

**Land Use and Land Cover Change for Southeast Asia  
(APN2001-13)**

**Project Leader:**

Prof. Sharifah Mastura Syed ABDULLAH  
Earth Observation Centre  
Department of Geography  
Universiti Kebangsaan Malaysia  
43600 Bangi  
MALAYSIA  
Tel: +60-3-8921-3679  
Fax: +60-3-8921-3334  
Email: [sharifah@eoc.ukm.my](mailto:sharifah@eoc.ukm.my)

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## **APN Funding**

US \$31,500

## **Participants from the following countries were funded**

Cambodia, Indonesia, Laos, Malaysia, Philippines, Thailand, Vietnam

## **Introduction/Background**

The project Land Use and Land Cover Change For Southeast Asia was proposed for a two-year term. For year one the project reference was APN 2000-13, and for year two the project reference was APN 2001-13. In year one the project had accomplished four activities. These were the installation of hardware and software in Cambodia, Laos and Vietnam; acquisition of satellite data; training LUCC methodologies; and advance-training workshop on ETM+, SPOT VGT and LTM models. The project draft country reports have also being coordinated and compiled. Year two saw the implementation of the final part of the project, which was the post workshop and synthesis report for LUCC-SEA. The workshop was held in Chiang Mai, Thailand from 9-14 August 2001. This workshop produced the final summary and synthesis of LUCC for the region.

## **Outline of activities conducted**

The post workshop and synthesis meeting was divided into three sets of activities as follows:

- 1) Science Papers. Session 1  
The papers presented were:
  - i) Large-Area, Rapid Assessments of Forest Cover Using Landsat ETM+ Data: Myanmar 1999/2000. MSU, SEARRIN-US;
  - ii) Integration of GIS and Statistical Analysis for Forest Cover Change Modeling of the Upper Magat Watershed. NAMRIA SEARRIN-Philippines; and
  - iii) Networking, Open Geographic Information Systems at the Tropical Rainforest Information Centre. MSU, SEARRIN-USA.
  
- 2) Science Papers. Session 2  
The papers presented were:
  - i) Tam Dao National Park: Policy Implication and Forest Re-growth. National Center for Hydro-Meteorological Forecast, SEARRIN-Vietnam;
  - ii) Land Use and Land Cover Change in Kampong Cham Province, Cambodia. Ministry of Environment, SEARRIN-Cambodia;
  - iii) Land Use and Land Cover Change in Nam Theun Watershed, Laos PDR. National University of Laos, SEARRIN-Laos;
  - iv) Land Use and Land Cover Change in the Sempadi Forest Reserve, Sarawak, Malaysia. UKM, SEARRIN-Malaysia;

- v) Spatial Analysis of Forest Cover Change in Puerto Princesa, Palawan. NAMRIA, SEARRIN-Philippines; and
  - vi) Land Use and Land Cover Change in Thailand: Five Sites. GISTDA, SEARRIN-Thailand.
- 3) Field Validation Training: Fractional Cover Field Data Collection for Validation/Calibration. The study site was at Doi Inthanon National Park, Chiang Mai, Thailand. Field data collection included:
- ❖ GPS location
  - ❖ Photos (Cardinal direction)
  - ❖ Digital photos (using fish-eye lens)
  - ❖ Spherical densitometer for fractional cover
  - ❖ Leaf Area Index (LAI) – structure and canopy opening.
  - ❖ Basil Area of forest
  - ❖ Land cover/use types
  - ❖ Tree species identification and composition
  - ❖ DBH and height
- 4) Synthesis writing and technical product development. The synthesis will produce a regional report for Southeast Asia. It outlines the summaries and synthesis of the seven country findings. The content includes:
- ❖ Common data acquisition
  - ❖ Methodology (collection and processing of biophysical data, socio-economic data, RS/GIS processing)
  - ❖ Summary results of LUCC for seven countries
  - ❖ Overview of socio-economic modeling and forecasting
  - ❖ Summary of causal factors
  - ❖ Impact on policies
  - ❖ Conclusion

### **Outcomes/Products**

The outcomes of the LUCC-SEA project:

- ❖ Seven country reports in hard copy
- ❖ Seven country reports in digital copy
- ❖ One synthesis report for SEA
- ❖ SEARRIN Web
- ❖ SEARRIN Nodes
- ❖ SEARRIN Brochures
- ❖ SEARRIN Directory 2002
- ❖ Open GIS system for SEARRIN SEA Nodes

### **Future Direction/Follow-up work**

Research results and experience from this APN project will provide a foundation for SEARRIN researchers to pursue future projects in Global Change Research. One such project is the Millennium Ecosystem Assessment. The assessment will be based on tropical forest ecosystems and land use change processes. The assessment will provide an evaluation of the drivers of ecosystem change, including recent and future projected trends and how these trends will influence current and future ability to sustain ecosystem services.

Another future direction of the research is targeted at forest fires and detecting and classifying burned forests. The research will support the development of methodologies to characterize the regional spatial pattern of forest fire occurrence in SEA by combining climatic and biophysical parameters with the human dimensions of land use.

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