Progress
on
Strengthening data collection for Flooding in Sebangfai River, Lao PDR

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- Sebangfai river basin is located in the central part, covers two provinces: Khammouane and Savannakhet Provinces.
- The total area of Sebangfai river basin is approximately 8,560 Km2

Basic Data

Name: Sebangfai River

Location: Khammouane N 17 o 29’ 48” and E 105o 25’ 42”

Basin Area: 8 560 km2

Length of the main stream: 190 km

Origin: Saiphouluang (2 200 m)

Highest Point: 1 397 m

Outlet: Highway Bridge

Lowest Point: 150 m

Main tributaries: Nam Gnom (24 km2); Nam Oula (320 km2); and Nam Senoy (112 km2)

Main lakes: None

Main reservoirs: None

Mean annual precipitation: 2 300 mm (1985~1998)

Mean annual runoff: 431,7 m3/s at highway bridge (1961~1997)

Population: 192 189 (1998)

Main Cities: Mahaxay, Thakhek

Land use: Forest (59 %); Agriculture (10 %); Paddy field (20 %);

The main problem of the Sebangfai River

- Inundation (Agriculture Flood)
- In this lower region of the Sebangfai River the flood plains of the Mekong River inundates almost every year during the rainy season and causes a backwater flow into the Sebangfai River.
- Backwater from high discharges in the Mekong River causes a flow to be reversed. Then general inundation of up to 1, 5 meters occurs in the lower areas [NT2, 2004].
- Local people losses agriculture crop caused by these floods.
- The area of the Lower Sebangfai is fairly densely populated with 52 villages and 40000 ha of rice fields.
- The Lao government wants to find a solution for this problem and it has asked the Lao National Mekong Committee (LNMC) to study the surplus of water in the Lower Sebangfai River basin.


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Timeline: 2007-2010

- **Phase 1- Establish local team implementation for data collection and introduction:**
  - **objectives of AWCI and DP to line agencies concerned into local**
  - **communities for developing information system and promoting the implementation of IWRM**
- **Phase 2- Identify work plan and send to UT Team for consideration and comments how to achieve the objectives goal of DP in AWCI.**
- **Phase 3- Preparation phase:**
  - **Site visit and survey of capabilities for data collection**
  - **To make a bridge between central and local information based on how to send the information to local people to know the situation weather during rainy/flood season.**
- **Phase 4- To install appropriate equipment for water level and precipitation Stations in some needed areas for achieving activities and data information.**
- **Phase 5- Expanding to other areas as priority of the Government Strategy**
- **Phase 6- Need specific training for improving staff skills and knowledge on these issues in the near future.**

What do we have done?

- Established Team Modeling
- Data collection and site survey
- Preparing model running (MRC-DSF model)

Objective of Sebangfai case study

The overall objectives of this case study are mainly focused on analysis the impacts to flows regime from the development projects/practices, such as increase of dry season irrigation areas, diversion flow from Nam Teun 2 to Sebanfai River.

Expected outputs of case studies

1. *To assess the available potential of water resources and hydrological regime of Sebangfai Basin.*
2. *Assist for planning new water resources development in the basin (hydropower, irrigation barrage, water diversion, etc.)*
3. *Flood study especially at the downstream part of the basin area.*
4. *Scenarios assessment for the Sebangfai Basin*

APPLICATION OF DECISION SUPPORT FRAMEWORK (DSF) IN MANAGING THE SEBANGFAI RIVER BASINS

Design for case study

- Hydrological model set-up “SWAT”
- River simulation model set-up “IQQM”
- Hydrodynamic model simulation “iSIS” and,
- Interpretation models results

Selection of Scenario

To analyze the flow regime change by increasing interventions in the study areas. There are three scenarios has been selected for Sebang Fai basin

- **Baseline Scenario**
- **Irrigation Scenario (Increase Irr. 30.000 ha)**
- **Dam Scenario (Flow diversion from NT2)**

Data used

- Cross section data from DMH
- Climate data from DMH
- Downstream boundary data of water level from MRCS, WAD and DMH
- Additional data of Hydraulic structures along Sebangfai
- 1996 flood map from DOI


Asia Water Cycle Initiative (AWCI)
International Task Team (ITT) Workshop
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Thank you
for your attention