



**PROJECT OF SUSTAINABLE NATURAL RESOURCE MANAGEMENT  
(SNRM)**

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**ASSESSMENT REPORT  
PILOT ACTIVITY SUB-COMPONENT IN SON LA PROVINCE**



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**(Internal assessment, version 2)**

*Son La Province, August 2018*

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## ABBREVIATION

PRAP	Provincial REDD+ Action Plan
Sub-FPD	Sub-Forest Protection Department
VMBFMLD	Village Management Board for Forest Management and Livelihood Development
MARD	Ministry of Agriculture and Rural Development
PMU	Project Management Unit
MBFPs	Management Board of Forestry Projects
CPMU	Central Project Management Unit
PPMU	Provincial Project Management Unit
MBFMLD	Management Board for Forest Management and Livelihood Development
SNRM	Sustainable Natural Resource Management
FM	Forest Management
GHG	Green House Gas
VFPT	Village Forest Patrolling Team
AF	Agroforestry
LD	Livelihood Development
PFMS	Provincial Forest Monitoring System
REDD+:	Reducing Emissions from Deforestation and Forest Degradation, and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries
PFES	Payments for Forest Environmental Services
PPC	Provincial People's Committee
DPC	District People's Committee
CPC	Commune People's Committee



## **I. General introduction**

### ***1.1. Reasons and objectives of the assessment***

Series of activities under 3 sub-components of PRAP, REDD+ pilot activities and PFMS have been carried out after the kick of workshop held on July 28, 2016 in Son La Province.

The SNRM Project in Son La Province has selected 13 target villages (Bo, Cha Có, Co Lúu, Cút, Giôn, Huôi Vãn, Huôi Ngà, Kéo Ca, Xanh, Khóp, Xa, and Tông Bua village) in Muong Gion Commune, Quynh Nhai District to develop action plan for pilot activities on forest management and livelihood development for 2 years 2017 and 2018 and 5 years from 2016 to 2020. In every selected commune, the implementation of the project activities through VMBFMLD.

After two years of implementation, in order to share lesson-learned and achievements among project staff and related stakeholders, the Project offices in the engaged provinces will develop evaluation reports on Project progress and achievements of the first phase of the Project by using a monitoring and evaluation framework. The assessment report mainly focuses on the following three parts:

1. Relationship with national counterparts, project implementation and results.
2. Assessment on project activity implementation (internal assessment)
3. Theme assessment: Demonstrative research cases

### ***1.2. General assessment***

General assessment to implementation of pilot activities of the Project in Son La Province as follow:

1. Criteria-based target area selection was appropriate and it represented to a pilot commune with large scale (over 16,000 ha), available PFES, beneficiaries include ethnic minorities (Thai, Khang, H'Mong), which received support and commitment of CPC and villagers.
2. Activities have been implemented as planned.
3. The designed Project activities met with demands of the local people and objectives of the Project.
4. The local counterparts at different levels (provincial, district, communal and village level) have participated in implementation of the project activities.
5. The villagers have contributed their labor for forest tree planting and regeneration work with total of 8103 man-days and to the Village Fund with total amount of VND 135,235,750.
6. Awareness of the local people and capacity of the staff were improved.
7. The activity implementation is under a dementalization process for sharing purpose, for example, firewood-saving stoves and organic fertilizer compost.
8. The subcomponents of the project have been integrated with other government projects.
9. Affirming right approaches of a technical assistance project such as community-based methods, mobilization of resources, capacity building, as well as approaches to assess knowledge, practices, application and transfer of trained techniques of the involved people.
10. Gender and no-harm to culture and environment issues have been addressed as a cross-cutting issue of the project during it implementation. Records of monthly activities of the

Project such as village meeting and technical training with participation of how many women and ethnic minorities have been produced.

11. Japanese experts and central project office have provided to the project staff with sufficient, timely and effective support during the course of Project implementation.
12. Project offices in different provinces have regularly discussed and shared lesson-learned, organized workshops, and study tours to the best practice models in the pilot communes.
13. All villages have established their Village Fund (self-contributed with over VND 135 million), especially, they have been used the PFES fund for the shake of sustainable forest management and livelihood development.
14. The PPMU, PPC, Quynh Nhai District PC and Muong Gion CPC have made good evaluation on achieved results and approaches of the Project and recommended to develop this as a demonstrated model for PRAP and replicate this models to other areas.

However, during the implementation, the Project have faced up with difficulties such as natural, socio-economic conditions, issues of coordination, information on forest land types, boundaries, area of some forest owners which are not clear, grazing pasture, and rotation of staff from related stakeholders. Solutions for these issues were discussed during meetings of all levels and will be considered for the implementation of PRAP and Phase II of the project.

### ***1.3. Shortcomings***

Since the Project is under implementation and there is no mid-term or final stage report, thus, this assessment report is only based on available data and information.

The implemented time is not long enough for a natural resource management project so it is not possible to evaluate Project's impacts.

This report is made by staff of provincial project office so it may not contain all objective evaluation.

Since there are number of project activities were planned and will be implemented so this report expects to be further updated, shared, and discussed till the end of phase 1 (by June 2018) and planning stage of phase 2 of the Project.

## II. Relationship with counterparts in project management and implementation in Son La Province

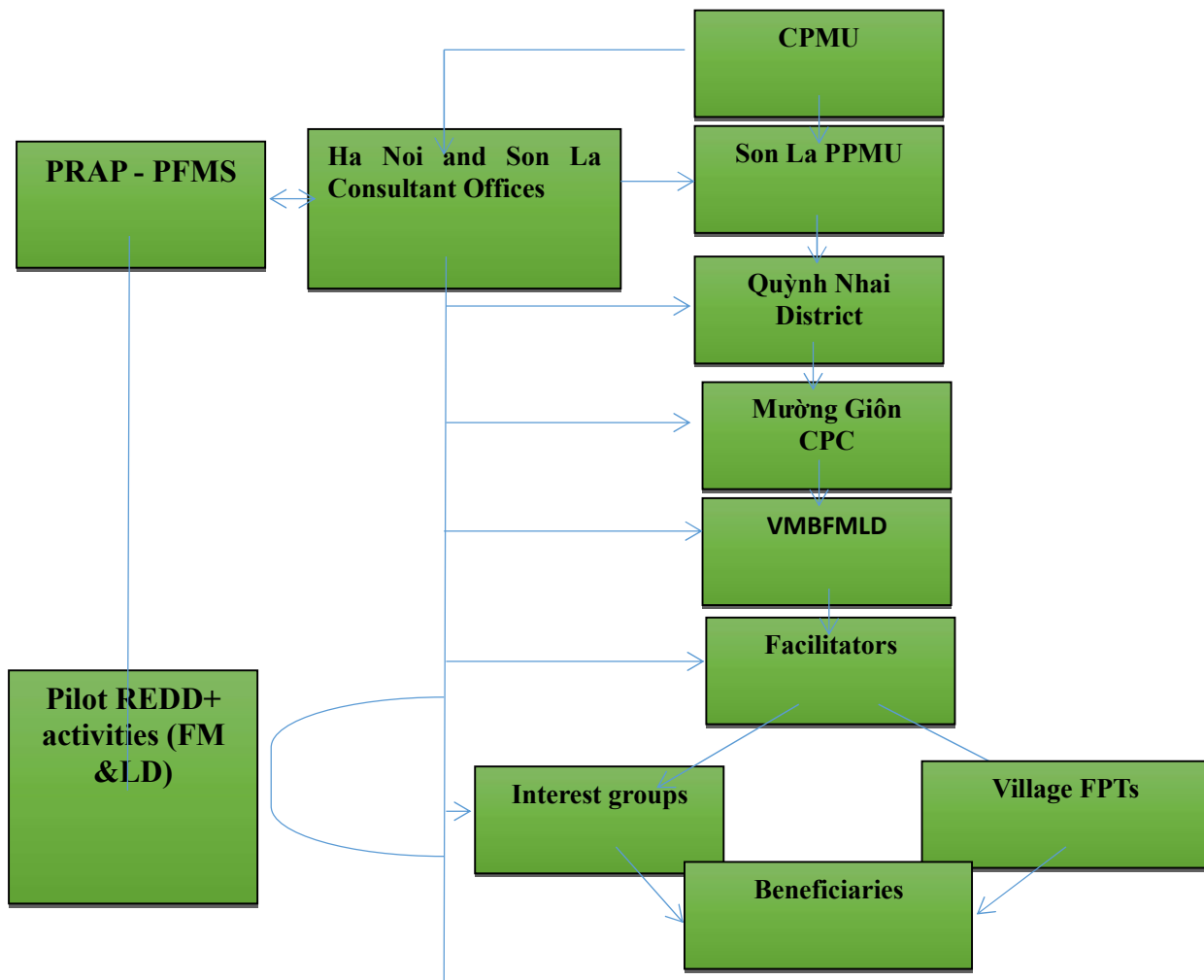
The relationship is illustrated in chart 1 as below:

### 2.1. Relationship with CPMU

MARD, right after the project agreement was signed by Japanese and Vietnamese Governments, issued the Decision No. 3890/QĐ-BNN-TCCB dated September 29, 2015 assigning investor role to the MBFPs to the SNRM Project, which is a base for the MBFPs to carry out project activities in the provinces.

The CPMU was established on March 27, 2017 as in accordance with the Decision No. 1002/QĐ-BNN-TCCB of Minister of MARD. The CPMU is representative unit of MBFPs, which is responsible for management and direction of project activities at national level as well as for assurance of achievement of project progress, quality and objectives. The CPMU regularly shares information with PPMUs including Son La PPMU to handle issues related to implementation arrangement and experience sharing.

**Chart 1: Project organizational management structure**



The MBFPs sent Letter No. 78/BQLDALN-SNRM on May 27, 2017 to Dien Bien, Lai Chau, Son La, Hoa Binh, and Lam Dong on contacting with the CPMU.

After preparation stage, the CPMU has worked with consultation office in provinces to

successfully organize kick off workshops, the one in Son La was organized on July 28, 2017.

Minister of MARD, who was advised by the CPMU, issued the Decision No. 4713/QĐ-BNN-HTQT approving the Project of “Sustainable Natural Resource Management” funded by Japanese Government.

So far, CPMU has conducted number of visits to Son La to direct, attend, monitor and evaluate project activity implementation, for example, PRAP, pilot REDD+, car/motorbike purchasing. Especially, the CPMU decided to organize PRAP announcement workshop in Son La Province on November 7, 2017 with participants from Lam Dong, Dien Bien, Hoa Binh, and Lai Chau Province. The workshop is organized in combination with a workshop on assessment of 10 months implementation of project in 2017 and plan for 2018.

The CPMU issued regulation on project organization and implementation on December 11, 2017 that has been shared with the provinces.

After the workshop organized on November 7, 2017 in Son La Province, the CPMU organized a project on 2017 project progress assessment and plan for 2018, which was considered as another chance for the provinces to share achievements, experience and plans for 2018.

### **General assessment:**

- The CPMU has successfully implemented their role in project organization and management at the central level, providing effective support to the provinces to carry out project activities.
- However, the project document was approved late (November 5, 2016) due to delayed provision of CPMU’s advises to MARD. Moreover, the delay also led to late development and approval of MARD for the regulation on project organization and implementation (December 11, 2017). For that reasons, implementation of project activities, establishment of PPMUs, development of coordination mechanism, and allocation of counterpart funds from the provinces in general and Son La in particular were delayed compared to initial plan.

## **2.2. Relationship with PPMU**

### **PPMU establishment process in Son La Province**

On July 28, 2016, Son La PPC has worked with the MBFPs under MARD to organize SNRM Project kickoff workshop in Son La Province. The workshop was chaired by Mr. Lo Minh Hung, vice president of Son La PPC, attended by leaders of the MBFPs, representatives of JICA, SNRM project international and local consultants as well as the leaders of the related departments/agencies and Sub-FPD.

On August 2, 2016, Son La PPC published the Letter of Announcement No. 72/TB-VPUB informing conclusion made by Mr. Lo Minh Hung, Vice Chairman of Son La PPC during the kickoff workshop organized in Son La province. As stated in the letter, Vice Chairman Hung said that the SNRM Project implementation in the province will contribute to forest protection, livelihood improvement, and awareness raising for the local people in the project locations. It will also help building capacity for people who are and will be in the project, especially, the ones who work as forest officials at village and commune levels. This is expected to be foundation of JICA 3 project. Details of the letter are as following:

- ✓ Son La PPC commits to work with the PMU to ensure its activist will be carried out as planned.



- ✓ DARD, Sub-FPD is assigned to chair and cooperate with other authorized departments/agencies to implement the Project as in accordance with the effective laws. Son La PPC also commits with donor to implement the following tasks:
- ✓ Provision of advises to PPC to integrate the Provincial Forest Protection and Development Plan for 2011 – 2020 period which will be added with PRAP as stated in the Decision No. 799 / QĐ-TTg dated June 27, 2012 of the Prime Minister approving National Action Plan on Reduction of GHG through efforts of reduction of deforestation, forest degradation, sustainable forest management and protection as well as increase forest carbon stock during 2011 – 2020 period.
- ✓ Sub-FPD is assigned to consider and select target commune and propose it to the PPC before officially inform to the Central Project Management Unit.
- ✓ Department of Finance is assigned to cooperate, advise, and allocate counter-funding for the implementation of the Project in 2016 and the following years as in accordance with the regulations.
- ✓ Son La PPC requests for support of JICA and MBFPs to implement other projects in the locality.

Having received the approval of MARD to the project document as in the Decision No. 4713/QĐ BNN-HTQT dated November 15, 2016, Sub-FPD has provided advises to the PPC to promulgate the Decision No. 569/QĐ-UBND establishing Son La PPMU, which was established on March 15, 2017. Details of the Decision are as follow:

+ Article 1: Decide to establish Son La PPMU with VND 270,627,021 counter-funding; duration is from March 2017 to August 2020. Office of the PPMU is within area of Son La DARD.

+ Article 2: Role and responsibilities

+ Article 3: The PPMU for SNRM Project shall open bank accounts with the State Treasury in Son La Province and commercial banks, use stamp of DARD for its transactions.

+ Article 4: Project personnel: Assign Mr. Tran Tien Dung, Vice Director of DARD to concurrently work as Director of the PPMU and shall dedicate 30% of his working time for the project. Assign Mr. Luong Ngoc Hoan, Head of Sub-FPD to concurrently work as Vice Director of the PPMU and shall dedicate 30% of his working time for the project. Assign Ms. Lam Bao Ngoc, Accountant of the Sub-FPD to concurrently work as Accountant of the PPMU and other forest rangers to be members of the PPMU.

+ Article 5: Director of the PPMU for the SNRM Project in Son La Province shall be responsible for development of operational and organizational regulations of the PPMU as in conformance with the laws and regulations, and submit to PPC Chairman, within 15 days upon effective date of the Decision, for approval.

+ Article 6: The related departments/agencies shall be responsible for implementing the Decision.



**Pic. 1:** Representatives of JICA, MBFPs and Son La PPMU attending the kickoff workshop in Son La on July 28, 2016.



**Pic. 2:** Kickoff workshop in Muồng Giôn commune on August 23, 2016

### ***Son La PPMU's operational regulation***

Following the Decision No. 569 / QĐ-UBND establishing Son La PPMU, an Operational regulation of the PPMU was developed and approved on April 21, 2017 as in conformation with the Decision No. 996/QĐ-UBND.

+ Article 1: Approve the Operational and Organizational Regulations of the Provincial Project Management Unit for the Sustainable Natural Resource Management Project (SNRM Project) in Son La Province (details are as the enclosed).

+ Article 2: Director of the PPMU for SNRM Project in Son La is responsible for following up the approval to the regulations.

+ Article 3: The related departments and agencies are responsible for implementing this Decision

The regulation has 4 chapters:

+ Chapter 1: Project information

+ Chapter 2: Functions and tasks of the PPMU

+ Chapter 3: Organizational structure and implementation of the PPMU

+ Chapter 4: Implementing provision

### ***General role and responsibility of PPMU - SNRM in Son La Province***

According to the Article 2 of the Decision No. 569 /QĐ-UBND, which stated that under supervision of the PPC, the PPMU for the SNRM project in Son La Province is responsible for provision of advises to PPC to manage and implement Project activities in the province to ensure it meets objectives and content stated in the Project Document, laws and regulations of Vietnam and the donor.



**Fig. 3:** Mr. Hiroki Miyazono – Project Chief Advisor who was delivering speech during the workshop on project implementation progress in 2017, plan for 2018 in Son La on November 7, 2017



**Fig. 4:** PPMU members, PPC Vice Chairman and members of the Provincial Steering Committee for Agroforestry development visiting a forest tree planting model in Co Liu Village on November 8, 2017.

### **Overall evaluation:**

- PPMU in Son La Province have successfully implemented their role in organization and management of the project at the provincial level, provision effective support for the implementation of the project components.
- Son La is a committed and active province in implementing the project. The CPMU maintains a mechanism of following up, coordination and implementation of the project activities with the project office in Ha Noi and Son La, while Son La Project office always considers and follows good advices of the project consultant office and Japanese experts for any encountered issues.
- The PMU was active in organization of events to share information and exchange experiences with other provinces, for example, the event on PRAP approval announcement and project implementing progress in 2017 and plan for 2018 that was organized in Son La Province on November 7, 2017.
- The Province has strong commitment in allocation of funding for project implementation, for instance, this is the first one among the four project provinces that allocated counter-funding for project car registration.

### **Shortcoming issues:**

- ✓ Son La PPMU was established later than the plan that resulted in some administrative issues during project implementation.
- ✓ No representatives of Quynh Nhai DPC and Muong Gion CPC being members of the PPMU.
- ✓ Counter-funding has been allocated but neither enough nor in a timely manner.
- ✓ PPMU's annual action plans have been approved by the PPC where each member has to dedicate 30% of their working time for the project but their involvement was not enough as planned, especially to the pilot activity implementation in pilot commune.
- ✓ PPMU meeting has been organized quarterly but not monthly.

### **Solutions and recommendations**

- ✓ Every meeting of PPMU should have participation of representatives from Quynh Nhai DPC and Muong Gion CPC.
- ✓ PPMU should work closely with MBFPS and other provincial departments to allocate the counter-funding in a timely manner.

- ✓ PPMU should assign specific tasks for its members
- ✓ PPMU meetings should be organized more regularly to update project progress and support handling institutional issues.

### **2.3. Relationship with Quynh Nhai DPC**

Although Quynh Nhai DPC and other district departments did not directly involve in project management, they have support the project to carry out effectively activities of the 3 sub-components in the district in general and in Muong Gion commune in particular.

Quynh Nhai DPC has:

- + assigned Mr. Ngo Tri Dung, DPC Vice Chairman, to assist the PPMU and Son La Project Consultant Office, when needed.
- + assisted the Project to organize district meetings on forest management and livelihood development in the pilot commune.
- + divided work and direct district departments (FPD, extension center, DARD, and DONRE at district level) to provide information and data to the Project when requested.
- + assisted the Project in selection of pilot commune, establishment of facilitator group with members from district, commune, and villages.
- + representatives of DPC and its department have attended commune meetings and field visits as well as contributed to FMLD plans for 2016-2018 and 2016 – 2020 periods.
- + promote Muong Gion CPC and the selected villages to actively participate in the project activities.

As above-mentioned, there are no representatives from Quynh Nhai DPC and other district departments elected to be members of the PPMU but they were invited to participate in all meetings at different levels of the project.

### **2.4. Working relationship with Muong Gion CPC**

Like Quynh Nhai DPC, there is no representatives from Muong Gion CPC being members of the PPMU but their role is very essential to project implementation and results in the target villages.

- + The Commune People's Committee has appointed Mr. Hoang Xuan Hoc, Vice Chairman of the Commune to be responsible for working directly with the PPMU and the Son La Project Consultant Office to carry out project activities in the commune. Mr. Hoc also works as Leader of the facilitator group.
- + Assist the project to organize all communal meetings, visits to other provinces to learn and share experiences in forest management and livelihood development in pilot communes.
- + Assign, direct the villages and relevant units at communal level to coordinate and implement the project activities as well as provide information and data when needed.
- + Support to select facilitator by following selection criteria, make decision to establish village and communal facilitator groups
- + In addition to coordinating the goals of planning, implementation, monitoring and evaluation, the CPC is also responsible for getting advises from relevant district departments and approving plans for forest management and communal livelihoods development during 2016-2018 and 2016-2020 periods.

+ Direct the target villages and villagers to participate actively in the project activities. Moreover, CPC have considered and approved the village regulations on the establishment and operation of the VMBFMLD, interest groups, FPTs, signed commitments to implement forest protection activities with every household.

There are no representatives from CPC being members of the PPMU but they were invited to participate in every project activity, and PPMU quarterly meetings.

## 2.5. *Working relationship with facilitators*

### *Selection and training*

The objective of the project is to build capacity for partners in the sustainable natural resources management, as well as to support the implementation of forest management and livelihood development activities. There were 16 facilitators selected based on the requirements of the SNRM project. The selected staff came from district/commune/village Extension Centers, District Forest Protection Station, Commune Forest Protection Offices, Social Organizations, and village communities, and was approved by the District People's Committee under Decision No. 2339-LD dated September 23, 2016:

+ 3 district forest rangers (1 person is in charge of Muong Gion commune and the other 2 persons are members of the PFMS in Son La Province)

+ 3 district extension staff

+ communal officers who are forest rangers, land officers, and members of communal organizations

+ 3 village extension staff

Basic requirements for facilitators:

#### + ***Forest management:***

- ✓ Have experience in forestry sector or forest management.
- ✓ Being forest rangers or forest protection staff of Muong Gion commune; staff of Muong Gion Forest Protection Department; heads or deputy heads of communal organizations, village volunteers who are able to fully participate in supporting the project activities.
- ✓ Be able to regularly visit target villages as requested by the project.
- ✓ Have good communication skills and be able to conduct training for other people.

#### + ***Livelihood development:***

- ✓ Have experience in agriculture, agroforestry, or related field.
- ✓ Extension staff of Muong Gion Commune; Extension staff or staff from the Agriculture and Rural Development Division of Quynh Nhai district, heads or deputy heads of communal organizations, village volunteers who are able to fully participate in supporting the project activities.
- ✓ Be able to regularly visit target villages as requested by the project.
- ✓ Have good communication skills and be able to conduct training for other people

After the groups are established, technical training course were organized for them on September 26-27, 2016 in central of Quynh Nhai district.

Objectives of the training are to provide main information of the project to the participants, roles of the facilitators, and to build technical capacity for them.

After the training, every participant has been granted a certificate of attendance that signed

by Japanese experts. The certificate was as important and necessary spiritual support to the facilitators in the Province and Son La is the only office which carried out this certificate granting.



**Pic. 5:** Training for facilitators in Cut village

**Pic. 6:** Mr. Yamamoto Wataru, Japanese expert who granted Certificate of Attendance to the facilitators

**Role, function and responsibility of the facilitators**

- + Closely cooperate with Son La project consultant office to organize village meetings to develop village plans and support the implementation of project activities.
- + In order to build capacity, the facilitators were asked to participate in training courses, workshops, and study-tours to learn and share experience.

**General evaluation**

- ✓ The facilitators have basically met the requirements of the project, they were selected, trained and actively involved in the project activities.
- ✓ The capacity of facilitators has improved markedly, including, presentation skills, public presentations, and acquisition of new knowledge through the project approach and interventions.
- ✓ Most facilitators are willing to assist, participate in project activities at any time upon request, and possibly to be core staff for partners after project completion.

**Shortcomings:**

- ✓ Some facilitators, who are district and commune officials, have not fully involved in activities as required due to busy work or staff rotation.
- ✓ There has been a change in personnel, especially the facilitators, who are of the district forest rangers, in charge of Muong Gion Commune, have been rotated 3 times, the change has had a negative impact on forest management activities.

**2.6. Working relationship with VMBFMLD**

The VMBFMLD establishment was first mentioned during the communal kickoff workshop on September 23, 2016. It was brought to the table of discussion again during the first village meeting and completed (being established) after the third village meeting.

The objective of the VMBFMLD is to sustainably manage the area allocated to villages and households through the promotion of forest management and livelihood development activities.

Members and their term of office: The members of the VMBFMLD of the 12 target villages were 69 members (selection by nomination and voting by hand in village meetings), of

which 44 men and 25 women (account 36.25%), each VMBFMLD has from 4 to 10 members, including, one Head, one deputy Head, one secretary cum accountant and members. In order to ensure gender equality issues, the number of involved women should be 30% (see Table 1). VMBFMLD term of office is one year.

**Table 1: Members of VMBFMLDs in Muong Gion commune**

No.	Village	Total	Men	Women	Percentage (%)
1	Giôn	6	5	1	16.67
2	Bo	10	6	4	40.00
3	Xanh	5	4	1	20.00
4	Xa	6	4	2	33.33
5	Cút	4	3	1	25.00
6	Khóp	6	4	2	33.33
7	Huòi Tèo	7	2	5	71.43
8	Co Lúu	5	4	1	20.00
9	Cha Có	6	4	2	33.33
10	Huòi Vãn	5	4	1	20.00
11	Huòi Ngà	4	1	3	75.00
12	Kéo Ca	5	3	2	40.00
	Total	69	44	25	36.23

The main function/task of the VMBFMLD is to coordinate with the project staff and facilitators to carry out the project activities. Their specific tasks are as following:

1. Promote the implementation planning and monitoring of forest management and livelihood development in villages
2. Develop regulations on forest use in the villages
3. Promote public awareness of forest management
4. Ensure that all villagers will follow the village forest management regulations
5. Establish community-based village forest patrol teams who will monitor the activities
6. Development of livelihood development activity groups by activity (for example, fruit trees cultivation, vegetables cultivation, etc.)
7. Ensure that livelihood development activities are implemented as in accordance with current plans and regulations as well as with the technical requirements.
8. Establishment, management and operation of village funds for forest management
9. Coordinate with FPTs and CPC to handle violations as in accordance with the rules and regulations on forest management or livelihood development.
10. Coordinate with forest rangers and CPC to carry out forest management and village livelihood development activities.

Operational regulation of the VMBFMLD has been discussed during the village meetings and issued with 4 chapters, 12 articles that approved by the CPC (see appendix 2 attached)

***General evaluation:***

After nearly 2 years of implementation, the VMBFMLDs have well implement activities in the villages, such as calling for participation in villagers in meetings, organizing training courses, study-tours, mobilization of villagers' labor contribution and available materials

***Some concerned issues:***

- ✓ Sustainability of the VMBFMLD: This can be considered a community-based organization, whose members are primarily village leaders, community organizations with a common mandate which is similar to project's one. The establishment of this organization will have a number of overlapping functions with current village management boards and the project activities can still be carried out without establishment of the new VMBFMLD.
- ✓ Village meetings have not been organized on a regular basis due to the difference among support activities carried out in each village. The project staff and facilitators will only meet when the season for the supportive activities comes.
- ✓ Some remote villages like Huồi Vãn, Huồi Ngà, Kéo Ca, Cha Có, Huồi Tèo are very difficult to access during rainy season, and no stable mobile phone signal that do not facilitate coordination of the VMBFMLD, Project staff, and facilitators.
- ✓ Some VMBFMLD did not have enough fund to pay allowances for its members so some of them were not really active.
- ✓ There is no new nomination to the VMBFMLD members as most of them requested to remain the same as before.
- ✓ Some of members of the VMBFMLD replaced by others as they could not fully participate in the project work.
- ✓ Capacity of the members of the VMBFMLD is below project requirements.

***Recommendations:***

- ✓ Share with other stakeholders about the role of the VMBFMLD as a community-based organization, which work on a voluntary basis and for the benefits of the community
- ✓ Organize trainings for capacity building for the members of the VMBFMLD
- ✓ The two-year PFES (paid for 2016 and 2017), asset sales, and contribution of the local people will be effective and sustainable sources of funding for forest protection and livelihood development. Therefore, there should be regular meetings of the VMBFMLD to ensure the effective and sustainable use of this fund.
- ✓ The regulation of the VMBFMLD should be updated and monitored regularly.

### **III. Project approaches**

#### ***3.1. Community-based approach.***

The SNRM project is a technical assistance project, which focuses on forest management and livelihood development activities carried out in pilot communes so the community-based principle "people know, people do, people check" is considered as important to ensure the sustainability, efficiency and effectiveness of project activities. People are promoted to fully involve in the planning, implementation, and monitoring and evaluation processes of the project.



- ✓ Annual and five-year planning were conducted through 3 village meetings with participation of over 90% of villagers. Every decision made based on voting; meeting minutes were produced and signed by village head and CPC.
- ✓ When carrying out any activities, the Project staff will discuss thoroughly with the VMBFMLD and the local villagers will register to participate.
- ✓ Before carrying out the project activities, the project staff, facilitators, VMBFMLD and the villagers will check the reality and develop detailed implementation plan.
- ✓ The VMBFMLD is also responsible for collection of feedbacks from the local people about the project activities, and informing to the project for timely adjustments, if needed.

### ***3.2. Study, knowledge, attitude, and practice***

As above-mentioned, the reality was checked by the project staff, facilitators, members of the VMBFMLD, and the local people in order to develop detail work plan before any activity is taken place. Particularly, after the development of the annual plan, each activity is researched and evaluated; related issues, models, culture and attitudes of the beneficiaries are also taken into consideration. For example, before introduction of an improved stove model, the project staff had to study about different types of improved stoves that are available in Son La province like the traditional stoves of the Thai, Khang, and Mong with designs that meet demands of the local people. Any support of the Project is made based on not only the needs of the people, but also studies on land use planning, land, soil, climate, markets conditions in order to provide proper support and advises to the local people.

### ***3.3. Integration of project activities with other projects***

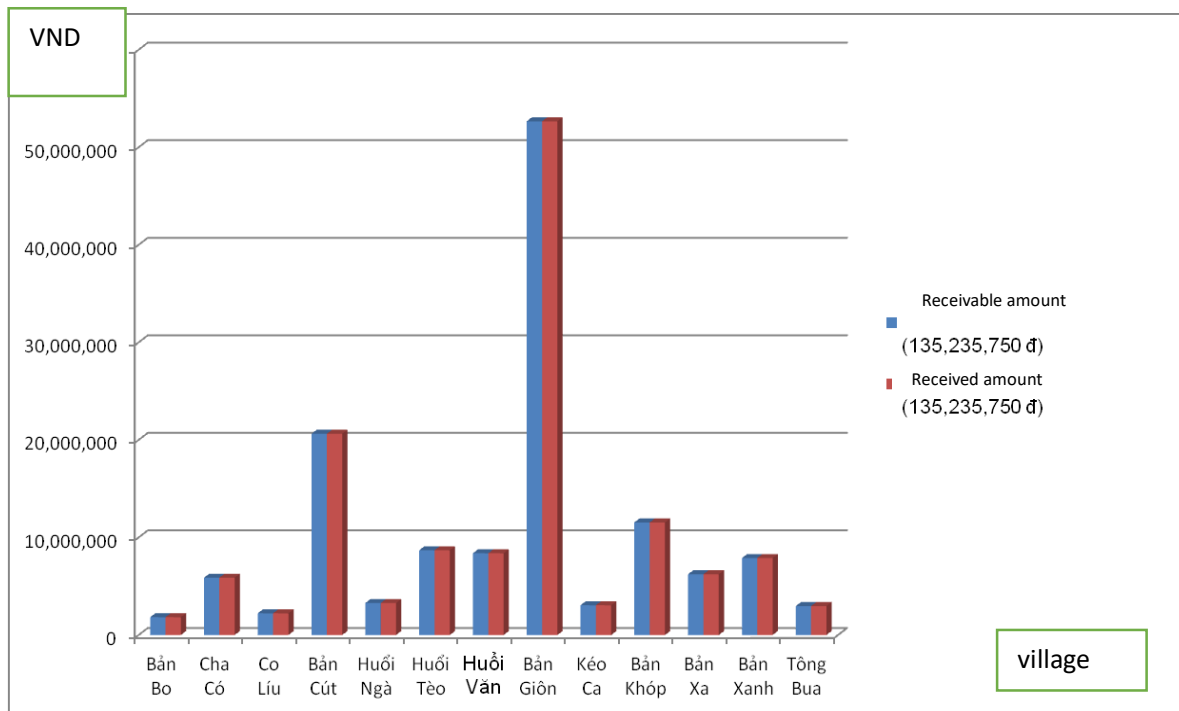
In Son La province in general and in the pilot commune in particular, the local people have been carrying out activities that are quite similar to the project ones, thus, the project staff often work with provincial and district authorities and departments to integrate project activities with those available ones in the locality. Although the integration is limited due to financial mechanisms and regulations, af/reforestation and regeneration programs are integrated into planning, forest development and protection programs in Quynh Nhai district during 2016-2020 period towards 2030. The project has worked closely with the District Extension Station to coordinate support programs for livelihood activities such as fruit tree cultivation for resettled villages. A discussion about integration of mushroom cultivation and biogas activities in 2018 has been taken place among related parties.

### ***3.4. Mobilization of different resources***

In order to ensure the sustainability of the project activities, the project has mobilized human resource from research units (Tay Bac University, Center Forestry Science Center of Tay Bac, Son La Fruit and Aquaculture Center, etc.) and staff from DARD, FPD, and extension stations in the province to support the implementation of project activities and provide technical assistance.

The project has mobilized over 6,000 working days from the local people for af/reforestation and forest regeneration. For the livelihood development activities, over VND 135 million have been contributed by the local people to the Village Fund (see chart 1). In addition, the villages committed to spend 30-40% of the two-year PFES fund (2016-2017) to contribute to the village fund for forest protection and development.

### **Chart 1: Contribution of the local people to the Village Fund**



### 3.5. Capacity building

The overall goal of the project is to build capacity for partners in sustainable natural resource management. As a result, the facilitators were selected based on the criteria, trained and participated in the project activities. They are expected to become a source of human resource for other potential programs and projects in the district, commune and villages.

In the villages, training needs of the members of the VMBFMLD were assessed. They are invited to participate in trainings, study-tours to improve their capacity in project activity implementation and other key tasks assigned by village level leaders.

Not every household in the villages provided support by the Project as it mainly focused on technical training so the local people can do it by themselves, for example, for fuel-saving stove provision activity that the project only provided the local people with technical training with 1-2 samples, and over 7000 stoves made by the local people themselves. Similar to it, other activities like organic compost and grafted fruit trees, the local people were trained to perform it by themselves.

### 3.6. Cross-cutting issues

Gender equality and make no harm are cross-cutting issues of any project and it is not excluded to the SNRM Project.

In order to enhance participatory, position and voice of women, the project has identified indicators and criteria as following:

+ At least 30% of the members of the VMBFMLD are women, in fact, it is 36.23% (see table1)



**Pic. 7:** Women in Xa village were viewing village forests on satellite maps during the second village meeting



**Pic. 8:** Most of villagers who participate in the third village meeting in Khop village were women

The Table 2 shows the participation of women in project activities accounts for 29.39%, of which, 28.61% is for forest management, and 30.04% is for livelihood. In addition, depending on the activities, the participation of women and men may be different, for example, vegetable cultivation and composting activities, the participation of women is over 50%.

However, the participation of women depends on the culture of the ethnic minorities and the current conditions, as many men have moved to urban areas to seek for employment, while women stay to do housework and participate in other social activities.

**Table 2: Participation of the local people and women into project activities**

No.	Activities	Total	Men	Women	%
I	<b>Forest management</b>	<b>1,912</b>	<b>1,365</b>	<b>547</b>	<b>28.61</b>
I	Training for members of FPT	148	137	11	7.43
2	Training on af/reforestation, and regeneration	673	589	84	12.48
3	Training on forest protection and development	1091	639	452	41.43
4	<b>Livelihood development</b>	<b>2,284</b>	<b>1,598</b>	<b>686</b>	<b>30.04</b>
5	Introduction of agroforestry models	551	434	117	21.23
6	Training on agroforestry models	115	89	26	22.61
7	Training on fuel-saving stove production	578	396	182	31.49
8	Training on organic compost	225	109	116	51.56
9	Training on fruit tree cultivation	411	400	11	2.68
10	Training in vegetable cultivation	404	170	234	57.92
	<b>Total</b>	<b>4,196</b>	<b>2,963</b>	<b>1,233</b>	<b>29.39</b>

(Source: monthly monitoring reports, updated until December 31, 2017)

In addition, when implementing the project in the pilot commune, the project always take into account the issue of not doing any harm to the community, specifically:

- + Respect culture of every ethnic minority; no project events/work should be

organized/done on the day of traditional festival; practices of Thai, Khang, and H'Mong are fully respected.

+ Ensure the harmony of the interest receiving among community groups, which nobody left behind.

+ Flexibly apply institutional mechanism in order to not doing any harm to the society, environment, and effective institutional regime.

+ Project activities should bring no negative impacts to the environment, but contribute to protection of environment, forest and water resources. The project encourages to use organic fertilizers, apply agroforestry models to prevent soil erosion and soil improvement, or using fuel-saving stoves, biogas as alternative ways to save the forests.

## IV. Evaluation to impacts of forest management

### 4.1 Forest patrolling

#### 4.1.1 General introduction

Muong Gion is a commune located in zone II of Quynh Nhai district, Son La province. There are 30 villages in the whole commune with 2,338 households with 11,358 people.

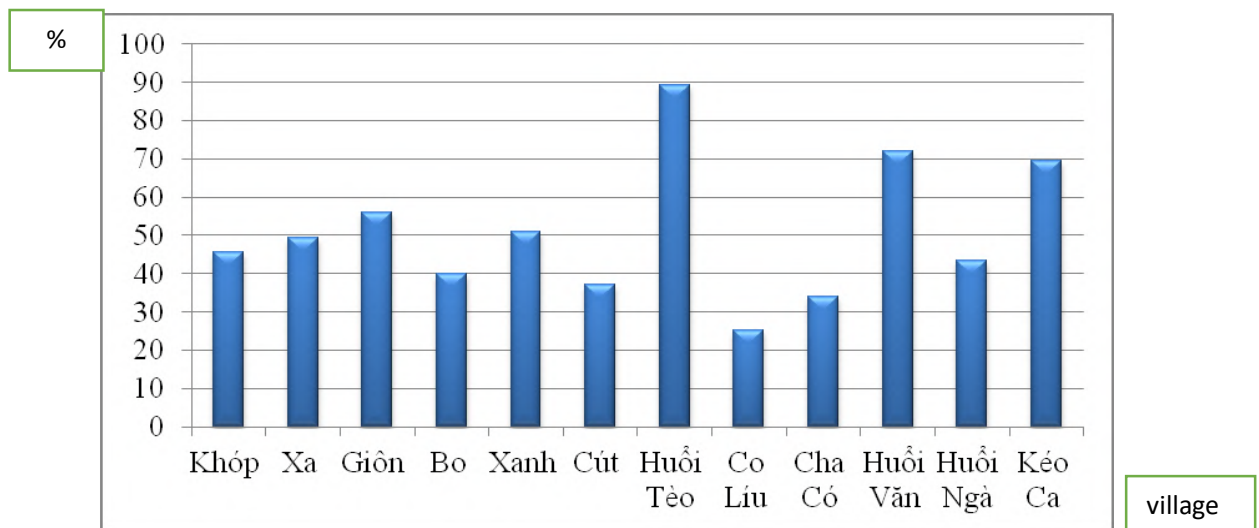
Forests and forestry land play a very important economic-social and environmental role to the local people living in Muong Gion commune.

However, due to:

- (1) low income from forests, for example, profits from production forest, non-timber forest products are very low;
- (2) lack of land for agriculture production, grazing pasture and other sectors;
- (3) increasing demands for wood, firewood, bamboo, and non-timber forest products;
- (4) financial source for forest protection is limited, mainly from PFES;
- (5) institutional mechanism for forest management and protection is not strong enough; law on forest protection and development is not fully enforced; village regulations on forest management and protection, if any, have been developed too long ago which are no longer practical;
- (6) FPTs do not meet with requirements;
- (7) some villages have established FPTs but their performance is under expectation,

forests and forestry land in 12 project villages and in Muong Gion commune have been under pressure. This is a challenge for forest protection and development work. Therefore, forest protection and development should be paid with great attention and support.

**Chart 2: Forest coverage in 12 project villages (%)**



*Source: Son La Sub-FPD, 2015*

At the end of 2016, 12 villages in Muong Gion Commune were selected to be pilot areas of the SNRM Project. After the selection, FPTs of villages have been established too with list of members, operational regulations, work plans, provision of tools, and technical trainings.

#### 4.1.2 Theory basis and experience from other areas.

### *a) Theory basis*

According to environmental protection organizations in the world, Vietnam is now one of the countries that suffer global climate change the most. Therefore, in the past years, forest protection and development has been paid with more attention by authorities and sectors at different levels. Particularly, a number of decisions and resolutions on forest protection and development have been developed and rectified.

- According to the Article 9, law on forest protection and development in 2004: "Forest protection is responsibility of every organization, household, and individual."

- Decision No. 1641 QĐ/BNN-HTQT dated June 5, 2006 of Minister of Agriculture and Rural Development approving the "2006-2007 pilot community forestry program"

- Decision No. 106/2006/QĐ-BNN promulgating the instruction on management of village community forests;

- Resolution No. 28/NQ-HĐND of Son La PPC dated December 14, 2016 approving 2016 – 2020 forest protection and development plan of Son La Province.

### *b) Experience from other places*

The results of forest protection and development in many places in Vietnam also show that for successful forest protection and development, it is necessary to bring into full play the strength of local communities living nearby forests.

- In Ha Giang province, there is a successful model of community-based forest management in Phu Lung commune, Yen Minh district. The lesson learned from this is that the households in the village are clearly aware of their responsibility for managing and protecting forests. It is not the responsibility of any single individual but everyone, especially, the one who involved in forest protection team of the village.

- In Nghe An province, when learning about the success of the community-based forest management and protection model in Tam Dinh commune and Xa Luong commune, Tuong Duong district, the author draws on the lessons learned: "Accordingly, the core of the planning is to keep the forest from the root, based on the local people's enthusiasm and tradition. It is a good start to develop mechanisms of support to spread the spirit of forest protection and development throughout the community. "

The application of PFES policy or participation in the carbon market in the future help people aware of their rights and responsibilities for the task of forest protection and development. Son La is one of the first localities in the country that implement the policy on PFES. By benefiting from this policy, the community has increased responsibility for forest management, protection and development. Deforestation, illegal logging and forest exploitation have been detected and handled in a timely manner that helped protecting the local forest area. Study more about this issue in Hun village, Chieng Co commune, Son La city, it is found that: "by adopting a policy of PFES, the forest areas that have been contracted for management and protection are growing much better. Forest exploitation, deforestation and illegal forestry land encroachment has decreased. The contracted households have organized into contracted forest protection groups that initially linked their strength in forest protection; mobilized more ethnic people to involve in forest protection, contributed to create jobs and raise incomes. "

However, community-based forest protection in reality also faces many difficulties.

- In some localities, there is no funding to pay for forest protection patrol teams (no PFES, no budget for forest protection and management), thus, rights and responsibilities related to forest protection of the local people are not equally matched.

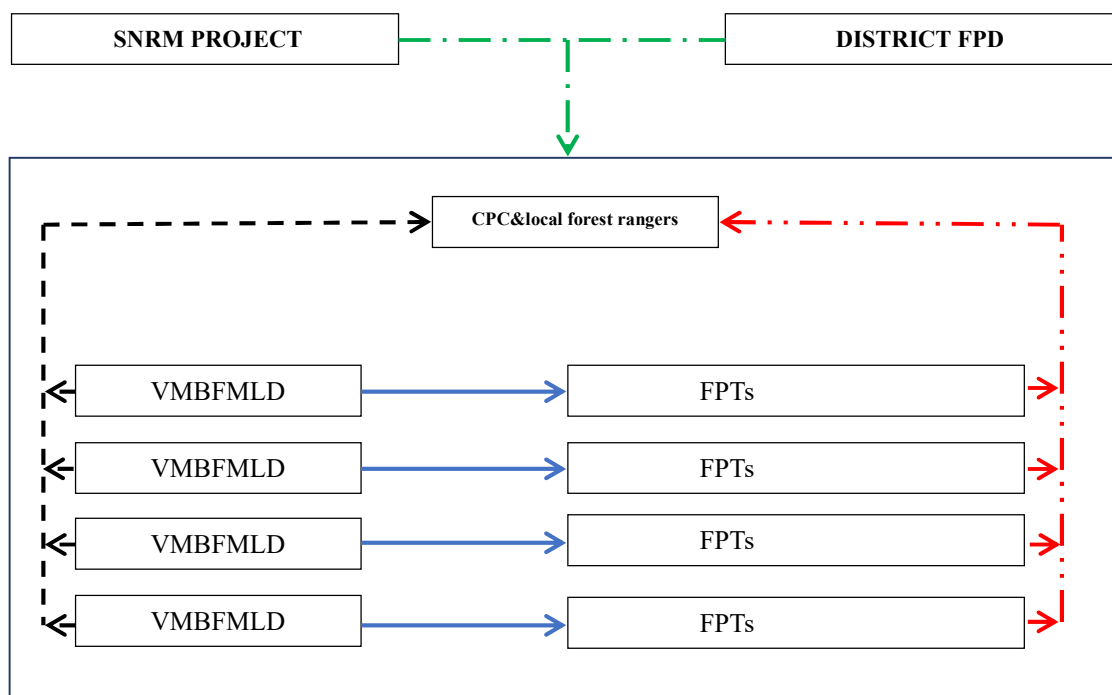
- Due to the complexity of topography and population distribution; "Population is crowded, majority of them are ethnic minority people, who are living in and relying on forests, with deep-seated customary related to the forest that lead to fragmented forest tree cutting remains as an issue." Violators to the forest protection regulations are often the people in the area "so it is very difficult to denounce the forest destroyers because of the problem of brothers and family relationship."

#### 4.1.3 Carried out work

##### a) Establish/strengthen the village forest patrolling teams

In the 12 selected villages of Muong Gion Commune, the establishment and strengthening of the forest patrolling teams have been implemented from since the end of 2016. Through direct discussion with the village community, who are decision makers on how the FPTs should be organized, 12 forest protection teams were established (1 team/village) with total of 159 members (enclosed list and CPC approval)

**Chart 2: Community-based forest protection organizational chart**



#### Notes:

- Monitoring and support →
- Reporting on results - . . . →
- Monitoring reports - - - →
- Support and promotion - . . →

##### b) Develop and consolidate operational regulation

From the end of 2016 to March 2017, the Project supported the villages to develop and bring into use the FPTs operational regulation.

Regulation development process:

- + Step 1: Document/information collection;
- + Step 2: Develop draft of the regulation;

- + Step 3: Meeting with key persons
- + Step 4: Meet with all villagers to share the draft of the regulation

Operational regulation of the FPTs: adjustment, addition, completion: vote to show agreement

- + Step 5: Presentation and approval;
- + Step 6: Public content of the regulation to all villagers.

*c) Capacity building*

- **Training for members of the 12 FPTs**

From 25/2/2017-28/2/2017, the SNRM Project:

- + organized 1 technical training for members of the FPTs
- + provided tools for forest patrolling including protective clothing, machetes, flashes, etc.

**Table 3: Information of technical training for FPTs and provision of tools**

No.	Work	Unit	Plan	Actual	Percentage (%)
1	Training for members of the FPTs	person	148	146	98.6
2	Provision of tools for forest patrolling	set	159	159	100



**Pic. 9:** Technical training for FPTs



**Pic. 10:** Provision of tools

From May 15<sup>th</sup> to May 18<sup>th</sup> 2018The SNRM office in Son La Province successfully organized a study tour to the 38 participants to the forest management areas in Tan Uyen and Tam Duong District, Lai Chau Province, Sa Pa in Lao Cai Province. The participants are village heads and members of 13 VFPTs from target villages of the Project.

- **Standardization: patrolling plans, satellite maps for forest protection and weekly record for each village**
  - Satellite maps that show forest patrol routes: 12 maps;
  - Approved forest patrolling plans: 12 plans;
  - Record notebooks for forest patrolling: 12 notebooks

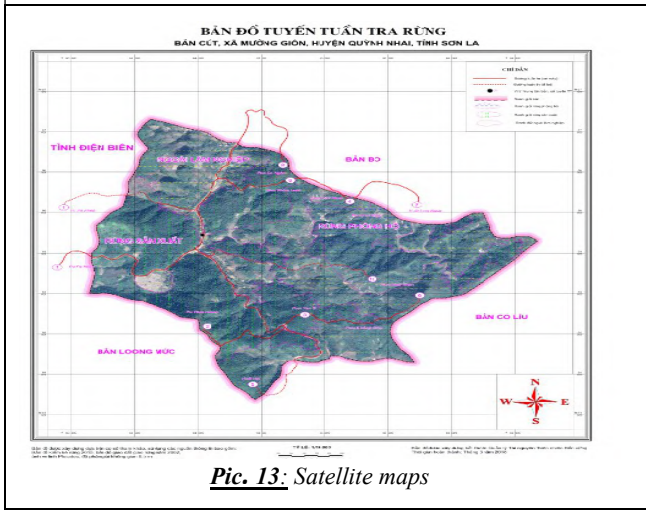




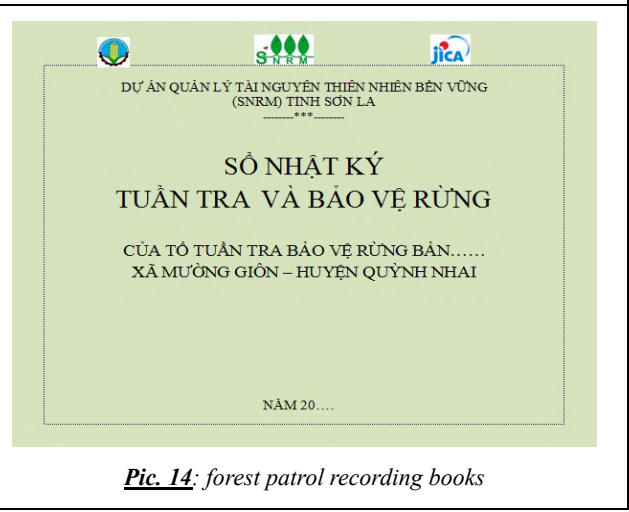
**Pic. 11:** Identify patrol routes by using satellite maps



**Pic. 12:** Using GPS to confirm forest patrol routes



**Pic. 13:** Satellite maps



**Pic. 14:** forest patrol recording books

- **Awareness raising for the local people**

In order to improve implementation results of forest protection and development, awareness raising for the local people play a very important role.

The Project is installing signboards to as following:

- Signboards of demonstrated models: 19 pcs.
- PFES area signboards: 12 pcs.
- Warning signboards: 92 pcs.

#### 4.1.4 Supervision of the implementing process

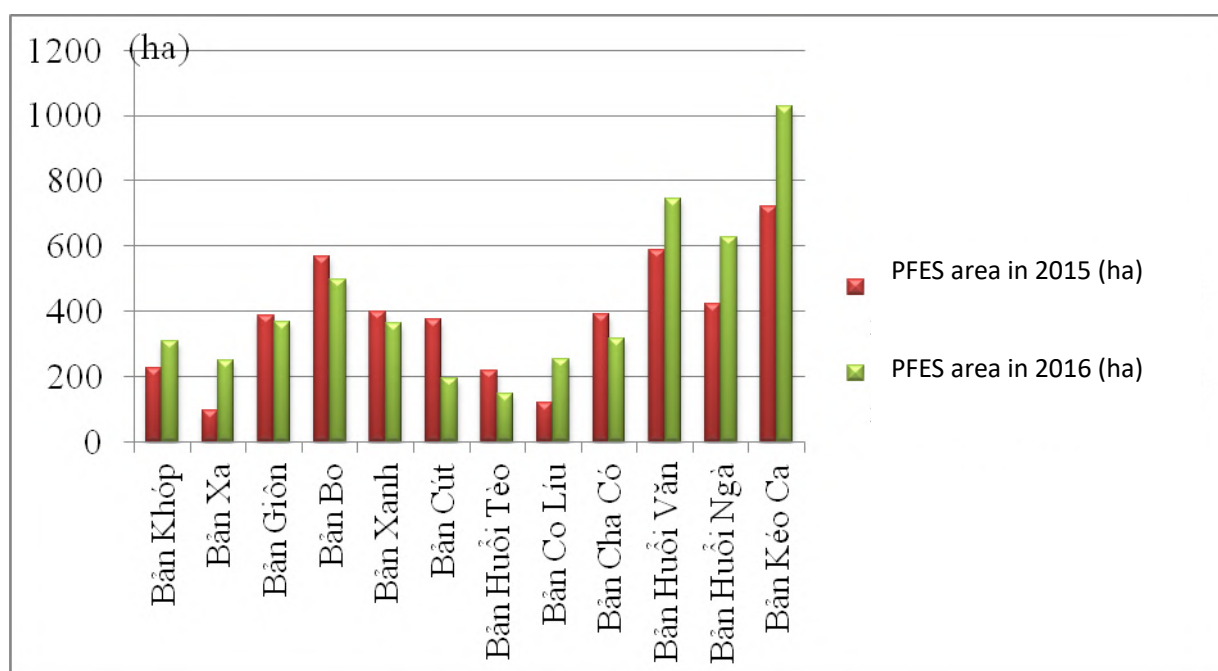
In addition to the establishment and strengthen of the FPTs, supervision of the implementation process is very important.

**Table 4: Monitoring indicator in 12 villages**

No.	Monitoring indicator	Unit	Quantity
1	Forest area		
-	PFES area in 2016	ha	4621.96
-	Forest regeneration area in 2017with technical	ha	295.39

	<i>assistance (SNRM Project)</i>		
-	<i>Area of planted forests in 2017(SNRM Project)</i>	<i>ha</i>	<i>71,3</i>
	<i>Area of planted forests in 2018 (SNRM Project)</i>	<i>ha</i>	<i>23.55</i>
2	Forest patrolling plan	village	12
3	Record books	book	12
4	Satellite maps	map	12
5	Forest patrolling frequency	Time/month	2
6	Allowances paid for FPTs members from the Village Fund	VND/month/person	Discussed (subject to Village Fund capacity of each village)
7	Detected violations	case	6
8	Detected violators	person	6
9	Violation handling results	case	6
10	Number of villagers who are aware of the village FPT	%	100
11	Evaluation to forest protection after FPTs established		
-	<i>Better than before</i>	%	<i>100</i>
-	<i>No changes</i>	%	<i>0</i>
-	<i>Worse than before</i>	%	<i>0</i>
12	Percentage of people know about the regulation on forest protection and development	%	100

**Chart 3: PFES area of the 12 project villages**



*Source: PFES fund of Sơn La Province*

#### 4.1.5 Encountered problems

- Funds for forest patrolling are limited;
- Forest area for patrolling in each village are large and difficult to access; boundaries of forests and forestry land of villages and of forest owners are not clear
- Awareness of the local people on forest protection and development is below expectation;
- Coordination and commitment of the related units (FPTs, VMBFMLD, CPC, and forest rangers) are not in a timely manner nor close;
- Violators did not collaborate that lead to difficulties in handling.

#### 4.1.6 Solutions

- Use in prioritized manner and utilize the maximum amount of money from village funds for forest patrolling and protection (especially the PES source);
- Selection of members of the FPTs who hold key positions in the village with reputation and knowledge;
- Carry out combined methods of communication and dissemination (through radio, and meetings...) to raise people's awareness about forest protection;
- Integrate the forest patrolling theme into communal/village meetings to review and evaluate the implemented activities; planning and assigning specific tasks for the next time.

#### 4.1.7 Lesson-learned

- Promotion of democracy and autonomy of the local people has helped to gain their consensus in forest protection;
- Awareness raising for the local people is very important as their lives are attached with

the forests;

- Fund for forest patrolling should be paid with attention and allocation since this motivates members of the FPTs to work;

- Engagement of authorities at different levels and multi-sector, which core roles belong to CPC and District FPD.

## **4.2 Af/reforestation**

### **4.2.1 Generation introduction**

Af/reforestation is an important task of the forestry sector to develop forests that will sustain forest resources, contribute to environmental protection; meet the people's needs of wood, firewood and other special forestry products for domestic consumption and export; create jobs, increase income for the local people, especially to farmers in the mountainous areas.

According to the results of forest inventory in 2015, natural forest area in Muong Gion commune is 18,710.3ha.

Of which:

- Large forestry area, which occupies 16,065 ha (equivalent to 86% communal natural area);
- Protection forest area (5,144 ha, 32%);
- Production forest area (10,392 ha, 65%);
- Allocated forests and forestry land: 97%;
- 85% of areas are community forests: 13% of forests managed by households, 3% of forest managed by CPC;
- Forest status: 67% of extreme poor forests, 33% of poor forests;
- Rates of forest coverage are different, particularly, in Lọng Múc, it is 18%, Huôi Tèo, it is 89%, and 70% in Kéo Ca.
- Land area without forests are large with 56%;
- PFES area of the entire commune in 2016 was 7,003.83ha.

The Sustainable Natural Resource Management (SNRM) project aims to build the capacity for relevant agencies to implement PRAP through implementation of pilot REDD + activities in the pilot commune in Son La Province. The SNRM project has selected Muong Gion Commune and 12 villages of Bo, Cha Co, Co Ly, Cu, Gion, Huoi Nga, Huoi Teo, Huoi Van, Xanh, Keo Ca, Khop, and Xa as pilot areas. By facilitating the village meetings, the SNRM project has supported the development of a forest management and livelihoods development plans for 2017-2020 period in each village. These plans will be implemented through the VMBFMLD in each selected village.

According to project plan, the SNRM Project has recruited a consultant to work with the Village Forest Management Board to conduct a field survey to select sites for development of forest tree planting models. Through the field surveys and discussion with villagers, analysis of natural, socio-economic conditions, provincial development planning of Son La, and others, 114.39 hectares (2017) and 11.05 ha (2018) were proposed to be af/reforested. Pursuant to the Law on Forest Protection and Development in 2004, the documents stipulated by the Government, the Ministry of Agriculture and Rural Development and Son La PPC, the project has developed an

af/reforestation design document for Muong Gion commune, Quynh Nhai district, Son La province and submitted to competent authorities for approval.

#### *4.2.2 Theory basis and experiences from other places*

##### *a) Theory basis*

Legal basis for af/reforestation of the project:

- ✓ Law on Forest Protection and Development in 2004;
- ✓ Decree No. 23/2006 / ND-CP dated 3 March 2006 of the Government on the enforcement of the Law on Forest Protection and Development;
- ✓ Decision No. 974 / QĐ-UBND dated 28/4/2014 of the Chairman of the People's Committee of Son La Province approving the list of forest seedlings that people are encouraged to use for af/reforestation for forest development in the province during the period of 2011-2020; Decision No. 992 / QĐ-UBND dated May 15, 2015 announcing the labor unit price in management of construction investment in Son La province; Decision No. 1076 / QĐ-UBND dated May 5, 2016 on the promulgation of prices applicable for seeds for af/reforestation programs and projects as in accordance with provincial plans.
- ✓ Decision No. 114/QĐ-SNN dated April 7, 2009 of the Department of Agriculture and Rural Development of Son La Province issuing the process of temporary determination of area by GPS in basic silvicultural design; Guideline No. 232 / HD-SNN dated May 11, 2015 of the Department of Agriculture and Rural Development, guiding order of contents, appraisal and approval for design document and cost estimation of basic silviculture development.
- ✓ In addition, the results of forest inventory in 2015 showed that there was a large area of non-forested land in Muong Gion commune which occupied 56% of total land. This is a main reason for the Project to carry out af/reforestation activities in this place.

##### *b) Practical experience from other places*

A number of successful projects in assisting forest planters in recent years in Vietnam.

- Afforestation projects in two provinces of Thanh Hoa and Nghe An (KfW4 project) funded by the Government of Germany that have been implemented from 2002 to 2012. Farmers who participated in the project have been granted with land use right certificate granted; received free seedlings and fertilizer for trees planted on poor soil area; got payments for their forest planting labor through bank transfer. At the end of the project, 80% of the forest area has been planted with various tree species. The main adopted methods were af/reforestation and regeneration. Forest plots of the project were regrouped to form large scale forest plots.

- The Forestry Development Project (KfW7) is an ODA project funded by the Government of Germany through the German Development Bank. The project was implemented in two provinces of Hoa Binh and Son La from 2006 to 2016. One of the objectives of the project is to afforest, regenerate and manage 20,356 ha of forest area, of which, 16,756 ha in the project targeted communes, 3,600 ha in the core zone of the nature reserve. By participating in the project, households and village communities were supported for costs of forest planting, tending and

protecting through bank accounts opened at district branch Agribank. The project created jobs, increased income for a part of the people in the project area, contributed to the poverty reduction, achieve objectives of the National Target Program on building new rural area of the provinces and development of the local area project. One of the successes of the project is the community-based forest protection and development, linking forest development with community economic growth.

- The World Bank-funded Forestry Sector Development Project (WB3) was implemented in six provinces in the North Central Region (Thanh Hoa, Nghe An, TT Hue, Quang Nam, Quang Ngai and Binh Dinh Province) from 2005 to 2015. This was the first ODA project to support local people in production forest development with preferential credit loans. Households participating in the project shall be allocated with forestry land and land-use right certificate, training for capacity building and free of charge forestry extension services. The Project has helped to develop over 70,300 ha of commercial production forests. FSC forest group certification is granted to nearly 800 ha of households. Total outstanding loans reached over 500 billion VND with more than 18,000 households have outstanding debts. The project has brought significant socio-economic and environmental benefits, contributing to the improve production capacity and living standards for farmers, and to sustainably reduce poverty. Thousands of hectares have been covered with green that help to prevent soil erosion, regulate water resource, improve ecological environment, conserve biodiversity, and to contribute to climate change response in the recent years.

#### 4.2.3 Carried out work

##### a) Planning for af/reforestation

Thanks to the guidance and support of the staff of the SNRM Project and through three village meetings, villagers in the pilot areas have understood the objectives of the project that motivate them to register and commit to participate into implementation of af/reforestation plans.

As a result, there were four villages that have registered to participate in forest tree planning activity with both community and household forestry lands.



**Pic. 15:** Village meeting and registration to participate in af/reforestation



**Pic. 16:** Villagers participate in implementation planning

##### b) Review potential forestry land for af/reforestation

Using results of village meetings, the Forest Management Officer of the Project has reviewed potential forestry land for af/reforestation before asking consultant to conduct field survey and design.

- + Step 1: Collection of related information,
- + Step 2: Desk review for potential forestry land for af/reforestation (DT1);
- + Step 3: Using tablet and GPS for field surveys and design.

*c) Consultant for field survey and design*

- + Step 1: Collection of related information;
- + Step 2: Field survey;
- + Step 3: Office work and development of af/reforestation design document;
- + Step 4: Submit to competent authority (Son La Sub-FPD) for appraisal and approval for both presentation and maps.

Result: On March 20, 2017, Son La sub-FPD issued a report on af/reforestation design document for 114.39 ha, of which:

- Community forestry land was 11.67ha;
- Household forestry land was 102.73ha.

On 24<sup>th</sup> January 2018, Sub FPD of Son La Province introduced their appraisal report to af/reforestation design documents applicable for 11.05 ha which belong to Co Liu community.

*d) Capacity building*

From March 12, 2017 to March 17, 2017, the Project organized technical trainings for the villagers in the pilot villages.

**Table 5: Technical training for af/reforestation**

No.	Participants	Unit	Gender		Total
			Male	Female	
1	Villagers	Person	589	84	673
2	Government officers	Person	4	0	4
3	Others	Person	1	0	1
	<b>Total</b>		<b>594</b>	<b>84</b>	<b>678</b>



**Fig. 17:** In class training



**Fig. 18:** On-site training

### ***Communication and awareness raising for the local people***

In order to ensure high effectiveness of the forest tree planting, not only training and on-site working are needed but also installation of signboards to help raising awareness of the local people.

- Demonstration model signboards: 06 pcs.
- Warning signboards (no cutting, no fire): 08 pcs.

#### ***d) Implementation of forest tree planting***

From 3 July 2017 to 1 September 2017, the SNRM project has provided the local people with seedlings and monitored the implementation of af/reforestation activities by the villagers.

Number of seedlings have been provided to people (including for supplemental planting and assisted regeneration) was 120,026 pinus trees, 630 Canarium tramdeum trees and 2,400 michelia trees.

Designed and approved area for af/reforestation in 2017 was 114,39ha, and planted area in 2017 was 71.3ha.

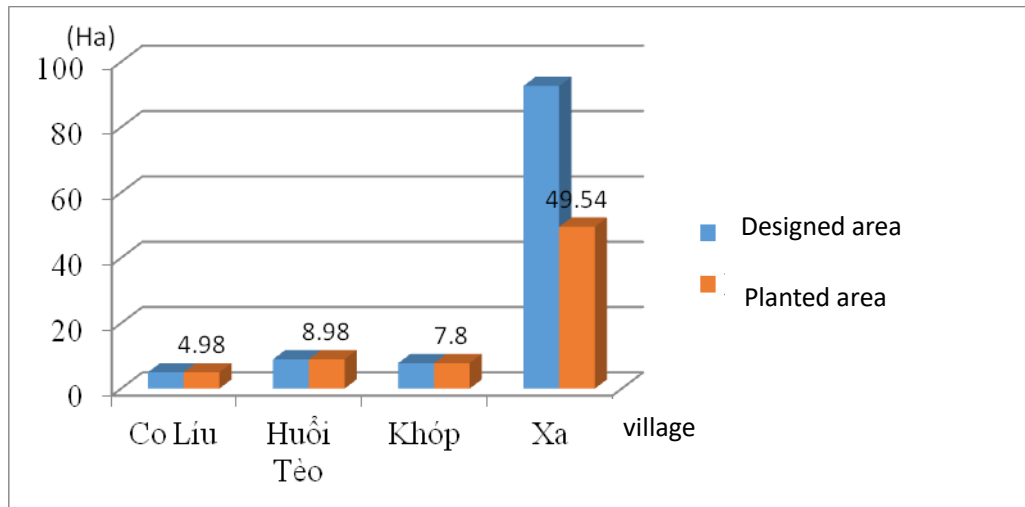
From July 26<sup>th</sup> 2018 to August 31<sup>st</sup> 2018, the Project provided seedlings to the participating households and monitored the af/reforestation work in 2018. The supplementary planting was done also on the previous stage planted areas.

Quantity of provided seedlings: 60.000 pinus trees, 100 canari trees, and 100 Michelia mediocris Dandy trees.

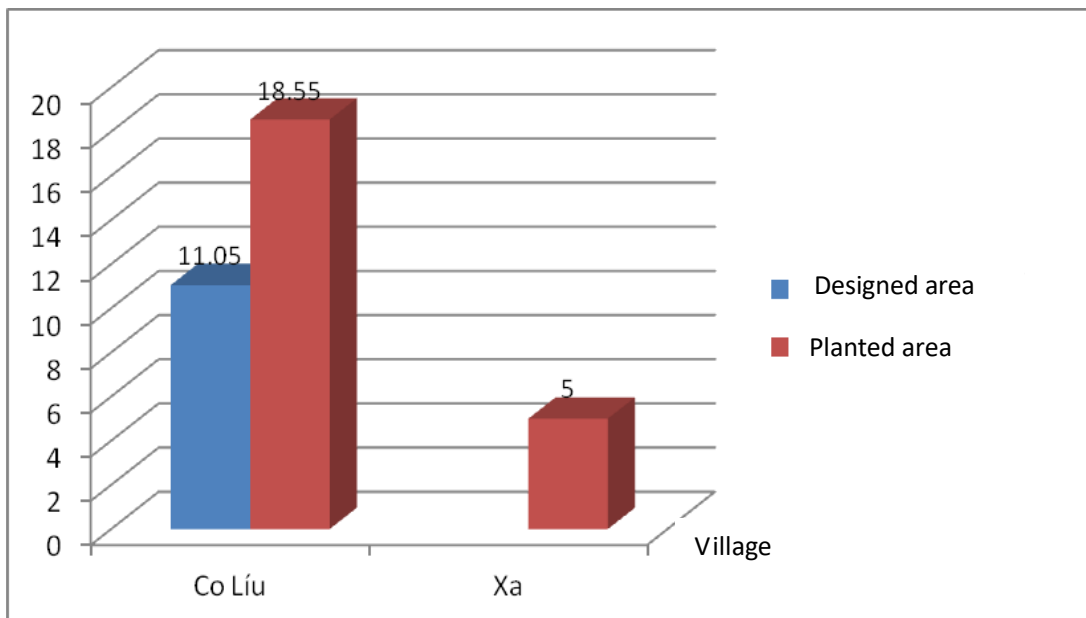
The designed and approved area for af/reforestation in 2018 is 11.05 ha, the planted area in 2018 is 23.55 ha.



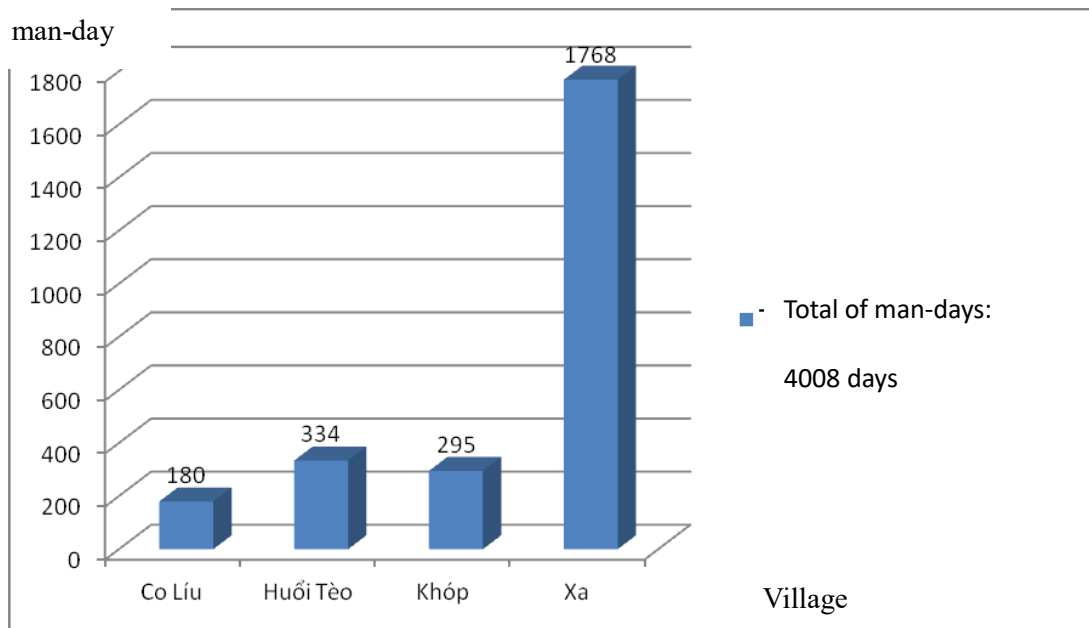
**Chart 4a: Planted area in 2017**



**Chart 4b: Planted area in 2018**



**Chart 5: Total of man-days**



**Pic. 19:** Checking seedlings in nursery garden



**Pic. 20:** checking and guiding tree planting

#### 4.2.4 Supervision of implementation process

Along with the implementation of the forest tree planting, supervision of the implementation process plays a very important role. Some of specific indicators are as following:

##### a) Survival rate

The Project has not conducted any comprehensive field assessment to the survival rate but through interview with the local people and checking by the Project staff, survival rate reached over 85%. For example, survival rate of planted trees in Xa village was 85%, 93% and 96% were for Huoi Teo and Co Liu Village, respectively.

The survival rates are different among villages, especially, in Xa Village and others. This reflects the differences in terms of conditions among villages

##### b) Growth of planted trees

The interview results showed that 90% of respondents rated the growth of planted trees under support of the Project was good; 10% of them said it was at medium rate. At the same time, they also rated that afforestation models planted thanks to support of the Project are better than the other in the same area.

#### *4.2.5 Encountered problems*

- Natural, socio-economic conditions of the project areas still difficult.
- The boundaries of forests and forestry land as well as unclear ownership issue are causing difficulties in the management and implementation of the work.
- Information on planning and land use right have not yet been fully updated;
- The related stakeholders did not fully participate in implementation of the project work;
- Project activities have not been integrated with other projects.

#### *4.2.6 Proposed solutions*

- Evaluate, develop reports and share lesson-learned;
- Promote integration of project activities with other projects;
- Promote engagement of other related stakeholders in supporting project implementation;
- Utilize village fund from PFES for forest protection and development;
- Reward outstanding performance holders in a timely manner to encourage them to better participate in project implementation.

#### *4.2.7 Lesson-learned*

- Promotion of democracy and autonomy of the local people has helped to gain their consensus in forest protection. Application of community-based approach for planning, implementation, monitoring, and evaluation;
  - Awareness raising for the local people is very important as their lives are attached with the forests;
  - Integrate project components with other projects;
  - Maximize all resources for Project implementation, especially, involvement of the local authority and other related sectors;
  - Resources and risks should be taken into account while planning.

### **4.3 Forest regeneration**

#### *4.3.1 General introduction*

Regeneration of forests is the process of taking full advantage of the natural regeneration capacity with reasonable human intervention to accelerate the regeneration process through silvicultural techniques to ensure the survival of the forest. There is a tendency to expand the forest area, provide a stable source of timber, reduce investment costs for afforestation and promote forest protection. This is an important solution for forest restoration in the forested areas and post-harvesting forest land with various methods of regeneration, namely, natural forest regeneration and assisted forest regeneration.

The Sustainable Natural Resource Management (SNRM) project aims to build the capacity for relevant agencies to implement PRAP through implementation of pilot REDD + activities in the pilot commune in Son La Province. The SNRM project has selected Muong Gion Commune and 12 villages of Bo, Cha Co, Co Ly, Cu, Gion, Huoi Nga, Huoi Teo, Huoi Van, Xanh, Keo Ca, Khop, and Xa as pilot areas. By facilitating the village meetings, the SNRM project has supported the development of a forest management and livelihoods development plans for 2017-2020 period

in each village. These plans will be implemented through the VMBFMLD in each selected village.

According to project plan, the SNRM Project has recruited a consultant to work with the Village Forest Management Board to conduct a field survey to select sites for development of forest tree planting models. Through the field surveys, discussion with villagers, analysis of natural, socio-economic conditions, provincial development planning of Son La, and others, 310.26 ha have been identified for forest regeneration, of which, 303.31 ha were for natural forest regeneration, and 6.95 ha were for assisted forest regeneration. Pursuant to the Law on Forest Protection and Development in 2004, the documents stipulated by the Government, the Ministry of Agriculture and Rural Development and Son La PPC, the project has developed a forest regeneration design document for Muong Gion commune, Quynh Nhai district, Son La province and submitted to competent authorities for approval.

#### *4.3.2 Theory basis and experiences from other places*

##### *a) Theory basis*

Legal basis for af/reforestation of the project:

- ✓ Law on Forest Protection and Development in 2004;
- ✓ Decree No. 23/2006 / ND-CP dated 3 March 2006 of the Government on the enforcement of the Law on Forest Protection and Development;
- ✓ Decision No. 974 / QĐ-UBND dated 28/4/2014 of the Chairman of the People's Committee of Son La Province approving the list of forest seedlings that people are encouraged to use for af/reforestation for forest development in the province during the period of 2011-2020; Decision No. 992 / QĐ-UBND dated May 15, 2015 announcing the labor unit price in management of construction investment in Son La province; Decision No. 1076 / QĐ-UBND dated May 5, 2016 on the promulgation of prices applicable for seeds for af/reforestation programs and projects as in accordance with provincial plans.
- ✓ Decision No. 114/QĐ-SNN dated April 7, 2009 of the Department of Agriculture and Rural Development of Son La Province issuing the process of temporary determination of area by GPS in basic silvicultural design; Guideline No. 232 / HD-SNN dated May 11, 2015 of the Department of Agriculture and Rural Development, guiding order of contents, appraisal and approval for design document and cost estimation of basic silviculture development.
- ✓ In addition, the results of forest inventory in 2015 showed that there was a large area of non-forested land in Muong Gion commune which occupied 56% of total land. This is a main reason for the Project to carry out af/reforestation activities in this place.

##### *b) Practical experiences from other places*

A number of programs and projects on forest regeneration have been successfully implemented in Viet Nam in recent years.

- In order to maintain and develop forest resource with limited investment capital, Quang Binh forestry sector has chosen to apply forest restoration methods by zoning for regeneration.

This is an important solution to forest rehabilitation. There are natural forests and the area of forest land after harvesting has regenerated trees for the purpose of restoration. In the course of implementation, two modes of zoning for regeneration of forests have been applied, namely natural forest regeneration and assisted forest regeneration (with supplementary tree planting). Up to 30/9/2016, through different programs and projects, Quang Binh province has successfully implement forest regeneration, contribute to increase the forest coverage of the province to 67.50%.

- In Hoa Binh province, during 1999-2010 period, through the programs of planting 5 million hectares of forests, it has successfully applied the method of natural forest regeneration, significantly contribute to increase the forest coverage of the whole province from 37% (in 1999) to 45.7% in 2010. As results, natural forest regeneration method has been applied for 49,299.9 ha of forests; and assisted forest regeneration method (with supplemental planted trees) has been successfully applied for 8,366.1 ha. Average annual natural regeneration and assisted natural forest regeneration were about 4,107.5 ha and 697.2 ha, respectively. Most of the regenerated areas became forests, contribute to the socio-economic development and environmental protection in the locality and that subject to be protected.

- Yen Bai province, with an area of nearly 20,000 ha for protection forest regeneration (mainly in Tram Tau and Mu Cang Chai highland districts), socio-economic organizations and farmers in the whole province have paying good care for improving the economic efficiency of forest regeneration. At the same time, technical measures have been identified to promote the advantages of forests for forest development, cover bare-land with green, increase income for the local people and contribute to increase forest coverage to 59% by 2010.

#### 4.3.3 Carried out work

##### a) Planning

Thanks to the guidance and support of the staff of the SNRM Project and through three village meetings, villagers in the pilot areas have understood the objectives of the project that motivate them to register and commit to participate into implementation of forest regeneration plans. As a result, there were ten villages that have registered to participate in this activity.



**Pic. 21:** Village meeting on activity implementation



**Pic. 22:** Participation of the villagers in planning

*b) Review potential forestry land for af/reforestation*

Using results of village meetings, the Forest Management Officer of the Project has reviewed potential forestry land for af/reforestation before asking consultant to conduct field survey and design.

- + Step 1: Collection of related information (maps, and others)
- + Step 2: Desk review for potential forestry land for forest regeneration (DT2);
- + Step 3: Using tablet and GPS for field surveys to verify information (demands of the local people and actual land size).

Using results of village meetings, the Forest Management Officer of the Project has reviewed potential forestry land for af/reforestation before asking consultant to conduct field survey and design.

*c) Consultant for field survey, development of design document and submission for approval*

- + Step 1: Collection of related information;
- + Step 2: Field survey;
- + Step 3: Office work and development of forest regeneration design document;
- + Step 4: Submit to competent authority (Son La Sub-FPD) for appraisal and approval for both presentation and maps.

Result: On March 20, 2017, Son La sub-FPD issued a report on af/reforestation design document for 310.26 ha, of which:

- Natural forest regeneration areas were 303.31ha;
- Assisted forest regeneration areas were 6,95ha.

*d) Capacity building*

From March 12, 2017 to March 17, 2017, the Project organized technical trainings on forest tree planting for the villagers in the pilot villages in order to provide them with required knowledge and techniques.

**Table 6: Technical training on forest regeneration**

No.	Participants	Unit	Gender		Total
			Male	Female	
1	Villagers	Person	589	84	673
2	Gov. officials	Person	4	0	4
3	Others	Person	1	0	1
	<b>Total</b>		<b>594</b>	<b>84</b>	<b>678</b>



**Pic. 23:** Theory training



**Pic. 24:** Practical training

**Communication and awareness raising for the local people**

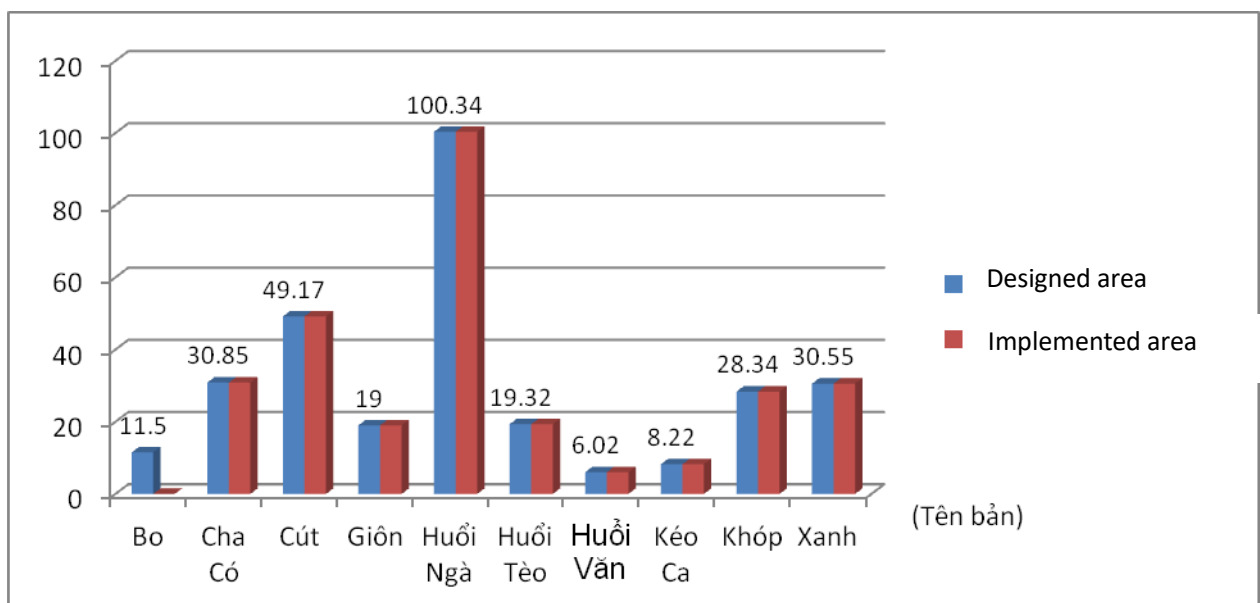
In order to ensure high effectiveness of the forest tree planting, not only training and on-site working are needed but also installation of signboards to help raising awareness of the local people.

- Demonstration models signboards: 13 pcs.
- Warning signboards (no cutting, no fire): 36 pcs.

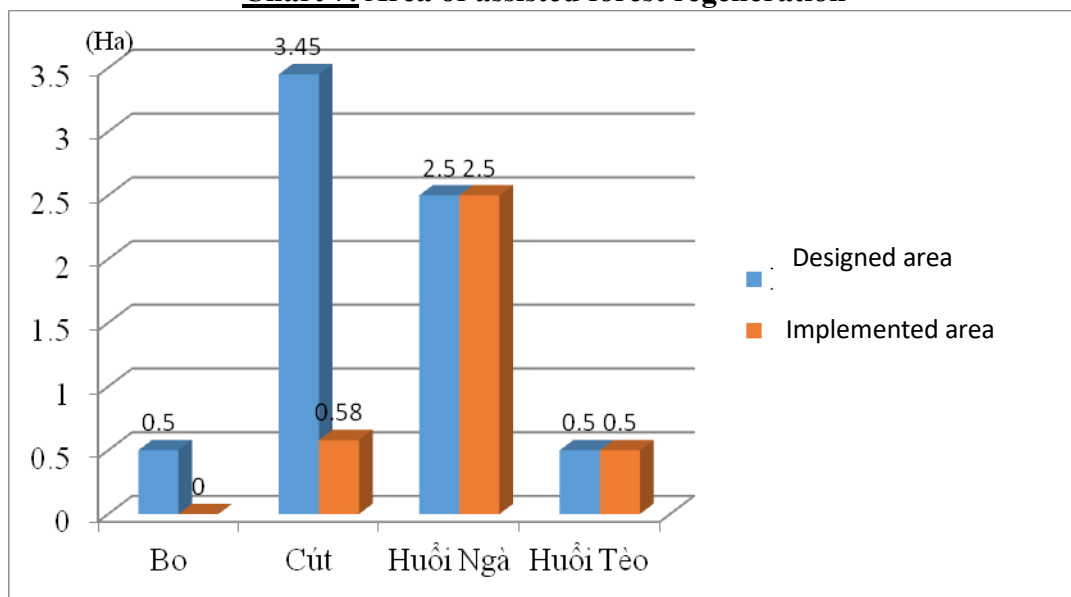
**d) Implementation**

From March 20, 2017 to August 31<sup>st</sup> 2018, the SNRM project has provided the local people with technical assistance and supervision to the implementation by the local people. Until August 31<sup>st</sup> 2018, 295.39ha of forests have been maintained by applying technical methods.

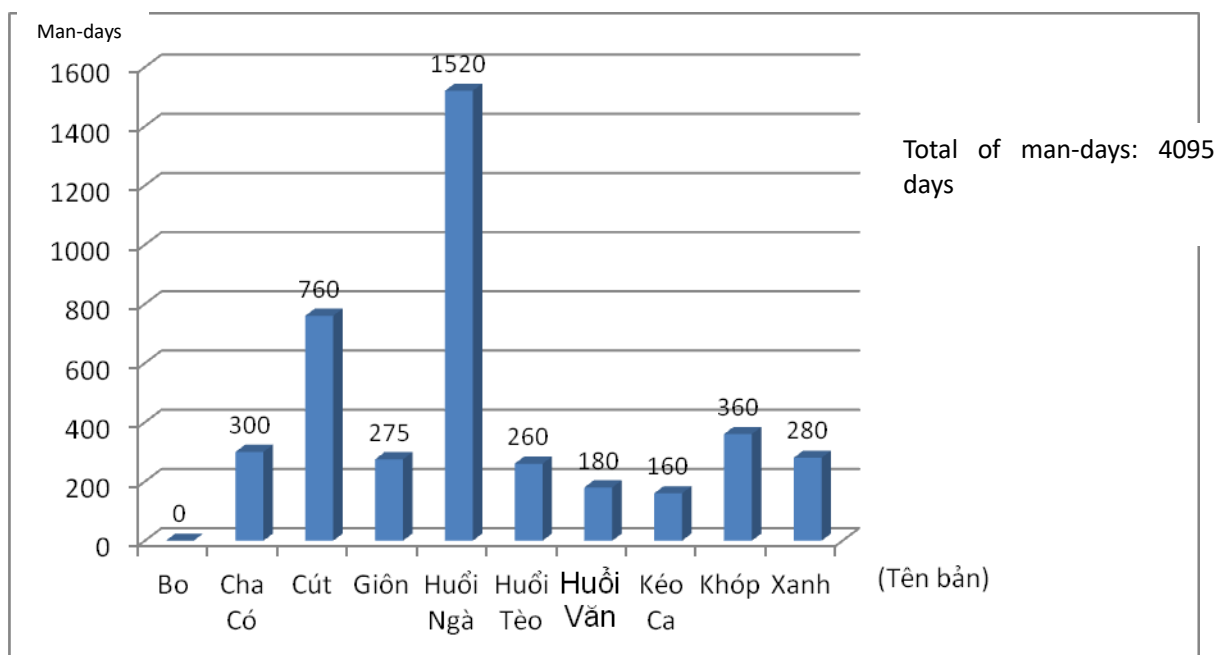
**Chart 6: Area of natural forest regeneration**



**Chart 7: Area of assisted forest regeneration**



**Chart 8: Total of man-days by the local people**



#### 4.3.4 Supervision of the implementation process

Along with the implementation of the forest tree planting, supervision of the implementation process plays a very important role. Some of specific indicators are as following:

##### a) Volume of carried out work

\* Natural forest regeneration: 08 villages have completed the work (19ha in Giôn village, 6ha in Huồi Văn Village, 30.55ha in Xanh Village, 30.85ha in Cha Có Village, 28,34ha in Khóp Village, 8,22ha in Kéo Ca Village, 19,32ha in Huồi Tèo Village, and 49,17ha in Cút Village and 100.34 ha in Huoi Nga village.)

\* Assisted forest regeneration: three villages have completed the work (0.5ha in Huồi Tèo village,



2.5ha in Huôi Ngà Village and 0.58ha in Cút Village).

#### b) Growth of planted trees

The interview results showed that 100% of respondents rated the growth of regenerated trees under support of the Project was good. Some of forests after regeneration are considered to be included in the list of PFES forest areas in 2017 and 2018.

#### 4.3.5 Encountered problems

- Natural, socio-economic conditions of the project areas still difficult.
- The boundaries of forests and forestry land as well as unclear ownership issue are causing difficulties in the management and implementation of the work.
- Information on planning and land use right have not yet been fully updated;
- The related stakeholders did not fully participate in implementation of the project work;
- Project activities have not been integrated with other projects.

#### 4.3.6 Proposed solutions

- Evaluate, develop reports and share lesson-learned;
- Promote integration of project activities with other projects;
- Promote engagement of other related stakeholders in supporting project implementation;
- Utilize village fund from PFES for forest protection and development;
- Reward outstanding performance holders in a timely manner to encourage them to better participate in project implementation.

#### 4.3.7 Lesson-learned

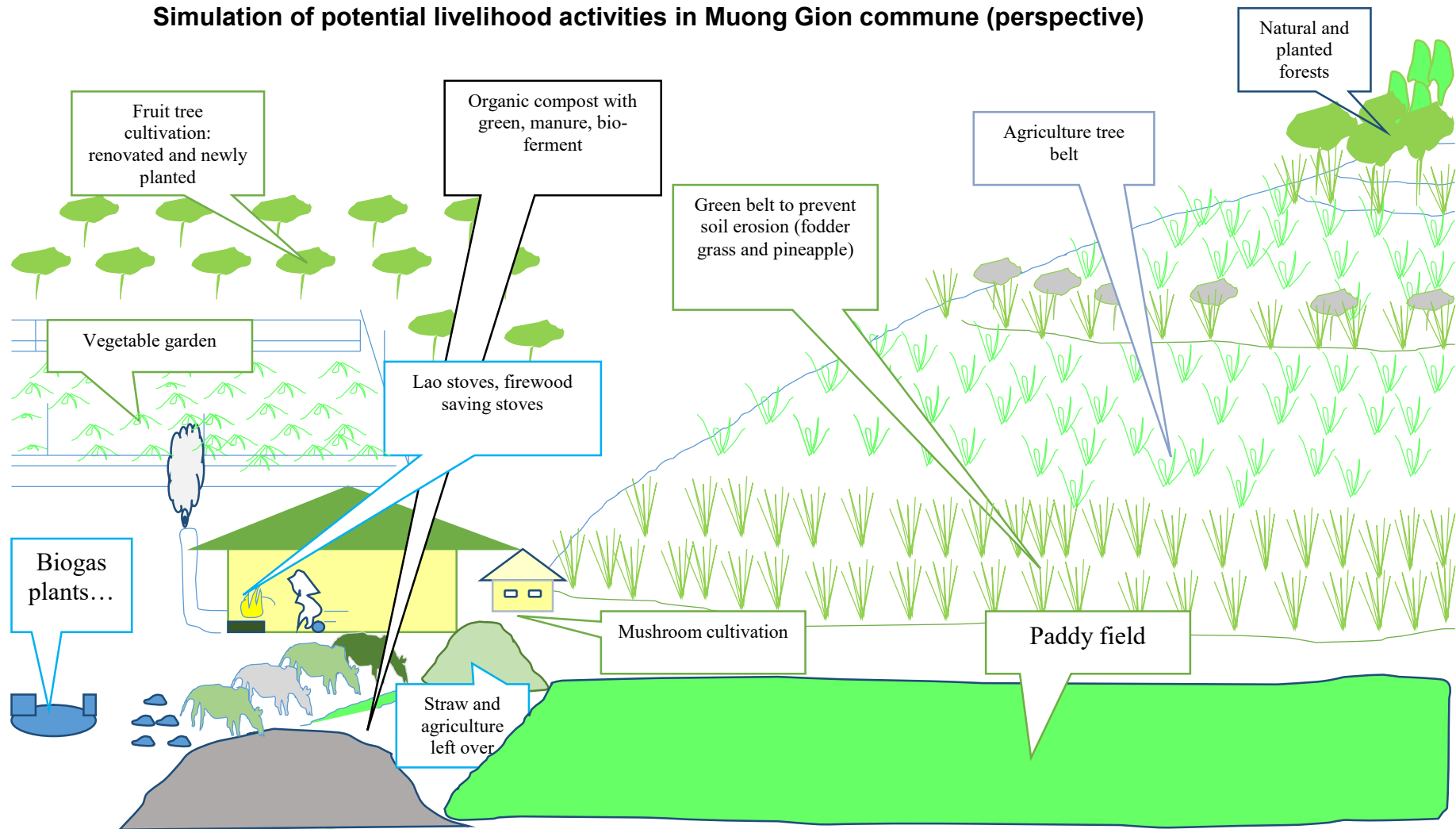
- Promotion of democracy and autonomy of the local people has helped to gain their consensus in forest protection. Application of community-based approach for planning, implementation, monitoring, and evaluation;
- Awareness raising for the local people is very important as their lives are attached with the forests;
- Integrate project components with other projects;
- Maximize all resources for Project implementation, especially, involvement of the local authority and other related sectors;
- Resources and risks should be taken into account while planning

## **V. Evaluation to implementation of livelihood development activities**

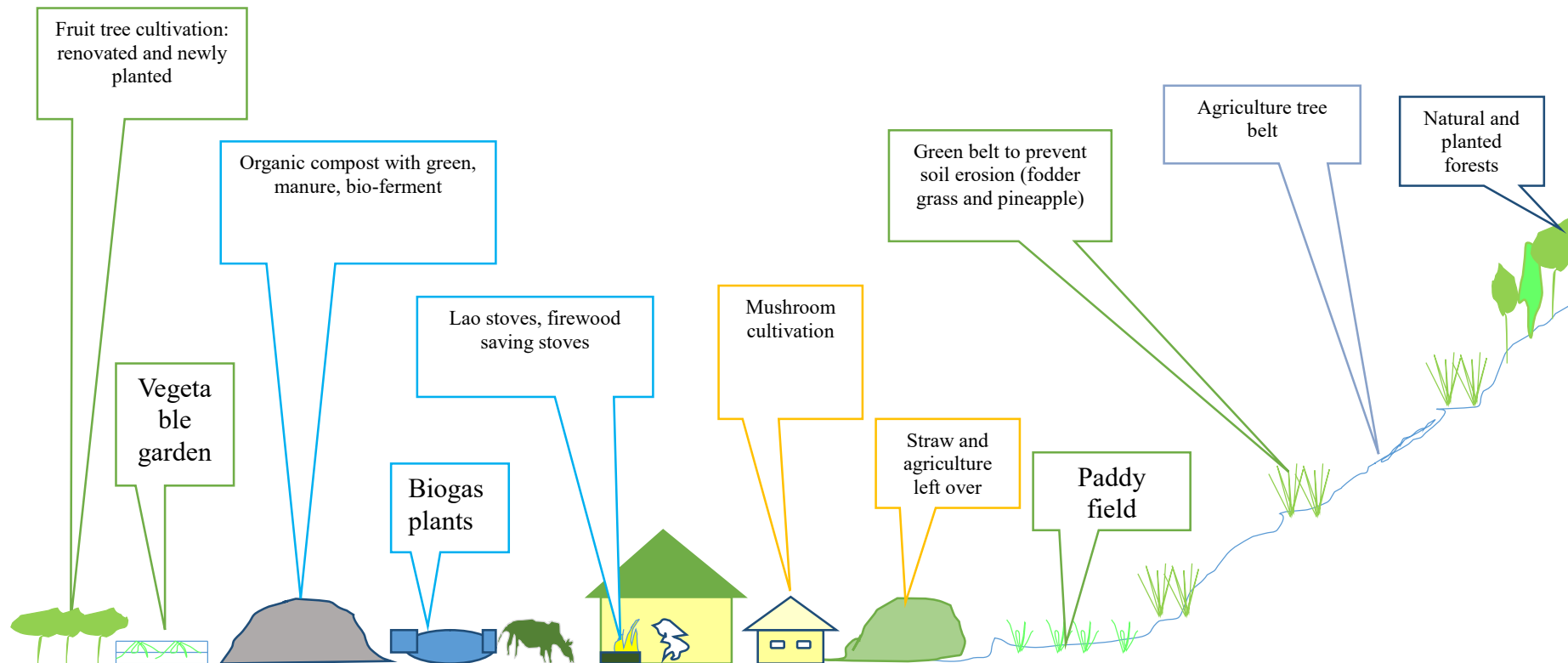
Like other pilot activities of the project, livelihood development plan developed through three village meetings. Planned livelihood development activities have participation of the VMBFMLD and the households.

Based on implementing status of livelihood development activities in Muong Gion commune, during the second village meeting, the Project has showed drawings to illustrate potential livelihood development activities to be implemented to support the local people. Through discussion, list of households who registered for particular activities has been made based on their capacity.

### Simulation of potential livelihood activities in Muong Gion commune (perspective)



**Figure 1.** Horizontal crosscutting of livelihood development activities in Muong Gion Commune (perception)



**Figure 2. Vertical crosscutting of livelihood development activities in Muong Gion Commune (perception)**

The livelihood development activities of the project are implemented in the following steps: Registration by the people; technical training and study tours; support agreement signing; provision of materials and inputs for households who have signed the support agreements; assistance in supervising the technical implementation process; performance evaluation. Specific activities in 2017 and 2018 are as follows:

## ***5.1. Firewood saving activities***

### *5.1.1. Introduction*

Two firewood saving activities have been carried out in Muong Gion Commune, namely firewood saving stoves and installation of biogas plants. The firewood saving stoves making has been done in 2017 and the installation of biogas plant was carried out in March 2018 in order to reduce consumed volume of firewood by the local households for their cooking demand, contribute to reduction of firewood harvesting and forest protection and development. In addition, it also helps to save time spent on firewood collection and indirectly affects household economic development.

### *5.1.2. Background*

Most of people in Muong Gion Commune had used traditional stoves before the new firewood saving one introduced to them. Advantages of the traditional stove: easy to make and use, cheap, suitable for cooking by ethnic minorities, and for mountainous areas in winter as heat generation. Disadvantages of the traditional stove: consumes high volume of firewood that people have to spend more time for the firewood collection; it generates smoke, dust, pollutes the environment, causes respiratory diseases; it is not safe as it might cause fire without control.

It appears that some of the local households have bought some of new firewood saving stoves. Advantages of the new stoves: it helps to save up to 35% of firewood, reduces time for firewood collection, mitigate environmental pollution and save cooking time. Disadvantages: it does not sustain for long time, is difficult to cook some of traditional dishes, no useful for heat generation purpose. Having reviewed the traditional stoves and the improved ones, the Project has designed a new model of firewood saving stove which is similar to the traditional stove in term of stove mold. At the same time, in order to facilitate stove making by the local people, the Project had designed and made stove mold of iron and lent to the registered households. The new designed stove is welcomed by many households as it not only has advantages of other improved stoves which are available in the market but also can be made/repared by the local people themselves. In addition, the Project has provided the stove molds to the VMBFMLD so it can be lent to household by household for their stove making/repairing. The new improved stove also has disadvantages, for example, it is heavy and not suitable for weak stilt houses; it is good for cooking but not for heating purpose during winter since the heat generated at the bottom of the stove.

### *5.1.3. Carried out activities*

#### *a. Technical assistance*

The project has prepared training materials and sample of the new improved stove to help the participants to understand better and can easily follow instruction to produce stoves as well as know about its advantages compared to other traditional and improved stoves that are available in the market. In the practical part, the training facilitator has instructed the participants on the technique of making stove and guide them how to make it using available materials. The project has organized 14 technical training courses for 618 people (of which 188 are women, accounting for 30% of the total participants). The participants are the members of the VMBFMLDs and the

representatives of the registered households. After the training, 13 VMBFMLDs together with the project staff supervised and urged the households to make stoves as scheduled.

**Table 7: Technical training for firewood saving stove making**

No.	Date	Location	Participants					Note
			Total	Male	%	Female	%	
1	23/02/2017	Cút Village	32	11	34%	21	66%	
2	24/02/2017	Giôn Village	100	90	90%	10	10%	
3	25/02/2017	Giôn Village	69	62	90%	7	10%	
4	25/02/2017	Xa Village	68	38	56%	30	44%	
5	27/02/2017	Huổi Tèo Village	28	18	64%	10	36%	
6	28/02/2017	Bo Village	32	17	53%	15	47%	
7	11/5/2017	Cha Có Village	49	29	59%	20	41%	
8	12/5/2017	Khóp Village	34	21	62%	13	38%	
9	13/5/2017	Xanh Village	46	28	61%	18	39%	
10	14/5/2017	Co Lú Village	22	18	82%	4	18%	
11	15/5/2017	Kéo Ca Village	38	21	55%	17	45%	
12	16/5/2017	Huổi Văn Village	31	23	74%	8	26%	
13	17/5/2017	Huổi Ngà Village	32	23	72%	9	28%	
14	21/11/2017	Tông Bua Village	37	31	84%	6	16%	
<b>Total</b>			<b>618</b>	<b>430</b>	<b>70%</b>	<b>188</b>	<b>30%</b>	



**Pic. 23:** Theory training on stove making



**Pic. 24:** Practical training on stove making

After the training, 100% of trainees was able to remove, install the stove mold and make stoves as guided by the Project.

*b. Provision of stove mold and materials for stove making*

Pursuant to the support agreement signed by the VMBFMLD and the representatives of the registered households, the support mechanism was agreed as following: the Project provides one stove mold per village and in order to speed up the progress, the Project has provided Gion village with 3 molds as there were 169 households in the village, 2 for Keo Ca village since living distance of the registered households is far (7km from the village center to the farthest household). In addition, each household has been provided with 1 iron frame, stove bottom sheet and 37kg of cement PCB30. The households themselves contributed sand and wooden molds. Every supported households contributed 50% of the received support value to the Village Fund (equivalent to VND 80,000). Details of provided materials and contributed amount the Village Fund are as in the below Table 8.

**Table 8. Provision of materials for improved stove making**

No.	Village	Registered households	Contributed amount to the Village Fund	Provided materials by the Project		
				Cement the Vissai PCB30 (Kg)	Iron frame and stove bed sheet (set)	Stove mold (set)
1	<i>Bo village</i>	22	1,760,000	850	22	1
2	<i>Cha Có village</i>	49	3,920,000	1,850	49	1
3	<i>Co Liu village</i>	20	1,600,000	750	20	1
4	<i>Cút village</i>	30	2,400,000	1,150	30	1
5	<i>Giôn village</i>	169	13,520,000	6,300	169	3
6	<i>Huổi Tèo village</i>	28	2,240,000	1,050	28	1
7	<i>Xa village</i>	71	5,680,000	2,650	71	1
8	<i>Xanh village</i>	46	3,680,000	1,750	46	1
9	<i>Khóp village</i>	29	2,320,000	1,100	29	1
10	<i>Huổi Ngà</i>	15	1,200,000	600	15	1

No.	Village	Registered households	Contributed amount to the Village Fund	Provided materials by the Project		
				Cement the Vissai PCB30 (Kg)	Iron frame and stove bed sheet (set)	Stove mold (set)
	<i>village</i>					
11	<i>Huổi Văn village</i>	29	2,320,000	1,100	29	1
12	<i>Kéo Ca village</i>	34	2,720,000	1,300	34	2
13	<i>Tông Bua village</i>	37	2,960,000	1,400	37	1
	<b>Total</b>	<b>579</b>	<b>46,320,000</b>	<b>21,850</b>	<b>579</b>	<b>16</b>

According to Table 5.1.2. quantity of provided materials were 21,850 kg cement The Vissai PCB30, 579 iron stove frames, stove bed sheets for 579 households; 16 iron molds for 13 villages. Total contributed amount to the Village Fund were VND 46,320,000.



***Pic. 25: Provision of materials for improved stove making to the registered households***



***Pic. 26: Households were helping each other to make improved stoves using available materials***

#### 5.1.4. Monitoring and supervision

Household survey results show that improved stove helps saving 40-50% firewood compared to traditional ones. Moreover, thanks to the provided stove molds and technical instructions by the Project's consultant, it was easy for the registered households to make and use that attracted more and more people to use the Project stoves and helped saving time and labor force for firewood collection. Results of making and using firewood saving stoves are as in the table 9 below.

**Table 9: Results of making and using improved stoves**

No.	Villages	No. of households who signed agreements	No. of households who had made and have been using the improved stoves		
			Total	No. of registered households	No. of non-registered households
1	<i>Bo village</i>	22	42	22	20
2	<i>Cha Có village</i>	49	49	49	
3	<i>Co Liu village</i>	20	29	20	9
4	<i>Cút village</i>	30	30	30	
5	<i>Giôn village</i>	169	200	169	31
6	<i>Huổi Tèo village</i>	28	28	28	
7	<i>Xa village</i>	71	90	71	19
8	<i>Xanh village</i>	46	46	46	
9	<i>Khóp village</i>	29	111	29	82
10	<i>Huổi Ngà village</i>	15	15	15	
11	<i>Huổi Văn village</i>	29	29	29	
12	<i>Kéo Ca village</i>	34	34	34	
13	<i>Tông Bua village</i>	37	37	37	
	<b>Total</b>	<b>579</b>	<b>740</b>	<b>579</b>	<b>161</b>

The results shown in the Table 9 reflect that the stove can help saving an average of 45% of firewood quantity and if a household consume about 35kg/day so 740 households can save 11,655kg firewood or 12m<sup>3</sup> firewood/day or 4380m<sup>3</sup>/year.





***Pic. 27:*** The improved stove used for cooking



***Pic. 28:*** H'Mong women are very happy with the improved stoves

### *5.1.5. Encountered problem and solutions*

Due to much heavy rains that led to difficulties in sand collection for stove making (i.e., in Keo Ca Village), or number of registered households in one village is huge (i.e. Gion Village) while number of stove molds is small so it did not facilitate the households to produce stoves as quick as scheduled. In order to overcome this problem, the Project has additionally provided more molds to Giong and Keo Ca village in order to push up the progress.

Since the stoves designed by the Project are heavy and not suitable to weak floor of the stilt houses. The Project has advised the local households to renovate their house floor (if needed) where they wish to put the stove to ensure its stability and safety.

### *5.1.6. Lesson-learned*

The Project should select and design suitable improved stoves to the local people and provide them with stove mold to produce massive stoves that have same functions and can save firewood as well as bring success to this activity of the Project.

## **5.2. Organic composting**

### *5.2.1. Introduction*

Organic composting allows households to utilize crop residues, animal manure and other available plant residues to create organic fertilizer for the crops, reduce costs of pesticides and chemical fertilizer, and utilize free time of the local people. This method helps degrading the germination of weed, destroying the pathogens found in manure, especially when it discharged by sick animals, decomposing organic compounds and turning it from difficult into easy form to digest by plants. Organic fertilizer is very good for soil improvement, especially, for degraded soils. Organic fertilizer is particularly good for crops on dry land as it helps increasing soil porosity, keeping soil moisture, and mitigating soil washing. It is safe for plants, animals and humans. It helps limiting residue of toxic substances in plants like  $\text{NO}_3^-$ , spreading of microorganisms that carry diseases, reducing the use of chemical fertilizers and pesticides, contributing to environmental protection and limiting affection to human's health. In addition, organic fertilizer also helps to increase productivity and quality for crops. Time for composting is short and it is more convenient for transportation of composted organic fertilizer compared to the un-composted one.

### *5.2.2. Background*

The livestock practices of the people in Muong Gion commune are one of the polluting factors as manure discharged freely, crop leftover often be burned that create smoke. On the other

hand, people have been using chemical fertilizers for agriculture cultivation, which is harmful for soil and water sources. Organic composting was selected as one of project activities in Muong Gion commune in order to change bad habits of the local people, which is good for the environment and helps reducing the cost of purchasing fertilizers.

### 5.2.3. Carried out activities

#### a. Technical assistance

The project has organized a 2-day study tour to a model of organic composting in Muoi Noi Commune, Thuan Chau District and Tay Bac University in Son La City for the 42 participants, who are representatives of the Muong Gion CPC, Commune Extension workers, village heads of participated villages and leaders of organic composting groups of the villages. The study-tour aimed to help the participants to understand practical benefits of the organic composting so they can share their gained knowledge to other in the same area.

**Table 10: Results of study-tour**

No.	Date	Venue	Number of participants				
			Total	Male		Female	
				Number of people	%	Number of people	%
1	April 17, 2017	Tây Bắc University, Son La City	42	37	88%	5	12%
2	April 18, 2017	Muối Nọi commune, Thuan Chau District	42	37	88%	5	12%

The project organized 8 training courses on technology transfer for 10 registered villages like Bo, Cu, Co Ly, Huoi Teo, Ngop, Giôn, Xa, Xanh, Huoi Nga, and Tong Bua village. The trainings aimed to introduce the participants to understand the need of using organic fertilizers and types of the organic fertilizers that have been used for agricultural and forestry production. In addition, it introduced methods of organic composting that have been applied in agriculture and forestry production; technical process of using bio-yeast to produce bio-organic fertilizer from available materials in the locality; instructed the participants on how to avoid and mitigate risks and solutions for problems that may occur during the bio-organic fertilizer production; given chances to practice bio-organic fertilizer composting from available materials using Trichoderma HP4 (material collection, processing, cutting materials, mixing bio-yeast, spreading materials, pouring mixed yeast, and covering).

**Table 11: Technical training on organic compost**

No.	Date	Venue	No. of participants				
			Total	Male		Female	
				No. of male	%	No. female	%
1	19/04/2017	Bo + Giôn Village	25	16	64%	9	36%
2	20/04/2017	Khóp Village	27	23	85%	4	15%
3	21/04/2017	Xa Village	62	38	61%	24	39%
4	22/04/2017	Huổi Teo Village	23	17	74%	6	26%
5	23/04/2017	Xanh Village	34	15	44%	19	56%
6	24/04/2017	Cút Village	27	10	37%	17	63%
7	25/04/2017	Co Lúu + Huổi Ngà Village	27	18	67%	9	33%
8	13/10/2017	Tông Bua Village	37	27	73%	10	27%
<b>Total</b>			<b>262</b>	<b>164</b>	<b>63%</b>	<b>98</b>	<b>37%</b>



**Pic. 29:** Trainees were practicing bio-organic fertilizer composting

The Project has organized 8 training courses with 262 participants, 164 of male participants (63%) and 98 female participants (37%).

*b. Provision of supplies and inputs*

According to the signed agreements, the Project shall support the registered households with technical training, study-tours, 1kg of bio-yeast *Trichoderma* HP4, 20m<sup>2</sup> plastic cover to compost 3-5m<sup>3</sup> of materials (equivalent to 1.5 – 3 tons of composted fertilizer). Quantity of provided materials and inputs, and outputs are shown in the below Table 12.

**Table 12: Provided materials and supplies for organic composting**

No.	Village	No. of HHs who signed support agreements	Quantity of provided materials and supplies		Outputs (composted fertilizer)
			Plastic cover (m <sup>2</sup> )	Bio-yeast (kg)	
1	Bo	16	320	16	32
2	Giôn	1	20	1	2
3	Huổi Tèo	23	460	23	46
4	Khóp	20	400	20	40
5	Xa	58	1,160	58	116
6	Xanh	36	720	36	72
7	Cút	22	440	22	44
8	Co Lúu	21	420	21	42
9	Huổi Ngà	5	100	5	10
10	Tông Bua	37	740	37	74
	<b>Total</b>	<b>239</b>	<b>4,780</b>	<b>239</b>	<b>478</b>



**Fig. 30:** Providing materials and supplies to the local HHs

#### 5.2.4. Monitoring and supervision

Results of monitoring and evaluation of organic fertilizer production showed that organic fertilizer product is very suitable for agroforestry cultivation in the locality. According to the

interviewed HHs participating in the activity, the composted fertilizer product helps to increase crop productivity, soil improvement, and reduce weeding work as it was killed during composting process. From actual production and use, there's a number of households who bought bio-yeast for their own production using technical guidance of the Project (5 HHs in Cut village, 3 HHs in Giôn village, and 3 HHs in Co Liu Village).

This project activity has helped the local HHs to gradually change their habit of using fresh manure, chemical fertilizers in cultivation. In addition, the collection of animal manure and crop leftover waste to produce bio-organic fertilizer helps to protect environment, contribute to success of the new rural development program of the commune.



***Pic. 31:*** Mixing materials during organic composting process



***Pic. 32:*** Checking heat and moist during composting process

#### ***5.2.5. Encountered problems and solutions***

Change the practice of the local people is difficult and it shall take long time. The project has organized training courses and study-tours to learn basic knowledge on organic fertilizer production. The local people can draw benefits of organic fertilizer so they can produce and use themselves.

Bio-fertilizer production which uses Trichoderma HP4 has just newly introduced to the local people by the Project so it is not easy to buy Trichoderma HP4 for their own production. In order to solve this issue, the project has provided address of the suppliers so the local HHs can buy it themselves, when needed.

Plastic cover is easy to be rotten due to heat generated during the production process. The solution to this problem is to use old tanks, or dig pits where is drainable, or use alternative materials similar to plastic cover to produce the same quality product.

#### ***5.2.6. Lesson-learned***

The activity is suitable with actual conditions of the project area as the HHs can easily collect materials from crop residues and farming to produce bio-fertilizers. On the other hand, the production cost which is affordable by the local HHs. Moreover, regular technical support of the project is one of causes of the success of the activity.

### ***5.3. Support for agroforestry production (sustainable cultivation on sloping lands)***

#### ***5.3.1. Introduction***

Support for the agroforestry production models (sustainable cultivation on sloping land) is aimed at supporting the local people to effectively utilize the available land resources for high economic and sustainable benefits.

#### ***5.3.2. Background***

Muong Gion Commune topography is characterized by high mountains and hills, with over 90% of the land with steep slopes (> 35% of total land area), causing difficulties for agricultural production. Moreover, due to soil erosion and degradation, land area for agricultural cultivation per capita is getting narrowed, while the population of the commune is increasing. The local people here mainly apply mono-cropping method, species is not diversified, and the food quantity is not enough to serve demands the local people and markets. Increasingly demand for food is a pressure that force to the local people to cultivate maize and cassava on the sloping lands; the increasing number of cows and buffaloes is a pressure to forest protection as the local people are grazing them freely in the PFES forests areas; every year, number of cows and buffalos that died due to hunger and cold is increasing. This requires a solution for sustainable cultivation on the existing land of the household for stable and sustainable income. The agroforestry activities selected by the Project are expected to be demonstration models from which people can replicate when it generates stable good outcomes.

### 5.3.3. Carried-out activities

#### a. Technical assistance

Introduction to the local people on agroforestry production, survey and design. The project has organized 12 workshops to introduce about agroforestry production to the local people. The workshops aimed at providing people with information on cultivation on sloping land and development of agroforestry models. Through the workshops, the Project has developed a list of households registered to build new and renovate existing agroforestry models; surveyed, assessed and agreed with the local HHs on to be applied agroforestry models; designed and developed budget for agroforestry models. The number of people who participated in the workshops shown in Table 13.

**Table 13: Participants to the agroforestry introduction workshop**

No.	Date	Villages	Participants				Total
			Male	%	Female	%	
1	5/1/2017	Huổi Tèo	18	69%	8	31%	26
2	6/1/2017	Xanh	30	65%	16	35%	46
3	7/1/2017	Bo	41	95%	2	5%	43
4	8/1/2017	Khóp	56	77%	17	23%	73
5	9/1/2017	Giôn	88	85%	16	15%	104
6	10/1/2017	Xa	51	91%	5	9%	56
7	11/1/2017	Cút	24	69%	11	31%	35
8	12/1/2017	Co Lúu	15	60%	10	40%	25
9	13/1/2017	Huổi Ngà	34	79%	9	21%	43
10	14/1/2017	Huổi Vãn	16	73%	6	27%	22

No.	Date	Villages	Participants				Total
			Male	%	Female	%	
11	15/1/2017	Kéo Ca	28	80%	7	20%	35
12	16/1/2017	Cha Có	33	77%	10	23%	43
13	13/6/2017	Tông Bua	19	48%	21	53%	40
<b>Total</b>			<b>453</b>	<b>77%</b>	<b>138</b>	<b>23%</b>	<b>591</b>

There were 591 participants of 13 introduction workshops, of which, 138 of them are female (accounts for 23%). After participatory discussions and surveys, the Project has selected 9 locations for agroforestry development models.

Technical training for agroforestry models: based on designed document and budget for each model, the Project has organized technical training for the participated households. The technical training focused on A shape ruler and how to use it to identify contour lines to cultivate plants on bands to prevent soil erosion; techniques for land preparation, hoe digging/filling; techniques of planting trees and fodder grass; preparation of parent fruit trees for grafting, etc. Number of participants to the training shown in the Table 14.

**Table 14: Number of participants of the technical trainings on agroforestry models**

No	Date	Villages	Participants				Total
			Male	%	Female	%	
1	13/03/2017	Bản Xa	9	69%	4	31%	13
2	13/03/2017	Bản Cút	7	78%	2	22%	9
3	14/03/2017	Bản Cha Có	24	71%	10	29%	34
4	14/03/2017	Bản Co Lú	4	100%			4
5	15/03/2017	Bản Huổi Tèo	6	100%			6
6	16/03/2017	Bản Xanh	2	100%			2
7	16/03/2017	Bản Bo	2	100%			2
8	16/03/2017	Bản Giôn	1	100%			1
<b>Total</b>			<b>55</b>	<b>77%</b>	<b>16</b>	<b>23%</b>	<b>71</b>

The training has helped building capacity for the participants so that they can identify themselves the contour lines and prepare land as guided.



***Pic. 33:*** Making A shape ruler



***Pic. 34:*** Participants identifying contour lines with A shape ruler

Moreover, the Project has organized a study-tour with participation of 26 people (25 men and one woman) who are representatives of participated HHs to some of good agroforestry models supported by APLI project in Co Noi and Hat Lot communes, Mai Son district, Son La province. The study tour aimed at providing chance to the participated HHs to enhance their knowledge on how to implement their designed models in their locality.



***Pic. 35:*** Study tour in Co Noi commune, Mai Son district, Son La Province



***Pic. 36:*** Participated people discussing with model owners on economic values generated by the model.

#### *b. Provision of fruit tree seedlings and Ghine grass*

As agreed, the Project shall provide the participated HHs with technical assistance, organization of study tour, fruit tree seedlings and grass cutting as designed. The model owners shall use their own land and labor to implement the models as guided. The Project, based on agreements of support and agreed design, has selected reputed suppliers for quality fruit tree seedlings and Ghine grass. Results of provision of seedlings shown in the Table 15.



**Table 15a: Total quantity of provided seedlings in 2017**

No.	Villages	No. of HHs/groups	No. of HHs	Area (m <sup>2</sup> )	Fruit trees planted on bands (tree)							Total	Ghine grass (Kg)
					Grafted mango	Grafted longan	Grafted lychee	Grafted plump	Grafted Malus doumeri	Grafted pomelo	Grafted Canarium tramdeum		
1	Bo village	1	1	5,800		104				104		208	60
2	Cha Có village	3	9	20,500	138	136	136					410	1025
3	Co Liu village	1	1	7,900		52	52					104	395
4	Cút village	8	8	23,000	209	209					42	460	1150
5	Giôn village	1	1	9,200	72						72	144	460
6	Huổi Tèo village	4	4	22,400					560			560	1120
7	Xa village	3	9	11,300	77	75		74				226	565
8	Xanh village	1	1	16,300		163		163				326	815
	<b>Major planting</b>				<b>496</b>	<b>739</b>	<b>188</b>	<b>237</b>	<b>560</b>	<b>104</b>	<b>114</b>	<b>2,438</b>	<b>5,590</b>
	<b>Contingency (10%)</b>				<b>50</b>	<b>74</b>	<b>19</b>	<b>24</b>	<b>56</b>	<b>11</b>	<b>12</b>	<b>246</b>	<b>559</b>
	<b>Total</b>	<b>22</b>	<b>34</b>	<b>116,400</b>	<b>546</b>	<b>813</b>	<b>207</b>	<b>261</b>	<b>616</b>	<b>115</b>	<b>126</b>	<b>2,684</b>	<b>6,149</b>

**Table 15b: Total quantity of provided seedlings in 2018**

No.	Village	HHs	Area (m <sup>2</sup> )	Fruit tree varieties	
				Grafted plump	Coffee
1	Tông Bua	38	70,800	3,637	2,575
	<b>Total</b>	<b>38</b>	<b>70,800</b>	<b>3,637</b>	<b>2,575</b>

According to the Table 15, the Project has provided 9,296 fruit tree seedlings and 6,149 kg Ghine cuttings to 72 HHs to develop 8 agroforestry models on 18.72 ha.



***Fig. 37: Checking quality of seedlings before providing to the local HHs***



***Fig. 38: The local HHs receiving seedlings***

### 5.3.3. Monitoring and supervision

Monitoring results show that most of the participated HHs have followed technical advices of the Project. The planted fruit trees are growing well but Ghine grass grow slower than expectation due to late planting. The HHs has harvested grass once for livestock. The Project regularly provides support to the local HHs to maintain fruit tree garden and cutting grass to facilitate development of planted trees.



***Fig. 39: Japanese experts and project staff visiting agroforestry model in Cut village***



***Fig. 40: Model of grafted Malus doumeri in Huoi Teo village***



***Fig. 41: Grafted pomelo in Bo village***



***Fig. 42: Grafted fruit trees***

#### *5.3.4. Encountered problems and solutions*

Some of the HHs have signed agreements but did not have enough human resource to implement. In order to support them, the Project has worked with the VMBFMLD to urge them to implement the models as designed.

Due to insufficient calculation at the designing stage, the quantity of Ghine grass provided to the local HHs was not enough so the Project staff have consulted with Japanese Experts to provide additional grass seedlings for cultivation as designed.

The additional grass was cultivated during late rainy season so its growth is slower than normal. The Project has supported the local HHs to maintain the planted grass to create source of seedlings for next cultivation season in 2018.

#### *5.3.5. Lesson-learned*

The model accepted by the local people thanks to the agreement with them on the tree planting structure since the step of design, which meets their demands. Project's technical assistance during stage of development of the model plays a very important role to success of the model.

### **5.4. Planting amomum under forest canopy**

#### *5.4.1. Introduction*

Amomum is precious herb growing under forest canopy which is below 60%.

There are many kinds of amomum and amomum longiligulare is the one which bring high economic value as it not only generates incomes and helps improve living standard of the local people but also contributes to prevention of soil erosion, creation of diverse vegetation, forest protection, and flood risk mitigation. Amomum longiligulare tree share land with forest trees as it planted under forest canopy to increase income generated from a unit of land. Fruit will be ready for harvesting 2-3 years after planting and available for harvesting for 5-6 consecutive years. Each ha of amomum longiligulare can produce 150-250kg of dry fruit/year that costs VND 100,000 – 150,000 /kg (VND 15 million to 30 million per year).

#### *5.4.2. Background*

In Muong Gion commune, there are natural amomum trees scatter planted in some villages such as Cha Co, Huoi Van, Huoi Nga and Co Liu which mainly are Amomun xanthioides Wall with low economic value. The local are only used to exploit from nature without care and protection leading to very low productivity. Meanwhile, Muong Gion has allocated forests and forestry land to communities and households. In order to increase income from the allocated forests and forestry land that motivate the villagers to be more active in forest protection and development, through discussion with the villagers during village meetings, the Project has decided to grow amomum longiligulare under forest canopy in Huoi Nga village.

#### *5.4.3. Carried-out activities*

##### *a. Technical assistance*

The Project has organized an introduction workshop on planting amomum longiligulare under forest canopy for 43 participants (9 of them are women) in Huoi Nga village. During the workshop, the Project staff have introduced to the local people on the benefits of planting amomum longiligulare under forest canopy and support mechanism of the project to the model development as well as conditions for being supported. Based on the survey results and support criteria, the Project has selected household of Mr. Giang A Tong who allocated with 2.1ha of natural forest to develop the model of planting amomum longiligulare under forest canopy.

Structure of the model is as follow: Area for planting amomum longiligulare is 0.84ha.2.1 ha of natural forest (40% of allocated area), of which, 0.2ha is for amomum longiligulare and 0.64ha is for amomun xanthioides wall.

Technical training: Based on designed document, the Project has organized technical training for 41 participants (1 household who develops a model and 40 households who have registered to plant amomum under forest canopy (10 of them are women)) to guide them in selection of location, cutting climbing plants, open forest canopy and land preparation; thinning and maintaining existing native amomum trees; planting and maintaining processes. The participants, after the training, have gained basic knowledge on process of planting and maintaining amomum longiligulare and amomun xanthioides wall trees.



*b. Provision of seedlings*

Support mechanism in stated in the agreement: the project supports for the design documentation, technical training on planting and maintenance, seedlings, and fertilizer.

The Project has selected reputed seedling supplier who can supply quality 244 seedlings to the household who develops demonstration model.



*5.4.4. Monitoring and supervision*

Amomum longiligulare is new to the local people so the Project regularly provides them with technical assistance in processing vegetation, land preparation and maintenance. As a result, the planted trees grow very well.



***Pic. 47:*** Amomum growing after planting



***Pic. 48 :*** Model owner was checking planted trees

#### *5.4.5. Lesson-learned*

Selection of owner who is responsible for development of the model and technical support of the project plays important roles to success of the model.

### ***5.5. Support for fruit tree cultivation***

#### *5.5.1. Introduction*

In Muong Gion commune, fruit trees are planted popularly but quality and value are low due to uncontrolled source of seedlings. On the other hand, the local people just planted fruit trees without application of techniques so the trees soon be degraded and reduced its values. In fact, the Project has provided technical assistance and quality seedlings to the local people for their cultivation.

#### *5.5.2. Background*

In the recent years, with a view of developing a fruit area of the province, fruit cultivation has been replicating in Muong Gion commune but mainly planted in households' gardens without application of proper planting techniques so effectiveness is not as high as expectation. Fruits are only enough to serve domestic demand and trading within the small region but not to production area. On the other hand, the cultivation of traditional food crops (maize, cassava) occupies a large area with low value, thus, poverty is still a topic of concern of the authorities from provincial to the commune level. Therefore, the Project technical assistance and provision of seedlings contributes to product diversification and income generation for the local people.

#### *5.5.3. Carried-out work*

##### *a. Technical assistance*

The project has organized 11 training courses which aimed to equip people with techniques of planting and maintenance of fruit trees. The training focused on processing the vegetation, soil digging, fertilizer, tree planting, tending and protection of planted fruit trees. The Project has applied methods of training for elderly and on job training, so after the training the trainees have gained basic knowledge and could applied trained techniques. The number of participants in the training shown in Table 16.

**Table 16: Participants of technical training on fruit tree planting**

No.	Locations	Participants				Total
		Male	%	Female	%	
1	Bo village	10	43%	13	57%	23
2	Huổi Văn village	31	76%	10	24%	41
3	Huổi Ngà village	20	65%	11	35%	31
4	Xanh village	39	78%	11	22%	50
5	Xa village	50	81%	12	19%	62
6	Huổi Tèo village	24	77%	7	23%	31
7	Kéo Ca village	37	84%	7	16%	44
8	Khóp village	32	78%	9	22%	41
9	Co Lúu village	18	60%	12	40%	30
10	Cha Có village	16	84%	3	16%	19
11	Cút village	38	64%	21	36%	59
	<b>Total</b>	<b>315</b>	<b>73%</b>	<b>116</b>	<b>27%</b>	<b>431</b>

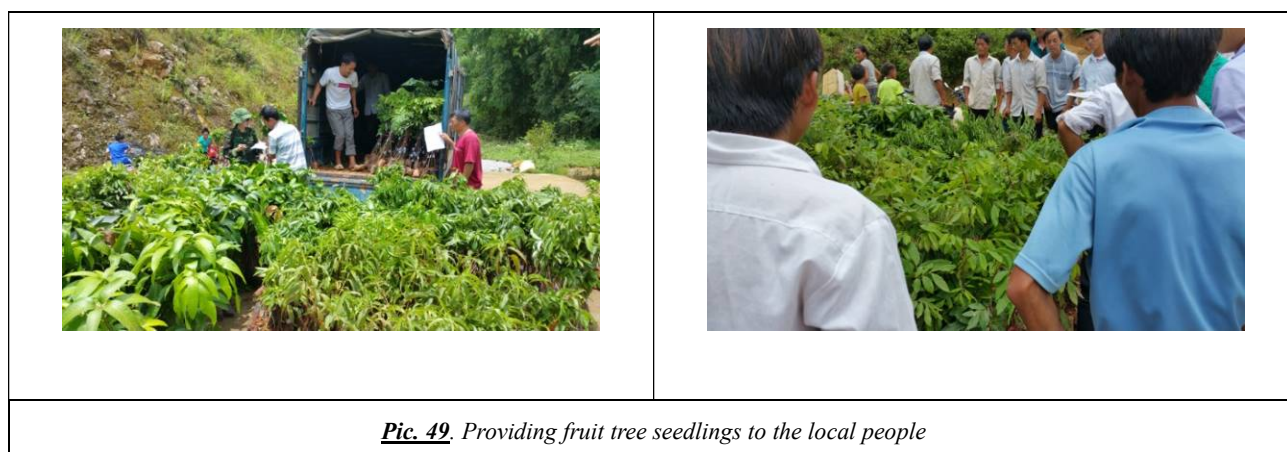
Total participants were 431 (116 women, accounted for 27 %.)

*b. Provision of fruit tree seedlings*

Based on the Support Agreement, the Project provided technical assistance and 10 fruit tree seedlings (free of charge), the local people contribute their labor and 50% of the value of seedlings from 11th or more trees into the village fund at the time of receiving seedlings. The project has provided 12,104 fruit trees of all kinds to 557 households who have signed support agreements, details as in table 17.

**Table 17: Results of provision of fruit tree seedlings**

No.	Village	No. of HHs	Fruit tree species and quantity								Total
			Grafted longan	Grafted Taiwan mango	Grafted lychee	Grafted plum	Grafted Malus doumeri	Grafted peach	Grafted Canarium tramdeum	Grafted lime	
1	Bo	22	100	110		10					<b>220</b>
2	Cha Có	48	126	138	149	124		54			<b>591</b>
3	Co Lúu	25	30	55	82	108		12			<b>287</b>
4	Cút	65	567	448	533	326		129			<b>2,003</b>
5	Giôn	41	150	905	810	915		220			<b>3,000</b>
6	Huổi Ngà	31	56	103	74	35		154			<b>422</b>
7	Huổi Tèo	19	15	59	142	128	125	79			<b>548</b>
8	Huổi Vãn	48	347	290	110	115		55			<b>917</b>
9	Kéo Ca	29	5	200				5		110	<b>320</b>
10	Khóp	73	374	476	559	195		152	10		<b>1,766</b>
11	Xa	113	90	790	160	220		60			<b>1,320</b>
12	Xanh	43	10	380	255	65					<b>710</b>
	<b>Total</b>	<b>557</b>	<b>1,870</b>	<b>3,954</b>	<b>2,874</b>	<b>2,241</b>	<b>125</b>	<b>920</b>	<b>10</b>	<b>110</b>	<b>12,104</b>



#### 5.5.4. Monitoring and supervision

Results of monitoring and supervision show that survival rate of planted fruit trees was from 85% to 90%. However, there are some pending issues like no protective fences installed by people to protect planted trees from animals, weeding was not implemented properly that affect growing of the fruit trees.

Collection of co-contribution of the supported HHs was carried out well by the VMBFMLD. Until December 31, 2017, total collection reached VND 88,915,750 (100%). Results are shown in the below Table 18.

**Table 18:** Co-contribution of the supported HHs to the Village Fund

No.	Village	No. of HHs	No. of received fruit tree seedlings	Receivable amount (VND)	Received amount (VND)	%
1	Bo village	22	<b>220</b>	68,750	68,750	100%
2	Cha Có village	48	<b>591</b>	1,952,500	1,952,500	100%
3	Co Lúu village	25	<b>287</b>	627,000	627,000	100%
4	Cút village	65	<b>2,003</b>	18,232,500	18,232,500	100%
5	Giôn village	41	<b>3,000</b>	39,146,250	39,146,250	100%
6	Huổi Ngà village	31	<b>422</b>	2,076,250	2,076,250	100%
7	Huổi Tèo village	19	<b>548</b>	6,443,250	6,443,250	100%
8	Huổi Văn village	48	<b>917</b>	6,063,750	6,063,750	100%



No.	Village	No. of HHs	No. of received fruit tree seedlings	Receivable amount (VND)	Received amount (VND)	%
9	Kéo Ca village	29	<b>320</b>	330,000	330,000	100%
10	Khóp village	73	<b>1,766</b>	9,218,000	9,218,000	100%
11	Xa village	113	<b>1,320</b>	550,000	550,000	100%
12	Xanh village	43	<b>710</b>	4,207,500	4,207,500	100%
	<b>Total</b>	<b>557</b>	<b>12,104</b>	<b>88,915,750</b>	<b>88,915,750</b>	<b>100%</b>



**Fig. 50:** Project staff was providing technical assistance to the local people



**Fig. 51:** One-month old grafted Taiwan mango

#### 5.5.5. Encountered problems and solutions

Season for planting of fruit trees coincided with the rice growing season, so the HHs have to focus on rice cultivation to ensure food security that led to death of unplanted fruit tree seedlings or to poor growth due to late planting. On the other hand, a flash floods occurred at the time of planting that affected the survival and growth of the planted fruit trees. In order to support the local HHs, the project has discussed and agreed to provide additional seedlings to the HHs to replace the dead trees.

Some of HHs do not really care about the tree tending and protection of fruit trees after planting, resulted in death or not growing well trees. In order to address this issue, the project has assigned facilitators to strengthen the support to the local HHs to implement follow the trained technique. At the same time, the project worked with all households who have received fruit trees for planting to determine the number of dead fruit trees and the causes, then depending on each case, to identify appropriate solutions. To the HHs who did not comply with the technical guidelines, they should, at their own cost, buy seedlings to replace dead trees as stated in the signed support agreement; for those whose fruit trees died due to force majeure events (weather, pests, etc.), the project will plan to buy seedlings and provide to them to grow at the beginning of the 2018 rainy season.

#### *5.5.6. Lesson-learned*

It is necessary to take into account crop schedule in the locality while planning to avoid providing tree seedlings at the same time with crop season.

### **5.6. Support for fodder grass cultivation**

#### *5.6.1. Introduction*

Fodder grass cultivation activity is one that selected by the Project to support the local HHs to grow high nutrition fodder grass species which are suitable with soil conditions and climate in the locality. The activity aims to develop livestock by the local HHs and mitigate negative impacts of free grazing that contribute to protect forests.

#### *5.6.2. Background*

According to Report No. 33/BC-UBND dated September 13, 2016 of Muong Gion CPC on socioeconomic development, and national security and defense during the first 9 months of the year and implementation plan for the last three months in 2016 of Muong Gion commune, until September 1, 2016, there were 2,663 buffalos, 2,824 cows, 2,700 goats, and 67 horses were raising in the commune. The number of cattle was huge that required a huge pasture area to meet demand of grazing. However, due to agriculture production demand, the area has been narrowing so the local people have to graze their cattle in young forests that destroy community/household forests. In fact, it is necessary to identify solutions to not only develop livestock but also well protect forests in the commune. In the recent years, some of the commune HHs have been growing some fodder grass species like VA06, elephant grass, etc., but they are not drought-tolerant plants and easily grow old in winter (high grass demand season). The Project, through discussion with the local people during village meetings, has decided to support them with fodder grass cultivation by providing them with good grass seedlings that does not have issues of the current grass species in order to promote development of livestock in the commune.

#### *5.6.3. Carried-out activities*

##### *a. Technical assistance*

The Project has organized 9 technical training classes for the registered HHs in 9 villages. The training focused on fodder grass cultivation and maintenance techniques, especially for Ghine and Guatemala grass species. The Project has applied on job training method which is suitable for elder people, so, after the training, participants have understood and applied well trained techniques. Number of participants to the training shown in the Table 19 as below.

**Table 19: No. of participants of technical training on fodder grass cultivation**

No.	Locations	Participants				Total
		Male	%	Female	%	
1	Bo village	10	43%	13	57%	23
2	Xanh village	39	78%	11	22%	50
3	Xa village	50	81%	12	19%	62
4	Huổi Tèo village	24	77%	7	23%	31
5	Kéo Ca village	37	84%	7	16%	44
6	Khóp village	32	78%	9	22%	41
7	Co Lúu village	18	60%	12	40%	30
8	Cha Có village	16	84%	3	16%	19
9	Cút village	38	64%	21	36%	59
	<b>Total</b>	<b>264</b>	<b>74%</b>	<b>95</b>	<b>26%</b>	<b>359</b>

Total of participants was 359 (95 female, accounts for 26% of the total participants)

*b. Provision of grass seedlings/seeds*

This is the first time Ghine and Guatemala grass species grown in the locality so the Project provided to the local HHs with 8kg of seedlings and replicate by cuttings. Quantity of provided seedlings shown in the Table 5.6.2 as below.

**Table 20: Results of provision and receiving grass seedlings/seeds**

No.	Villages	No. of HHs	Quantity of Guatemala grass (Kg)	Quantity of Ghine cuttings (Kg)	Note
1	Bo	16		128	
2	Cha Có	34		272	
3	Co Lúu	12		96	
4	Cút	41		328	
5	Huổi Tèo	18	144		
6	Kéo Ca	16	128		

No.	Villages	No. of HHs	Quantity of Guatemala grass (Kg)	Quantity of Ghine cuttings (Kg)	Note
7	Khóp	16		128	
8	Xa	50		400	
9	Xanh	46		368	
	<b>Total</b>	<b>249</b>	<b>272</b>	<b>1,720</b>	

According to the Table 20, the Project has provided to 249 HHs in 9 villages who signed support agreements with the Project with 1,992 kg cuttings, of which, 1,720 cuttings of Ghine and 272 kg of Guatemala seedlings.



***Pic. 52:** Grass seedlings at assembly area before being planted*



***Pic. 53:** Guidance to the local HHs on protecting grass seedling before planting*

#### 5.6.4. Monitoring and supervision

Monitoring and supervision results showed that Ghine and Guatemala grass species are suitable to be planted in Muong Gion commune. In order to replicate planting of these grass species, the Project has supported the local HHs to follow trained techniques in planting and harvesting at its pick of quality.



***Pic. 54:** Guatemala grass planted in Huôi Tèo village*



***Pic. 55:** Harvesting Ghine grass for fodder*



**Fig. 56:** Project's facilitators were providing technical assistance to the local HHs in Xanh village

#### *5.6.5. Encountered problems and solutions*

Grass seedlings/seeds were provided to the local HHs at the time rice cultivation so the local HHs have to focus on rice cultivation to ensure food security that led to low survival rate of the grass. The Project has worked with seed suppliers to purchase more and additionally provide grass seedlings to the local HHs for supplemental planting. At the same time, the Project has requested the local farmers to care more about the planted grass to create source of seedlings for supplemental planting.

Ghine and Guatemala grass species grow fast and it requires to have enough fertilizer after each harvesting time to maintain quantity but this has not got attention of the local HHs. The project has provided technical support to the local HHs to help them understand the importance of applying fertilizer after harvesting to maintain productivity of the grass.

#### *5.6.6. Lesson-learned*

Like fruit tree cultivation, it is necessary to take into account crop seasons while planning for grass cultivation to avoid coinciding in time with food crop seasons.

### **5.7. Support for vegetable cultivation**

#### *5.7.1. Introduction*

Safe vegetable cultivation is an activity of the Project carried out to raise the awareness of the local people on safe vegetables, the necessity of safe vegetable cultivation, and conditions for producing safe vegetables; and to provide to the local HHs some seasonal vegetables. Through trainings at site, the local people can understand and apply guided techniques safely and effectively to cultivate vegetables and create production area as well as increase incomes for the beneficiaries.

#### *5.7.2. Background*

Muong Gion is a commune which is still facing difficulties in development in Quynh Nhai district. Total natural area is 18,787 ha, 2,232 households and 10,649 population with 4 ethnics namely Thái, Kinh, Kháng, and Mong. The local people here live dependently in agriculture production in form of self-production and self-supply. Due to old cultivation practice which depends much in nature, negative impacts to environment and natural resources have been

generated. A series of natural disasters (flash flood, drought, soil erosion, etc.) have happened cause huge loss to the local people. Technology application to the agriculture production remains weak; land area, soil characteristics, and only one season cultivation have led to soil erosion and degradation that affect production quality and income of the local people. Moreover, demand for vegetable is increasing but the local HHs just cultivate freely without application of technology so the productivity is low and not so easy to control vegetable quality. Thus, the safe vegetable cultivation activity of the Project aimed to provide to the local HHs with technical guidance on cultivation, tending of some kinds of vegetable in safety manner. In addition, the Project also provided them with vegetable seeds/seedlings to cultivate by seasons which are safe for human's use and friendly with environment.

### 5.7.3. Carried-out activities

#### a. Technical assistance

All registered HHs were invited to participate in technical trainings organized by the Project. A total of 9 training classes have been organized with 404 participants (234 female participants) out of 451 registered HHs from 12 Project villages namely Bo, Cút, Cha Cỏ, Co Lúu, Huỏi Tỏo, Huỏi Ngỏ, Huỏi Vủn, Kỏo Ca, Giỏn, Khỏp, Xanh, and Xa, the rest of them were members of VMBFMLD, VMB, and village extension unit. The trainings aimed to help the participants to understand the importance of safe vegetable cultivation and safe cultivation methods have been applied in the commune. The trainings also aimed to provide people with techniques of preventing and treating diseases and pets for vegetable. Information on number of participants shown in the Table 21 as below.

**Table 21: Number of participants of technical training on vegetable cultivation**

No.	Date	Locations	Quantity				Total
			Male	%	Female	%	
1	12/12/2017	Bo village	49	63%	29	37	78%
2	13/12/2017	Cút& Giỏn village	3	7%	40	93	43%
3	14/12/2017	Co Lúu village	1	5%	21	95	22%
4	15/12/2017	Xa village	40	63%	24	37	64%
5	16/12/2017	Khỏp village	11	28%	28	72	39%
6	17/12/2017	Xanh& Huỏi Tỏo village	20	41%	29	59	49%
7	18/12/2017	Kỏo Ca village	17	68%	8	32	25%
8	19/12/2017	Huỏi Vủn & Huỏi Ngỏ	20	54%	17	46	37%

No.	Date	Locations	Quantity				Total
			Male	%	Female	%	
		village					
9	20/12/2017	Cha C6 village	9	19%	38	81	47%
<b>Total</b>			<b>170</b>	<b>42</b>	<b>234</b>	<b>58</b>	<b>404</b>

The training was organized for one day. In the morning, the participants were shared about theory of vegetable cultivation, definition of safe vegetable, safe vegetable cultivation necessity and conditions, cultivation and tending processes applicable to the provided vegetable species, and support mechanism of the project to the local HHs. In the afternoon, trainers and trainees practiced in the garden of one of participants. Participants practiced all steps including land preparation, bedding, basal fertilizing, sowing seeds and tending. The trainers applied hand-on training method and the participants followed. Participants were divided into 4 groups and worked in group. Group 1 was responsible for weeding and soil digging; group 2 was responsible for clearing land and making soil soft; group 3 was responsible for bedding, basal fertilizing; and group 4 was responsible for sowing seeds, covering seeds with soil or rice straw, and watering.



**Pic. 57:** Training on safe vegetable cultivation in Co Liu village



**Pic. 58:** Practicing during technical training on vegetable cultivation in Cha C6 village

#### *b. Provision of vegetable seeds/seedlings*

According to the agreement signed by VMBFMLD and representatives of the registered HHs, each HH was provided with 2 packages (20gram each) of seeds of *Glebionis coronaria* and Mustard green, 5 gram of Kohlrabi seeds. The Project has provided seeds to the registered HHs after the training. 451 training material packs were delivered to the participants during the training. The training materials were produced by the trainers which used simple language and illustrated image to facilitate local people's understanding. After the training, the Project has assigned its facilitators, group leaders of vegetable cultivation interest groups in the villages to follow up and monitor implementation process by the local HHs. Provided quantity of seeds as shown as in the below table 22.

**Table 22: Results of provision of vegetable seedlings/seeds**

No.	Villages	No. of HHs	Quantity (gram)						Total of delivered seeds (gram)
			Mustard green		Kohlrabi		Glebionis coronaria		
			Quantity (gram)	No. packages (20 gram/package)	Quantity (gram)	Delivered boxes (100 gram/box)	Quantity (gram)	No. packages (20 gram/package)	
1	Bo	89	3,560	178	445	5	3,560	178	7,620
2	Cha Có	47	1,880	94	235	3	1,880	94	4,060
3	Cút	40	1,600	80	200	2	1,600	80	3,400
4	Co Lúu	22	880	44	110	1	880	44	1,860
5	Huôi Ngà	11	440	22	55	1	440	22	980
6	Huôi Tèo	7	280	14	35	1	280	14	660
7	Huôi Vãn	30	1,200	60	150	2	1,200	60	2,600
8	Giôn	1	40	2	5	1	40	2	180
9	Kéo Ca	27	1,080	54	135	2	1,080	54	2,360
10	Khóp	48	1,920	96	240	3	1,920	96	4,140
11	Xa	84	3,360	168	420	5	3,360	168	7,220
12	Xanh	45	1,800	90	225	3	1,800	90	3,900
	<b>Total</b>	<b>451</b>	<b>18,040</b>	<b>902</b>	<b>2,255</b>	<b>29</b>	<b>18,040</b>	<b>902</b>	<b>38,980</b>

Kohlrabi seeds are packed in galvanized iron boxes of 100 grams per box, so when delivered to the villages, the project has handed them with boxes to reduce the loss in the delivery process. The total quantity of vegetable seeds delivered to 451 households in 12 project villages was 38,980 grams, of which 18,040 grams of mustard green seeds; 2,900 grams of kohlrabi seeds; and 18,040 grams of *Glebionis coronaria*.



#### 5.7.4. Monitoring and supervision

Monitoring results showed that 100% of HHs have grown provided seeds. They have harvested vegetables for using and, especially, *Glebionis coronaria* which grows very fast. Since this is safe vegetable cultivation so it has contributed to reducing environmental pollution and producing safe vegetable for the people.



**Pic. 59:** Vegetable garden of a HH in Bo village planting by applying safe cultivation method



**Pic. 60:** Sprouting vegetable in garden of a HH in Xa village

#### 5.7.5. Encountered problems and solutions

Although vegetable cultivation is a popular activity in Muong Gion commune, even they are equipped with new and productive techniques, many people still apply old practice that is not safe. The Project has worked with the VMBFMLD and local extension staff to regularly check and urge the HHs to follow trained techniques.

#### 5.7.6. Lesson-learned

Vegetable cultivation is very familiar to the local HHs and it does not require to apply complicated techniques. Thus, this activity of the Project is to provide more information and technique equipment to the local people.

### 5.8. Grafted Fruit Trees

#### 5.8.1. Introduction

Grafting is a horticultural technique whereby tissues of plants are joined so as to continue their growth together. In most cases, one plant is selected for its roots and this is called the stock or rootstock. The other plant is selected for the scion. The scion contains the desired genes to be duplicated in future production by the stock/scion plant.

This activity aims at equipping the local farmers with basic knowledge on grafting, tending, and maintaining grafted fruit trees to eliminate limitations on quantity and quality of planted fruit trees and increase income to the local farmers.

#### 5.8.2. Context

According to the socio-economic survey conducted by the Project to the local area and through the facts in Muong Gion commune, there are some issues as below:

- Scale of fruit tree planting area is small, fruit trees scatteredly planted, mainly in the gardens and hillsides;
- Types, age, and quality of fruit trees are not equal;

- Fruit quality is under expectation.

### 5.8.3. Carried-out activities

#### a) Technical assistance

The SNRM Project in Son La organized two training courses on fruit tree grafting in Muong Gion from 23-24 January 2018 for 39 participants who are participating farmers and representatives from Village Management Boards and Extension Centers.

**Table 23: Total participants to the training courses**

No.	Date	Locations	Participants				
			Total	Male		Female	
				Participants	%	Participants	%
1	23/01/2018	Cút village (for participants from Cút, Co Liu and Huổi Tèo Village)	17	14	82%	3	18%
2	24/01/2018	Giôn Village (for Giôn và Bo village)	22	21	95%	1	5%
<b>Total</b>			<b>39</b>	<b>35</b>		<b>4</b>	

The training was organized whole day focusing on both theory and practice:

- The participants were introduced about theory in the morning;
- The trainer and participants practiced in the afternoon.



**Pic. 61:** The trainer was providing theory content



**Pic. 62:** Participants were practicing

#### b. Direct support from the Project

- 30 grafting tool kits including knives for cutting and grafting, and grafting nylon were provided to the participants;
- 119 fruit trees from gardens of participants were grafted (longan, lychee, plump, Crataegus

monogyna, and *Canarium tramdeum* (materials and tissues for grafting were provided by the Project.)

#### 5.8.4. *Monitoring and supervision*

Monitoring results collected after the training are as follow:

- 100% of participants understood and applied trained knowledge and technique for fruit tree grafting;
- Survival rate of grafted tissues is about 40% and this rate is not equal to different tree varieties (i.e. 70% for *Crataegus monogyna*, 50% for longan, 25% for *Canarium tramdeum*, and 60% for plump). The survival rate relies on the skills of the farmers and time of grafting.



**Pic. 63: Tree grafting in home garden**



**Pic. 64: Scion appears and started growing well**

#### 5.8.5. *Difficulties and solutions*

- Difficulties: Grafting is new and technical complicated, which requires high technical skills. It is necessary to choose best time and properly apply grafting technique as well as use of specialized tools for grafting.

- Solutions:

- + Provide hand-on training to the local farmer (practice is primary portion)
- + Provide local farmers with needed grafting tools
- + Apply grafting techniques to trees with high survival grafting rate so the local farmers can practice;
- + Practice more often as this is primary solution to enhance technical skills to the local people.

#### 5.8.6. *Lesson learnt*

- Grafting is not easy so the person who grafts should have good health and eyes and graft carefully.

- Preparation before grafting is very important as it affect the successful rate of grafting.

- Grafting can only help to renovate fruit trees and in order to enhance quality of fruits, after grafting, intensive cropping is needed (e.g. fertilizer, pruning, and diseases prevention).

## **5.9. Mushroom production**

### *5.9.1. Introduction*

Straw mushrooms grow from straw. There are different types of straw mushroom with different shapes, colors (white, grey) and sizes. Straw mushroom is good food as it contains vitamin and different amino acid.

This activity aims to provide participants with basic knowledge on mushroom production using straw from agriculture production.

### *5.9.2. Context*

Mushroom production using straw activity is carried out based on actual need of the local people in the target villages. This helps to not only utilize crop waste but also produce products to generate income to the people.

### **5.9.3. Carried-out work**

#### *a. Technical assistance*

The SNRM Project in Son La organized training on mushroom production technique in Co Liu and Muong Gion village on March 27, April 5<sup>th</sup> – 6<sup>th</sup>, 2018. The training time is coincident with the stage of mushroom production and technical application.

**Table 24. Training participants**

Date	Location	Number of participants				Total
		Male	%	Female	%	
27/03/2018	Co Liu Village	11	61%	7	39%	18
5/4/2018		14	74%	5	26%	19
6/4/2018		10	67%	5	33%	15
Total		35		17		52

Training methodology:

- Training on theory: The trainer provides basic knowledge on mushroom production.
- Practice: The trainer guides the trainees on preparation steps, material processing, packing, building shelter for mushroom packs, tearing packs, tending and harvesting. The trainer and the facilitator provide on job training to the farmers.



**Pic. 65:** The trainer is providing theory training



**Pic. 66:** The trainees are practicing

*b. Direct support from Project to a mushroom production model in Co Liu Village*

❖ Tools:

No.	Items	Unit	Quantity
1	Nylon bag 25x35cm	Kg	5
2	Tien Phong plastic pipe $\Phi$ 21	m <sup>2</sup>	4
3	Tarp	m <sup>2</sup>	20
4	String	Skein	7
5	Cotton	Kg	2
6	Spray watering can (10litres)	Pcs.	1
7	Hoe	Pcs.	1
8	Shovel	Pcs.	1
9	Reflective grid	Kg	6
10	Rubber tie	Kg	1

❖ Supplies

No.	items	Unit	Quantity
1	Lime	Kg	4
2	Seedling	Kg	4
3	Straw, corn-cob, and sawdust	Kg	100

#### **5.9.4 Monitoring and supervision**

Monitoring results are as follow:

- 100% trainees understood mushroom production technique;
- Germination rate is over 90%



**Pic. 67:** Home mushroom production



**Pic. 68:** Hanging mushroom packs

#### **5.9.5. Difficulties and solutions**

- Difficulties:

+ Mushroom production is new to the local people in Muong Gion commune, thus they faced up with difficulties in technical application for propagation, nursing, preservation, processing and distribution;

+ Facilities of most of the local people are not suitable for mushroom production;

+ Market for mushroom is not developed yet;

- Solutions:

+ Provide on job training to the farmers, focus on practice;

+ Provision of necessary supplies like seedlings and nylon bags.

#### **5.9.6. Lesson learnt**

- Mushroom production requires technical application and knowledge understanding, therefore, participants should meet requirements in term of health and skills;

- Mushroom is very sensitive to environmental elements like temperature, moisture, light, diseases, materials, and water sources, etc. It is necessary to observe to handle issues that might raise during mushroom production;

- The Project should select households who meet with requirements in terms of economic conditions, facilities and knowledge understanding in mushroom production.

#### **5.10. Biogas plant installation**

##### **5.10.1. Introduction**

Biogas tank is where animal dung is stored and inside the tank organic biodegradation happens and generates biogas. In specific, dung and organic compounds under the action of anaerobic

microorganisms will be decomposed into solutes and gases. Through many reaction processes, most of the gases are converted to methane and carbon dioxide. Methane is used for daily cooking. As plan, the Project support the local people with building firewood saving stoves and biogas tank installation (*firewood stove support was done in 2017*). This aims to reduce the consumption of firewood for cooking that contributes to forest protection.

### **5.10.2. Carried-out work**

The SNRM Project in Son La has supported to build two biogas plants in Xa village, Muong Gion commune, Quynh Nhai District. Support amount is 5 million per household.

### **5.10.3. Monitoring and supervision**

100% of biogas plant functions well and meets the need of the households.



**Pic. 69:** Biogas plants



**Pic. 70:** Using biogas for daily cooking

### **5.10.4. Difficulties and solutions**

- Difficulties:

+ Initial investment is high; many people have demand to build biogas plants but cannot afford it;

+ Number of animals is not stable due to market demand. This leads to unstable volume of dung;

+ Facilities of the local households are not suitable to build biogas plants (location of cages and location of building biogas plants).

- Solutions:

+ Combine with other projects to reduce cost spent by the local households;

+ Select households who can afford the cost to participate in the activity, especially, the one who is building their house or cages to reduce cost and make it consistent.

### **5.10.5. Lesson learnt**

The Project should select households who can afford the cost and apply trained technique to participate in the pilot activity.

## **VI. Conclusion and recommendations**

### ***6.1. Conclusion***

After nearly two years of implementation of REDD+ in Son La, a number of results have been achieved. Monitoring and Evaluation is important to share lesson-learned and achievements among project staff and other related stakeholders from project provinces. Moreover, achievements of this stage will be important for idea formulation and design of the stage 2.

### ***6.2. Recommendations***

Having analyzed shortcomings mentioned at point 1.3, the Project staff in Son La would like to be updated with more information, data, and activities that have not been implemented. Moreover, we would like to discuss and share further information with counterparts, Japanese experts and project staff in other provinces to make the M&E more perfect.



## VII. Appendixes

### Appendix 1: List of members of VMBFMLD in 12 target villages

No.	Full name	Male/Female	Title	Village
1	Lò Văn Thành	Male	Head	Khóp
2	Lò Văn Chuyên	Male	Deputy Head	
3	Lò Thị Thu	Female	Secretary cum Accountant	
4	Lù Văn Thơm	Male	Head of FPT	
5	Lò Văn Thơm	Male	Village extension staff	
6	Hà Thị Tiên	Female	Head of women association	
7	Tông Văn Tiến	Male	Head	Bo
8	Lường Thị Ôn	Female	Deputy Head	
9	Bạc Thị Pánh	Female	Secretary cum Accountant	
10	Tông Văn Trái	Male	Member	
11	Bạc Cẩm Niệm	Male	Member	
12	Bạc Cẩm Xuân	Male	Member	
13	Lường Văn Thanh	Male	Member	
14	Tông Thị Bi	Female	Member	
15	Bạc Cẩm Bưu	Male	Member	
16	Tông Thị Hội	Female	Member	
17	Tông Văn Bình	Male	Head	Xanh
18	Mùi Văn Chương	Male	Deputy Head	
19	Tông Văn Nghĩa	Male	Secretary cum Accountant	
20	Tông Văn Bằng	Male	Member	
21	Mùi Thị Thò	Female	Member	
22	Bạc Cẩm Toán	Male	Head	Huổi Tèo
23	Tông Văn Tiêm	Male	Deputy Head	
24	Tông Văn Tường	Male	Secretary cum Accountant	
25	Bạc Cẩm Tuấn	Male	Member	
26	Hoàng Văn Quỳnh	Male	Member	
27	Tông Thị Loan	Female	Member	
28	Lò Thị Đông	Female	Member	
29	Lò Văn Chôm	Male	Head	Xa
30	Lò Văn Chung	Male	Deputy Head	
31	Bạc Cẩm Hà	Male	Secretary cum Accountant	
32	Lò Văn Thành	Male	Head of FPT	
33	Lò Thị Mừng	Female	Village extension staff	
34	Hà Thị Hương	Female	Head of women association	
35	Tông Văn Súc	Male	Head	Giôn
36	Tông Văn Hoan	Male	Deputy Head	
37	Lù Văn Lâm	Male	Secretary cum Accountant	
38	Tông Văn Pâng	Male	Head of FPT	

39	Tông Văn Thoa	Male	Youth union	
40	Bạc Thị Duyên	Female	Head of women association	
41	Lò Văn Nguyên	Male	Head	Cha Có
42	Tông Văn Đình	Male	Deputy Head	
43	Lò Thị Lối	Female	Secretary cum Accountant	
44	Quàng Văn Toạn	Male	Head of FPT	
45	Lò Văn Đán	Male	Village extension staff	
46	Tông Thị Ánh	Female	Head of women association	
47	Giàng A Đình	Male	Head	Huổi Ngà
48	Vàng A Câu	Male	Deputy Head	
49	Vàng A Lử	Male	Secretary cum Accountant	
50	Hàng Thị Chu	Female	Head of women association	
51	Quàng Văn Một	Male	Head	Co Lú
52	Quàng Văn Lún	Male	Deputy Head	
53	Quàng Thị Tường	Female	Secretary cum Accountant	
54	Quàng Văn Niên	Male	Head of FPT	
55	Quàng Văn Dũng	Male	Village extension staff	
56	Lý A Trư	Male	Head	Huổi Văn
57	Vàng A Hờ	Male	Deputy Head	
58	Lò Thị Định	Female	Secretary cum Accountant	
59	Mùa Nư Vàng	Male	Head of FPT	
60	Lù Thị Lý	Female	Head of women association	
61	Lý Sáy Sinh	Male	Head	Kéo Ca
62	Lý A Di	Male	Deputy Head	
63	Mùa Thị Vàng	Female	Secretary cum Accountant	
64	Hàng A Vàng	Male	Head of FPT	
65	Hàng A Giàng	Male	Village extension staff	
66	Hà Văn Thuận	Male	Head	Cút
67	Tông Văn Hao	Male	Deputy Head	
68	Tông Văn Ly	Male	Secretary	
69	Tông Thị Hoa	Female	Accountant	

## **Appendix 2: Operational regulation of the VMBFMLD**

### **Chapter 1: General provisions**

#### **Article 1. Name**

The official name of the management board is the Management Board for Forest Management and Livelihoods Development of xx Village (hereafter referred to as “VMBFMLD”).

### **Chapter 2: The Management Board**

#### **Article 2. Objective**

The objective of the VMBFMLD is to manage sustainably forest allocated to the village and the village households through promoting forest management and Livelihoods Development activities in the village.

#### **Article 3. Composition and assignment terms**

The VMBFMLD has      members, including the following:

- o Chairperson:
- o Vice Chairperson:
- o Secretary cum Accountant:
- o Members:
- o Head of VFPT:
- o Village Agriculture Extensionist
- o Head of the Village Women’s Union
- o One term of assignment of members is one year.
- o The members are elected through a village meeting (by      votes).
- o At least 1/3 members should be female.

#### **Article 4. Functions**

**The main functions (duties) of the VMBFMLD are as follows:**

1. To facilitate planning, implementation, and monitoring of forest management and livelihoods development activities in the village
2. To develop forest management regulations of the village
3. To raise awareness of the villagers on forest management
4. To ensure that all villagers follow the village forest management regulations
5. To establish a village-based forest patrolling team (VFPT) and monitor its activities
6. To form livelihoods development sub-groups by activity (e.g., fruit tree, vegetable...)
7. To ensure livelihoods development activities are implemented according to the existing plans, regulations, and technical requirements

8. To establish, manage, and operate the Village Fund for forest management
9. To handle violations against rules and regulations on forest management of the village and livelihoods development in coordination with the commune-based forest rangers and the CPC
10. To coordinate with the CPC and the commune-based forest rangers

#### **Article 5. Meetings and voting**

- The VMBFMLD should meet at least once in three months or whenever such need arises (upon a call by members).
- The VMBFMLD can make its decision by votes
- The minutes of meetings should be prepared and signed by the chairperson.

#### **Article 6. Remuneration**

The members of VMBFMLD are entitled to receive remuneration (being based on specific context of village). The rates of remuneration are as follows:

- Chairperson: VND /month
- Vice Chairperson: VND /month
- Secretary/Accountant: VND /month
- Other members: VND /month

### **Chapter 3: The Village Fund**

#### **Article 7. Establishment of the Fund**

The VMBFMLD establishes Village Fund, in which fund that is granted, contributed, donated, or generated would be deposited and released for forest management and other agreed-upon purposes.

#### **Article 8. Fund sources**

- The main sources of the Village Fund are:
  - o Payment for Forest Environmental Services (PFES)
  - o Management fee contribution from individual households who received support for their livelihoods development activities through the livelihoods development sub-groups formed by the VMBFMLD
  - o Sales of community resources and properties (e.g., timber, NTFPs)
  - o Other financial supports from the government, donor agencies, NGOs, and others, if available.

## **Article 9. Use of Fund**

The fund deposited at the Village Fund shall be used only for the promotion of forest management and livelihoods development activities in the village. More specifically, the Fund shall be used for the following purposes:

- Administration cost of the VMBFMLD including the remuneration for its members.
- Cost of village meetings.
- Costs of implementation of the Forest Management Plan (e.g., forest patrolling).
- Grants and subsidies to the villagers for livelihoods development activities (e.g., improved cooking stove) based on the approved implementation and cost-sharing plan by the VMBFMLD.
- Other support as agreed by the VMBFMLD

## **Article 10. Administration of the Fund**

- The decision on fund use shall be made by agreement in the VMBFMLD. The important and significant spending shall be decided through the village meeting.
- The Accountant shall bear the main responsibility in managing the Fund including collection, maintenance, disbursement and record keeping.
- The Chairperson in coordination with other members shall monitor the proper management of the fund based on the annual report from the Accountant.
- The annual financial report of the Fund shall be presented and approved at the village meeting (by        votes).
- The detailed guidelines for financial management shall be separately prepared by the VMBFMLD.

## **Chapter 4: Final provisions**

### **Article 11: Entry into force**

This regulation enters into force on the date specified at the beginning of this regulation.

### **Article 12: Change of the regulation**

This regulation can be revised by proposals of members through approval of village meeting.

**Village Head**

**CPC Chairman**

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### **Appendix 3: Village-based Forest Patrolling Team (VFPT) Responsibilities**

The VFPT is responsible for the following:

1. To patrol forest allocated to the village or the village households regularly (frequency should be determined by the VFPT)
2. To record detected forest changes (decrease or increase) in a designated form
3. To report detected forest changes to the commune-based forest rangers through the submission of the reporting form (monthly) or phone call (for emergency cases)
4. To report detected forest change cases to the village head and the head of the VMBFMLD
5. To assist the commune-based forest rangers in measurement of forest change area
6. To collaborate with the commune-based forest rangers in identifying violators of forest management regulation of the village and/or the government
7. To mobilize villagers in forest fire prevention and control, prevention of illegal acts of deforestation, control of harmful insects
8. To raise awareness of the villagers on forest management
9. To train its members time to time for forest patrolling techniques

**Head of Village Forest Patrolling Team**

**Village Head**

***Appendix 4: Forest patrolling plan in 2017***

**FOREST PATROLLING PLAN IN 2017**

**Huổi Văn Village, Mường Giôn Commune, Quỳnh Nhai District, Sơn La Province**

Patrolling route	Name of forests		Forest type	Area (ha)	Schedule		Length (km)			Tools	Team in charge (specific names)
	Native name	Compartment			Month	Times/month	Total	Motorbike	By foot		
1	Huổi Mặn	38	Protection forest	30	10 - 05	2	5	3	2	Necessary tools for forest patrolling	Mù Nư Vàng Lý A Tráng
2	Huổi Pao	39	Protection forest	150	10 - 05	2	3	3	0		Mùa A Vàng Vàng A Hờ
3	Huổi Sưu	39	Protection forest	40	10 - 05	2	2	2	0		Lý A Cang
4	Huổi Văn	39	Protection forest	300	10 - 05	2	1	1	0		Mùa A Cha Mù Sông Cầu
5	Huổi Ngà (on stream)	9	Production forest	30	10 - 05	2	1	0	1		Lý A Sinh Lý A Lành
	<b>Total</b>			<b>550</b>			<b>12</b>	<b>9</b>	<b>3</b>		

*Feb.28, 2017*  
**Head of VFPT**

*Feb.28, 2017*  
**Village Head**

*Month/date/ 2017*  
**CPC**

***Hotline:***

- Local forest ranger: Đậu Quang Trung (0129.355.6642)
- Commune forest ranger: Tòng Văn Chính (0125.300.7644)
- CPC chairman: Hoàng Văn Quyền (0977670248)



## FOREST PATROLLING PLAN IN 2017

**Kéo Ca village, Muong Gion commune, Quynh Nhai District, Son La Province**

Patrolling route	Name of forests		Forest type	Area (ha)	Schedule		Length (km)			Tools	Team in charge (specific names)
	Native name	Compartment			Month	Times/month	Total	Motobike	By foot		
1	Huổi Mặn	38	Protection forest	150	10-04	3	13	8	5	Necessary tools for forest patrolling	Hàng A Giàng Lý Sông Lử
2	Huổi Pao	39	Protection forest	160	10-04	3	10	8	2		Giàng A Sùng Lý Sái Sinh
3	Khu Căng Kéo	39	Protection forest	180	10-04	3	5	2	3		Giàng A Chư
4	Đầu suối Huổi Ngà	40	Protection forest	200	10-04	3	2	2	0		Hàng A Vàng
5	Huổi Sáy Luong	41	Protection forest	300	10-04	3	4	0	4		Lý A Dê
	<b>Total</b>			<b>990</b>			<b>34</b>	<b>20</b>	<b>14</b>		

*Feb.28, 2017*  
**Head of VFPT**

*Feb.28, 2017*  
**Village Head**

*Month/date/2017*  
**CPC**

**Hotline:**

- Local forest ranger: Đậu Quang Trung (0129.355.6642)
- Commune forest ranger: Tòng Văn Chính (0125.300.7644)
- CPC chairman: Hoàng Văn Quyền (0977670248)

## FOREST PATROLLING PLAN IN 2017

**Huổi Ngà village, Muong Gion commune, Quynh Nhai District, Son La Province**

Patrolling route	Name of forests		Forest type	Area (ha)	Schedule		Length (km)			Tools	Team in charge (specific names)
	Native name	Compartment			Month	Times/month	Total	Motobike	By foot		
1	Huổi Văn	40	Production forest		1-5	3	2	1	1	Necessary tools for forest patrolling	Giàng A Lâu Giàng A Thành
2	Rừng Ma	40	Protection forest		1-5	3	2	2	0		Vàng A Phía Vàng A Sú
3	Khu Huổi Văn trên	40	Protection forest		1-5	3	4	1	3		Vàng A Câu Giàng A Do
4	Khu suối Huổi Ngà	40	Protection forest		1-5	3	2	1	1		Vàng A Dơ Giàng A Vàng
5	Khu giáp bản	40	Protection forest		1-5	3	1	0	1		Sông A Chư Sông A Chung
	<b>Total</b>										

*Feb.28, 2017*  
**Head of VFPT**

*Feb.28, 2017*  
**Village Head**

*Month/date/2017*  
**CPC**

Hotline:

- Local forest ranger: Đậu Quang Trung (0129.355.6642)
- Commune forest ranger: Tòng Văn Chính (0125.300.7644)
- CPC chairman: Hoàng Văn Quyền (0977670248)

## FOREST PATROLLING PLAN IN 2017

**Cút village, Muong Gion commune, Quynh Nhai District, Son La Province**

Patrolling route	Name of forests		Forest type	Area (ha)	Schedule		Length (km)			Tools	Team in charge (specific names)
	Native name	Compartment			Month	Times/month	Total	Motorbike	By foot		
1	Pú Pá Khén	36	Production forest		10-5	4	5	0	5	Necessary tools for forest patrolling	Hà Văn Thuận Tòng Văn Ly
2	Pom Tênh Hươn	36	Production forest		10-5	4	10	0	10		Tòng Văn Bức Tòng Thị Hoa
3	Pom Ten Uôi	36	Production forest		10-5	4	7	0	7		Tòng Văn Chiến
4	Pom Huổi Khua	36	Production forest		10-5	4	4	0	4		Tòng Văn Hạo Tòng Văn Bình
5	Pu Huổi Hạt	36	Production forest		10-5	4	2	0	2		Hoàng Văn Tuấn
6	Pom Ít Sảng	36	Production forest		10-5	4	2	2	0		Hà Văn Thoan
7	Huổi Long Ngựa	32	Production forest		10-5	4	12	0	12		Hà Văn Niên
8	Pom Cô Ngôm	32	Production forest		10-5	4	3	0	3		Tòng Văn Chính
9	Pom Khôm Lanh	32	Production forest		10-5	4	4	0	4		Lò Thị Hoán Hà Văn Mừng
10	Pom Khết Khao	36	Production forest		10-5	4	4	0	4		Hà Văn Niên
11	Pom Ten Ngự	32	Production forest		10-5	4	2	0	2		Tòng Thị Thơi Tòng Văn Thông
	<b>Total</b>										

*Feb. 27, 2017*  
**Head of VFPT**

*Feb. 27, 2017*  
**Village Head**

*Month/date/2017*  
**CPC**

Hotline:

- Local forest ranger: Đậu Quang Trung (0129.355.6642)
- Commune forest ranger: Tòng Văn Chính (0125.300.7644)
- CPC chairman: Hoàng Văn Quyền (0977670248)

## FOREST PATROLLING PLAN IN 2017

Co Lúu village, Muong Gion commune, Quynh Nhai District, Son La Province

Patrolling route	Name of forests		Forest type	Area (ha)	Schedule		Length (km)			Tools	Team in charge (specific names)
	Native names	Compartment			Month	Times/month	Total	Motobike	By foot		
1	Sảng Hưon, Pú Xá	36	Production forest		2-5	4	0.5	0.3	0.2	Necessary tools for forest patrolling	Quàng Văn Niên Quàng Văn Sương Quàng Văn Dũng
2	Ténh Hưón	36	Production forest		2-5	4	1	0.5	0		Quàng Văn Lả Quàng Văn Kiên Quàng Văn Thắng
3	Huổi Ít	36	Production forest		2-5	4	4	0.5	0		Quàng Văn Toàn Quàng Văn Bản Lò Văn Thanh (B)
4	Huổi Mặn	36	Production forest		2-5	4	5	3	2		Quàng Văn Dũng Quàng Văn Khô Lò Văn Bạ
5	Pá Ít	36	Production forest		2-5	4	0.4	0.2	0.2		Lò Văn Thanh (A) Quàng Văn Biệt Lò Văn Thương
	<b>Total</b>										

*Feb. 27, 2017*  
**Head of VFPT**

*Feb. 27, 2017*  
**Village Head**

*Month/date/2017*  
**CPC**

Hotline:

- Local forest ranger: Đậu Quang Trung (0129.355.6642)
- Commune forest ranger: Tòng Văn Chính (0125.300.7644)
- CPC chairman: Hoàng Văn Quyèn (0977670248)

## FOREST PATROLLING PLAN IN 2017

Cha Có village, Muong Gion commune, Quynh Nhai District, Son La Province

Patrolling route	Name of forests		Forest type	Area (ha)	Schedule		Length (km)			Tools	Team in charge (specific names)
	Native name	Compartment			Month	Times/month	Total	Motobike	By foot		
1	Pu Tén Trạng	38	Production forest		12-4	2	3	0	3	Necessary tools for forest patrolling	Lường Văn Hoảng
2	Pu Ít Mạ	38	Production forest		12-4	2	4.5	2	2.5		Lò Văn Mẫn, Quàng Văn Toạn
3	Pu Ít Mọi	38	Production forest		12-4	2	4.5	0	4.5		Lường Văn Hiến
4	Pu Ít Đồng	38	Production forest		12-4	2	5.5	0	5.5		Lò Văn Sương, Lò Văn Danh
5	Pu Cò Sang	38	Production forest		12-4	2	5	0	5		Lường Văn Pậu
6	Khu Co Phay	38	Production forest		12-4	2	6	0	6		Lò Văn Nhất
	<b>Total</b>										

*Feb. 27, 2017*  
**Head of VFPT**

*Feb. 27, 2017*  
**Village Head**

*Month/date/2017*  
**CPC**

Hotline:

- Local forest ranger: Đậu Quang Trung (0129.355.6642)
- Commune forest ranger: Tông Văn Chính (0125.300.7644)
- CPC chairman: Hoàng Văn Quyên (0977670248)

## FOREST PATROLLING PLAN IN 2017

**Khốp village, Muong Gion commune, Quynh Nhai District, Son La Province**

Patrolling route	Name of forests		Forest type	Area (ha)	Schedule		Length (km)			Tools	Team in charge (specific names)
	Native name	Compartment			Month	Times/month	Total	Motobike	By foot		
1	Huổi Muối	31	Production forest	25	11-5	3	0.85	0	0.85	Necessary tools for forest patrolling	Lò Văn Thành Lò Thị Thu Lò Văn Thơm
2	Pá Pau	31	Protection forest	100	11-5	3	1	0	1		Lò Văn Thơm Lò Thị Nhất Lò Văn Chuyên
3	Co Hu	31	Protection forest	80	11-5	3	1.2	0.7	0.5		Hà Thị Thu Lò Văn Thản Bạc Cầm Tiên
4	Đông Hán	46	Production forest	50	11-5	3	1.2	0.5	0.7		Hà Văn Nôi Lường Văn Mốt Hà Văn Mãi
5	Pú Miên	46	Production forest	50	11-5	3	1.8	1.3	0.5		Hà Văn Nhật Lò Văn Lả Tòng Văn Thác
<b>Total</b>				<b>305</b>			<b>6.05</b>	<b>2.5</b>	<b>3.55</b>		

*Feb. 26, 2017*  
**Head of VFPT**

*Feb. 26, 2017*  
**Village Head**

*Month/date/2017*  
**CPC**

Hotline:

- Local forest ranger: Đậu Quang Trung (0129.355.6642)
- Commune forest ranger: Tòng Văn Chính (0125.300.7644)
- CPC chairman: Hoàng Văn Quyền (0977670248)

## FOREST PATROLLING PLAN IN 2017

Xa village, Muong Gion commune, Quynh Nhai District, Son La Province

Patrolling route	Name of forests		Forest type	Area (ha)	Schedule		Length (km)			Tools	Team in charge (specific names)
	Native name	Compartment			Month	Times/month	Total	Motobike	By foot		
1	Pom Xa	46	Production forest	5	11-6	3	0.35	0	0.35	Necessary tools for forest patrolling	Lò Văn Thành Bạc Cầm Tuyên
2	Pom Bản Hang	46	Production forest	10	11-6	3	0.5	0.5	0		Lò Văn Vinh Bạc Cầm Đăm
3	Muông Thái	31	Production forest	120	11-6	3	2.5	2.5	0		Lò Văn Hiếm Bạc Cầm Hà
4	Huổi Muối	31	Protection forest	50	11-6	3	1.8	0.2	1.6		Bạc Cầm Châu Bạc Cầm Thủy
5	Pu Kho	31	Production forest	30	11-6	3	1.2	1	0.2		Lò Văn Mạnh Lò Duy Mạnh
6	Huổi Luông	31	Protection forest	25	11-6	3	2.2	0.2	2		Lò Văn Vạn Lò Văn Trần
7	Tây Hưn	31	Protection forest	20	11-6	3	2	0.2	1.8		Hà Văn Xum Bạc Cầm Chiến Lò Văn Hội
<b>Total</b>				<b>260</b>		<b>10.55</b>		<b>4.6</b>	<b>5.95</b>		

Feb. 26, 2017  
Head of VFPT

Feb. 26, 2017  
Village Head

Month/date/2017  
CPC

Hotline:

- Local forest ranger: Đậu Quang Trung (0129.355.6642)
- Commune forest ranger: Tòng Văn Chính (0125.300.7644)
- CPC chairman: Hoàng Văn Quyền (0977670248)



## FOREST PATROLLING PLAN IN 2017

Giôn village, Muong Gion commune, Quynh Nhai District, Son La Province

Patrolling route	Name of forests		Forest type	Area (ha)	Schedule		Length (km)			Tools	Team in charge (specific names)
	Native name	Compartment			Month	Times/month	Total	Motorbike	By foot		
1	Pú Cọ	26	Production forest	50	11-4	3	2	0.5	1.5	Necessary tools for forest patrolling	Tòng Văn Pâng Điêu Văn Chiến
2	Pom Đán Đăm	26	Production forest	20	11-4	3	1.4	0.8	0.6		Bạc Cẩm Yên Lò Văn Siêng
3	Pom Mi	26	Production forest	30	11-4	3	2.2	2	0.2		Lò Văn Ngoạn Tòng Văn Thả
4	Pom Đông Hạ	26	Production forest	18	11-4	3	0.8	0.5	0.3		Tòng Văn Ngợi Bạc Cẩm Tiên
5	Huổi Co Món	26	Production forest	24	11-4	3	1.1	0.8	0.3		Tòng Văn Thoa Bạc Cẩm Chái
6	Pu Hợp Tác	26	Production forest	10	11-4	3	0.5	0.5	0		Tòng Văn Nghĩa Hoàng Văn Bích
7	Pú Cun	31	Production forest	15	11-4	3	1	0.5	1		Lò Văn Dương
8	Pú Uống	31	Protection forest	40	11-4	3	2.3	1	1.3		Tòng Văn Toạn Tòng Văn Tường
<b>Total</b>											

Feb. 26, 2017

**Head of VFPT**

Feb. 26, 2017

**Village Head**

Month/date/2017

**CPC**

Hotline:

- Local forest ranger: Đậu Quang Trung (0129.355.6642)
- Commune forest ranger: Tòng Văn Chính (0125.300.7644)
- CPC chairman: Hoàng Văn Quyên (0977670248)

## FOREST PATROLLING PLAN IN 2017

**Bo village, Muong Gion commune, Quynh Nhai District, Son La Province**

Patrolling route	Name of forests		Forest type	Area (ha)	Schedule		Length (km)			Tools	Team in charge (specific names)
	Native name	Compartment			Month	Times/month	Total	Moto bike	By foot		
1	Pú En	26	Production forest	14	11-4	4	1	0.6	0.4	Necessary tools for forest patrolling	Bạc Cầm Bru Bạc Cầm Diện Tòng Văn Tiến Bạc Cầm Niệm Bạc Thị Dánh Bạc Cầm Xuân
2	Pú Chứn	31	Production forest	50	11-4	4	1.4	0.8	0.6		Lường Văn Thanh Tòng Văn Hùng Tòng Thị Hội Bạc Cầm Thông Hoàng Văn Tuấn Tòng Văn Thiên
3	Co Ngôm	32	Production forest	60	11-4	4	1.6	0.7	0.9		Lường Văn Giót Bạc Cầm Thắng Lường Văn Giang Lường Văn Chưn Lường Văn Sương Tòng Văn Duyên
4	Lả Giôn	32	Production forest	32	11-4	4	2	0.7	1.3		Tòng Văn Thanh Lường Thị Ôn Lò Thị Nhung Lường Văn Tuyển Tòng Văn Tuyên
<b>Total</b>											

*Feb. 25, 2017*

**Head of VFPT**

*Feb. 25, 2017*

**Village Head**

*Month/date/2017*

**CPC**

Hotline:

- Local forest ranger: Đậu Quang Trung (0129.355.6642)
- Commune forest ranger: Tòng Văn Chính (0125.300.7644)
- CPC chairman: Hoàng Văn Quyền (0977670248)

## FOREST PATROLLING PLAN IN 2017

**Huổi Tèo village, Muong Gion commune, Quynh Nhai District, Son La Province**

Patrolling route	Name of forests		Forest type	Area (ha)	Schedule		Length (km)			Tools	Team in charge (specific names)
	Native name	Compartment			Month	Times/month	Total	Moto bike	By foot		
1	Huổi Nặm	46	Production forest	60	11-4	3	3.5	2.5	1	Necessary tools for forest patrolling	Tòng Văn Tiêm Hà Văn Siêng Lò Văn Hoàng
2	Pu Tê Hươn	46	Production forest	15	11-4	3	3	2.7	0.3		Hoàng Văn Tường Hoàng Văn Quỳnh Hoàng Văn Hinh
3	Pu Hong Lý	46	Production forest	50	11-4	3	1.4	0.4	1		Hoàng Văn Pe Hà Văn Cương Bạc Cẩm Toán
4	Pu Tau	46	Production forest	22	11-4	3	0.6	0.1	0.5		Hoàng Văn Kiến Hoàng Văn Em Tòng Thị Loan
5	Pu Đông Tàu	46	Production forest	20	11-4	3	0.5	0.1	0.4		Tòng Văn Phóng Tòng Văn Định Tòng Văn Hùng
<b>Total</b>											

Feb. 25, 2017  
Head of VFPT

Feb. 25, 2017  
Village Head

Month/date/2017  
CPC

Hotline:

- Local forest ranger: Đậu Quang Trung (0129.355.6642)
- Commune forest ranger: Tòng Văn Chính (0125.300.7644)
- CPC chairman: Hoàng Văn Quyên (0977670248)

## FOREST PATROLLING PLAN IN 2017

Xanh village, Muong Gion commune, Quynh Nhai District, Son La Province

Patrolling route	Name of forests		Forest type	Area (ha)	Schedule		Length (km)			Tools	Team in charge (specific names)
	Native name	Compartment			Month	Times/month	Total	Motorbike	By foot		
1	Ít Bon	32	Production forest	50	11-4	3	1	0.5	0.5	Necessary tools for forest patrolling	Tòng Văn Bình Tòng Văn Chương Tòng Văn Mạnh
2	Huổi U Bang	32	Production forest	10	11-4	3	2	0.7	1.3		Tòng Văn Lâm Hà Văn Ngoải Lò Văn Sơn
3	Sen San	32	Production forest	70	11-4	3	2	1	1		Tòng Văn Kính Tòng Văn Bằng Tòng Văn Nghĩa
<b>Total</b>											

*Feb. 25, 2017*  
**Head of VFPT**

*Feb. 25, 2017*  
**Village Head**

*Month/date/2017*  
**CPC**

Hotline:

- Local forest ranger: Đậu Quang Trung (0129.355.6642)
- Commune forest ranger: Tòng Văn Chính (0125.300.7644)
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