Sustainable Agro-ecosystem Management for Adaptation to Climate Change

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Presented on behalf of Agro-ecosystem Research Team

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I. Introduction

- One of IRAS activity components
- Implemented by 5 Research Centers i.e.
  - Livestock Research Center (LRC)
  - Living Aquatic Resources Research Center (LARReC)
  - Horticulture Research Center (HRC)
  - Forestry Science Research Center (FSRC)
  - Agricultural Land Conservation and Development Center (ALCDC)

- Starting of research activities: since June 2013

I. Introduction (cont.)

- Objective:
  - To improve and strengthen smallholder farmers' knowledge on sustainable agriculture management as well as environmental and natural resource management at a community (village) boundary which is important for climate change adaptation

- Research location:
  - 2 villages in Phieng and Paklai Districts (Xayabuly Province)
  - 2 villages in Outhoumphone and Champhone Districts (Savannakhet Province)

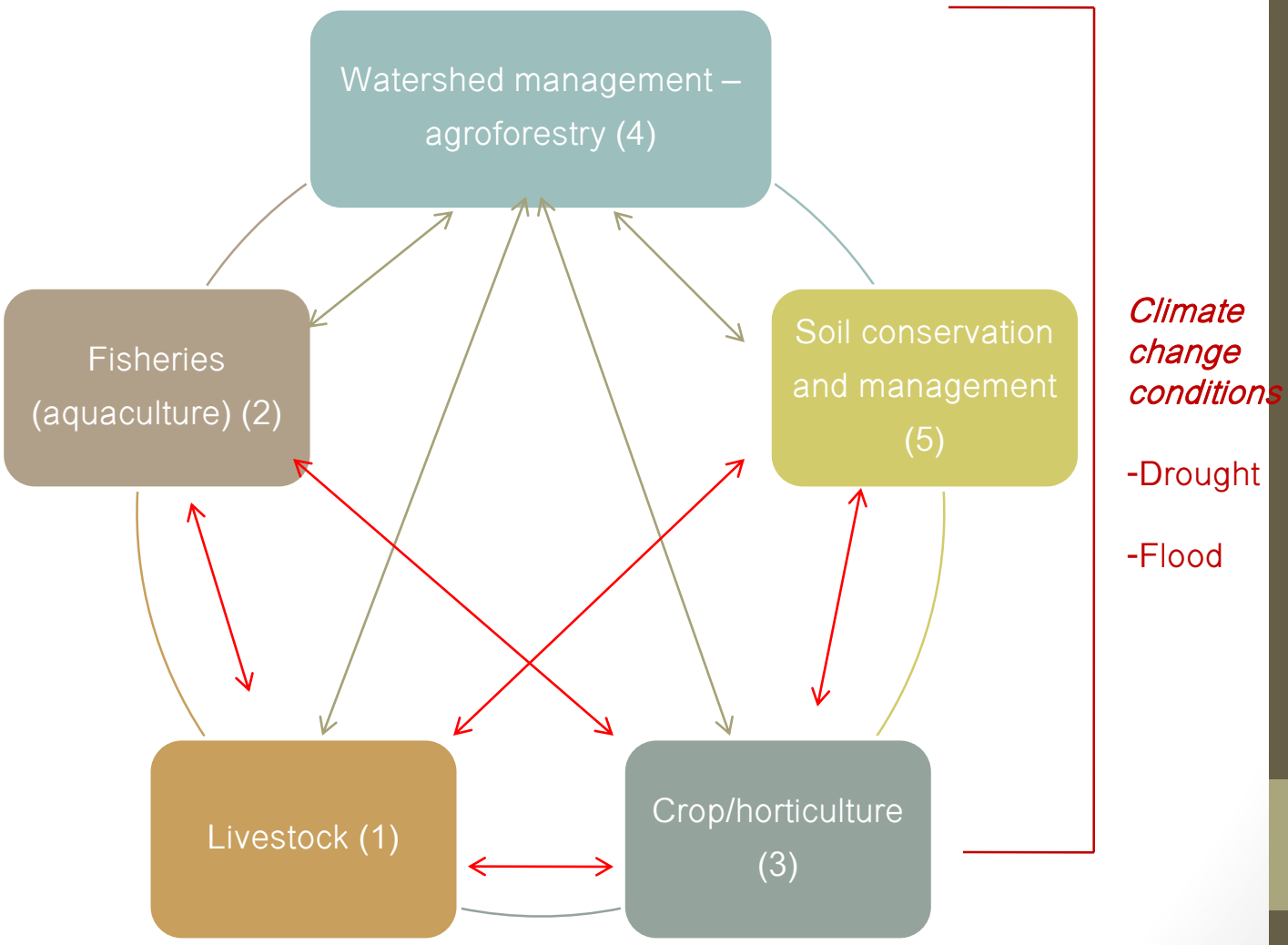
II. Conceptual framework

- 'Sustainable' Agro-ecosystem Management Pilot Project for Adaptation to Climate Change

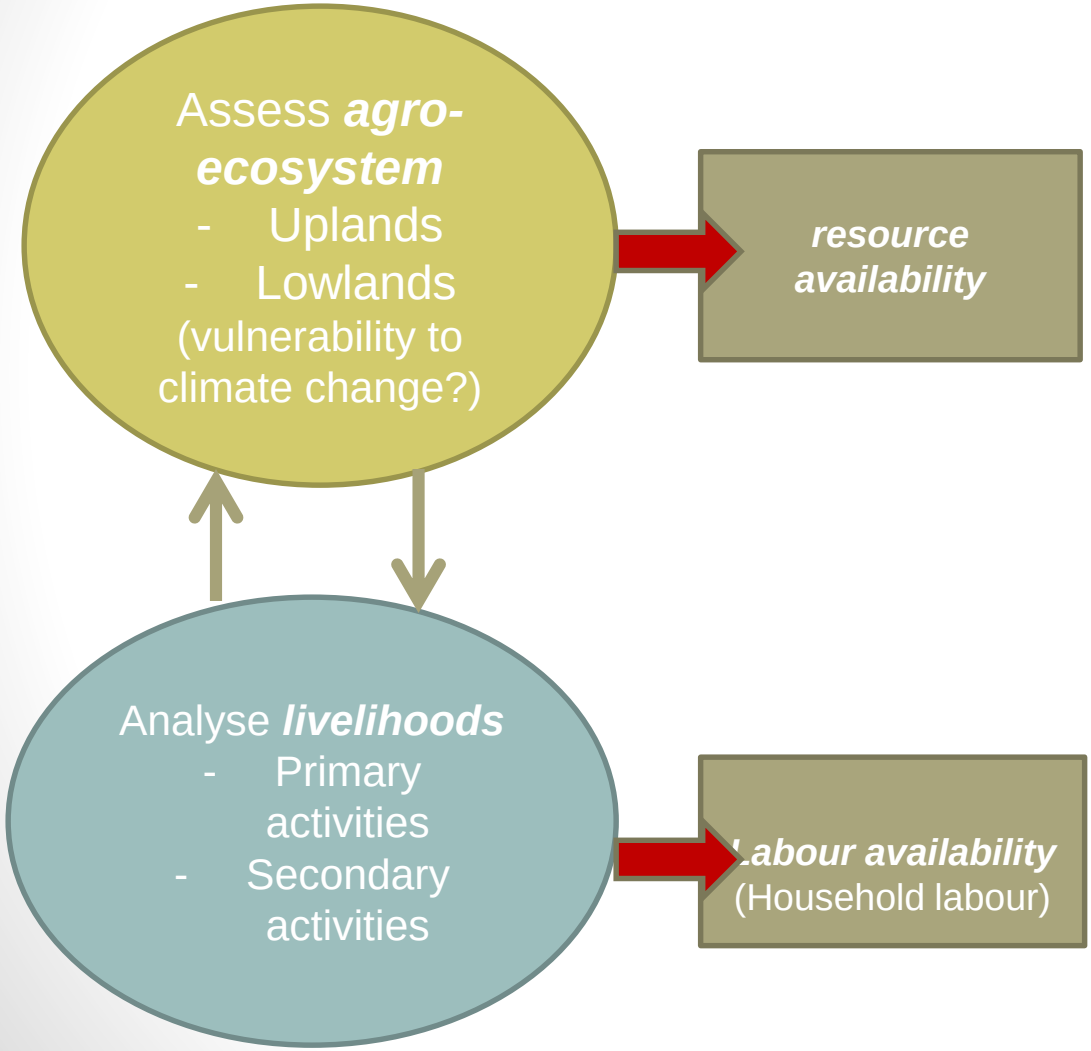
  - 'Sustainable' agriculture in community (village) boundary or inter-village boundary (*in the case of sharing important agro-biodiversity)*
    - *'Smart'* agriculture: efficient and effective uses of natural resources for agriculture toward using appropriate smallholder technologies (water, energy and resource uses);
    - *Interlinking between important agricultural activities with environmental and resource management;*
    - *Introducing 'self-sustained' agricultural inputs to the community – 'non-farm' activities;*
    - *Strengthening* a local government institution (i.e. *District Agriculture and Forestry Office (DAFO)* particularly its *'Technical Service Center'* - technical perspective related to sustainable agriculture.

II. Conceptual framework (cont.)

1. Livestock Research Center
2. Living Aquatic Resources Research Center
3. Horticulture Research Center
4. Forestry Science Research Center
5. Agricultural Land Conservation and Management Center

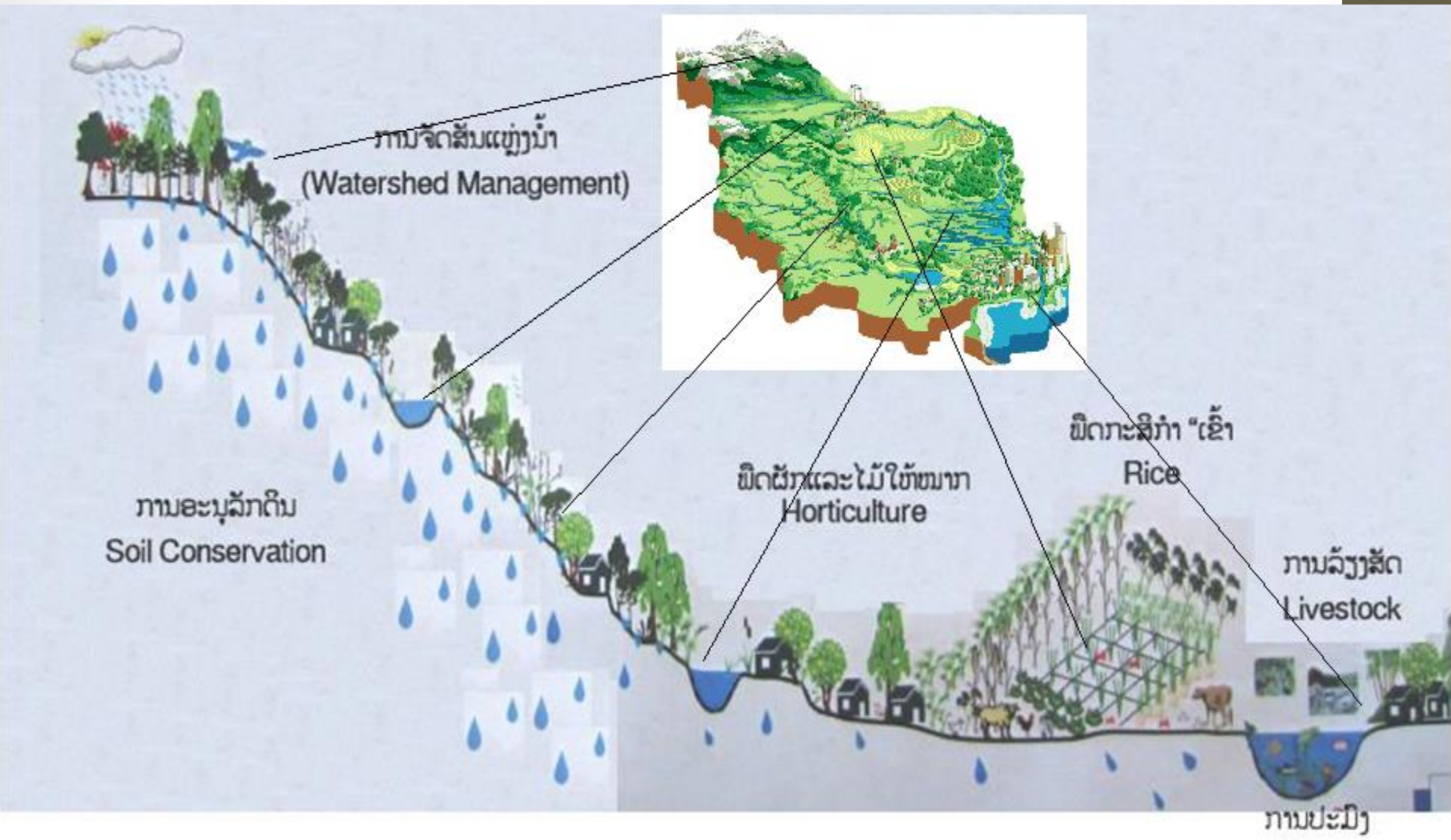


III. Research Method



- Conduct Participatory Rural Appraisal (PRA) to assess agro-ecosystem and livelihood conditions in the studied villages;
- Discuss with farmer groups about agricultural management strategies, and identify technical constraints and challenges encountering the farmers;
- Provide on-field training in climate-change-resilience agricultural management to farmer groups and district government staff of Technical Service Center (TSC);
- Select model farmers to participate in research on sustainable agricultural management;
- Create demonstration sites at TSCs.

ແນວຄວາມຄິດ : ການບໍລິຫານຈັດການ ນິເວດ-ກະສິກຳແບບຍືນຍົງ ສຳ ຫລັບການປັບຕົວຕໍ່ສະພາບການປ່ຽນແປງດິນຟ້າອາກາດ



IV. Progress of Research Activities (a case study of Namsom Village, Phieng District, Xayabuly Province

1. Participatory planning workshop at provincial and district levels

- conducted at PAFO of the province on 12 August 2013

2. Visiting the Agricultural Technical Service Center o Phieng District

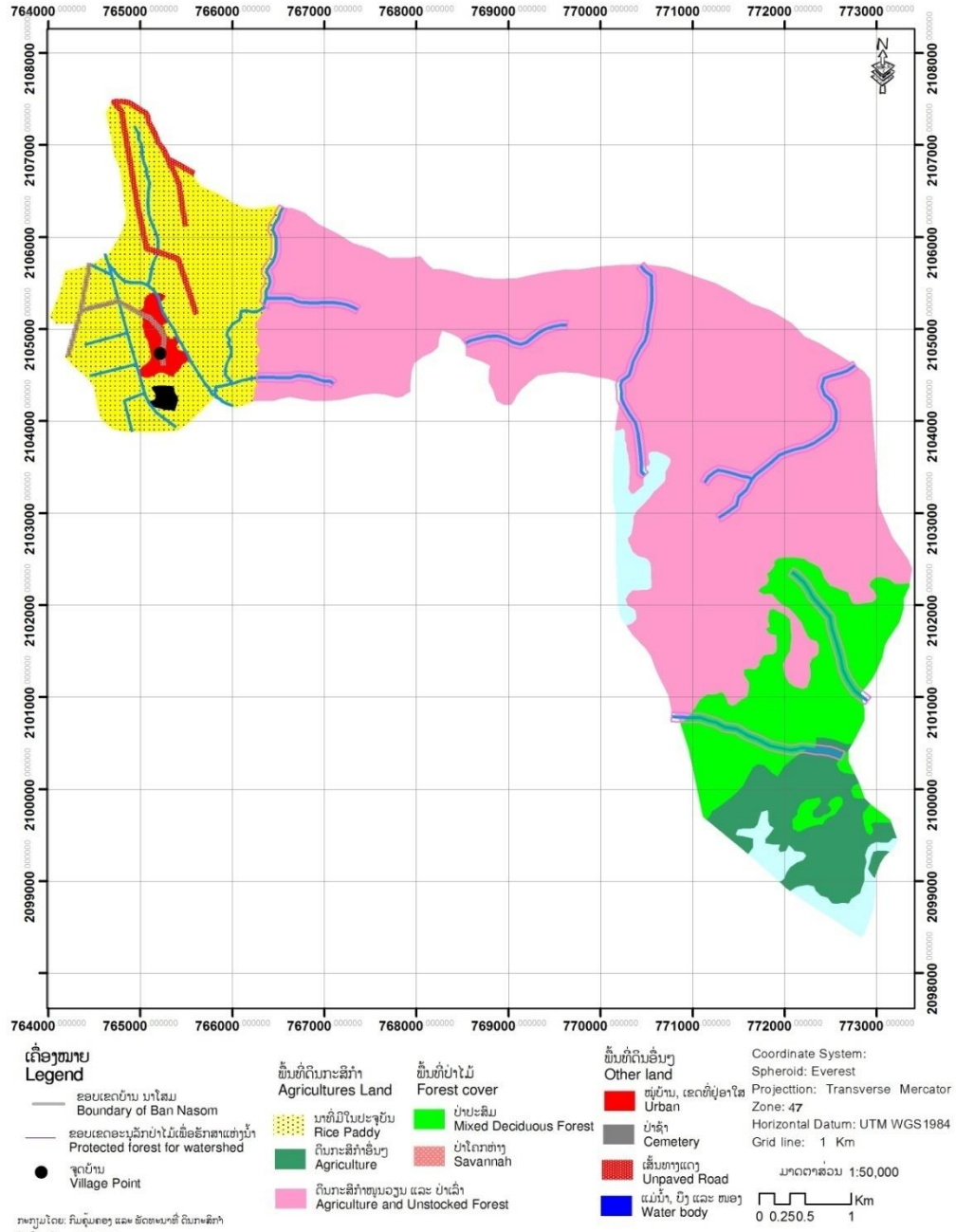
3. Participatory planning with farmers at Namsom Village, Phieng District

Studied area

ແຂວງ ໄຊຍະບູລີ
Xaiyaboury Province

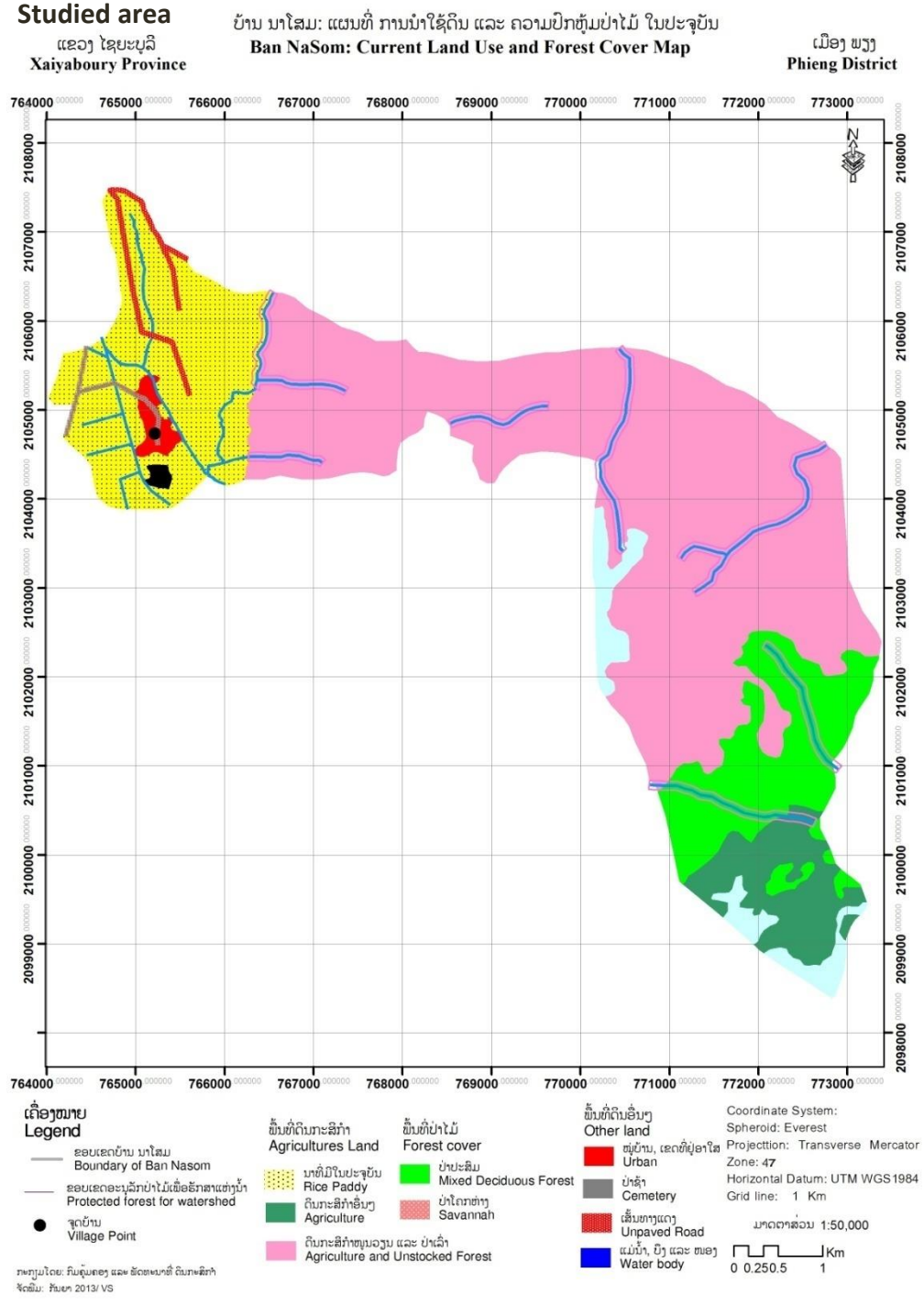
ບ້ານ ນາໂສມ: ແຜນທີ່ ການນຳໃຊ້ດິນ ແລະ ຄວາມປົກຫຸ້ມປ່າໄມ້ ໃນປະຈຸບັນ
Ban NaSom: Current Land Use and Forest Cover Map

ເມືອງ ພຽງ
Phieng District



Agro-ecosystem factors	Numbers
Village area	1,746 ha
Water resources	
- Small streams	2
- Small rivers	2
Forest resources	717.3 ha
Conservation forest	502 ha
Production forest	210.3 ha
Spiritual forest	5 ha
Agriculture	483.04 ha
Rainfed rice	284.54 ha
Upland crops and gardens	198.5 ha
Livestock	
- Cattle	1,574
- Buffalo	94
- Goat	18
- Pig	1,370
- Poultry	15,000
- Fish ponds	49 ponds

Studied area



Livelihood factors	Details
Population	1,692 (48% women; 67% of population aged 14-60 year old)
No. households	319
Main occupation (ranking)	1. Cropping 2. Livestock 3. Handicraft and rural trade 4. Labour and others
Prioritized food security (ranking)	1. Rice 2. Vegetables 3. Meats from livestock, fish and other aquatic animals 4. Non-timber forest products and wildlife

4. Training farmer groups and agricultural technical staff of Technical Service Center (TSC) of the District

Training on watershed and agro-forestry management by Forestry Science Research Center

- ✓ 151 people (89 females)

Collecting soil samples

Training on soil conservation and management by Agricultural Land Conservation and Development Center

- ✓ 43 people (12 females)

Training on livestock management by Livestock Research Center

- ✓ 133 participants

Training on aquaculture by Living Aquatic Resources Research Center

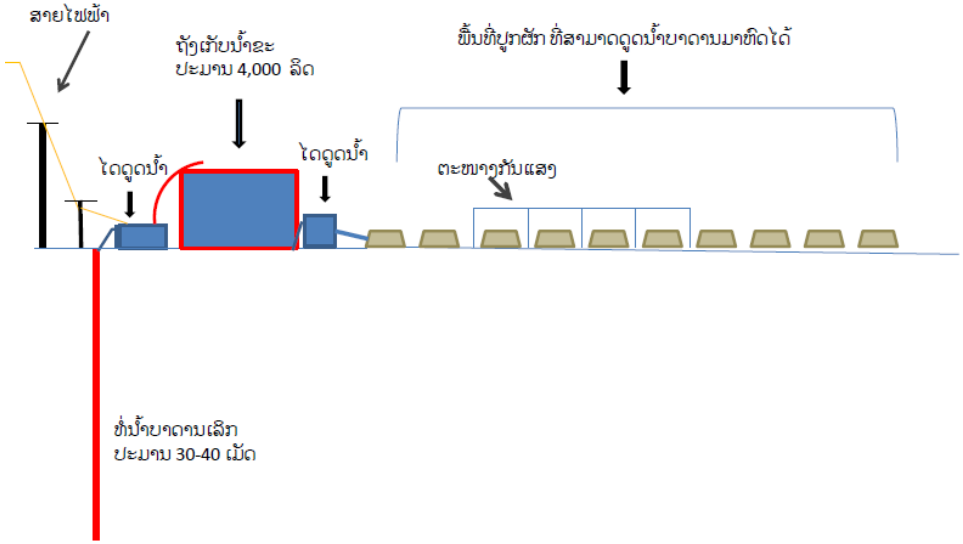
- ✓ 126 participants (75 women)

Training on horticulture by Horticulture Research Center

270 participants (170 women)

Before

After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ຕະໜາງນ້ຳແສງ
ຫໍ່ນ້ຳບາດນເລິກ
ປະມານ 30-40 ແມັດ

5. Next research activities

- Build model farmers in the village
- Continue to provide capacity building to farmers and local government staff and create demonstration sites at the village and TSC
- Conduct research on agricultural productivity under climate change conditions with model farmers and staff at TSC
- Scaling out the activities to other villages using model farmers and TSC staff




V. Discussion

- Climate change phenomena would have unpredictable impacts on smallholder agriculture, and make even more difficulty in achieving ‘sustainable’ agriculture;
- ‘Sustainable’ agro-ecosystem management may require a local community to have optimal and sustainable uses of local resources as agricultural inputs (through linking farming activities) while conserving natural and environmental resources;
- Smallholder farmers need to access to appropriate agricultural knowledge and technologies in order to learn and adapt to climate change conditions;
- There are needs to find appropriate institutional mechanisms to systematically transfer smallholder farming knowledge and technologies to local communities and local government;
- Strategic climate-change- resilient agro-ecosystem management planning at the district level is very critical for achieving ‘sustainability’.

Thank you very much

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