

Nam Khan 2 Dam Hydropower Info by Hobo Maps -

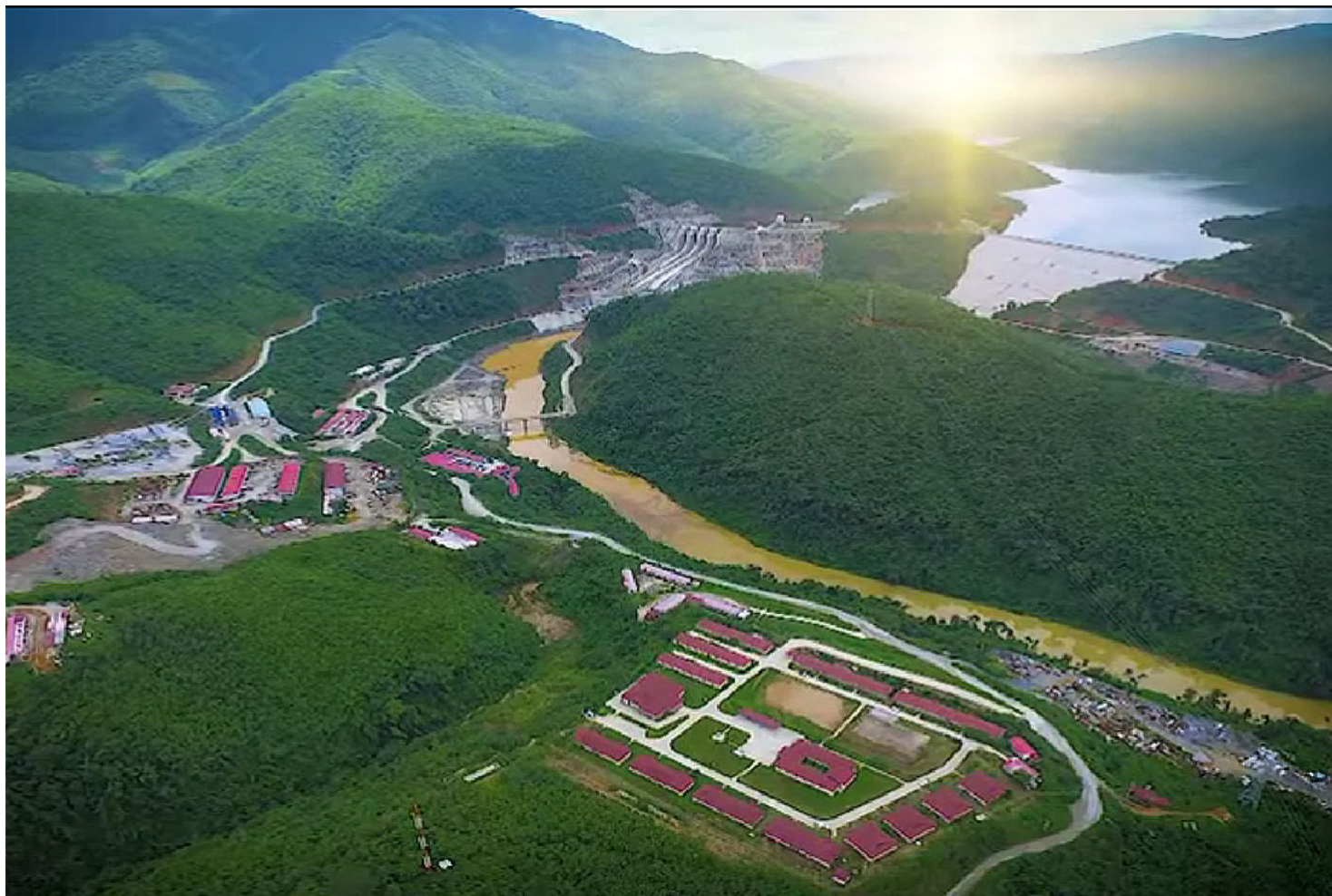
[Home](#)

[Go Back to Hydropower Web Page](#)

Nam Khan 2 Dam images below:



Nam Khan 2 hydropower project site image below:



Nam Khan (river) originates in Xiengkhouang Province and eventually joins the Mekong River at Luang Prabang. Nam Khan is situated in the mountainous region of Phou Khoun and Xieng Ngeun Districts with a watershed covering an area of 5,221 sq km.

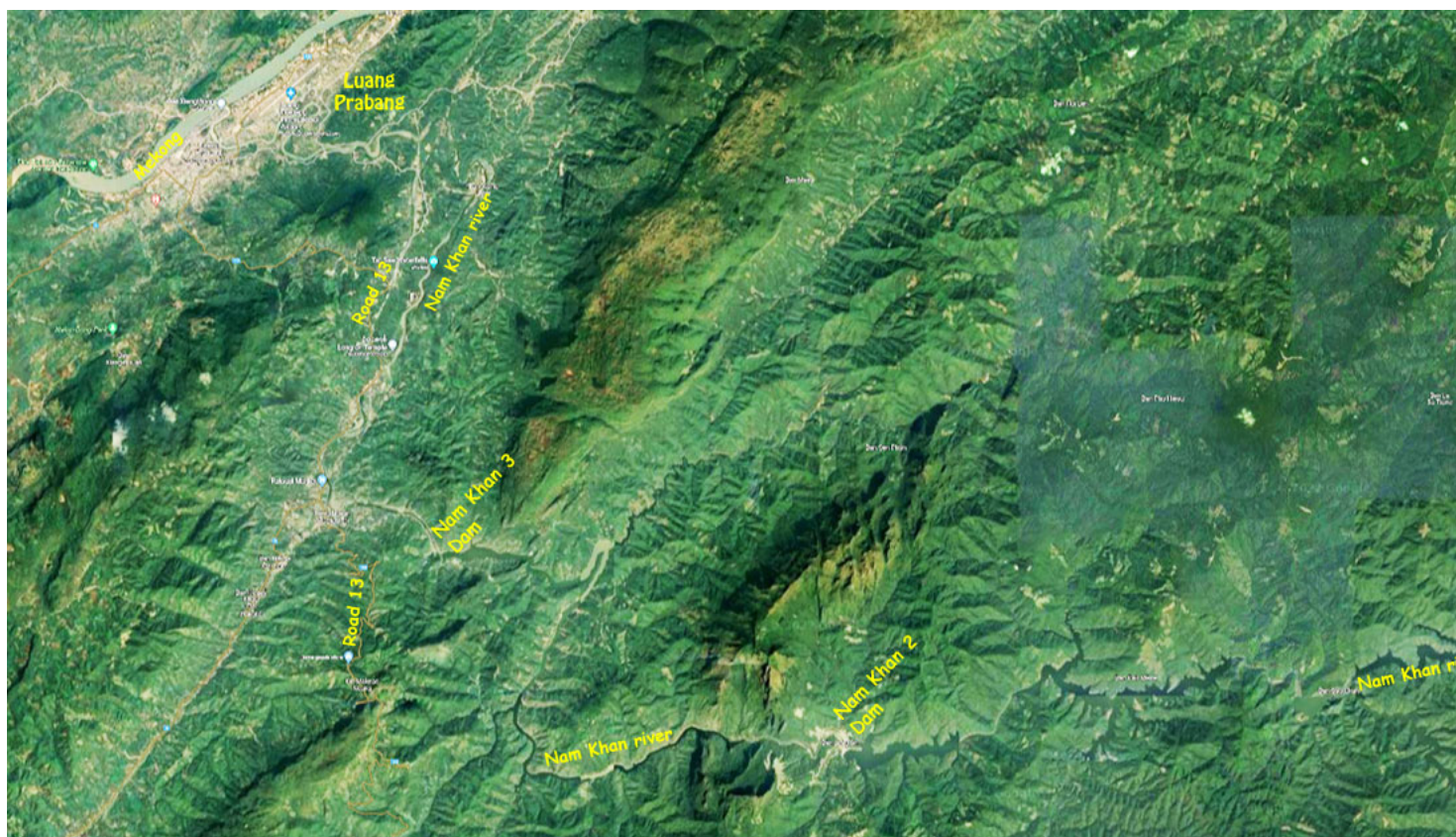
Access to the Project from Luang Prabang is via National Road 13 and then a secondary road runs along the left bank (north side) of the Nam Khan to the dam site, about 50 km from Luang Prabang town. The Nam Khan 2 hydropower plant is 48 km away from the Nam Khan 3 plant in Xieng Ngeun district Luang Prabang province. The dam site is approximately 68 km upstream from and 30 km Southeast of Luang Prabang, near the village of Kengkoung.

Nam Khan 2 is shown in the satellite images below - located at coordinates 19°40'59.9"N 102°22'05.9"E (19.683311, 102.368294):





Nam Khan 2 and 3 hydropower project locations are shown in the satellite image below (as of year 2022 there is no Nam Khan 1 project yet):



The Nam Khan 2 Hydropower Plant is a reservoir-style project consisting of 2 vertical Francis turbine units of 65 MW each for an installed capacity of 130 MW. It may be able to generate up to 558 GWh of electricity per year.

Nam Khan 2 dam was built by China's Sinohydro Corporation and was in part funded by a loan from Exim Bank of China.

Commercial energy generation at Nam Khan 2 commenced December 2015. The dam is on the Khan River and is managed and operated by Electricite du Laos (EDL) and now by EDL GEN.

The dam is a gravity Roller-Compacted Concrete structure 365 meters long and 136 meters high with 4 spillways each 13 meters wide.

The river at the dam site is narrow with steep slopes on the banks. The entire head of 137 meters available for power generator is developed by the dam structure.

The powerhouse and related structures are located on the right bank at the foot of the dam.

The two turbine units are fed individually by an intake and a penstock 147 meters long with 4.1 meter diameter.

Nam Khan 2 powerhouse image below:



The reservoir is less than 1 km wide and has a length of about 60 km upstream along the river.

Full Supply Level of the reservoir at elevation 475 masl creates a reservoir with a surface area of about 38 sq km and storage for 1,366 million cubic meters of water.

Drawdown of the reservoir to Minimum Operating Level at elevation 455 masl will leave dead storage of 1,078 million cubic meters of water.

The reservoir will normally be filled to Full Supply Level during the wet season from August to October and be drawn down to Minimum Operating Level near the end of the dry season.

Nam Khan 2 power plant will normally operate during daytime and stop at night. This peaking according to the demand for electricity will depend on the size of the inflow each day and the amount of water stored in the reservoir. Typical peaking operation may be for about 10 to 16 hours on a daily basis.

A tailrace channel discharges water from the powerhouse directly back to the Nam Khan and there is no re-regulating pond which means the section of the river just below the powerhouse will have no flow in the dry season when the plant is not operating.

Just downstream of the power house outlet the water level will change quite suddenly after a start or stop in the power station. Further downstream from the power plant changes in the water levels will not be so rapid as tributary streams join the Nam Khan.

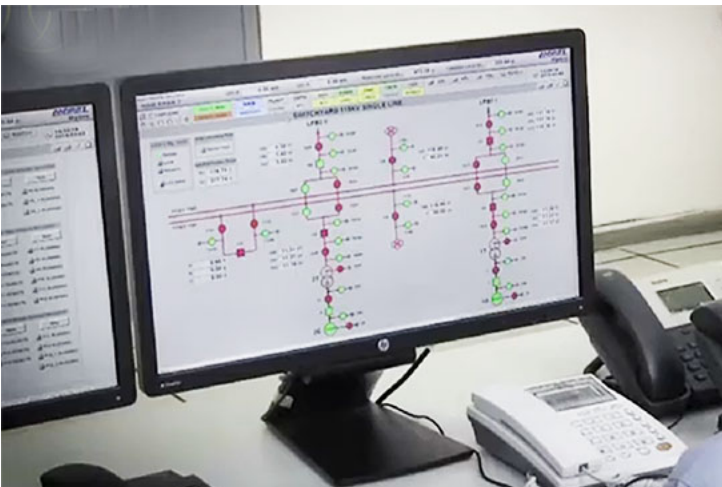
Image below shows intake structure and the reservoir side of Nam Khan 2 dam structure.



Image below shows the 4 spillway gates of the Nam Khan 2 dam structure.



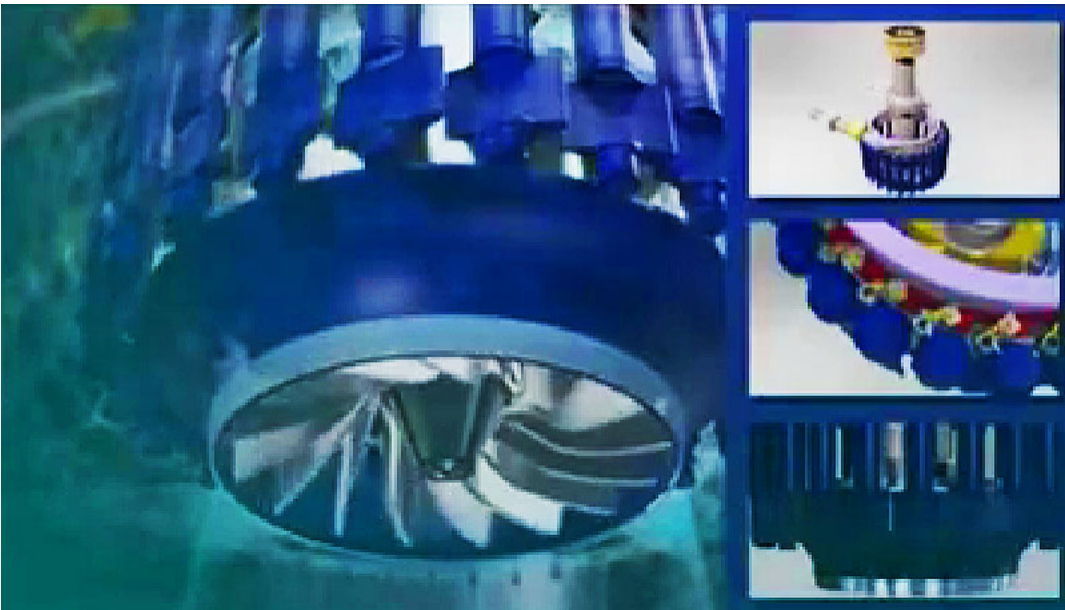
Nam Khan 2 control room images below:



Nam Khan 2 powerhouse interior below:



Nam Khan 2 turbine images below:



Nam Khan 2 turbine inflow tube image below:



Nam Khan 2 intake structure below.



Nam Khan 2 radial gates image below.

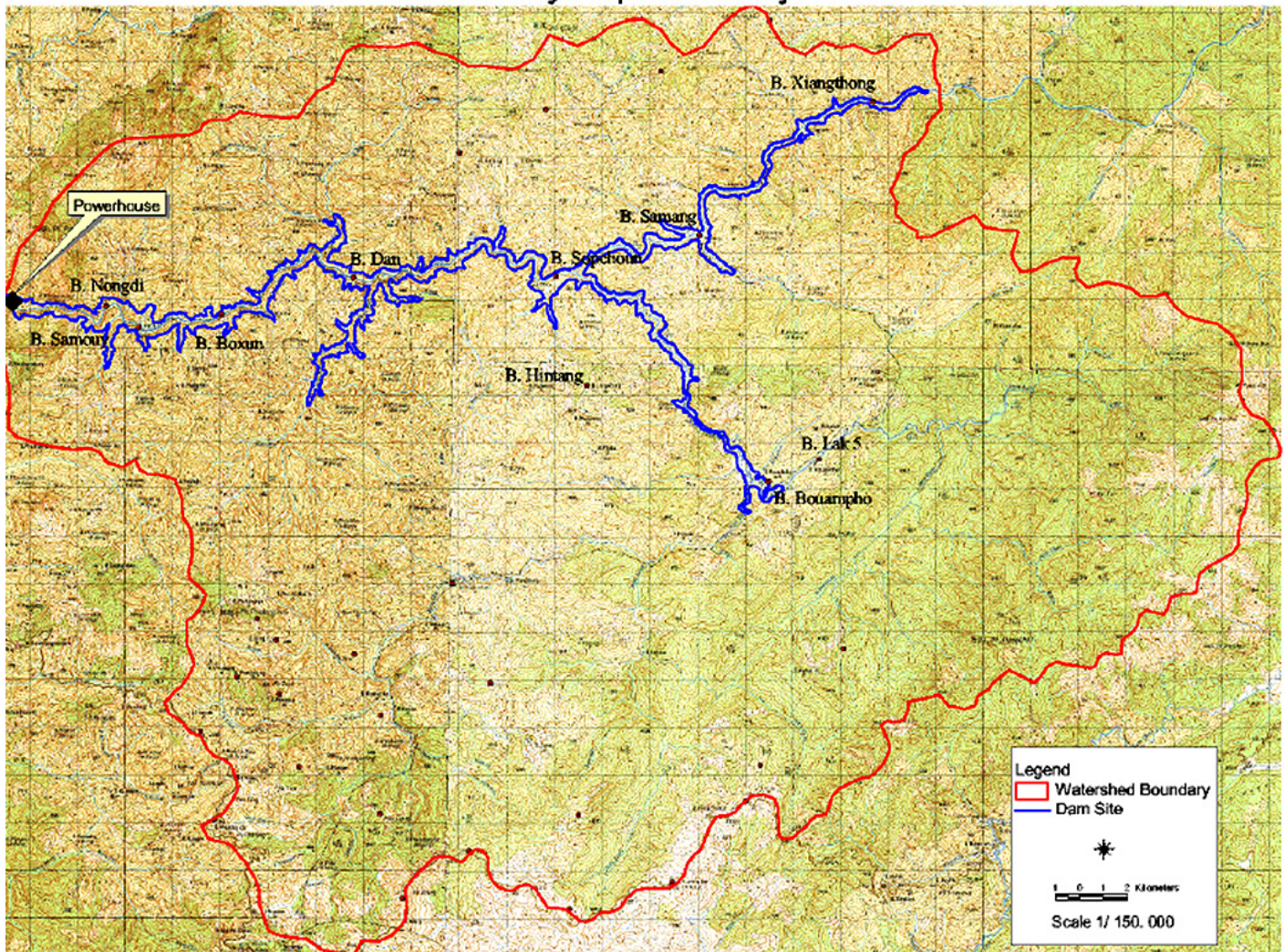


The project includes a 115kV transmission line that links to a substation in Xieng Ngeun district of Luang Prabang Province, supplying electricity to the northern provinces and Vientiane.

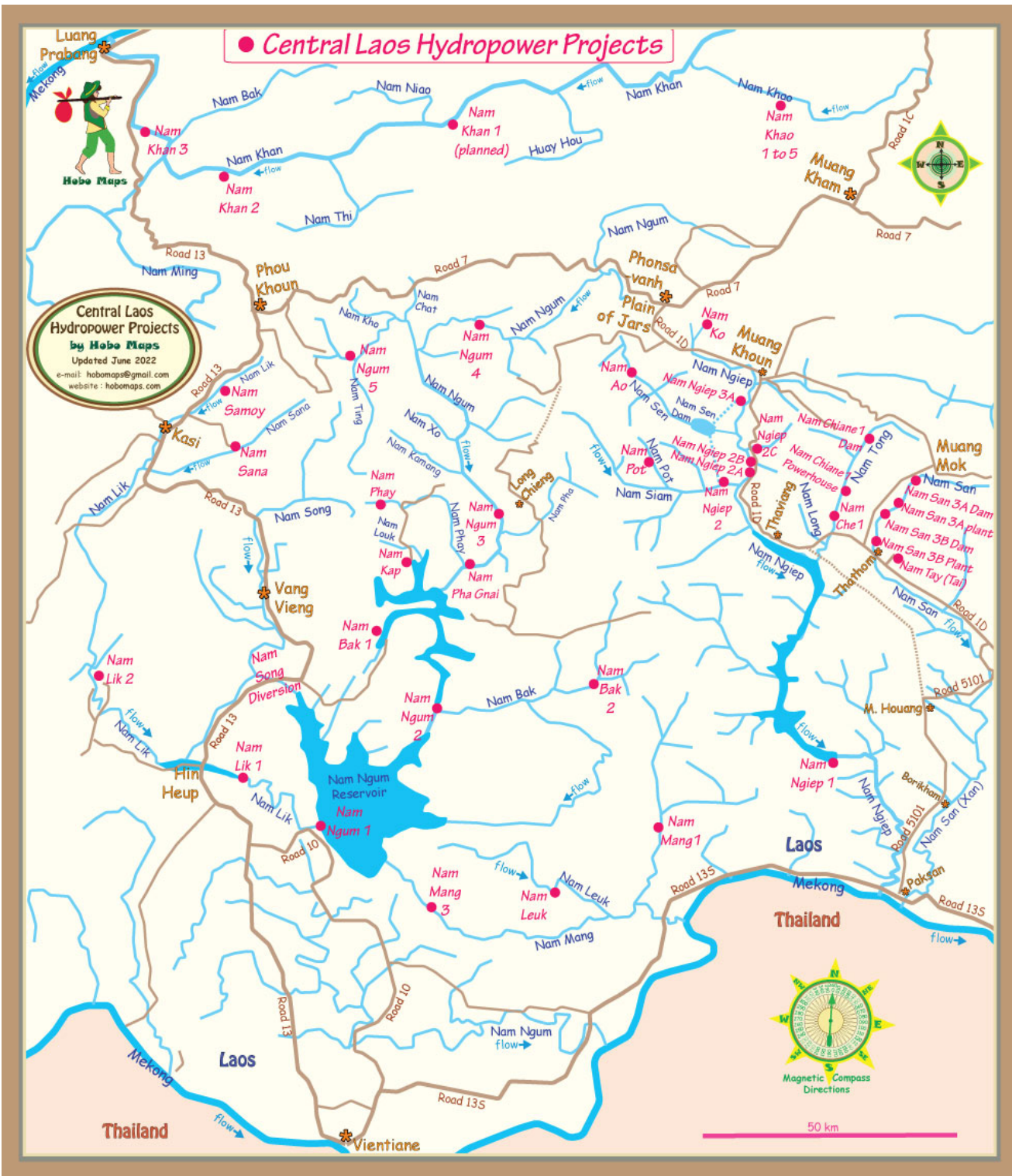


The powerhouse location and reservoir are shown in topographic map below:

Nam Khan 2 Hydropower Project



Nam Khan 2 location is shown in the upper left portion of area map below:



The Nam Khan 2 project required that 9 villages be relocated to new residences about 6 km away from the project.

Nam Khan 2 project statistics below:

TABLE 1
THE PRINCIPAL FEATURES OF NAMKHAN 2 AND 3 HPPS

Description	NK2HPP	NK3HPP	Units
Dam			
Type of the dam	CFRD	RCC	
Height of the dam body	136	61	m
Crest Length	365	156	m
Dam crest elevation	481	353	masl
Data of reservoir storage			
Reservoir capacity	686.2	224	MCM
Reservoir area	30.57	7.07	km ²
Full supply level	477.86	349.06	masl
Dead storage level	465	343	masl
Regulation storage capacity	229.1	48	MCM
Index of engineering benefit			
Annual energy generation	558	240	GWh/y
Installed capacity (2 Units)	130	60	MW
Water discharge turbine	135	176	m ³ /s
Annual utilization hours	4,294	4,000	hour
Spillway gate discharge (Radial Gate)			
Amount of spillway gate	4	3	gate
Maximum discharge	9,974	5,710	m ³ /s
Dimension of spillway (WxH)	13.5 x 21	13.5 x 21	m
Rate head			
Maximum net head	119.18	41.50	m
Minimum net head	104.58	36.50	m
Tailrace flood level	355.58	304.22	masl
Tailrace check flood level	357.30	306.09	masl
Hydrological data			
Catchment area of dam site	5,167	7,049	km ²
Annual average inflow	67	92.1	m ³ /s
Design peak flow (0.1%)	8,640	9,410	m ³ /s

Name of Projectn Nam Khan 2

Location River: Nam khan, Province: Luangprabang

Operation date 2015

Contractor SinoHydro (China)

Install Capacity 130 MW

Average Annual Energy 558 GWh/year

Turbines • 2 units x 65 MW (Francis)

Project Type Reservoir

Type of Dam Rock fill dam

Catchment Area 5167 km²

Nam Khan 2 Hydropower Project EDL NCC

Table 1: The Main Technical Parameters of the Nam Khan 2 HPP

Descriptions	Unit	Nam Khan 2
<u>Hydrology</u>		
Catchment Area	km ²	5,221
Annual average discharge	m ³ /s	64.4
<u>Reservoir</u>		
Full Supply Level (FSL)	m	475
Area at FSL	km ²	37.9
Total storage (below critical operation level)	M m ³	1,366
Total storage (below full supply level)	M m ³	1,078
Active storage	M m ³	635
Flood control storage	M m ³	288
Backwater length	km	60
<u>Dam</u>		
Type		Gravity RCC (Roller Compacted Concrete)
Crest Elevation	masl	488
Height	m	160
Crest length	m	405
Crest wide	M	15
<u>Spillway</u>		
<u>Service Spillway</u>		
Type		Ski-jump with a plunge pool
Discharge capacity at El. 475 and 487	m ³ /s	5,460 and 8,900
Number of bay		2
Bay width		14 m
<u>Emergency spillway</u>		
Dam crater flow section with tapped chute		
Discharge capacity at El. 487	m ³ /s	1,400
Number of bay		2

Nam Khan 2 Hydropower Project EDL NCC

Descriptions	Unit	Nam Khan 2
Bay width		14 m
<u>Turbines</u>		
Type		Francis
Number	ea	2
Rated net head	m	137.5
Total Design discharge	m ³ /s	104
Design capacity (one Unit)	MW	64.4
<u>Power Facility</u>		
Installed capacity (all units)	MW	126.2
Annual Energy	GWhr	567.8

Source: Feasibility Study Report, July 2009.