

Experience from Nam gum Hydropower Cascades

Mr. Panthong Meuntham

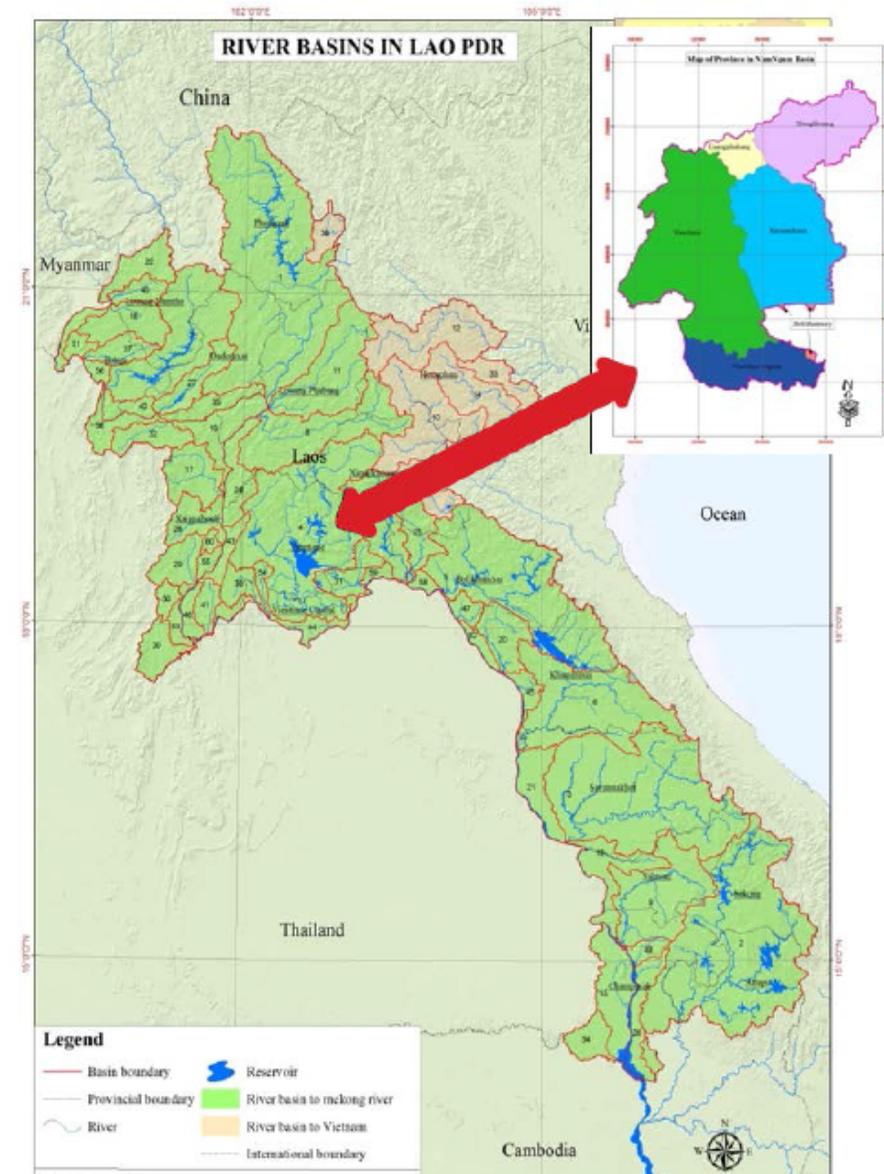
Nam Ngum River Basin Committee

Vienitane Province, Lao DPR

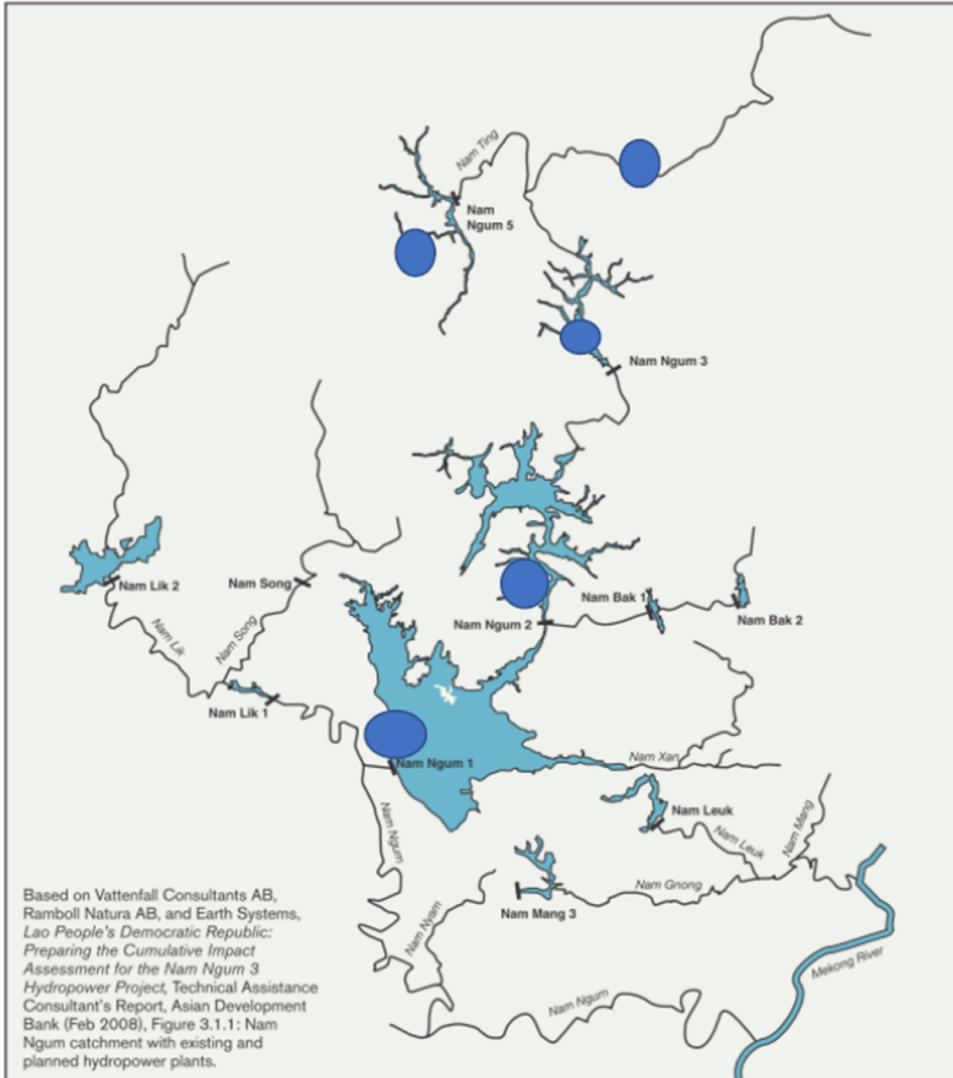
December 16, 2019

Where is Nam Ngum Basin?

- Central part of Laos, the fourth largest river basin in Laos with 18 tributaries
- A major tributary of the Mekong River. Its flows is accounted for 14% of the Mekong river
- Covering 6 provinces in 20 districts.
- Four hydropower dams are being operated. **Two** are under-construction.



Hydropower Projects in Nam Ngum Basin



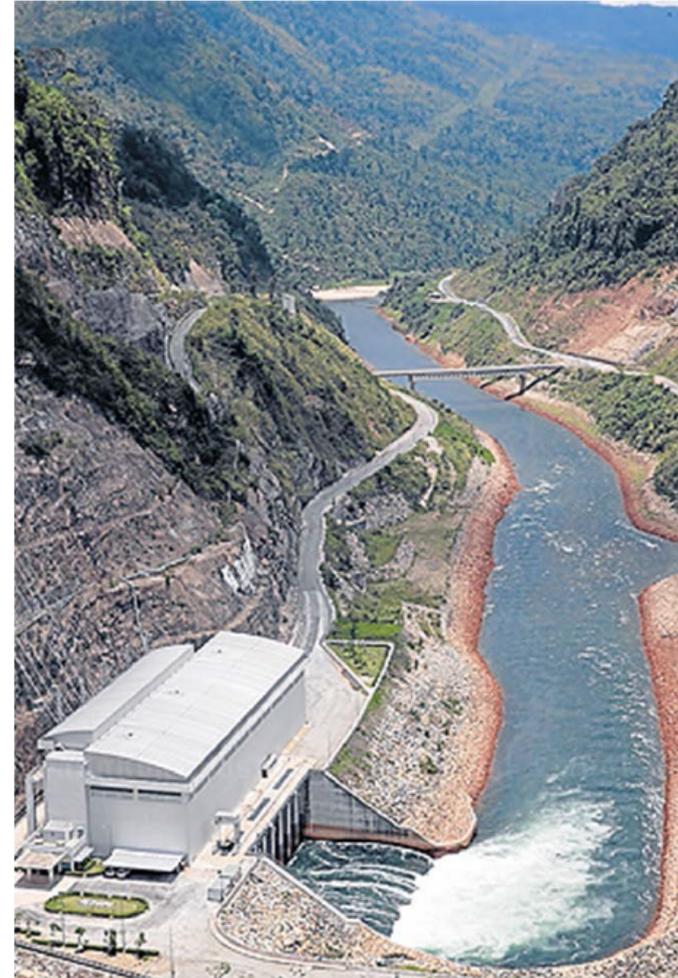
Name	Year	Capacity
NN1	1971	275 MG
NN2	2010	600 MG
NN3	Under construction	??
NN4	2012	330 MG
NN5	2012	350 MG
NN1 expansion	Under construction	

Water quality issue around NN1 and NN2 hydropower cascades

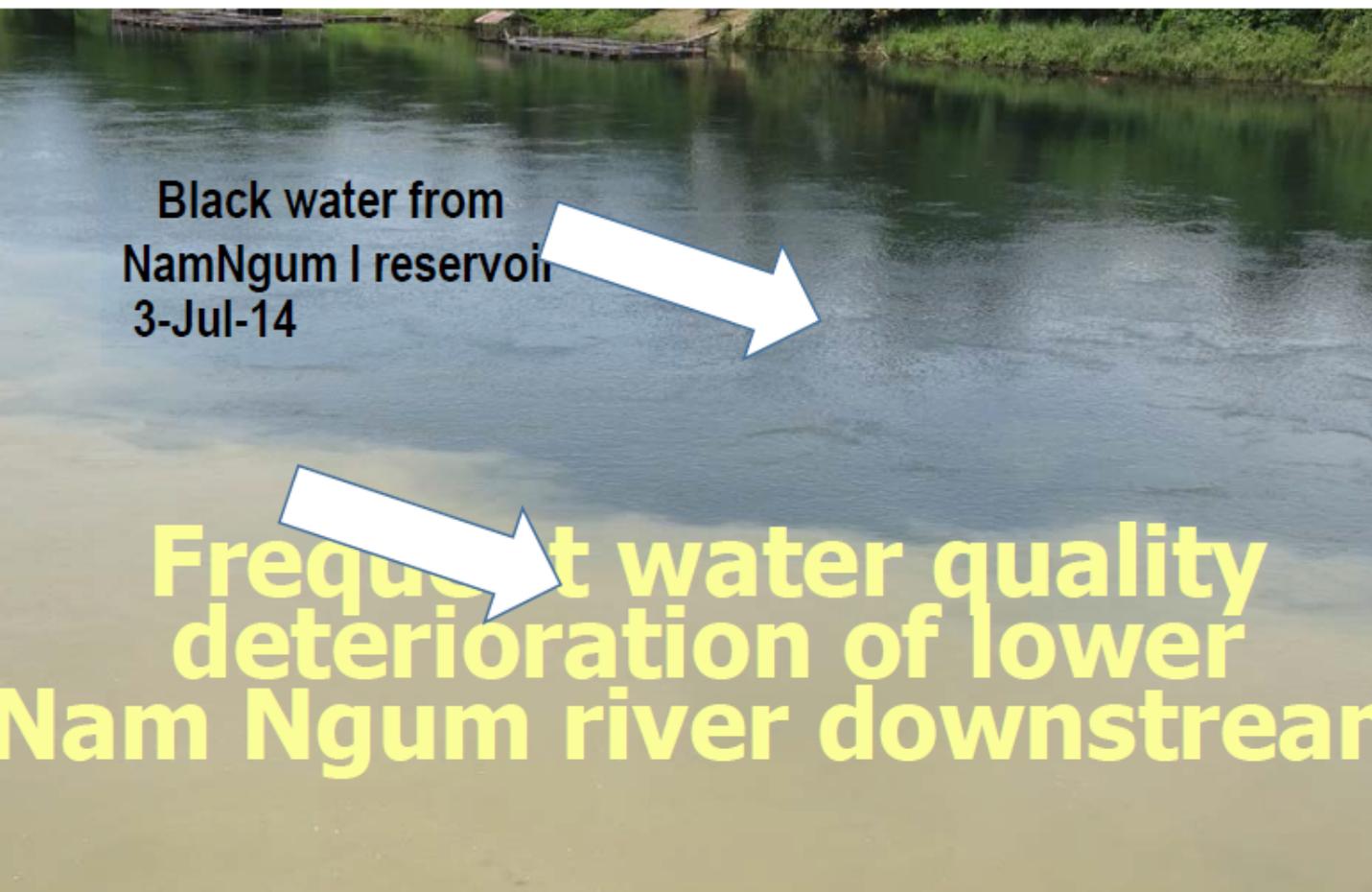
Nam Ngum 1 Hydropower Dam



Nam Ngum 2 Hydropower Dam

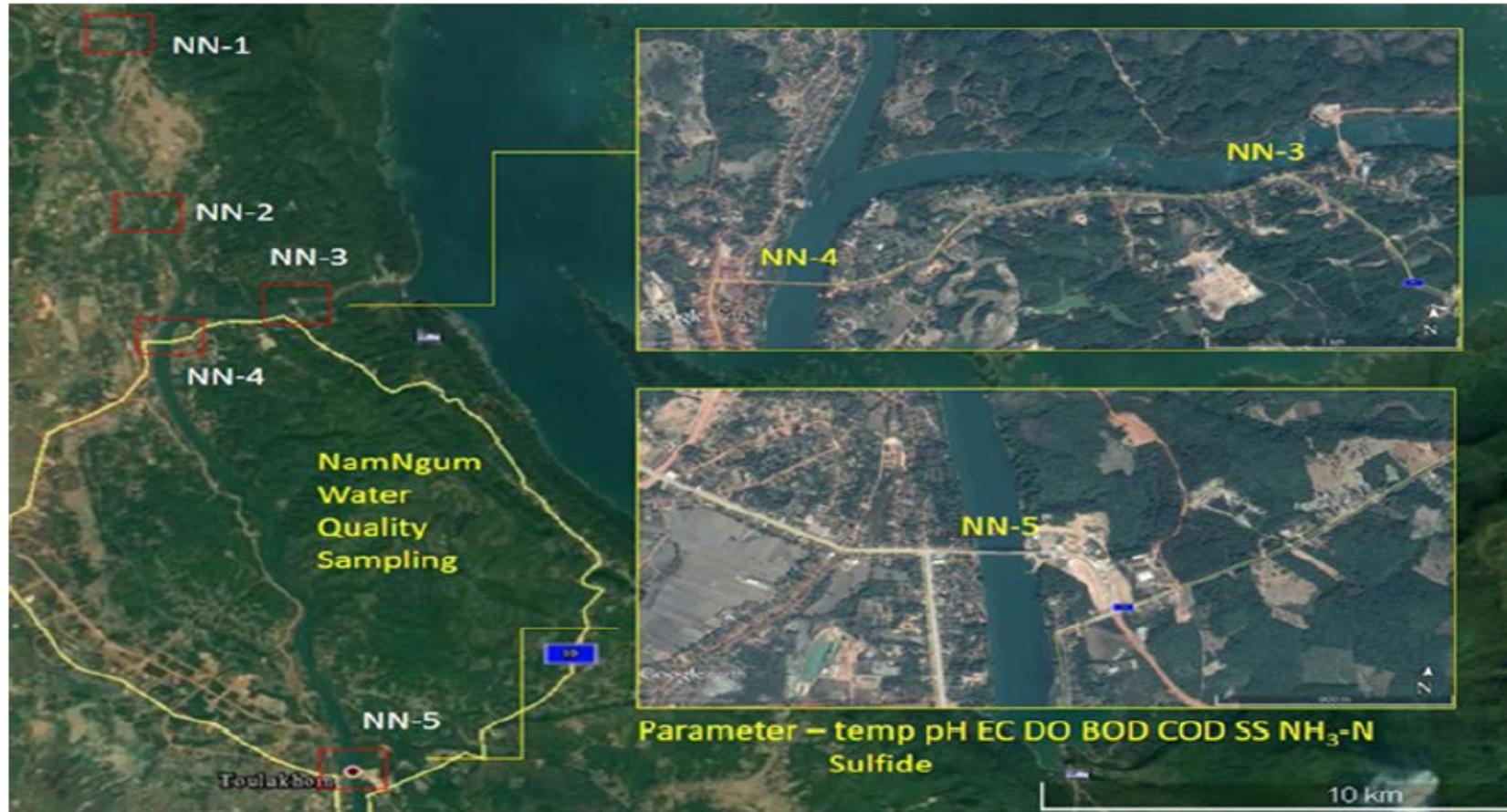


A key facing problem of “Poor water quality” in NN River



- The severe problem of poor water quality happened since 2013 since the operation of NN2 dam.
- NN2 dam is located 30 KMs upstream before NN1 dam.
- The severe condition repeatedly happens from June to October, during the wet season every year.
- Severely impact to tourism industry, fisheries, aquaculture, and water supply.
- NN river is a major source of water supply to Vientiane Capital and Vientiane Province

Water Quality Monitoring from 2013-2017



Monitoring stations

NN1: 5 Stations

NN2: 9 Stations

NN3: 4 Stations

NN4: 6 Stations

NN5: 7 Stations

Physical analysis results of the poor water quality

Parameter	Result	Condition
Dissolved Oxygen	0-4mg/liter	Very poor
PH level	8.05	OK
Conductivity	129	OK
Biomass		
Heavy metals	Not significant	OK



Nam Ngum River condition in 2017

Water quality monitoring in 2019 - Update



Results

Parameter	Result	Condition
Dissolved oxygen	0-4	Poor
Conductivity	128	OK
PH	7.05	OK

1. Stakeholder Consultation Meetings and Study



Series of stakeholder visits and consultation meetings from 2013-2016 supported by ADB and DFAT



2. Stakeholder Consultation Meetings and Study



- Technical consultation meeting in 2018 supported by LMI-SIP, and MONRE Thailand, and Rachamangala University of Khon Khan

Results of the Consultations and Study

- Impacts from the poor water quality has been **a grave concern** among many stakeholder groups, especially of the tourism industry, fisheries and water supply.
- There is still **no agreement** on the point source of pollution. But however, the point of **lowest dissolved oxygen level** is around the NN1 dam.
- A rapid technical study estimated that **the change of natural flow velocity** between NN1 and NN2 project resulted in less dissolved oxygen.
- There is still no mechanism in coordinating cascade hydropower projects in NN – and still no mitigation plan.