



Possible Study Sites

Grenoble, France

September, 2008

Nam Ngum River Basin

NNRB:

- Vientiane capital, Vientiane, Xiengkhuang, Luangphrabang, Borikhamxay provinces

Main activities:

- Hydropower
- Mining
- Forestry
- **Tourism**
- **Agriculture**
- **Fisheries**

Nam Ngum River Basin (au nord de Vientiane)

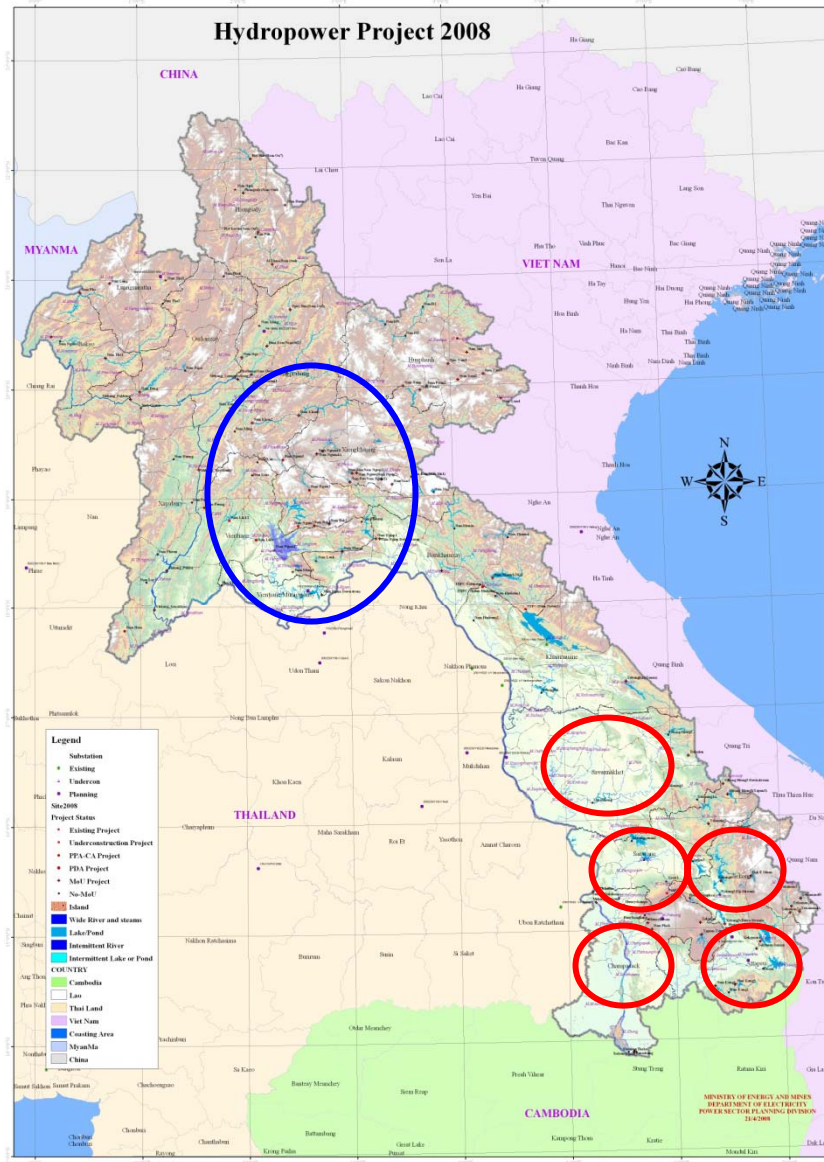
Hydropower

- Planning is at various stages for **over 70 dams**; in NNRB an additional 7 are planned, beyond 3 which already exist
- Water quality problems or risks: oxygen depletion, thermal stratification, decomposition of submerged biomass or organic matter (overhead vegetation and carbon contained in the soil) → CO₂, CH₄, H₂S, NH₃
- Biomass (vegetation) management

Mining

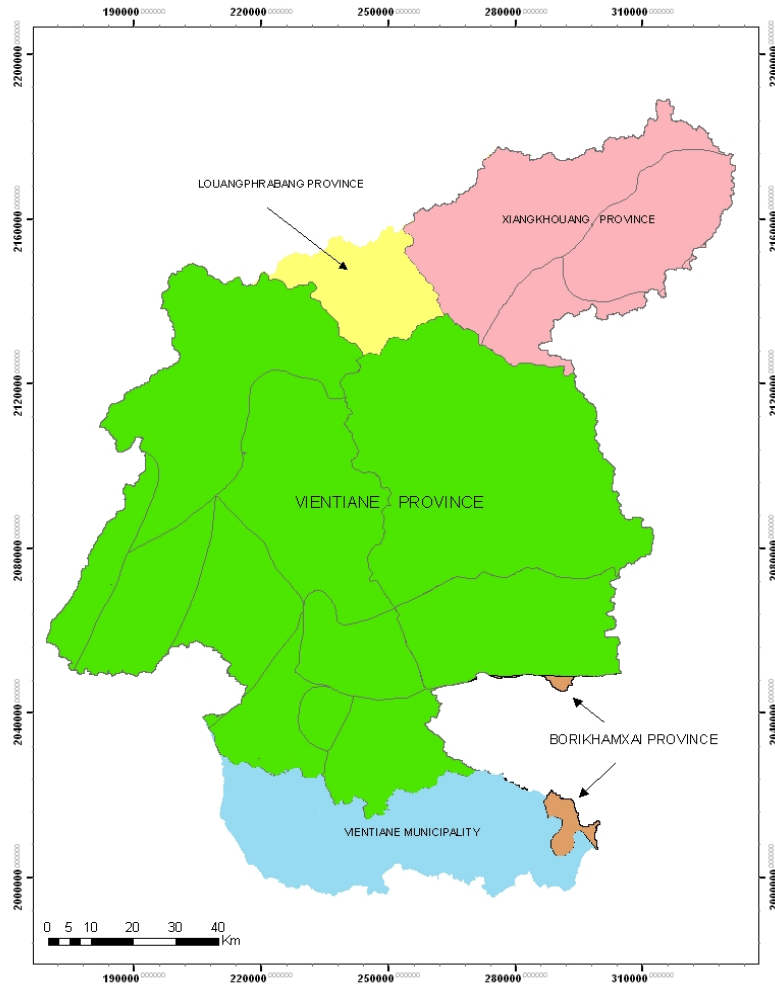
- Over 6,000 km² mine concession areas have been approved in the NNRB, Phou Bia Gold Mine and Phou Kham Copper-Gold Project which began production in 2005 and 2008 respectively, have almost half of the area
- Mining uses water in both and ore processing stages, no information on amount of water which is consumed; Water is not included in mining licenses
- Mines processing areas and mine tailings (waste: toxic, acidic (cyanide or mercury), fish is the population's primary sources of protein) storage areas are closed to rivers and reservoirs

Hydropower Project, 2008

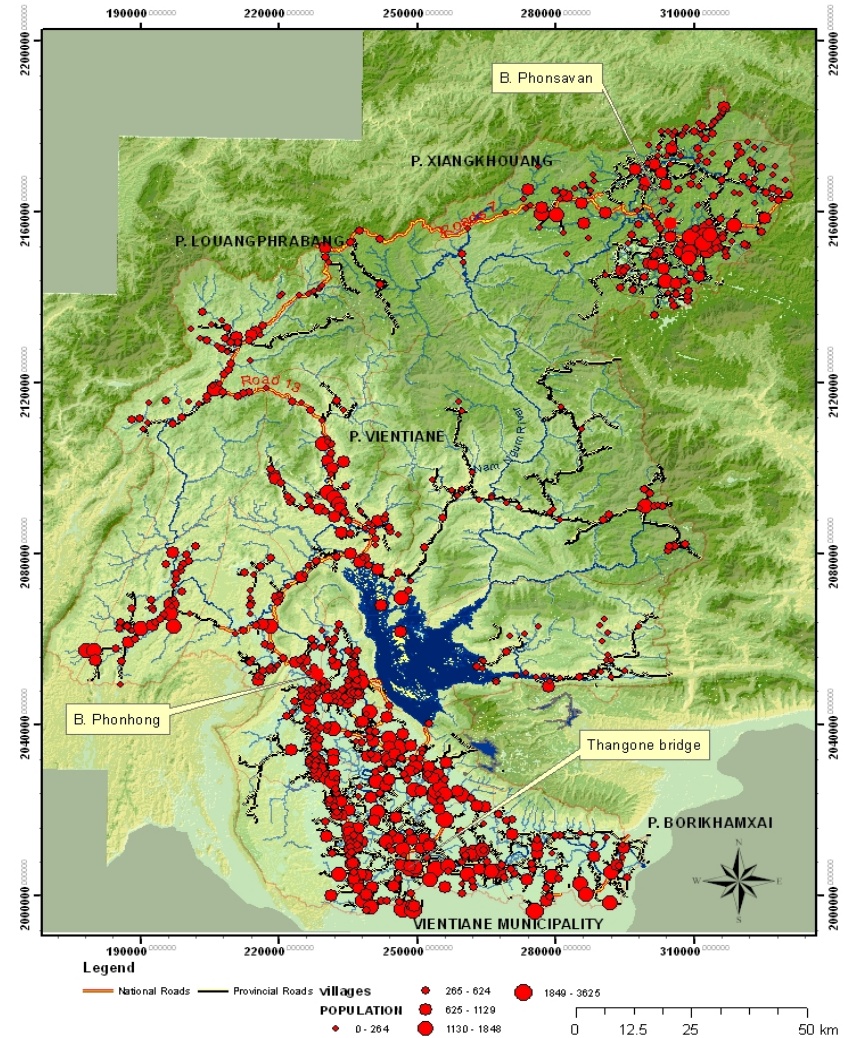


Nam Ngum River Basin

Provinces inside Nam Ngum River Basin



Villages: Sizes and their locations



Water Quality Management Agencies (Cont'd)

- **Department of environment** : Overall environment guidance, reviewing and approving environmental assessment reports; Set ambient water quality standard and effluent standard for domestic waste-water
- **Water resources and environment research institute**: Monitors, inspects environmental parameters (water, soil, air, radiation, noise, etc) in respect to development activities for adherence to environmental standards
- **DOI/MAF**: Operates 19 water quality stations on Mekong and its tributaries, collect periodic samples and test 17 parameters
- **National center for environment health and water supply/MPH**: Providing technical support, coordination and service in rural water supply, urban and rural sanitation; Control the quality of drinking water in rural; planning and design of rural water supply and sanitation systems

Water Quality Management Agencies (Cont'd)

- **Factories environmental division/DI/MIC:** Responsible for environmental factories pollution control, inspection and monitor environmental audit program, EIA, set regulations for control of wastewater discharge from factories
- **Waterways administration division/MPT:** Responsible for hydrological data collection and water quality sampling in some stations
- **Food and drug quality control center/MPH:** Analysis of chemical contaminants in food and drinking water

Known As problems

Known As problems in groundwater

(National center for environment health and water supply/MPH)

- Savannakhet province
- Champassak province
- Saravan province
- Sekong province
- Attapeu province