name of the crops**	**Months**				**Purpose**
		Land preparation month(s)	Sowing Month(s)	Weeding month(s)	Harvesting Month(s)	
1	Potato (Phan)	Second week of February	February-march	April-May	June-July	Commercial/ Self consumtion
2	Maize (Riewhadem)	Second week of February	April	May-September	October	Commercial/ Self consumtion
3	Soya bean (Rymbai-ja)	Second week of February	April	May-September	October	Commercial/ Self consumtion

4	Tilt seeds (u nei)	Second week of February	March	April-October	November	Commercial/ Self consumtion
5	Jobs tear (u sohriew)	Second week of February	March	April-October	November	Commercial/ Self consumtion
6	Cucumber (sohkhiah)	Second week of February	March	April-July	August	Commercial/ Self consumtion
7	Yam (Ka shriew)	Second week of February	March	April-November	December-January	Commercial/ Self consumtion
8	Tapioca (phandieng)	Second week of February	March	April-October	October	Commercial/ Self consumtion
9	Sweet potato (phan karo)	Second week of February	August-October	November-March	April-May	Commercial/ Self consumtion
10	Banana (ka kait)	The planting of the tree takes place in the month of April and in a period of two years the tree grows enough to give fruits. It gives fruits throughout the year.				
11	Blackberry (sohiong)	The planting of the tree takes place in the month of June and in a period of fifteen years the tree grows enough to give fruits. It gives fruits in the month of August till October.				
12	Soh-shang	The planting of the tree takes place in the month of April and and in a period of twelve years the tree grows enough to give fruits. It gives fruits in the month of February to April.				

(Source: Dewlieh UP SSA school)

Outcomes of the project

This pilot project on bio-garden has made a huge impact for the community members of Dewlieh particularly the school.

1. There was an increase in the availability of organic produce especially in 8 families by having a small kitchen garden. This process had contributed to their nutritional status.
2. Women have come forward in taking an initiative to help the school with the introduction of wild edible plants and medicinal plants in bio-garden. This has contributed to the whole issue of intergeneration knowledge sharing.

3. The school has set an example to all the families in seed saving. Besides that the school has introduced the concept of bio garden as part of their SUPW.
4. Through this small project; it has made an impact because the village council has come forward to encourage people in the promotion of eco-tourism
5. Surrounding the village; the school authority in collaboration with the village council has made a resolution for the preservation of medicinal plants & wild edible plants within the bio-garden

Number of students /beneficiaries benefited from the project work: 90

Beneficiaries	Male	Female
8 families	35	37
Upper and Primary School	9	10
Total	**44**	**47**

Challenges

1. When it comes to the technical assistance particularly with some of the techniques on organic farming; families found a great difficulty in getting resources which are not locally available like milk, cow dung etc.
2. Due to climate change; most families couldn't harvest some few plants like onion, beans, carrot and radish.

Future Plan:

After seeing the major impact at Dewlieh village; we would like to further take the following actions:

1. With the support of Meghalaya Biodiversity Board, we would like to form a Biodiversity Management Committee at Dewlieh village to help the community members in documenting of biodiversity.
2. Spread the impact of the project to other neighboring villages like Wahsohra, Diengsong, Tyniar and Nongtraw. This could be in the form of exposure, seminar, workshop.
3. Promotion of local seed exchange among the farmers.

ANNEXTURE-1

Survey on the food habits being consumed by people before and after Intervention.

Before Intervention

Note: Out of 12 respondents family consisting of family members between 0-5 is 1%, 5-10 is 9% and between 10-15 is 2%.

Farming	Frequency
Yes	11
No	1

No. of family members	Frequency
0-5	1
5-10	9
10-15	2

Note: Out of 12 respondents 11% of the respondents are practicing shifting cultivation and only 1% do not practice farming.

Crops grown in shifting cultivation	Frequency
Potato	11
Jaing –local vegetable	10
Jobs tears	8
Yam	9
Maize	10
Cucumber	9
Sasame	3
Cabbage	1
Coriander	1
Chilly	1
Bean	2
Sweet potato	3
Beans	2
Millet	3
Brinjal	1
Tree tomato	1
Tapioca	5

Note: Out of 12 respondent 11% cultivate potato,10% jaiing and maize,9% yam and cucumber, 5% Tapioca, 3% sesame, sweet potato and millet, 2% rymbai and beans, 1% each cabbage, coriander, chilly, brinjal and tree tomato.

Kitchen Garden	Frequency
Yes	11
No	1

Note: out of 12 respondent 11% have their own kitchen garden and 1% do not have.

Crops grown in kitchen garden	Frequency
Maize	2
Potato	1
Chilly	3
Squash	4
Passion fruit	2
Yam	1
Cucumber	1
Banana	4
Beans	1
Guava	4
Lemon	1
Black berry	7
Broomstick	4
Mustard leaf	1
Orange	2
Brinjal	1
Pear	2
Sohshang- local fruit	8
Sohngang- local brinjal	1
Mango	1
Plum	1
Sour frigid	2
Bean	1
Pumpkin	1
Tree tomato	1
Sohkhyrwiat- wild fruit	1

Note: Out of 12 respondents 2% cultivated maize, passion fruit, orange, pear and sohphie, 1% Potato, cucumber, yam, beans, lemon, mustard leaf, brinjal, sohngang- local brinjal,

mango, plum, balenshia, ri,pumpkin, sohbaingondieng and sohkhyrwiat, 3% chilly, 4% squash, guava, broomstick, 7% blackberry and 8% sohshang- local fruit.

Common Diseases	Frequency
Cold	12
Diarrhoea	5
Cough	1

Note: Out of 12 respondent 12% suffers from cold, 5% diarrhoea and 1% cough

Vegetables & meat bought from market	Frequency
Potato	2
Onion	10
Chilly	1
Beans	4
Carrot	3
Lettuce	2
Radish	3
Beetroot	2
Dal	1
Cauliflower leaf	1
Brinjal	1
Tomato	2
Cabbage	4
Pumpkin	1
Beef	3
Fish	3
Pork	3

Note: Out of 12 respondents 2% bought potato, lettuces, beetroot and brinjal, 10% onion, 1% chilly, dal, cauliflower leaf, brinjal and pumpkin, 4% beans and cabbage, 3% carrot, radish, beef, fish and pork.

Food eaten by the people during:

Morning	Afternoon	Evening	Night
Tea & rice, jali, jarain, squash, cucumber, potato, yam	Rice, jaiing, potato	Tea& rice	Rice, meat, jaing

Major Findings:

1. People practice two types of cultivation namely: shifting cultivation and kitchen garden
2. Potato, local vegetable- jaiing, maize, yam, tapioca and cucumbers are the major crops grown in shifting cultivation whereas local fruits like sohshang and black berries, squash, broom stick and guava are the major crops grown in kitchen garden.
3. As per my observation; I found out that in their kitchen gardens; broomstick is being cultivated which reduces the fertility of the soil.
4. Common cold and diarrhoea are the common problems faced by the community members
5. Onion, beans, cabbage, radish and carrot are the major vegetables bought by the people from the market.
6. Jail and jarain are the only wild edibles being introduced into their diet
7. Lack of seeds exchange among the community members.
8. Even people grow many varieties of crops in the field but only few of them were introduced like squash, cucumber, potato, yam and local vegetable-jaiing.

After Intervention

No. of family members	Frequency
0-5	2
5-10	4
10-15	2

Note: Out of 8 respondents family consisting of family members between 0-5 is 2%, 5-10 is 4% and between 10-15 is 2%.

Shifting cultivation	Frequency
Yes	6
No	2

Note: Out of 8 respondents 6% of the respondents are practicing shifting cultivation and only 2% do not practice.

Crops grown in shifting cultivation	Frequency
Potato	6
Jaing	5
Sohriew	4
Yam	5
Maize	4
Cucumber	5

Sasame	4
Cabbage	1
Coriander	2
Rymbai	2
Sweet potato	1
Tapioca	3

Note: Out of 8 respondent 6% cultivate potato, 5% jaing, 4% maize, 5% yam, 5% cucumber, 3% Tapioca, 4% sesame, 1%, 2% rymbai, 2% coriander, 1% each cabbage and turmeric.

Kitchen Garden	**Frequency**
Yes	8
No	0

Note: All of them have their own bio-garden

Crops grown in a kitchen garden	**Frequency**
Jackfruit	1
Raddish	2
Coriander	2
Squash	2
Passion fruit	1
Yam	2
Cucumber	2

Banana	2
Cabbage	1
Guava	2
Lettuce	2
Black berry	1
Mint	1
Mustard leaf	4
Jamyrdoh	3
Soh baingondieng	1
Bat saw	1
Sohshang	1
Sohngang	2
Jalynniar	1
Kynbat wieh	1
Soh thliem	1
Soh prew	1
Ri	1
Chilly	5

Note: Out of 8 respondents 1% cultivated jackfruit, 2% raddish, 2% coriander, 2% squash, 1% passion fruit, 2% yam, 2% cucumber, 2% banana, 1% cabbage, 2% guava, 2% lettuce, 1% blackberry, 1% mint, 4% mustard leaf, 3% jamyrdoh, 1% soh baingondieng, 1% bat saw, 1% sohshang, 2% sohngang, 1% jalynniar, 1% kynbat wieh, 1% soh thliem, 1% sohprew, 1% ri and 5% chilly.

Common Diseases	**Frequency**
Cold	7
Diarrhoea	5

Note: Out of 8 respondent they responded that both cold and diarrhea are the common diseases where 7% suffers from cold and 5% diarrhoea.

Vegetables bought from market	**Frequency**
Potato	4
Onion	8
Beans	6
Carrot	6
Radish	5
Beetroot	2
Tomato	6
Cabbage	1
Pumpkin	2
Mustard leaf	5
Ri	4

Note: Out of 8 respondents 4% bought potato, 2% beetroot, 6% tomato, 8% onion, 2% pumpkin, 6% beans, 1% cabbage, 6% carrot, 5% radish, 5% mustard leaf and 4% ri.

Food eaten by the people during:

Morning	Afternoon	Evening	Night
Tea & rice, jali, jarain, squash, cucumber, potato, yam,tapioca, flour, cereals, grams, jalyniar etc.	Rice, jaing, potato, tomato, cabbage, yam	Rice and tea	Rice and vegetables (cabbage, lettuce, mint, coriander) Meat once a week.

Major Finding:

1. Increase in the number of diversity in their kitchen garden like: radish, coriander,cabbage,lettuce,mint,jamyrdoh,sohprew, sohthliem, mustard leaf.
2. Few families have introduced some of the medicinal plants within their garden like kynbat wieh (used for parasite) and kynbat saw
3. There is less dependency on some vegetables like lettuce and chillies
4. There are some vegetables which people are still depending on the market like onion, beans, carrot, radish and tomato.
5. Diarrhea and cold are the two common diseases which need a special attention.
6. Comparing to the survey that was conducted before intervention; some people have included some nutritious food in their diet like cabbage, lettuce, mint, coriander and some wild edible plants like jalyniar, tangduma, jarain,jail.

ANNEXTURE -2

Bokashi Compost/Fermented Compost

INGREDIENT:

1. Poultry waste/Piggery waste – 5 cement sacks
2. Top soil – 4 cement sacks
3. Rice bran – 2 cement sacks
4. Charcoal powder – 5kgs
5. Ash – 5kgs
6. Egg shell – 250grms
7. Lactic Acid Bacteria (LAB)
8. Indigenous Micro Organism (IMO) – ½ kgs
9. Water

Methods:

1. Mixed all the ingredients together.
2. Mixed the mixture properly and make sure that the wetness is 50%.
3. Take the lactic acid bacteria and mixed it with water.
4. After mixing the mixture make a heap of the mixture and cover it with a plastic sack.
5. Mixed the mixture at least once a day.
6. Leave the mixture for 3 – 4 days or a week depending upon the temperature of a place.
7. The mixture becomes hot as the organisms are functioning and also there is a foul smell.
8. When the mixture is ready the foul smell disappeared.
9. This type of manure replaces urea.

LIQUID MANURE CUM PESTICIDE

Ingredients:

1. A drum – 200 litres
2. Cow dung – 4 cement sacks
3. Resistant (eg: lantana, grass) - 2 cement sacks
4. Tobacco leaves
5. LAB - ½ litre
6. IMO – 250 grms

Methods:

1. Do not fill the drum upto the brim (say 175 litres can be filled).
2. Cover the drum slightly to allow bacteria to enter.
3. Leave this manure for one or two months. If the manure is kept in a small bucket it requires 15 days.
4. IMO is given in order to make fermentation faster.
5. After the manure is ready to use take 1 litre of this liquid manure in 5 litres of water.

LACTIC ACID BACTERIA (LAB)

Ingredients:

1. Uncooked rice water – 4 litres
2. Milk – 10 litres
3. Jaggery – 10 kgs

Methods:

1. Cover the bucket slightly and leave it for 7day.
2. Segregate 1 litre and throw the solution away.
3. Take this 1 litre solution and mixed it with milk and jaggery and leave it for 7 days and cover it slightly in order the organism to enter into the solution.
4. After 7 days segregate this solution using a white cloth.
5. Then take 1 litre of this solution in 10 litres of water.

BOKASHI PIGGERY

Ingredients:

Flooring:

1. Water – 50%
2. Saw dust
3. Dried biomass
4. Rice bran
5. Top soil
6. Charcoal powder
7. Ash
8. IMO
9. LAB

Methods:

1. Dig a hole in the ground with a depth of at least 3 feet
2. Walls 2 feet above ground – pigs should be able to look out when standing.
3. Roof like any other pen.

INDIGENOUS MICRO ORGANISM (IMO)

Ingredients:

1. Rice bran – 1 kg
2. Water

Methods:

1. Take this rice bran and mixed it with water (50%) in a bucket or on the ground.
2. Dig a hole in the ground with a depth of 2 inches.
3. Take the rice bran to a nearby forest where the soil is very fertile but the best placed is underneath a tree.
4. Cover the pit with a plastic sack and on the sides of the pits small drain are to be made in order to prevent water from entering the pit.
5. Leave it for 3 to 4 days.

BOKASHI BUCKET (ZERO WASTE MANAGEMENT)

Ingredients:

1. Bucket
2. Newspaper
3. A bowl
4. Garbage to Gold powder (G to G powder)
Methods:
1. Take a bucket and make hole at the bottom.
2. Place a newspaper at the bottom of the bucket as it sucks the water from the waste.
3. A G to G powder is added.
4. When the waste are being throw press the waste in order friction to occur. G to G powder is being added continuously in each layer and cover the bucket properly.
5. Underneath the bucket a bowl is kept to collect the garbage juice.
6. This garbage juice acts as pesticides for vegetables or cleaning the floor and it can be used within 24 hours.
7. When the bucket is full dig a hole in on the ground with a depth of 1 or 1½ feet with a breath of 2 feet.
8. Mix the garbage with the top soil and G to G powder.
9. Cover the pit with a plastic.

ANNEXTURE- 3 News Paper Clippings

THE SHILLONG TIMES

Programme on organic farming

Monday, June 22, 2015

DEWLIEH: The Tynrai Foundation in collaboration with BSW students of St Edmund's College, Shillong organised a two-day programme on organic farming cum technical inputs and eco-tourism at Diewlieh village in East Khasi Hills from June 19-20. On the occasion, Assistant Inspector, Horticulture Department, Mawkdok Nosiar Nongrum spoke at length on the importance of organic farming. Two staffs of Bethany Society also carried out a live demonstration on the different techniques on natural and organic farming.during the programme

Mawphor
Khubor Khasi Ba Nyngkong Ba Man Ka Sngi

La pynlong ia ka training halor ka 'Organic Farming &Eco Tourism'ha Dewlieh

23 June, 2015

Shillong, Jylliew : Lehse lah ban ong ba kane kadei ka sien kaba nyngkong ha ki thain 12 shnong ha kaba la ioh pynlong ia ka Training halor 'Ka Organic Farming Bad Eco-Tourism.Ia kane ka prokram la pynwandur da ka seng Tynrai Foundation ha ryngkat ka jingtrei borbah jong ki samla pule BSW 3rd year, St. Edmund's College- Shillong kiba kynthup: Jonathan Blah, Ruth Sohtun, Asha Sangorala, Philia Paslein bad Pdiang Hujon.

Ka shnong Dewlieh ka don ha ka thain 12 shnong ka hap hapoh ka jingpyniaid U Syiem Sohra, bad ban poi sha kane ka shnong ka shim por kumba 1 kynta duna ei ei na ka surok bah namar hap ban hiar haduh kumba 2500 tam ki mawkyndon.

Katei ka prokram kala neh ar sngi kata naduh ka 19 bad 20 Jylliew,2015, bad ki nongkren ha kane ka prokram ki long i Bah Nosiar Nongrum, Assistant Inspector, Horticulture Department, Mawkdok, ha kaba i la ban jur halor ka ka jingdonkam ban don ki jaka thung jhur ha kper la ki jong da kaba pyndonkam da ki sboh ba ai ka mei-mariang, namar kane kan iarap ban kyntiew ia ka koit ka khiah jong baroh ki nongshong shnong.

Haba iadei bad ka eco-tourism, I Bah Lurshai Pyngrope, Manager, Cherra Cafe, ila batai bniah halor kane ka phang. Katkum ka jingsngewthuh jong nga I ong ba ka Eco-tourism ka don ka jingiadei ba kyrpang halor kine ki lai tylli ki bynta: ka spah mariang, ki mrad ki mreng bad ki briew. Kumta lada ngi kren shaphang ka thung ka tep, ka don ka jingiadei ba kyrpang bad ka eco-tourism. Ban pynshai halor kane ka bynta I ai kawei ka nuksa da kaba ong: Kino kino ki nongwan jngohkai haba ki wan sha kine ki thain baieid jongngi ki kwah ban tip ia ka rukom im jongngi khamtam haba iadei bad ka rukom bam rukom dih. Lada ngi lah ban ai ia ki nongwan jngohkai ia ki jingbam kiba khuid katno kan long ka jingkyrmen ia ka shnong ban kiew ha ka ioh ka kot.

Ban kham ngam jylliew shuh shuh halor ka rukom rep ka bym ai dawai, ki la don 2 ngut ki nongtrei jong ka Bethany Society: Bah Alkin Rynniaw bad I Bah Ikmenlang Nongrum. Kine ki rang samla kila ai ka jingkren ryngkat bad ka practical exercise halor ka phang "Natural and Organic Farming" ha kaba ki batai shaphang ki hynriew jait ki rukom shna sboh kum ki:"Bio Dynamic Compost, Vermi Compost, Sasac Compost, Bokashi Compost, Bokashi Bucket (Zero Waste Management), Bokashi Poultry and Piggery".

Nalor kine ki rukom shna sboh kila kren ruh shaphang ka "Environmental Principles" kiba kynthup: ban kyntait (re-fuse), ban pynduna (re-duce), ban pyndonkam biang(re-use) bad ban pyndonkam biang ia kiba la dep pyndonkam (re-cycle). Ki la ai ruh ka jingkren halor "Solar Energy" bad "Eco Friendly Chulla".

Hakaba kut jong ka prokram, I Bah Shaiphar Dohling bad I Bah Pius Ranee kiba long ki nongkitkam jong ka seng Tynrai Foundation ila ai ka jingsngewnguh kaba khraw ia ka

Meghalaya Biodiversity Board kaba la kloi ban noh synniang habaiadei bad kane ka prokram.

See translation below:

Translation:

Shillong, June: One can say that in 12 Shnong area, this could be the first Training on Organic Farming and Eco-Tourism. The programme was organized by Tynrai Foundation in collaboration with BSW students (3rd year) of St. Edmund's College- Shillong. The name of the students include: Jonathan Blah, Ruth Sohtun, Asha Sangorala, Philia Paslein bad Pdiang Hujon.

Dewlieh falls under 12 areas under U Syiem Sohra. To reach the village ,it takes around 1 hour to climb down of 2500 steps from the main road.

The programme lasted for 2 days from 19 to 20 June,2015. One of the speakers, Bah Nosiar Nongrum, Assistant Inspector, Horticulture Department, Mawkdok, spoke at length on the importance of having a kitchen garden by using local resources because this will help in building a healthy community.

In relation to eco-tourism, Mr.Lurshai Pyngrope, Manager, Cherra Cafe, tried to simplify its meaning to the participants by saying: “Eco-tourism lies on these three core areas which include: environment, animals and human being” He further stated “Organic farming/ bio-garden is very much related to eco-tourism. He cited one example: Any tourist who wants to come and see our place would like to experience our culture particularly our local cuisines. If we can offer them a chemically produced food, this will help our village to increase the organic produce which can improve our local livelihood”.

To go deeper into the understanding of organic farming, 2 staffs of Bethany Society: Bah Alkin Rynniaw bad I Bah Ikmenlang Nongrum delivered both practical and theory session on"Natural and Organic Farming". They stressed more on the different techniques of compost making like Bio Dynamic Compost, Vermi Compost, Sasac Compost, Bokashi Compost, Bokashi Bucket (Zero Waste Management), Bokashi Poultry and Piggery.

Besides the above methods of natural farming, they also stressed on the basic Environmental Principles that include: Re-use, Re-duce and re-cycle). They also delivered a talk on "Solar Energy" and "Eco Friendly Chulla".

At the end of the programme, both Bah Shaiphar Dohling and Bah Pius Ranee who are the members of Tynrai Foundation expressed a word of gratitude to **Meghalaya Biodiversity Board** who have supported the project for the benefit of the community.

ANNEXTURE -4 Quarterly Financial Report (May, 2015 to July,2015)

SL NO	*PARTICULARS*	*AMOUNT (In Rs.)*	*Date*
1	Management cost for three months (May, June, July) @ 4000/month	12,000	25th/July/2015
2	Transportation during data collection	1000	28th/May/2015
3	Transportation for Bethany Resource persons from Shillong to Sohrarim	1000	20th/June/2015
4	Local transportation for Bah Nosiar and Bah Lurshai Pyngrope	300	20th/June/2015
5	Food during orientation programme & technical session	5300	20th/June/2015
6	Resource fee for 4 persons @ 1000	4,000	20th/June/2015
7	Food during data collection	350	28th/May/2015
8	Stationery	1,110	18th/ June/2015
9	Printing/photocopy	26	3rd/July/2015
	Total	**25,086**	

In words: Twenty five thousand eighty six only.

ANNEXTURE -5 Quarterly Financial Report (August, 2015 to November,2015)

SL NO	*PARTICULARS*	*AMOUNT (In Rs.)*	*Date*
1	Management cost for four months (August, September, October, November @ 4000/month)	16,000	30th/November/2015
2	Transportation	2000	6th July,2015
3	Ransportation	1000	7th August, 2015
4	Food at the village for 5 persons for 6 days @ 200/day	6000	20th/June/2015
	Total	**25,000**	

ANNEXTURE -6 <u>Quarterly Financial Report</u> (December, 2015 to February,2016)

SL NO	***PARTICULARS***	***AMOUNT (In Rs.)***	***Date***
1	Management cost for four months (December to February @ 4000/month)	12,000	20th/February/2016
2	Transportation for data collection	3000	18th, ,19th & 20th / January,2016
3	Food at the village for 5 persons for 5 days @ 200/day	5000	18th -22nd /January/2016
4	Documentation	5000	18th / February/2016
	Total	**25,000**	

ANNEXTURE 7- PHOTO GALLERY OF PLANTS/CROPS

Local name: Bat pylon (herbal plant)
Scientific name: centella asiatica

Local name:Jyllang
Scientific name: allium tuberosum

Local name: Bat-rben (medicinal plant)
Scientific name:kalanchoe pinnata

Local name: Dhonia
Scientific name: Apium graveolens

Local name: Jarain (wild edible plant)
Scientific name:fagopyrum esculentum

Local name: Jalyniar (wild edible plant)
Scientific name: *Sonchus asper* Linn

 **Local name: Sohjarem (Herbal plant)** **Scientific name: Unknown**	 **Local name: Jaut** **Scientific name: *Polygonum nepalense* Meissn**
 **Local name: Jhur thliem** **Scientific name: gomphogyne cissiformis**	 **Local name: Bat jaiaw (herbal plant)** **Scientific name: arteminia indica**
 **Local name: Kaitmon/banana** **Scientific name: musa acuminata**	 **Local name: Khoi kait/banana stem** **Scientific name: musa acuminata**

Local name: Kubi/cabbage
Scientific name: Brassica olaraceae

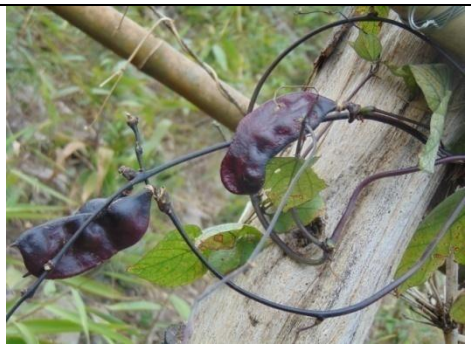
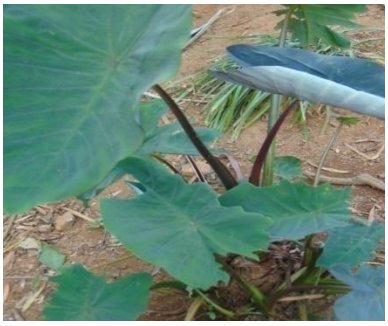
Local name: Slajumai (herbal plant)
Scientific name:ageratina adenophora

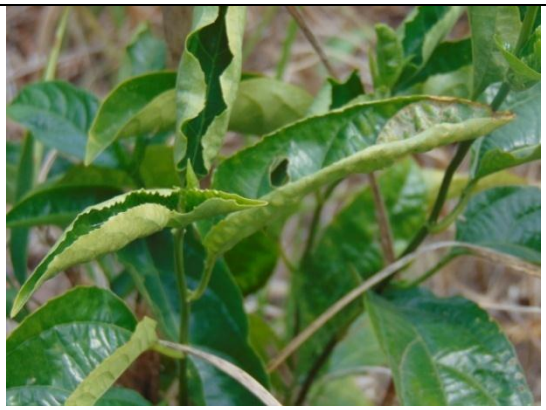
Local name: Mango
Scientific name:mangifera indica

Local name:Motor/pea
Scientific name:pisum sativum

Local name: Phankaro/ sweet potato
Scientific name: Ipomoea Batata

Local name: Phandieng/tapioca
Scientific name: Cassava spp.

 **Local name: Slaphur/cauliflower** **Scientific name: Brassica olaraceae var. botrytis**	 **Local name: Piskot/squash** **Scientific name: Sechium edule**
 **Local name: Ri/bean** **Scientific name: Parkia timoriana**	 **Local name: Salad/lettuce** **Scientific name: Lactuca sativa**
 **Local name: Shriew/yam** **Scientific name: Alocacia spp.**	 **Local name: Sohbaingon /tree tomoto** **Scientific name: Solanum betaceum**



Local name: Sohbrab/passion fruit
Scientific name: Passiflora edulis Sims

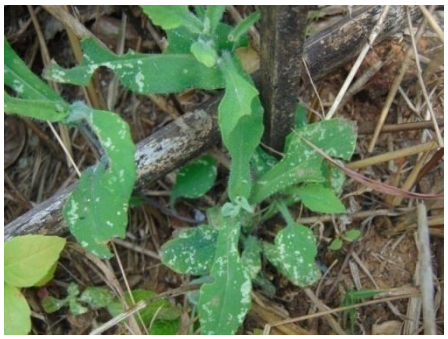
Local name: Jali (Wild edible plant)
Scientific name: gynura nepalensis DC

Local name: Sohlah (wild potato)
Scientific name:Unknown

Local name: Sohmat /lemon
Scientific name: Citrus medica

Local name: Sohngang (egg plant)
Scientific name: Solanum incanum

Local name: Sohphie (sour frigid)
Scientific name: Myrica esculenta Ham. Ex D. Don.

 **Local name: Sohpri (Guava)** **Scientific name: Psidium guajava**	 **Local name: Sohshang (local fruit)** **Scientific name: Eleagnus latifolia**
 **Local name: Sohshiah (wild fruit)** **Scientific name: Rubus ellipticus Sm.**	 **l name: Tangduma (wild edible plants)** **Scientific name:Unknown**
 **Local name: Tyrso/mustard leaf** **Scientific name: Brassica juncea**	 **Local name: Sohkhia/cucumber** **Scientific name: Cucumis sativus**

Local name: Sohiong / blackberry
Scientific name: Padus napaulensis

Local name: Jajew (Herbal plant)
Scientific name: Begonia josephi Br.

Local name: Shriewkai (Herbal plant)
Scientific name:rumex nepalensis

Local name: Slapata
Scientific name:

Local name: Dhonia/Peppermint
Scientific name: Mentha × piperita

Local name: Jamydoh
Scientific name: Houttuynia cordata. Thunb

Local name: Pathaw/pumpkin
Scientific name: Cucurbita

Local name: Maize
Scientific name: Zea mays

Local name: Sohmynken/chilli
Scientific name: Capsicum annuum

Local name: Sohphan/jack fruit
Scientific name: Artocarpus heterophyllus

Local name: Nei lieh
Scientific name: Sesamum indicum

Local name:Sohkhawiang (wild fruit)
Scientific name:amomum aromaticum