

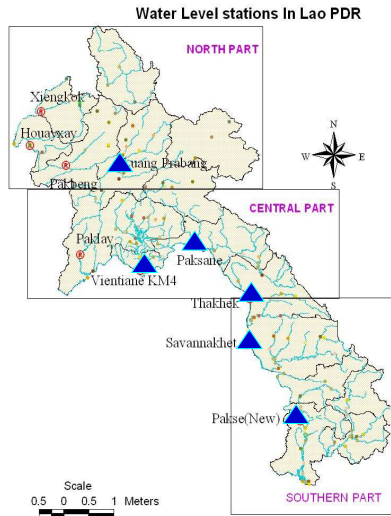
Review on Current Activities of Flood Management and Mitigation in Lao PDR

Hanoi, 5-8 April 2011
Presented by LNMC

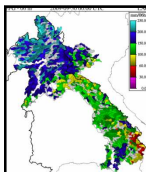
Contents

- Current flood forecasting practices - river and flash floods;
- Structural and non-structural flood management practices;
- Outreach to communities and community-based flood management practices;
- Legal and institutional issues;
- Challenges of integrated flood management; and
- Plans for 2011-2015.

Current Flood Forecasting Practices



- At 6 Mekong mainstream stations (water level forecasts);
- Methods are being used: regression, URBS Model (river flood), FFG System (flash flood);
- The accuracy for one day forecast is certified;
- Currently, URBS product is used for comparison only;



Flood Warning format

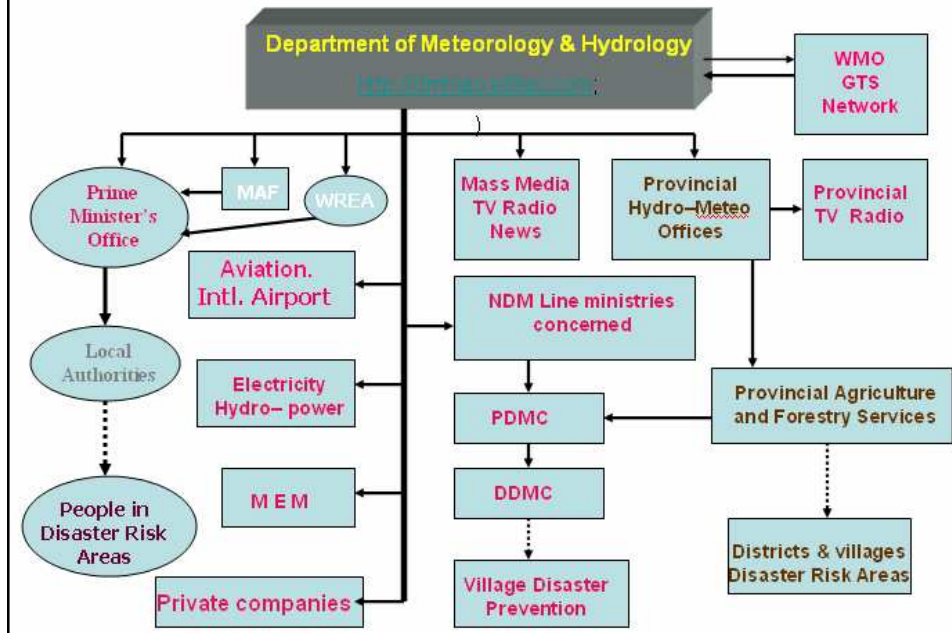
Water Resource and Environment Administration
 Department of Meteorology and Hydrology
Report on Mekong river's water level and Inflow of Nam Ngum Dam
 Forecast period: 31 Oct - 01 Nov 2009

No	Stations/River	Rainfall (mm)		Water Level (m)		Warning	Danger	Forecasted WL	
		29-Oct	29-Oct	30-Oct	Diff.			31-Oct	1-Nov
1	Hoaysai(Mekong)	0.0	2.72	2.80	0.08	15.00	16.00		
2	Pakbeng(Mekong)	0.0	8.25	8.11	-0.14	29.00	30.00		
3	Luangprabang(Mekong)	0.0	6.23	6.08	-0.15	17.50	18.00	6.06	6.00
4	Vientiane(Mekong at Km4)	0.0	3.79	3.75	-0.04	11.50	12.50	3.71	3.70
5	Paksane(Mekong)	0.0	5.50	5.55	0.05	13.50	14.50	5.53	5.38
6	Thakhek(Mekong)	3.3	4.85	4.73	-0.12	13.00	14.00	4.76	4.75
7	Savannakhet(Mekong)	0.0	2.50	2.39	-0.11	12.00	13.00	2.33	2.32
8	Pakse(Mekong)	0.0	4.14	0.00	-4.14	11.00	12.00	4.04	4.01
9	Nam Ngum Dam(Up)	0.0	210.18	210.16	-0.02	212.00	212.31	210.15	210.14
10	Nam Ngum Dam(Down)		166.60	166.60	0.00				
11	Inflow(Q in m ³ /s) to Reservoir		163.110	150.308	-12.80				
12	Turbine(Q in m ³ /s)		200.800	225.688	24.89				
13	Spill Way(Q in m ³ /s)								
Remark: 0.0: No Rain									
Vientiane, 30 Oct 2009 Director General of DMH									

Flood warning are issued:

- For river flood when water level increases closed to warning stage and it seems to be continued to rise (weather condition is considered)
- For flash flood is announced when FFG data with high moisture content and total rainfall > 100 mm within 12 hrs

Forecast & Warning Dissemination in Laos



Structural and Non-Structural Flood Management Practices

There are three structural projects proposed for investment

1. Flood Protection and Drought Mitigation Project, Vientiane Capital

- Construction of 30.4 km long flood embankment along the Mekong River.
- Constructions of pump irrigation schemes.
- Installation of drainage pumps.
- Constructions of dual type flood control gates (sluice and flap gates together).
- Constructions of sluice and flap gates.

2. Irrigation Development Project, Na Lek-Taopoun, Saravane province

- Construction of pump irrigation scheme.
- Construction of a lane barrage (bridge-cum-weir).
- Managing water for domestic water supply

3. Water Control Gates Project, Sedone River, Khongsedone, Saravane province

- Constructions of pump irrigation schemes.
- Constructions of dual type flood control gates (sluice and flap gates together).

Structural and Non-Structural Flood Management Practices



There are two non-structural projects are proposed for flood/drought risk management are as mentioned below:

1. Improving forecasting models and procedures – DMH (Department of Meteorology and Hydrology)
2. Establishing Sustainable Financing Policies and Regulations for River Basin Organizations (**ongoing**: Nam Ngum, Nam Theun-Cading; **planning**: Nam Ou, Sebanfai, Sebanghieng, Sekong)

Community-based Flood Management Practices

Under FMMP (C5/Land Management), a project was funded by GTZ and implemented by the GFA Consulting Group GmbH to fulfill:

- The development objective is to improve and increase the competence of civil authorities at various levels, emergency and communities concerning flood management and mitigation;
- The immediate activities of the project are to ensure emergency management systems in the riparian countries namely: Cambodia, Laos, Thailand and Vietnam dealing more effectively with the Mekong floods.

FMMP, C5 in Laos

- The flood marks and bill board were established at the selected villages at 2 pilot areas in Sikottabong and Hatxayfong Districts, Vientiane capital;
- Also the cell card boat were provided to village authority for communication and obtaining water level data and related information during the flood events



FMMP, C5 in Laos (cont..)

Project implementation results:

- The flood markers were installed completely on time with a good cooperation of villagers/communities concerned;
- The bill boards are very important for each village/community and will provide information on Mekong water level and Flood marker level during the flooding events;
- The training course on GIS and study tour are important activities in order to enhance the knowledge and experience of national staff on project implementation;
- Satellite data of flooding area in year 2008 is necessary for practice and analysis; and
- The work on data collection from the flood mark to mitigate flooding in coming year is continued.

Legal and Institutions

- Laos has a Law on Environmental Protection issued by National Assembly No. 02-99/NA on 3 April 1999;
 - **Part II Prevention of Environmental Degradation** In Chapter III are composed 3 Articles 17, 18 and 19 which describe about Disasters, Obligations to Manage and Counter Disasters, and National Disaster Management Committee, respectively.
- Legal Framework**
- National Disaster Management Committee;
 - National Disaster Management Office;
 - Provincial and District Disaster Management Committee;
 - Disaster Management Committee Focal point at all levels; and
 - National Strategy Plan on Disaster Risk Management

Legal and Institutions (cont..)

Institutional arrangement for flood management and mitigation:

- | | |
|--|---------------|
| • Deputy Prime Minister | Chairman |
| • Ministry of Planning and Investment | Vice Chairman |
| • Minister of Labor and Social Welfare | Vice Chairman |
| • Minister of Agriculture and Forestry | Member |
| • Water Resources and Environment Administration | Member |
| • Ministry of Energy and Mines | Member |
| • Chief of Cabinet , Ministry of Foreign Affaires | Member |
| • Chief of Cabinet, Ministry of Defense | Member |
| • Chief of Cabinet, Ministry of Security | Member |
| • Chief of Cabinet, Ministry of Education | Member |
| • Director General of Budget Department, Ministry of Finance | Member |
| • Director General of Transport Department, MPW | Member |
| • Director General of Industry Department, MCom | Member |
| • Director General of Hygiene Department, MPH | Member |
| • Director General of Mass Media Department, MICul | Member |
| • Director General of Social Welfare Department, MLSW | Member |
| • Chairman of Lao Red Cross Society | Member |
| • Lao Women Union | Member |
| • Lao Youth Union | Member |

Challenges of Integrated Flood Management

Future challenges of integrated flood management are hydrological data collection, water resource analysis, land use planning, increasing population and other which relates to environmental issues due to:

- The limitation of national budget,
- The shortage of instruments and facilities,
- The limitation number and unqualified staff,
- The outdate technology available.

Plans for 2011-2015

- ❖ Flood and Drought Management Project;
- ❖ Disaster Management Strategy (Improving hydrological stations in southern part of the country);
- ❖ Strengthening of Meteorological and Hydrological project (Warning system, capacity building)
- ❖ River Basin and Floodplain Management in Xe Bang Fai and Xe Bang Hieng Project (middle part of Lao PDR)

Thank you very much