

IPL Project Annual Report Form 2018

- 1. Project Title:** Landslide Mapping and Risk Mitigation Planning in Thailand
- 2. Main Project Fields:** Technology Development; Hazard Mapping, Vulnerability and Risk Assessment.
- 3. Name of Project leader :** Miss. Saowanee Prachansri
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Core members of the Project:
Names/Affiliations: Miss Jitraporn Sawatdee Policy and planning analyst
- 4. Objectives:** To assess and map landslide susceptible areas in 204 sub-basins in Thailand that are planned for development or that have been developed, in addition to zone landslide risk areas, design and conduct prevention and/or mitigation measures in landslide risk areas.
- 5. Study Area:** Critical potential landslide areas subject to development or already developed in 204 sub-basins in Thailand.
- 6. Project Duration :** 5 years duration (2009 to 2013) extend to 2019
- 7. Report**

Due to the cutting fiscal year budget, we could not complete the project on 2016 so that we extend this project for 3 more years to complete.

1) Progress in the project in 2018:

- Field data survey and data collection included collection of physical soil properties measurement, gathering of climatic data, hydrologic data, geology, landform and topography were taken from 15 sub-basin in Northeastern part of Thailand.
- Landslide susceptibility mapping in 15 sub-basin where located in Northeastern part of Thailand was produced with scale 1: 4000. To carry out sub- catchments and hydrological factors of the study area, a hydrology model was applied by using DEM 5 m. resolution as a primary data. The SINMAP (Stability Index Mapping) model was applied to calculate 15 sub-basins. As extensions to ArcView® 3.x, SINMAP is based on the infinite-slope stability

model. Slope stability is calculated using topographic parameters such as slope and topographic wetness which derived from DEM (Digital Elevation Model) 5 m. resolutions. Soil strength parameters and hydrological parameters are considered more variable and can be adjusted to better match existing conditions. The major output of the SINMAP model is the Stability Index (SI) grid theme. The output of the SINMAP model; the SI values were ranged from 0 to 1.5 then it was reclassified in three susceptible zones (low susceptible, medium susceptible, and high susceptible) and converted into landslide susceptibility map.

- The rainfall induced landslides are normally occurred on the mountainous area during the heavy and long period rain. On some watershed area, the flood and debris flow will follow the landslides and cause more serious damage to the villages below. Analysis of the village or community that may be affected by a landslide was conducted by conditioning method and geographic information system. The village/community that is away from areas vulnerable to landslides occurred about 2 kilometers and is located near the river to within 200 meters was selected to be village at risk.
- Landslide susceptibility map together with village at risk were produced in scale 1:4,000 from year 2010-2018 amount 191 sub-basins (annex 1).
- Soil and water conservation measures with mechanical conservation work and plant measures were constructed including hillside ditches, diversion drain, check dam, diversion and disposal waterway and Vetiver grass along hillside ditches. From year 2008 to 2017, the project was covered area 11,148.8 hectares and covered 1,872 hectares in year 2018(annex 2).

2) Planned future activities or Statement of completion of the Project

- Conduct landslide susceptibility mapping scale 1:4000 including data acquisition in 13 sub-basins (annex 3) in the Northeastern part of Thailand. The project will complete on year 2019. The landslide susceptibility mapping with scale 1:4000 will cover all areas of Thailand.

- In year 2019, soil and water conservation measure will construct to prevent landslide hazard in sub basin of Nan basin, Ping Basin, Yom basin, Ping basin, Kok basin, Pasak basin, Mae Nam Tha Chin basin, Mae Nam Mae Klong basin, Mae Nam Tapi basin, Peninsula East Coast basin and Peninsula West Coast basin cover area 1,872 Hectares.

- Landslide susceptibility map will be used to determine the soil and water conservation measure for landslide risky prone areas especially on highland agricultural.

3) Beneficiaries of Project for Science, Education and/or Society :

- The project is to deliver concrete benefits such as landslide disaster prevention, treatment of soil and water resource and environmental protection and conservation over short time period. In recent years, with rising public awareness of the importance of environmental protection and conservation methods are being incorporated into the treatment methodology. The outcome has been widely recognized.

4) Results:

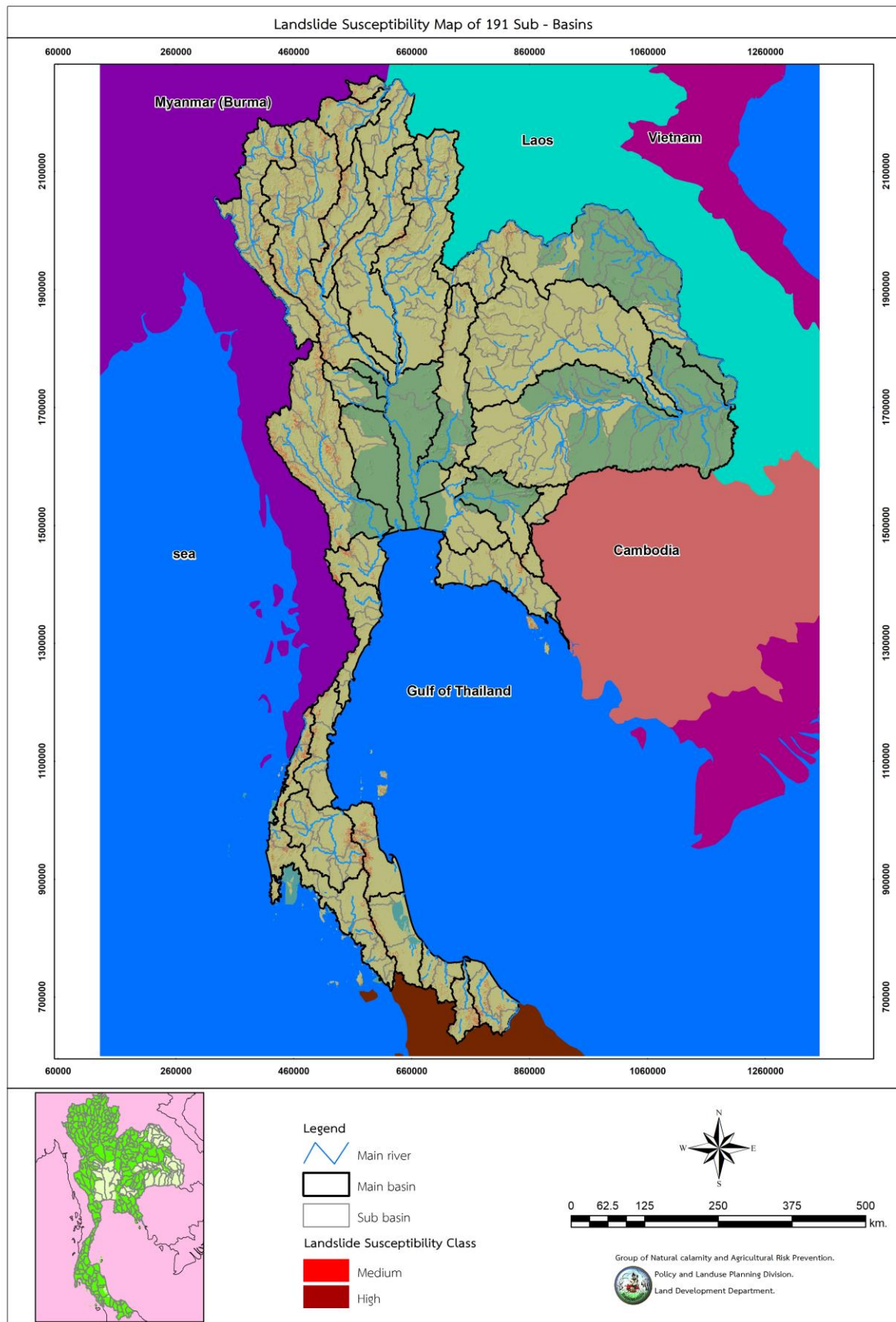
- Landslide susceptibility map has been disseminated via Land Development Department website (<http://irw101.ldd.go.th>).
- Landslide prevention and Soil and water conservation Workshop for farmer was organized 2 times. The 1st and 2nd Landslide prevention and Soil and water conservation Workshop for farmer was organized on April and May at Surat Thani province. The 100 farmers were participated in this workshop (Picture 1). The results of the satisfaction survey of the workshop with great satisfaction and success (annex 4).



Picture 1: The 1st and 2nd Landslide prevention and Soil and water conservation Workshop for farmer at Surat Thani province.

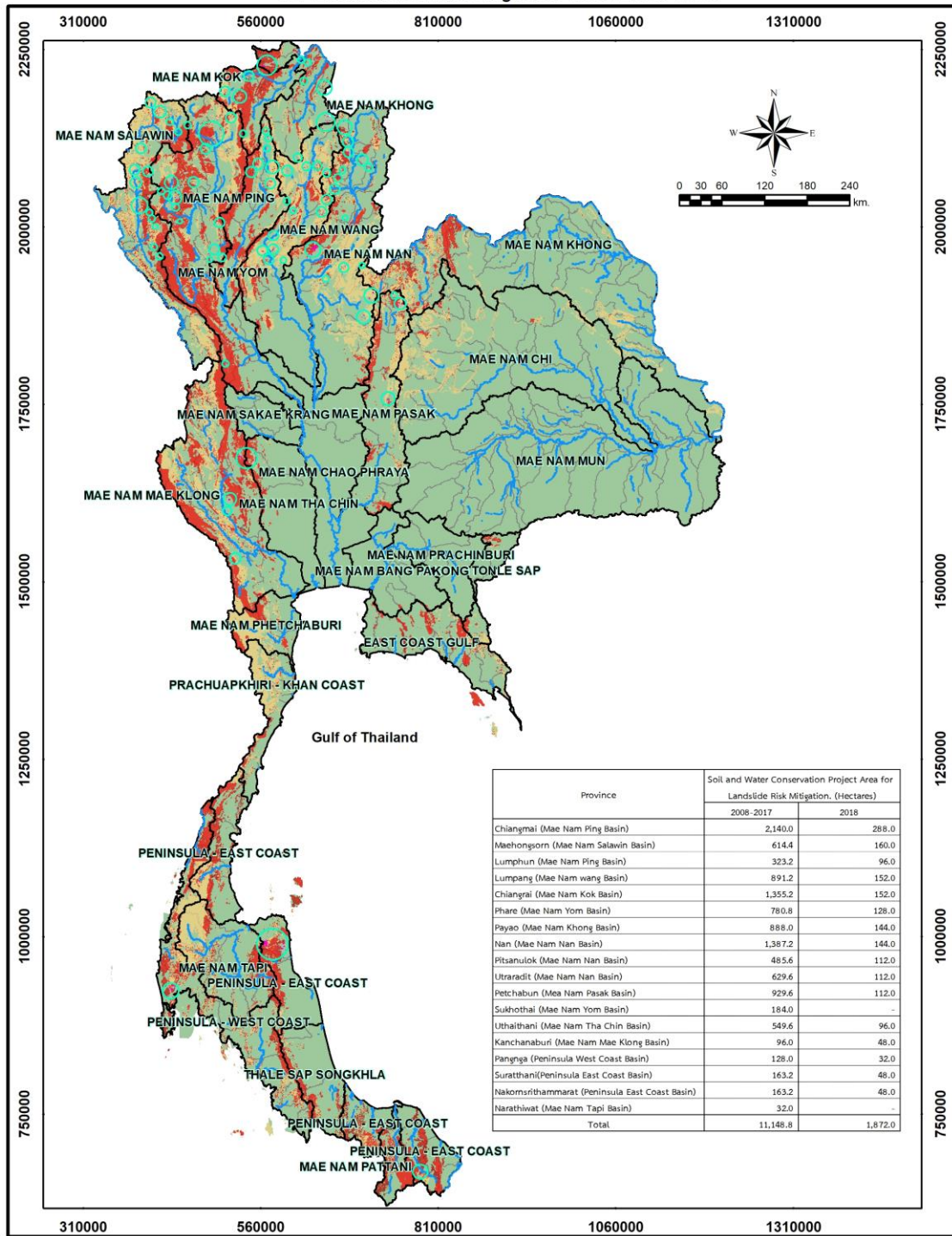
- Extending the cooperation in Landslide Prevent Project between Land Development Department and Soil and Water Conservation Bureau, Taiwan. The Project aim to determine appropriate soil and water conservation measures and methods for landslide and erosion including sediment control in Thailand as well as exchange the knowledge and transfer the knowledge of soil and water conservation to prevent soil erosion and landslide to famers. The duration of project start from year 2016 to 2020.

Annex 1: Landslide Susceptibility Map in 191 Sub-Basins (from 2010-2018).



Annex 2: Soil and Water Conservation Projects Area for Landslide Risk Mitigation in year 2008-2017 and year 2018

Soil and Water Conservation Project Area
for Landslide Risk Mitigation Year 2008-2018



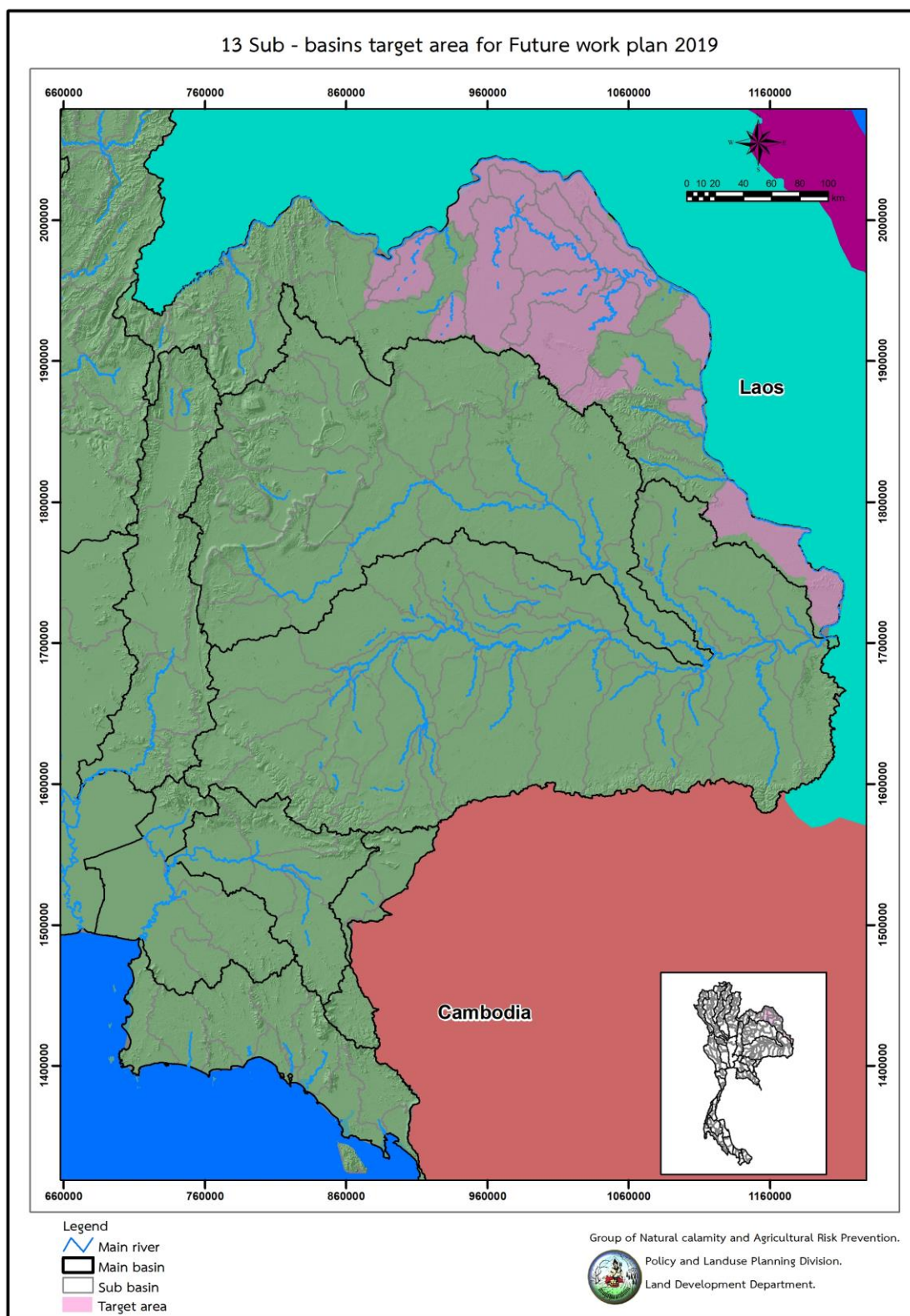
- Legend
- Main river
 - Main basin
 - Sub basin
 - Project area

- Landslide Suscetibility Level.
- Low
 - Medium
 - High



Group of Natural calamity and Agricultural Risk Prevention, Policy and Landuse Planning Division, Land Development Department.

Annex 3: Target area (13 sub-basins) for future work plan in year 2019.



Annex 4: Satisfaction level of Landslide prevention and Soil and water conservation Workshop for farmer at Surat Thani province.

Satisfaction Level of workshop

