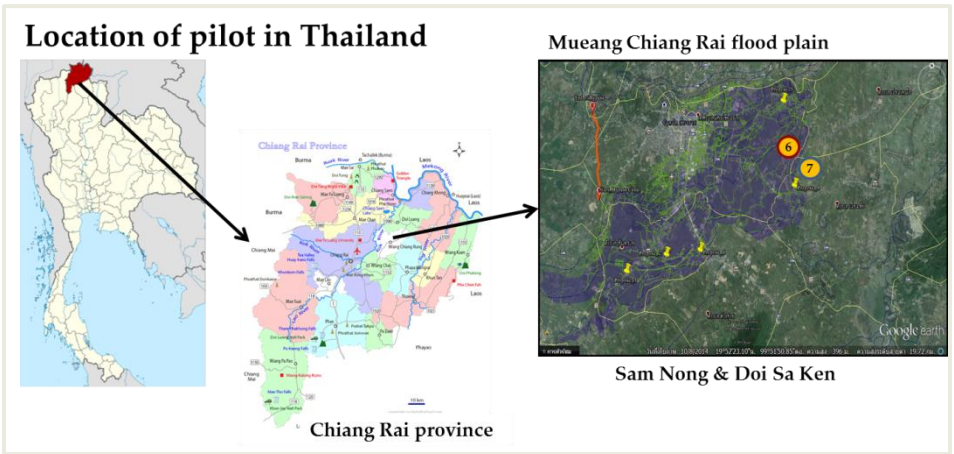


Project Fact Sheet: Thailand

Climate-Sensitive Flood Risk Mitigation in Chiang Rai

Background on Mueang Chiang Rai District

- Located in a flood-prone region of the Nam Mae Kok Basin
- Pilot sites are located on either side of road 1233, which connects to Chiang Rai City and Wiang Chai town.
- Flooding in the pilot sites is primarily from the Nam Mae Lao River, but flood conditions are also influenced by the flow of the Nam Mae Korn and Nam Mae Kok Rivers.
- Annual maximum river discharges occur from July-November, and peak is in August-September
- Average annual rainfall is approx. 1700 mm, primarily occurring in the months of May-October
- Since 1994 flood (baseline flood for this study), flood control infrastructure has been put in place, including the 1998 Mae Srauy Reservoir and 2005-2006 flood diversions and weirs in Nam Korn. These measures have reduced exposure of target areas to floods, particularly the residential areas located on relatively high ground.



Project Overview

Time frame: August 2014-February 2016

Budget: approx. 53,000 Euro

Location: San Nong and Doi Sa Ken, Mueang Chiang Rai District

Impact: 83 direct beneficiaries from two 1-day trainings on flood early warning and flood preparedness

Partners: Dr. Sompng Boonprasert, National Flood Expert

- Flood warning system is currently in place: The Department of Disaster Prevention and Mitigation (DDPM) issues flood warnings and evacuation notices to flood-prone areas of Chiang Rai Province via the provincial governor.

Relevant information on target areas	*San Nong Community*	*Doi Sa Ken Community*
Community size	186 households (858 people)	298 households (1,936 people)
% of household income derived from agriculture (for both communities)	40%	40%
Drinking water supply	Mae Nam Mae Korn River	Mae Nam Mae Korn River
Average income per household (for both communities)	122,721 baht/year	122,721 baht/year

Results of vulnerability assessment

- **Baseline flood behavior:** Existing flood behavior was based on the 1994 flood, which had an average outdoor depth of 0.9 m and indoor depth of 0.5 m, and a duration of about 6 days. About 55% of farmers in the study area reported their crops damaged by flooding, 16% of interviewees experienced negative health effects, and nearly all residential and business structures were damaged.
- **Climate change-induced flood behavior:** The results of the analysis show that under climate change conditions, by 2030, peak flood levels will increase by about 1.0 to 1.4 m over 1994 levels.
- **Economic vulnerability:** Average annual flood damage AAD for San Nong and Doi Sa Ken combined is $136,000 USD
- **Economic vulnerability increases due to climate change:** Estimated AAD under gradual climate change conditions increases by $374,000 USD for the entire study area.
- **Potential reduction in damages due to adaptation measures:** With the implementation of the proposed adaptation measures, AAD for current flood behavior would be reduced by about $100,000 USD for the entire study area. Under climate change conditions, adaptation measures (having gradual effects) would reduce AAD by about $375,000 USD.

Suggested adaptation measures

Based on an assessment of the focus region's exposure to floods, sensitivity, and adaptive capacity, the following adaptation measures were identified to help the target villages reduce their vulnerability to flood risk.

1. Improve early flood warning system.
2. Awareness raising and capacity building for flood response activities.
3. Improved land-use planning.
4. Implement law enforcement with respect to building codes and drainage and flood protection measures.
5. Flood proof houses
6. Transition to flood-tolerant crops and livestock
7. Flood proof fishponds.
8. Develop a flood emergency response plan.
9. Ensure that appropriate tools and materials are available for flood emergency response and recovery activities.

Implemented adaptation measures

After a series of consultations with relevant stakeholders, the following measure was selected for implementation based on its potential for upscaling, technical feasibility, financial feasibility, gender sensitivity, willingness of communities, and sustainability. It was implemented in February 2016

Objective: Enhance flood awareness and preparedness of target communities

Conducted 1-day trainings for 83 on the following topics:

a. Flood early warning- flood hazard maps, flood monitoring and warning, what to do after a flood early warning statement is issued
b. Flood preparedness- flood characteristics and causes, impacts and preparedness measures, flood response measures, and restoration techniques following floods
c. Flood awareness-raising- designing a flood awareness-raising forum or workshop

Participants included Chiang Rai provincial government officials and community-members from Doi Sa Ken and San Nong,