External End-of-Program Evaluation Report

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Picture: Terrace field in Northwest region Vietnam, copy right Kim

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The external End of program evaluation team is honored to have the opportunity to work with famer interest groups and local stakeholders who are committed to promoting climate friendly and sustainable production methods in agriculture sector for ethnic minority community. This evaluation was supported by ADDA, Pan Nature and Sub-partners.

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We are looking forward to getting feedback from all interested readers!

The Evaluation Team

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Picture: FFS in Dien Bien. Source: Dien Bien FWD

Picture: Maize cultivation in slope land. Source:Lai Chau FU.

List of Acronyms

ADDA	Agricultural Development Denmark Asia
CEMI	Climate Change and Ethnic Minorities in Northern Vietnam
CRAI	Climate Change Responded Agriculture Index
SEDP	Socio-economic development planning
SRI	System of Rice Intensification
FWD	Fund for Women's Development
FGDs	Focus Group Discussion
FIG	Famer Interest Group
FU	Famer Union
FFSs	Farmer Field Schools
PRA	Participatory Rural Appraisal
CPC	Commune People Committee
TOR	Term of Reference
WU	Women Union

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Executive Summary

The External-End of program evaluation on the Climate Change and Ethnic Minorities in Northern Vietnam (CEMI) took place from May to June 2017, at three provinces of Dien Bien, Son La and Lai Chau. There were a total of 70 **key informants** and **targeted beneficiaries** who actively participated in this evaluation, in which, ethnic minority women and men are equality of evaluation sample.

The main **objective** of the external evaluation was to assess the extent to which the project achieved its stated objectives. The evaluation' scopes included **relevance, effectiveness, efficiency, effectiveness, impact and sustainability**. The final evaluation was come up lessons learned and recommendations for similar initiatives in the future.

In term of relevance aspect, the external end of program evaluation has strong evidences that the project is fully consistent with the local context, strategies and policies for integrating climate change adaptation into agriculture. The agricultural model (technical part- output 2) was relevant to the needs of farmers in the context of ever-increasing climate change. Program approach conformed to implementing's partners capacity and perfectly suited to achieve the expected outcome.

Regarding the effectiveness element, capacity building activities for local organizations and farmer groups has achieved high effectiveness. It was thanks to project in enhancing participation of local organizations in advocacies, studies and policy dialoged; awareness of those stakeholders related to advocacy and climate change mainstreaming had been improved. In addition, local organizations, farmer interest group (FIGs) feel confident to use their knowledge and skills in implementing adaptive agricultural models in the future. The project is highly achievement when successfully created a network of farmer facilitators in the project areas. Farmers' perceptions of climate change are intensified; terms of climate change or climate change causes are no longer unfamiliar to members of FIGs.

In relation to efficiency, CEMI is highly efficient because the budget is used accurately and efficiently with the cross supervision of stakeholders in each project activity. The final evaluation confirms that the demonstration agricultural models design is highly efficient compared to similar models of local agriculture extension. The investment level of the agricultural model per unit area from CEMI is equal to 2/3 of model from local agriculture extension, but the

profitability of the CEMI' model is almost double compared to the control model. The efficiency of the project has been increased by making good use of locally available human resources without creating new positions. The project will be more efficient if it continues to improve the budget allocation mechanism and shorten planning and financial planning time.

With regard to project Impact, the final evaluation results shows the project has achieved the outputs under the immediate objectives as planned**.** Average point of the project impact calculated from the final evaluation was 4-good on a 5-point scale[1]. Respondents highly appreciate the positive impact of the capacity building activities and the documenting of agricultural models. The project has significant influence on farmer groups in changing unfriendly agriculture techniques with climate friendly and sustainable production methods. The overuse of pesticides has decreased in the community. Rice area using the SRI technique introduced by the project increased in all project areas. Local authorities expressed their support by encouraging people to adopt this technique more. Importantly, the project has contributed to increasing FIGs members' incomes through increased crop yields, reduced production costs, and additional income from auxiliary models (such as mushroom production).

With the sustainability' element, CEMI will be sustainable, including (i) the program approach will be flexible applied by the Farmers Unions in the future; (ii) Second, SRI friendly environment method (iii) Third, the network of well local facilitators and; (iv) Fourth, some agricultural models supported by the project are suitable for each project area. Some activities will not be maintained, such as policy dialogue, because farmers' unions and FWD do not feel confident and lack the resources to do so.

The main lessons learned include program approach based on the basic factors is the assessment of vulnerability, Capacity building, Demonstration model and, Communication, policy dialogue; Enhancing participation of stakeholders in policy advocacy. Using local facilitators as well as modeling relevant with local agricultural policies and; Lessons related to building FIGs.

[1] The external end -of- program evaluation uses the Spider web tool to visualize measure four aspects included relevance, effectiveness; sustainability, and impact of the project. Spider web uses 5 levels likert scale from one to five, in which 1 is very poor; 2= poor; 3= medium; 4= good; And 5 = very good. Participants, after being given a clear explanation of the content of each criterion, will graded themselves on a scale of 5

It is recommended to provide follow up support smart agriculture models adaptive climate change. The external end-of program evaluation provide key recommendations for the three target groups including project holders and Technical partners; sub-partners as well as recommendations for local government.

In relation to the project holders and technical partners, the program implementing approach should be followed for similar initiatives in the future. Promote and technical support to local government using CRAI as a useful tool for integrating climate change adaptation into socio-economic development planning and local policy framework is a strongly recommendation for ADDA; Improve budget allocation, shorten time for action planning and financial report; Project holder/technical partner should hire local technical consultant in agriculture/agroforestry in order to reduce operation cost. Cooperation with the agricultural sector is also a good way to influence agricultural policies. Sub-technical partners at district and provincial level can take play an important role to implement main project activities while commune level should cover mentoring and coaching to famers. In order to increase the health of the FIGs, the project should focus on the input and output connections for FIGs products.

Sub-partners and local organizations (Farmer Union (FU), Fund for Women's Development (FWD) should mainstream the climate friendly production methods in agriculture and agroforestry flexibly into action plan of organizations; In order to increase the effectiveness of the friendly agricultural model, the sub-partners should narrow the project implementation area in each province but expand demonstration molder scale to have greater impact on the community. Continued development of FIGs based on formal and informal community based organization. FU should consultation or introduction well local facilitators to potential positions of People's Committees.

Commune People's Committees should use part of the budget from the Community Learning Center to assist facilitators in propaganda and training in agricultural production methods; Encouraging Facilitators working as extension workers, village level staff. Encourage the Commune People's Committees using the Climate Change Responded Agriculture (CRAI) index[2]

[2] Climate Change Responded Agriculture Index (CRAI) included 3 aspects with 23 indicators. This tool developed in order to help Commune Authorities mainstreaming climate change into local policies and planning easily.
CRAI included three aspects namely CC Adaption indicators, for actions adapting to CC; CC Mitigation indicators: for actions contributing to reduction of GHG emission; and CC Response governance indicators.

as and useful tool for mainstreaming climate change into local policies and planning and apply a participatory socio-economic development planning (SEDP).

23 indicators included 11 indicators for adaptation, 5 indicators for mitigation and 7 indicators for governance (Source: Pan Nature, Presentation in Final workshop 2017 helped in Lai Chau).

I. Introduction

1.1. Project's general information

The project "Climate Change and Ethnic Minorities in Northern Vietnam" (CEMI) started in July 2014 and will end in June 2017. The project is implemented in three provinces: Dien Bien, Son La and Lai Chau. ADDAs lead partner organization is People & Nature Reconciliation (Pan Nature) and the provincial sub-partners include the Fund for Women's Development (FWD) in Dien Bien, Farmer Union in Son La (SLFU) and Farmer Union in Lai Chau (LCFU). The project aims to support ethnic minority farming communities in remote and mountainous areas of the three provinces. The objectives of the project include improved access to information on climate change policies for ethnic minority farmers and impacts on local policies and natural resources planning to address local climate change adaptation, food security, and poverty reduction.

1.2. Objective of the final External Evaluation

According to the TOR, the objective of the evaluation is to assess the outcomes and impact of the objectives of the project. The final evaluation has investigated the impact of the project among the target groups and beneficiaries and assesses the level of community and other stakeholder participation. It will also identify the intended and unintended changes, best practices, lessons learned as well as challenges meet. Finally, the evaluation should come up with conclusions and recommendations for learning and future intervention.

The External end-of evaluation program also examined five aspects of CEMI project including relevance, effectiveness, efficiency, Impact and Sustainability.

1.3. Evaluation Methodology

1.3.1. Evaluation approach

This evaluation was conducted in a participatory manner. Representatives of the direct implementing partners were involved, supporting the preparation of the information collection, arrangement for interviews with stakeholders and direct beneficiaries, and providing recommendations and comments for the completion of the evaluation report.

The sensitive issues such as gender, ethnic minority and participation, were taken into consideration in the evaluation process, including the evaluation design, sample selection, field visits for discussions, conclusion and recommendations.

1.3.2. Information collection methods

Literature review: The consultant undertook literature review of the program's available documents including the Project Proposal, annual reports, program work plans, communication materials and other evaluation reports conducted during the program implementation. Consultant team also worked closely with the project holders/technical partners to analyze the model's agriculture recorded from the beginning of program to the time of evaluation.

Primary data collection: Key informant interviews (KII), focus group discussions (FGDs), and case studies were applied with target groups. The Spider web and five-point scale3 score card tools were used to visualize qualitative evaluation data related to five aspects such as Relevance, Effectiveness, Efficiency, Sustainability, and Impact of project.

1.3.3. Sample, target group and evaluation areas

Sample and target group

There were counted 39 meaningful consultations with different target groups. Of which, 20 in-depth interviews with technical parties/sub-project holders and local government; 13 FIGs with facilitators and FIGs and; six case studies with FIGs, facilitator and pesticide shop owner were conducted in three project provinces namely Dien Bien, Son La and Lai Chau.

Table 1. Sample size

Interviews	Location			Total
	Dien Bien	Son La	Lai Chau	
Key informant interview	6	8	6	20
FDGs with FIGs and Facilitators	5	4	4	13
Case study	2	2	2	6
Total	13	14	12	39

[3] According to Linker scale is principle of measuring attitudes by asking people to respond to a series of statements about a topic, in terms of the extent to which they agree with them, and so tapping into the cognitive and affective components of attitudes.

Final evaluation has meaningful consultation with technical parties, sub-project holders, local government, and direct beneficiaries included member of Famer Interest Group (FIGs) and facilitator. The External end of programe evaluation consulted with both females and males, different ethnic minority like Hmong, Kho Mu, and Thai. The ratio of women participated in FGDs were higher than men (60 & 40 per cent).

The final evaluation was carried out in 6 communes of three districts of three project provinces. Please see list of commune at Annex 3. List of evaluation sites.

1.4. Limitation

There were no major limitations during evaluation. However, only minor obstacle was the number of FGDs with facilitators lower than planned. As the planned, the final evaluation reaching out 12 FGDs with facilitators, due to the scattered live in different commune and there was not enough time to travel between evaluation sites, therefore only one FGD with facilitator have conducted in Dien Bien province, To meet the evaluation targets, the evaluation team applied flexible ways to access the respondents by making individual in-depth interviews and increase the number of case studies instead of focus group discussions.

II. Evaluation Findings

2.1. Relevance

Target groups and beneficiaries highly appreciate the relevance of the Climate Change and Ethnic Minority Project (CEMI). The average score of evaluation based on the PRA tool (Spider web) of compliance was rated at 5 as very appropriate[4]. The reasons why CEMI get high score of relevance aspect explain as bellow.

Firstly, the CEMI were relevant to the target groups and beneficiaries. The target groups and beneficiaries included sub-partners like Pan Nature, FU, FWD and famer groups. More than 50% of the respondents indicated that CEMI selected the FU and Dien Bien FWD as the sub-partner for the project, which was consistent with the project objective for the following reasons: (I) Firstly, FU has a great network from national to the village level (for example in Tam

[4] The External end-of-program evaluation uses the Spider web tool to visual measure four aspects namely relevance, effectiveness; sustainability, and impact of the project. Spider web uses 5 levels likert scale: 1: Very poor; 2: poor; 3: medium; 4: good; And 5: very good. Participants have been clear explanation of the content of each criterion, and then graded themselves on a scale of 5.

Duong district, FU have 10,228 members), facilitating the replication of sustainable agriculture models; (Ii) Secondly, both the FU and FWD are directly or indirectly implementing microfinance programs that are very convenient to integrate climate change adaptation in their program as well as increase the efficiency of loan use. FU is one of the credit unit provide microfinance to farmers, for example, Tam Duong FU currently manages more than 6 billion loans; FU regularly connects with more than 2,000 households each year through a slow Fertilizer mortgage loan program. Incorporation of Fertilizer Loan Program with technical agricultural support will improve the productivity of farmers. Similarly, the Dien Bien FWD is carrying out micro-credit savings projects in Dien Bien district that integrate climate change adaptation agriculture models into credit groups that have proven to be relevant. When FIGS are formed from the micro credit group, the diffusion of environmentally friendly farming practices among ethnic minority women will be faster and more sustainable, as the regulatory group operates and produces Regular activities. Local organizations indicated that knowledge of climate friendly and sustainable production method in agriculture will be integrated into their annual training programs of the fund for borrowers. This means that the proportion of farmers who access to future climate change adaptation farming techniques is likely to increase.

Training on SRI technical. Source: FWD Điện

In addition, in the context of climate change such as high temperatures, heavy monsoon rains and strong winds and negative affect on agricultural production. Farmers really want to change agricultural practices to adapt with weather condition. The SRI model, the agroforestry models, enables ethnic minority farmers to achieve multiple benefits and adapt to climate change. With strong evidences found in the final evaluation, it can be concluded that CEMI have choose the

right partner for project implementation as well as highly relevant with needs of ethnic minority famers.

Secondly, program implementation approach was relevance to achieve the immediate objective[5]. The intervention activities of CEMI started from vulnerability assessment, to capacity building, conducting demonstration models and advocacy/lobby policy during project course that allow local organizations in project areas fully understand climate change response and how to integrate in their action plan.

"Clearly, my province has plans to cope with climate change but we do not know where to integrate them. The project has undertaken activities to raise awareness on climate change for both farmers and we also learned during project implementation. Since then, our knowledge has been expanded and now we know how to integrate into the communication of FU"(source: Lai Chau FU).

Climate change workshop. Source: Pan Nature

In addition, it was also found that the program scale was compatible with the capacity of the implementing partners (Pan Nature, FU, FWD and Facilitators). 100% of respondents from the stakeholders affirm the design of the project is completely in line with the capacity of the project partners. Participating in the CEMI project, local partners, has developed the experience inherent in the implementation of environmentally friendly agricultural models and policy advocacy. Facilitators have utilized their native language and reputation in the community to transfer new knowledge and techniques to farmers easily. Most Facilitators are village/commune officials therefore, they have the opportunity to advise local authorities on the climate change adaptation crop structure.

[5] By end of the project, local government, NGOs and farmer organizations in project areas are able to facilitate and develop development policies and planning in natural resources sector that enable communities to adapt regional and international strategies to climate change, reduce impacts on the environment and maintain sustainable livelihood

"We found this project to be extremely suitable for us, as FU has had experience in implementing the IPM project, establishing interest groups. So we see the establishment of FIGs or the organization of seasonal trainings that are so familiar to us. But in the field of climate change is the first project to be implemented. So we just have a strange and familiar, in the same project that made our Association grow much". Source: FU Son La.

"*I found the project really suitable for facilitators who were local, knowledgeable about the customs and practices of the people. Facilitators are also a village party secretary, so he can advise the commune on agricultural issues*." Source: Representative of Ho Thau Commune People's Committee.

Finally, the external end of- program evaluation founds strong evidence illustrated the CEMI project is fully consistent with the national and local strategies for agriculture responding to climate change. Integrating climate change is one of the priority actions, as well as a mandatory requirement within the policy framework of government from commune to national level. This requirement was specified in Decision No.1485/QD-BKHDT dated 17/10/2013. The Ministry of Planning and Investment (MPI) has issued specific circulars on the integration of natural disaster prevention and response and climate change adaptation into socio-economic development plans (Referred to as Circular No. 05)[6]. At present, Dien Bien, Son La and Lai Chau provinces have institutionalized the Socio-Economic Development Planning (SEDP). The provinces of Lai Chau and Son La will implement the SEDP process institution integrated with disaster risk activities in 2017.

It can be said that policies and legal documents on mainstreaming climate change into SEDP have been systematically issued by governmental authorities. However in reality, there are has been a lack of specific models of effective integrates climate change into specific areas. Respondents from Lai Chau province complained that even there were many ciculars and official guides but we are still confusing how, when integrate climate change responsive and what steps, who is monitoring and what is the cost of implementing the integration (Consultation with respondents in Lai Chau province). The CEMI implemented in three provinces has provided

[6] Circular No. 05/2016 / TT-BKHDT dated 6/6/2016, effective from 20/7/2016. The Circular stipulates that localities should carry out the review and assessment of the implementation of the contents of natural disaster prevention and control. Situational Analysis and Resilience to Disaster; identify causes and develop disaster prevention solutions in the appropriate order of priority.

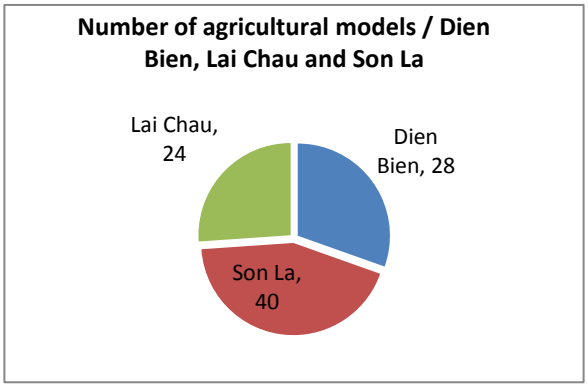
a specific model showing that climate change responsive in the field of agriculture for specific target group have been on the right track. The demonstration models using friendly environment methods such as SRI model is fully consistent with the policy of the agricultural sector**.** Department of Agriculture and Rural development on surveyed districts in Tam Duong, Mai Son, and Dien Bien districts said the resolution of the Commune People's Committees is to improve the income per unit area. In all districts, the target for SRI model has been encouraged in the communes and districts implementing the project. For example, in 2016, the Department of Agriculture and Rural development of Mai Son district has implemented an improved rice model with an area of 53.5 ha for 511 households to encourage farmers to apply SRI Rice cultivation techniques (please see this agriculture model in detail in the Annex 5. Agricultural demonstration model of Mai Son districts).

However, the final evaluation finds some inconsistencies regarding the scope of project implementation, the scale of demonstration models. First, the project **area** is too wide for project resources. Local authorities and sub-partners agree that the area is too wide, while the budget of the project is not large. The project is implemented in 17 communes of five districts of Son La province, seven communes of three districts of Lai Chau province. Secondly, the **size** of the demonstration models is not large enough to generate an impact on the whole commune or project area. For example, in Ho Thau commune, Tam Duong district, Lai Chau, the total area of cultivated rice in 2016 is 465 hectares. Meanwhile, the area of rice for modeling is only 2,000m2, equivalent to 0.2ha and only 0.043% of the whole area of rice, model only in one crop. The ability to influence the model to the people is very limited. The level of impact of the environmentally-friendly farming model will be higher if the project is narrowed to one or two districts / provinces and the size of the model is increased, village participation in the project, increasing the number of model implementation.

Many argue that the project will be relevant and further effective if it is closely worked with local extension and agriculture agencies. This is because local agriculture agencies has been specialized and can help integrate both project activities and government agricultural activities. The agriculture extension and commune agricultural officials have the role of advising the People committee on crop planning rather than the Farmers' Union.

2.2. Effectiveness

Pan Nature's 2016 Progress Report shows that, by the end of the review period, the CEMI project had achieved the outputs as originally planned (see Annex 1. Summary of project achievement).



The External end of program evaluation appreciates the group of capacity building activities from CEMI for local partners and FIGs groups. By the end of 2016, a total of 9 training courses and 84 workshops / total training agricultural models, policy analysis and planning for integrating climate change at provincial and district levels have been implemented in the three project provinces. Over three years, the project has implemented 92 environmentally friendly agricultural models (Source: Report 2016). There are three main types of demonstration models to be implemented included agriculture and agroforestry, and supporting models like green composting and mushroom production. Accompanied by agricultural models, up to 50 FFS have been conducted (Source: Pan Nature, final report 2016). As a project result, The Climate Change Responded Agriculture Index (CRAI) for commune level has been completed with actively participated of all sub-partners and ethnic minority famer groups. Through process of development CRAI index, capacity of project parties and voice of ethnic minority groups have been increase significantly. Respondents reported that CRAI is a useful tool for local authorities mainstreaming climate change into local policies and planning. Pan Nature also confirmed that their capable in advocacy session increased during develop the CRAI.

"…Advocacy is really learning process among Pan, project imlementing partners and local authorities. We have ever experienced in designing indicators in terms of agroforestry and REDD+, but this was the first time we developd indicators on climate changes mainstreaming for commune level. Some districts who attended workshops on CRAI development have expressed their interested and would like to used the indicators in monintoring and planning climate change addaption works. My organisation also learned so much throughout worked closely with project stakeholders…" Source: Consultation with Pan Nature.

The development of network of local facilitators helped enhance the project effectiveness. After three years, the project has trained 25 local facilitators (six females and 19 males) in three provinces. All facilitators are commune or village staff, who can speak Vietnamese ethnic language. This is an advantage for local extension workers in the communication of climate friendly and sustainable production method to ethnic communities. Creating a network of farmer facilitators is one of the successful achievements of the project and is highly appreciated by the direct beneficiaries. 100% FIGs members participating in the group discussion expressed a very satisfied with the facilitator. The story of the Phan Tien Ly in Ho Thau Commune, Tam Duong District, Lai Chau Province, is typical case.

Box 1. Effectiveness of local facilitator training
Mr. Phan Tien Ly, a Dao ethnic minority has been selected as a facilitator in Ho Thau commune since 2014. Ly is also a village party secretary and a Red Cross staff at Ho Thau commune, Tam Duong district, Lai Chau province. To become an extension worker, he completed a six month agriculture extension course in Son La. Mr. Ly highly appreciates the effectiveness of the training program, as he can apply up to 80% of the skills learned in the encouraging agriculture consultancy. Over the past three years, Ly has conducted six farmer field schools (FFS) and holding 10 communication sessions related to SRI models, mushroom production for more than 400 turns of participant. Furthermore, Extension worker Ly often integrates communication on sustainable methods in rice and maize cultivation in village meetings. Extension worker Ly can speaks Vietnamese, Dao and Hmong fluently. Therefore, when consulting for local people, he uses ethnic languages; many women praise him for easy to understand, easy to apply. Members of two FIGs rice and mushrooms production in Ho Thau commune confirmed that Ly is an enthusiastic extension worker. All the female participants in FIG rice and mushroom production have Mr. Ly's phone number for advice on how to take care of rice, maize, how to select varieties, how to spray insecticide. Mr. Ly is currently attending veterinary vocational course and will open the veterinary services after graduation. In the future, Mr. Ly is not only a facilitator, but also a vet who can provide both encouraging agricultural and veterinary services for the people in Ho Thai

commune.

Source: group discussion with FIGs in Ho Thau and in-depth interview Mr.Phat Tien Ly, Ho Thau commune, Tam Duong district, Lai Chau province.

Picture: Extension worker Ly and agroforestry model in his commune.

On the other hand, project effectiveness increased because application of TOT for facilitators. Facilitators those said they regularly apply the knowledge and skills learned from TOT course in their work. They said that the training design associated with practice is very effective in creating a strong grassroots encouraging agricultural network.

Communication and documentation the successful agricultural models helped improve the awareness of beneficiaries. For three years, the project has provided 900 policy publications (Policy Review); five video clips and, many articles on the national and provincial's newspapers for the widespread dissemination of successful agricultural models and sustainable farming practices in the community (please see the list of communication products at Annex 2. List of communication products); In addition, lesson learned during CEMI project course have been actively sharing in the International and regional forums on climate change by project holders/technical partner. At the village level, the success of the project is spread in a quite effective way, which is integrated communication with the village meeting. Village leaders said that the average monthly meetings held once. Local trainers often integrate climate friendly production methods in agriculture within a 20-minute period in village meeting. Furthermore, periodical communication in the commune from mass organizations is also mainstreamed climate friendly production methods in agriculture/agroforestry. The farmer ethnic minority groups also confirmed that the village meetings and direct consultation from of extension workers were two main communication channels about agriculture and agroforestry.

While the representatives of the CPCs surveyed the communication effectiveness of the project model through field workshops, policy dialogue, they seem to be unaware of the policy bulletins or media leaflets on the SRI model, although the number of publications provided to the communes reported is not exiguous.

However, CEMI had some shortcomings affecting overall effectiveness of program. Firstly, the design of the demonstration models is too small (area and size of the model, average areas were 1000m2/model) to have sufficient impact on the village and commune level. Second, although CEMI introduces the climate friendly and sustainable production methods in agriculture but without focus on input and output connections for FIGs. Thanh Xuong composting FIG (Dien Bien) has not found agency that provide input (like microbiological fertilizer), so members do not know who to contact, where to buy agricultural inputs. Mushroom FIG in rural areas face difficulty finding market or consuming products. Therefore, some FIGs members did not continue to maintain the technique that the project introduced. Third, the project lack of activities that enhance the quality of the FIG's activities. FIGs are simply a group of households sharing an interest in agricultural production method that works together in a loose association. Therefore, the FIGs member's share with other members of the community is still limited. All this negatively affects the efficiency of the model and the potential for replication of future agricultural production techniques.

2.3. Efficiency

When comparing inputs and outputs, the evaluation team believes that the project has achieved the highest efficiency. The budget of the project has also been used accurately and effectively as a result of stakeholder monitoring in the same activity (Pan Nature and the FWD). The project partners agreed that the financial management of the CEMI project was quite transparent and clear. The project has developed its own financial regulations and thorough training for partners.

The CEMI project achieves high efficiency for being able to mobilize resource from stakeholders and local human resources. An effort was made to execute the project without recruitment of additional staff and to use the available platforms and mechanisms in local organizations. The project utilized the available structures and mechanisms for cost-effectiveness and sustainability. In terms of financial performance will be effective for the

following reasons included low salary for local consultants; No transportation cost and timely attendance when required. Local trainers are able to continue their counseling and communication even when the project is terminated because they are based at community. The following table shows the budget allocation for various project activities and their utilization.

Table 2. Expenditure summary/Budget for whole project (Unit: DKK DKK=3,139 VND)

Description	Total expenses (*)	Total budget	Over budget	Achievement (%)
Project operation	1,734,880	1,882,808	(147,928)	92
Equipment procurement	57,980	58,791	(810)	99
M&E	287,652	361,250	(73,599)	80
Administration, human, and Denmark Expert	2,132,470	2,242,002	(109,532)	95
Total	4,212,982	4,544,850	(331,868)	93

Note: * The amount including estimate expenses until June 30, 2017. Source: ADDA, 2017

The external end of program evaluation confirms that the demonstration models are highly productive compared to similar models of local agriculture extension. The investment of the agricultural model supported by the CEMI project is 910,000 VND household; while the average model household investment in the government agricultural extension is 1.16 million VND. Specifically, SRI model budget on the area of 1000m2 is 9,100,000 VND. Of which, the training cost is 5,400,000 VND the material cost is 2,300,000 VND; the workshop cost is 1,400,000 VND. In comparison with local extension model, this is low cost[7].

Similarly, the profit margin from the SRI model of the project is many times higher than the control model. The total cost of 300 m2 of 3 SRI models in Binh Lu and Lai Chau provinces was between 318,300 VND and 340,000 VND. The cost of control area of rice is up to 606,000 VND, it is nearly twice as high. Therefore, the net profit (excluding labor) on the area of 300 m2 for the

[7] The total subsidy is VND 450 million for 387 households, equivalent to 1.16 million VND per household (Sources: Report No. 12 / TTr-TKN of Agricultural Extension Centre of Main Son district, of Son La province dated 24/4/2017 approving the implementation of the model for supporting wet rice cultivation under Decree No. 35/2015).
Mushroom production model of Northern Mountain Poverty Reduction Project, 10 households with a budget of 40 million VND, equivalent to investment of 4 million VND per household (only including training and support of inputs, no funds for famer field school).

model rice is in the range of 127,200 VND to 176,700 VND, achieving the profit rate from 37.4 to 55.5%. Compared with control fields, the profitability of the model field is quite high. In the control field, not only the low economic efficiency but also greenhouse gas emissions have a greater negative impact on the environment as people overuse pesticides and misapply farming techniques.

Table 2. Comparison costs and benefits between demonstration model of CEMI and control model of state extension Centre.

Model name	**al expenditure (VND)**	**al revenue (VND)**	**Interest (VND)**	**e of return**
Density 25x25cm	318,300	495,000	176,700	55,5
Density 20x20m	340,300	467,500	127,200	37,4
Density 18x18cm	340,300	467,500	127,200	37,4
Control	606,000	467,500	-138,500	(22,8)

Source: Report on SRI model implementation in Binh Lu commune.

Respondents also agreed that the project would be more efficient if it improved financial allocation and reduced planning and quarterly reporting time. When allocating a budget by management level, the community will be more proactive in proposing the plan as well as actively balancing the local contribution. The cost of time to do administrative tasks such as scheduling operations, reporting financial times averaged two months, while a quarter was only three months. The average time to approve the plan is usually in the middle of the second month of the quarter.

The project needs to carefully consider the scale and extent of support for demonstration models In order to increase the efficiency of the model. The project should discontinue main support for locally available inputs when implementing agricultural models (e.g. manure). At present, the harvesting of products and using the products of the model used by the team leader, this is not suitable when other members participate in the model has not received economic benefits from the model; also, there is no plan to use the profit gained for developing and replicating the model. The agricultural model will be more productive if the projects guided FIGS to build the fund from the sale of the model's product. This has been proven by the mushroom growing FIG in Nam Cau hamlet, Tam Duong district.

2.4. Impact

The external end-of program evaluation examines level of completion of the projects immediate objective. At the final evaluation time, the CEMI program already achieved expected results as described in the logical framework as well as the agreement between ADDA and sub-parties. The participant's score on the project impact is 4-goodon a 5-point scale.

The respondents agreed that the project had achieved the project immediate output of strengthening the capacity of local civic organizations to mainstream climate change adaptation into planning and policy implementation. Capacity building for policy advocacy, planning and capacity building for climate changes adaptation agriculture models in ethnic minority communities has been significantly improved. Pan Nature said that CEMI has launched a new approach to climate change adaptation agriculture, although this is the first project that the organization works on agriculture sector (source: Pan Nature). The Lai Chau, Son La FU and the Dien Bien FWD affirmed that "*we are confident and learn a lot of new skills from project implementation, such as project coordination skills Participatory planning, knowledge of climate change, advocacy, etc*. " (Son La FU). Another important impact of the project is that local authorities in some communes have adopted SEDP incorporating climate change adaptation (Binh Lu and Lai Chau communes). Three of the six communes (Thanh Xuong, Tam Duong, and Ho Thau) involved in the final evaluation confirming that the climate friendly and sustainable production methods like smart agricultural models were included in the SEDP.

"*Successful demonstration models have been incorporated into the commune's socio-economic development plan. In terms of natural disaster prevention and control, the commune regularly strengthens the commune steering committee and develops a plan for responding to climate change every year*". (Source: Commune People's Committee).

"The project contributes to stimulate participatory socio-economic development planning. Lai Chau has one commune / seven communes applied."(Source: Lai Chau Farmer Association).

"10 communes implemented awareness projects of commune leaders have changed such as customs and practices of cultivation, the direction of adaptation to climate change on the

SEDP such as adjusting the seasonal calendar, adjust the varieties of seedlings to fit, change the farming mode" (Source: Pan Nature).

Evaluation results found that ethnic communities had been applying friendly agriculture production method which is main trend in project areas. Regarding the output 2 under project immediate objective is low carbon and climate-friendly production methods in agriculture and agroforestry are identified and applied among ethnic communities in the project areas, local extension workers reported that the number of call asked about agriculture technique from local people as well as face to face consulting increased over three years. The misuse/overuse of pesticides (pesticides, herbicides) in agricultural production is declining. One pesticide shop owner said the high levels of herbicides, "instant death spray", were down 50% from three years ago. In contrast, bio-based drugs sell better than they did three years ago.

Box 2. Change of environmentally friendly production techniques

- A pesticide shop owner in Tam Duong town, Lai Chau province, said that in the past three years, the use of high doses of pesticides has decreased by more than 50% compared to three years ago. At present, farmers tend to use pesticides made from plants, have the effect of killing insects and larvae in a natural way, friendly environment. Herbal remedies sell better than before.
- The Member of FIG Sam Mun commune (Son La) confirmed that the amount of pesticides sprayed on the field and widen fields was reduced by half. Previously, they used eight vials in eight times the volume of each vial was 100ml per 1,000m2. Today, the team members only sprayed about four times with four vials, a 50% reduction in the amount of pesticides compared to before. All members of the group said they had read the signs of the drug, consulted the village chief or encouraging agriculturalist before taking the medication, which they did not do three years ago.
- *"In previous years, my family spent about 1 million VND on pesticides and herbicides on average each year, but only 500.000 vnd from last year. With waterlogged fields we will not spray herbicides anymore because of the impact on water resources". (Source: FGD, Han Son Farmer, Mai Son district, Son La province).*

- *"Farmers have also made adjustments to their crop structure to adapt to climate change. As in Chieng Mai commune, Mai Son district, Son La province, people have intercropped fruit trees into the coffee garden to limit the damage of hoarfrost to coffee and increase income from harvesting fruit".*

Source: FGD with FIGs. Three project provinces and informant in-deep interview plant protection drug shop in Tam Duong district, Lai Chau province.

Please note that the trend of using friendly agriculture production methods of local people thanks to communication efforts of local authorities and state agricultural agencies. Undeniably, CEMI has made a positive contribution to raising awareness among famer groups toward using climate friendly production methods in agriculture/agroforestry. The final evaluation results found strong evidences illustrated Dien Bien farmers declare that there is only a very small amount of slash-and-burn agriculture. "*Three years ago, there was no plane landing on the farm, people burned straw, slash and burn, smoke everywhere. Now this situation is very much reduced, now there are fewer burners. The project guided slash-and-burn agriculture to desert the land, so it is very limited currently. Now we can use straw to compost the field* "(Source: FGD in Thanh Xuong commune, Dien Bien). Local trainers and villagers insist that changing agricultural practices are part of the climate change communication effort of the CEMI project and local government programs.

Final evaluation confirms that agro-forestry models and ancillary models have contributed to increased agricultural productivity and income for the people in the project area. The summary report of Lai Chau FU showed that the productivity of the SRI model increased from 11-16%, profit per unit area increased from 20-30%. The observations of the district and commune extension workers also confirmed the similarity of the effectiveness of the agricultural models proposed by the project.

"SRI saves land, save labor, seed, fertilizer and water. The new model saves 30% "(source: agricultural extension worker in Dien Bien district).

"Higher productivity, 9.2 quintals per 1000m2; In the traditional production method (i.e. not using SRI) is 6 quintals per 1000m". (Source: Thanh Xuong commune extension worker, Dien Bien).

In addition to the main agricultural model, auxiliary models (mushroom production, composting) also provide high economic returns to the household. The mushroom production model not only contributes to the increase of income for members, but also brings many other added values to female members. The mushroom production model in Tam Duong town below is a typical case.

Box 3. Effect of mushroom production model
Muong Cau mushroom production group established by CEMI project. The group originally had 12 people, after that it was increased to 30 people, as many women wanted to participate to acquire additional scientific and technical knowledge. The group was formed based on the commune women's union. FIG member stated that the mushroom production model not only contributes to the increase in income, but also have a lot of added value to the team members. The average annual income from mushroom cultivation is 7 million VND per household. If the input cost (including seeds, straw, plastic bags) is about one million VND, the profit from mushroom cultivation is 6 million VND / year. Mushroom sales are mostly kept by the women and decide what to spend on. *"Men who keep money would spend all the money, whether or not they have money. I hold and decide to spend ".* Mushroom sales are also part of the contribution to the group's funds. The group's current fund is 12 million. Each woman is entitled to one million dong a year, at an interest rate of 0.65% per month. These small loans are considered suitable for women to create jobs, improve the income of the family through small livestock such as raising chickens and pigs. At present, there are still 10 women who regularly maintain mushroom cultivation even though the project has ended. Every month, members meet once. Each time the members meet, apart from sharing techniques of growing mushrooms, selling mushrooms, the group also shared about family care and domestic violence. No one in the group has domestic violence. *Source:* PVS members FIG mushroom cultivation in Muong Cau village, Tam Duong town, Lai Chau

In addition, CEMI has had positive effects beyond expectations such as improving the prestige and role of FU at provincial and commune levels with local authorities. FU in Son La province says that the association is regularly consulted by the PPC when drafting its annual SEDP, something unprecedented in its precedent; at present, Son La HND is a member of the Steering Committee for the implementation of the agricultural sector restructuring action plan and the Steering Committee for Agricultural Development for High Technology.

2.5. Sustainability

Project beneficiaries strongly believed that the following activities will be sustainable whatever ending project. (i) Firstly, the program approach how mainstreaming climate friendly and sustainable production methods in agriculture and agroforestry; (ii) Second, SRI model; (iii) thirdly, the network of local facilitator; (iv) Fourth, a number of smart agricultural/agroforestry, and supporting models which are suitable for each project area and; finally, knowledge and skills target groups and beneficiaries learned during project course.

In relation with maintenance and replication of the project outcomes, project parties emphasize that the **program approach and SRI technique will be replicated flexibility in the future.** Program implementation approach based on main factors, including the assessment of vulnerability; Capacity building, Demonstration models and advocacy will still be replicated flexibility by FUs and Dien Bien FWD and Pan Nature in the future with similar initiatives. This is because this approach is highly relevant with the local context to integrate climate change adaptation strategies in agriculture. In relation to spread climate friendly production methods in agriculture, the FUs have a plan to integrate SRI technique, in the program vocational training for rural laborers 1956[8] . Furthermore, this cultivation technical is also spread widely in community by a various ways such as integration into the Good Farmer Competition of FU; Through technical advice to groups of households borrowing funds from the Provincial Farmer Fund, the Social Policy Bank, the Bank for Agriculture and Rural Development and fertilizer companies[9]; On the other hand, the Lai Chau FU completed project proposal on expand demonstration models in agriculture and submitted to national Farmers Union.

[8] http://www.moj.gov.vn/vbpq/en/lists/vn%20bn%20php%20lut/view_detail.aspx?itemid=10548

[9] In Vietnam, FUs in coordination with fertilizer companies to help famers can buy agriculture materials including fertilizers on deferred payment. Under this program, famers not only can repay their purchases

Effectiveness of the capacity building of target groups and beneficiaries will be sustainable. All the interviewed officials affirmed that the basic knowledge and skills learned (such as project management, organizing farmer field schools, TOT, and sustainable production methods in rice cultivation, mushroom production, etc…) from the project will be applies in their daily work and their living. Team leaders of FIGs in Han Lot communes and all facilitators interviewed have strongly believed that they will continue consult to famers even project ends. "*We are local people, we are still being here, so even when CEMI project ends, we can serve People Committee and other project*" (Source: FGDs with FIGs in Han Lot commune and Facilitators).

Evaluation results do not have strong evidence how to scaling up of the project beyond the project areas to other communes, district and or provinces, because the final evaluation just focus on project sites. However, the local extension workers confirm that SRI will be flexibly applied in the localities should be suitable with the context and weather of the region.

"The SRI cultivation technique is applied flexibly in accordance with the local context. As in Dien Bien district, the training is not rigid; it does not have to be strictly technical. The number of seeds is high, from 17-18 kg / 1.000m2. Now the amount of seed has decreased, the sowing of about 10kg / 1.000m2, but if used according to the method of radiological machine by the farm, the amount of seed used is only 2kg / 1.000m2 "(Source: Centre of Extension agriculture of Dien Bien district).

In addition, due to the ever-changing weather, local people really need to apply the techniques of crop production and conversion in accordance with extreme weather. Therefore, final evaluation team believes that, besides replication of sustainable agricultural production techniques in a formal manner, the project models introduced is diffused in the community in other informal ways such as observation and copy.

"*My sister's family went to Chieng Ve commune, and visited my house, saw my high yield of rice, she also learned and implanted like in SRI. She made about 1,000 m2* ".

"*The households in Na O Commune visited their relatives in Chieng Mai, saw the rice grows differently, they whispered and wondered how the rice was implanted in rows, in big and small*

without charges but they also have a chance participate in technical trainings how to use fertilizer correctly.

rows respectively, and then took the phone to capture, and then told each other try to apply to see how it works". Source: Discussion group FIGs rice in Chieng Mai commune.

Evaluation findings show that there are factors which could obstruct the project sustainability. The first obstacle is the traditional unsustainable practice of rice cultivation from the farmers**.** Local people prefer to maintain a less labor-intensive field by sowing rather than transplanting. They do not really care about seed savings because household can access to program support rice seeds of government for free among ethnic areas. Secondly, the area of land fragmentation, many localities have not completed the land consolidation, should apply environmentally friendly production techniques in the fields are difficult. Thirdly, the income from rice cultivation is low so people do not really care about the rice field. Local encouraging agriculturalists complain that many farmers do not pay much attention to production techniques due to their low average are size/ households and low income from rice, they do non-farm work instead of pure farm.

Box 4. Factors affecting replication model
By 2015, the Nhieu Sang FIG rice has 23 members. The team implemented SRI model with Nhi Huong seed on an area of 1000m2. Before modeling, the areas of Nhi Huong seed which covered 70% of the total area. However, Nhi Huong rice area is currently only about 30% of the area. There are two main reasons; firstly is the SRI technology (sowing, transplanting and weeding) is more labor intensive. Secondly, the prices of Nhi Huong slightly decreased. *Source: FGD with Rice FIG.*

2.6. Lesson learned

The program approach based on the basic elements is the assessment of vulnerability; Capacity building; Build demonstration models; Communication, policy dialogue, replication of successful model is an appropriate approach for mainstreaming responses to climate change in agriculture/agroforestry. This approach has helped improve awareness of grassroots government officials on climate change; Help them see specific steps in each action plan with their own budget resources. For example, Lai Chau FU applied the communication program on

climate change response to the program vocational training for rural laborers 1956 and its loan programs.

Enhancing participation of local stakeholders in policy advocacy. The development of CRAI set has provided many lessons for technical partners and project implementation partners. CRAI was consulted with communes' authorities, local organizations and FIGs in order to have agreed among authorities, civil society organizations and community. The project holders/sub-partners have involved stakeholders in all steps of CRAI development, since survey, meaningful consultation, and getting opinions. Therefore, the policy advocacy is learning process among stakeholders throughout the project implementation, rather than simply creating a specific official document or institutionalize of a policy. If the policy advocacy just focuses on changing the content of an official document, it can be an unsustainable manner. More importantly, improve perception of project partners and policy makers during policy making process. As partners' perceptions and skills are increased, they will know how to apply to the real works. This is the sustainable approach in advocacy.

Supporting manner for farmers is one of the determinants of the effectiveness of the project. The farmer-assisted approach implemented by the project is considered appropriate, as shown below: (I) building up a pool of farmer facilitators trained in community-based knowledge, skills and attitudes; (Ii) Scientific modeling process, from training, demonstration and farmer field school and; (iii) Establish community groups for the purpose of monitoring, sharing experiences and communication after the model is successful. The final evaluation strong emphasizes those three factors like capacity building; demonstration models and develop FIGs are one of the lessons to be replicated in climate friendly production models in agriculture projects.

Develop FIGs based on informal / formal community based organization. In fact, the FIGs are highly active and have a large number of members applying environment friendly production methods that are based on microfinance groups, Women Union groups. These formal and informal groups usually have clear rules of conduct, and have a monthly /quarterly meeting. Therefore, the sharing of climate friendly and sustainable production methods in agricultural among members will be more frequent.

Choosing the relevant model is one of the factors that helped project successfully. The relevance of the model is expressed through the following criteria: (i) the size of the model; (ii) in line with the capacity of the community, both in terms of technical capacity and financial

capacity; (iii) Economic efficiency; (iv) In line with the development strategy and policy of the local agriculture sector. On that basis, adaptation models for future climate change when constructed should consider these criteria.

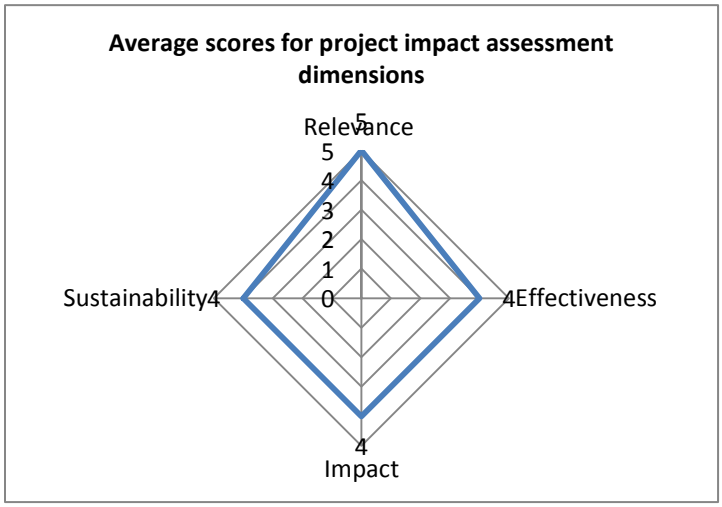
Advocacy activities should be implemented step by step, such as commune and district policy dialogue; then submit the policy to the provincial level to institutionalize the integration of climate change responses into the local policy framework. To support the advocacy process, diversify communication channels, document the lessons learned from the project as complementary activities. This is the right direction and is considered by partners to be appropriate for agricultural projects.

In addition, cooperation with local agricultural regulatory authorities is important in influencing agricultural policies. In fact, the CEMI project in the recent past mainly cooperated with FU, while not attaching much importance to the involvement of the agricultural regulator. Therefore, the impact of the project on local agricultural policy is limited.

3. Conclusion and Recommendation

3.1. Conclusion

The target groups and project's beneficiaries highly appreciate the relevance of the project. Respondents expressed satisfaction with the project's effectiveness, sustainability and impact with an average score of 4 equivalents to good/satisfactory (see diagram below).



Conclusion for immediatie objective indicator 1. At the evaluation time, the CEMI project has achieved the expected output. Local organizations such as the FU, Dien Bien FWD, Pan Nature and farmer groups have strengthened their capacity in identifying and applying flexible climate friendly production methods in agriculture. In order to strengthen local organizations, CEMI project had been conducted 50 group trainings for 50 FIGs in 25 communes; 20 trainings courses

on local development policies and planning with integration of national climate change adaptation framework, with 486 participants; 6 trainings on policy analysis and advocacy for NGOs and local organizations, incl. Farmer Group leaders.

Conclusion for immediatie objective indicator 2. Evaluation results found that main trend among ethnics had been applying friendly agriculture production method thanks to communication efforts of local authorities and CEMI project. Unstable production practices such as slash-and-burn, deforestation, and overuse of pesticides are declining in project areas. In last three years, CEMI have been implemented 92 FFS, 6 training for local extension workers (DARD) on sustainable agriculture and agroforestry production methods and 50 FFS. As a results, agricultural and agroforestry models was helps increased income for the farmers and higher yield from 10-15%. Local farmers, agriculture commune and district authorities of three provinces are very interested in expanding the models in their areas. Unfortunately, at evaluation time the project does not have accurate data of agriculture and agroforestry models scaled up and expanded in the areas with and without CEMI. However, qualitative evidences of the final evaluation illustrated the main trends application of climate friendly and sustainable production methods in agriculture are on the rise among ethnic.

Conclusion for the immediatie objective indicator 3. At the project ends, CEMI expected successful pilot models are promoted and integrated into local planning and policies. Over project course, at least three trainings on climate change integration in social economic development and planning and three trainings on perception of climate change for different stakeholders at district and provincial levels had been conducted successfully. Besides, review of Dien Bien and Lai Chau provincial development plans and policies in relation to low carbon development and climate change adaption has been completed. Interestingly, the CRAI tool for clime change mainstreaming had been developed and meaningful consultation with stakeholders as well as piloting in communes. Unfortunately, project parties not sure about the number of CPCs institutionalizing low carbon and integrating climate change responses into the SEDP whatever the CRAI have been completed and consulted with local authorities. Lack of coaching/mentoring from technical partner and project holders is the root cause in this story. On the other hand, some communes have actively mainstreamed and introduced specific indicators (area, farming techniques) in responding to climate change in agriculture. The remaining communes, although unincorporated, integrated into the policy framework, also but

the commune authorities expressed their support for the application of climate friendly and sustainable production methods in agricultural and agroforestry in local.

Conclusion for immediatie objective indicator 4. Successful agricultural models have been widely disseminated across a wide variety of media channels. In order to awareness promote of piloting models of production alternatives among the local communities, 300 copies of a poster for sustainable maize cultivation on slope lands has been distributed to provinces. There was 900 copies of the Policy Review have been distributed to readers. Three videos developed and uploaded online/broadcasted on national television; Sharing project lessons at national, regional, and international levels via conferences, workshops, events; one guiding book edited and published and many newspaper articles published on provincial and national media/on Pan Nature's and ADDA's websites. In general, stakeholders highly appreciated the quality of the project's communication products, but there are different opinions on the effectiveness of the communication channels that the project applies.

3.2. Recommendation

Recommended for ADDA and Pan Nature

1. For similar initiatives in agricultural adaptation in the future, the **program implementation approach** should be based on main factors includes vulnerability assessment, capacity building, demonstration model, and advocacy in each phase of the project. Policy advocacy is always linked to national and regional strategies for responding to climate change.

2. The CEMI's achievement in the current phase will be developed, if ADDA continue to develop project in the next phase. Because the current phase, CEMI have been created a successful platform such as a good relationship among partnership, piloting CRAI successfully in communes; capacity of project partners has been strengthened. In the next phase, **project should practice CRAI as a useful tool for integrating climate change adaptation** into socio-economic development planning and local policy framework by capacity building and strengthening coaching/mentoring for civil society organizations and local government.

3. To increase influence on local agriculture policies, project holder should **closely cooperate with government agriculture sector**. Among partnerships, agriculture agencies at district/provincial level will take play an important role for key technical component or key

project activities, while extension workers at commune level can cover monitoring and coaching famers;

4. **ADDA and Pan Nature should authorize the sub-partners to hire and close work with local agricultural technical consultants** (e.g. Agricultural Extension center, Plant Protection center). This is because local extension workers are well aware of the condition of agricultural production in their area, so the chances of success of the agricultural model will be higher; Second, dramatic improvements in work planning, financial planning, and budget allocation, such as approve annual budget rather than quarterly, to reduce the cost of planning time and financial reporting; This solution will help the project to save costs and time as well as increase the efficiency of the model.

5. **Project should focus on inputs and outputs of agricultural products of FIGs.** Technical partner such as Pan Nature should introduce input providers for FIGs so that even when the project is over, the FIGs can still proactively connect with suppliers. At the same time, strengthening market linkage for mushroom and fruit production groups is essential to enhance the sustainability and health of FIGs.

Recommendations for sub-partners

1. **In order to maintain and develop the project results in the future, the Farmer's Union should integrate climate friendly and sustainable production methods in annual program communication of FU.** Specifically, FU can disseminate sustainable agricultural models and techniques through vocational training programs, competitions, loan programs. The association should demonstrate the demonstration by cooperating with seed companies, fertilizers or developing proposals submitted to the national FU.

2. **To increase the effectiveness and sustainability of agricultural models, the FU and Dien Bien FWD (i)** Narrowing the project implementation area (one to two districts)/province; (ii) Increase the number of communes within the district and the number of villages involved in the project; (iii) Increase the acreage of the agricultural model to ensure the scientific basis in the efficiency of agricultural production.

3. Developing FIGs are a suitable manner for propagation and practice of agricultural models responding to climate change. Through the spreading group of advanced agricultural

techniques in the community will be faster and wider. FIGs should be based on local WU teams, FUs, FWD.

Recommended for local commune authorities

1. In order to effectively utilize the facilitator, CPCs should use budget from the commune community learning center to support the facilitator in mission to spread climate friendly and sustainable production methods in community agricultural; (ii) Other programs and projects implemented in localities using facilitators as a local partner to carry out capacity building activities and monitor the implementation of agriculture extension models; (iii) Encourage the introduction of facilitator into commune staff such as extension worker and village staff.
2. CPC should apply participatory socio-economic development planning method to social development. Participatory planning will help local governments: (i) Identify the activities that meet the needs of the people; ii) efficient use of financial resources; (iii) Manage and implement programs in line with local development objectives and orientations. The agricultural production models supported by CEMI projects should be taken from the commune socio-economic development plan.

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5. Logical Framework Matrix, Climate Change and Ethnic Minorities Northern Vietnam, 6th January 2016
6. Pan Nature, Progress report for Year 2016
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Annex 1. Summary of project achievement

..\Documents\CEMI Y2016 report.docx

Annex 2. List of communication products

Communication channels	Link
National Television: VTV4, 13'45s)	http://vtv4.vtv.vn/video/ban-tin-tieng-viet/-48.html
VTV4, 15'24s	https://www.youtube.com/watch?v=XvWK_-G_LMM
VTV4, 20'8s	https://www.youtube.com/watch?v=_QhB6HTsscg)
VTV2	https://youtu.be/xRNXwnIJgAI
Humanitarian Television	http://nhandantv.vn/kho-khan-trong-cong-tac-bao-ton- dong-vat-hoang-da- v28889
People Television: 00:43s; Đoạn 00:40s	http://nhandantv.vn/nghich-ly-nha-may-xu-ly-nuoc-thai-bo-hoang-v33278
Newspaper	http://nhandantv.vn/nghich-ly-nha-may-xu-ly-nuoc-thai-bo-hoang-v33278
	Ban Lang in the efforts for adapting to climate change http://nature.org.vn/vn/2016/10/ban-lang-no-luc-ung-pho-bien-doi-khi-hau
	Good news from SRI model: http://baolaichau.vn/kinh-t%E1%BA%BF/t%C3%ADn-hi%E1%BB%87u-vui-t%E1%BB%AB-m%C3%B4-h%C3%ACnh-canh-t%C3%A1c-l%C3%BAa-c%E1%BA%A3i-ti%E1%BA%BFn-sri
	Mainstreaming climate change in development plans in Northwest region: http://baovemoitruong.org.vn/nong-nghiep-tay-bac-thuc-trang-canh-tac-va-dinh-huong-phat-trien-ben-vung
	Mainstreaming climate change in policy development in Northwest region: http://nature.org.vn/vn/2016/11/long-ghep-bien-doi-khi-hau-trong-cac-chinh-sach-phat-trien-o-tay-bac/
	Cultivation maize on slope land – the model should scaling up http://nature.org.vn/vn/2017/01/canh-tac-ngo-ben-vung-tren-dat-doc-mo-hinh-can-duoc-nhan-rong-va-phat-trien
	Son La Agriculture changing in climate change context http://nature.org.vn/vn/2015/08/nong-nghiep-chuyen-minh-trong-boi-canh-bien-doi-khi-hau
Video clip/YouTube	The thing our village like the best: https://www.youtube.com/watch?v=2Mg4ufwYxvw
	Golden maize on slope lands: https://www.youtube.com/watch?v=FYIeW5CTHDU

Communication channels	Link
	Channing planting in climate change adaption in Northern Mountain areas: https://youtu.be/xRNXwnIJgAI
Articles/publication/poster	Policy Review on Climate change – National policy and local adaptation: http://nature.org.vn/vn/2016/08/ban-tin-chinh-sach-so-21-bdkh-chinh-sach-quoc-gia-va-hanh-dong-dia-phuong
	Poster SRI cultivation rice helps Climate change adaptation: http://nature.org.vn/vn/2016/06/canh-tac-sri-giup-ung-pho-bien-doi-khi-hau/
	Poster sustainable maize cultivation on slope lands http://nature.org.vn/vn/2016/12/canh-tac-ngo-ben-vung-tren-dat-doc-ich-kinh-te-loi-moi-truong

Annex 3. Data collection tools

D:\Data collection Tools.zip

Annex 4. List of evaluation sites

Province	District	Commune	Geographical feature
Dien Bien	Dien Bien	Thanh Xuong	Urban
		San Mun	Rural
Lai Chau	Tam Duong	Tam Duong town	Urban
		Ho Thau	Rural
Son La	Mai Son	Chieng Mai	Urban
		Han Lot	Rural

Annex 5. Agricultural demonstration model of Mai Son district

In 2016, department of agriculture and rural development in Mai Son district carried out 14 planting models, including the SRI model. Area of SRI model in Mai Son district is 53.5ha with 511 households. This model conducted in one rice field in one commune, where peole can observe the demonstration model easily. The results of the model assessment showed that the SRI helped increase significant rice yield. The rice grows well, has strong branching, hard stems, large cotton, high percentage of seeds. The average rice yield is 8-9 tons / ha, which is 25-30% higher than traditional production rice model.

Main Son department of agriculture and rural development have strongly recommend local PC after the end of the model:

- Continue to build models of technical demonstration,
- Continue to open training courses to transfer advanced scientific and technological advances into production and trading of plants for farmers.
- Limit the use of chemical drugs, the use of drugs of the right kind, dose, correct and timely for each type of plant, each type of insect or disease.
- Encourage farmers to plant shade trees and green compost to minimize the use of chemical fertilizers and chemicals.
- Apply biological products in pest prevention and treatment, environmental treatment
- In 2017, Mai Son district encouraging famers continue applies SRI technique in larger areas.