

**Lao People's Democratic Republic
Ministry of Energy and Mines**

**THE PREPARATORY SURVEY
ON
XE KATAM HYDROPOWER PLANT PROJECT
IN
LAO P.D.R**

FINAL REPORT

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Japan International Cooperation Agency

**The Kansai Electric Power Co., Inc.
NEWJEC Inc.**

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In 2004, when the Kansai Electric Power Co., Inc. (KANSAI) attempted to select a potential hydropower project, above GOL's study was taken into account. KANSAI considered factors of economic efficiency, accessibility, easy connection with existing power grid and other developers' activity and selected three (3) candidate projects from project group which has relatively lower impact on environment through information from and discussion with the Ministry of Industry and Handicraft. Those are:

- a) Xe Katam
- b) Houay Lamphan Gnai
- c) Nam Kong 1

Nam Kong 1 and Houay Lamphan Gnai were investigated and studied by Russian private firm and EDL, respectively after 2006 and detailed design and environmental and social survey and assessment were conducted to date. In addition, the survey on environmental and social consideration was conducted in this Preparatory Survey at Xe Katam site. In this report, those three projects are compared utilizing available information at present.

(1) Nam Kong 1 Project

- Reservoir area is covered by 1,700 ha of secondary forests, 390 ha of deciduous forest zone and partially by grass land due to deforestation and slash and burn agriculture. Part of the reservoir area is designated as Provincial Production Forest.
- Steep gorge at the dam site changes to flat depositional plain at 10 km downstream. Flat plain is important for bio-diversity and utilized for agriculture.
- When the project is completed, river discharge will reduce from the dam to 3 km downstream, which may cause negative impact on aquatic biota.
- Animals will move to adjacent riverine area after the creation of the reservoir, but the impact is limited because of current cultivation activities.
- Stratification of the reservoir may cause water quality deterioration and temperature decrease of the discharge water.
- Dam will block migratory fish species.
- No resettlement is expected by the reservoir. Social impact is expected at the four (4) villages with 384 households or 1,612 people living between downstream of the dam to confluence of the Sekong River. The access road passes three (3) villages.
- Since major income source of the 4 villages downstream of the dam is fishery, reduction of migratory fish species will cause impact on villagers' livelihood.
- Most of PAPs belong to Lao Teung (Mon-Khmer linguistic group), which is regarded one of ethnic groups.

**Table 6.4-5 Optimization Result
for Nam Kong 1 Project**

Item		Specification
Catchment Area		1,250km ²
Dam	Height	85.3m
	Length	379.1m
	Effective Storage	505 mil. m ³
	Area of Reservoir	21.8km ²
Headrace Tunnel	Length	2,955m
Transmission Line	Length	41km
Access Road	Length	31.8km
Output		150MW/75MW
Annual Generation		563GWh/469GWh

Note: Output and Annual Generation will vary based on generation pattern. Those will be determined in the future as an option

- There is a cave adjacent to the dam, which is regarded as a sacred place from villagers. Grave yard in the proposed reservoir need to be resettled.



Figure 6.4-1 Location of Nam Kong 1 Project



Figure 6.4-2 Dam and Powerhouse Planned Location of Nam Kong 1 Project

(2) Houay Lamphan Gnai

- Though there was no resettlement expected in the 2000 study, two (2) villages with 189 households or 1,292 people were found to be resettled. Other 49 households or 367 people in adjacent 5 villages and part of 1 village near the powerhouse will be impacted by construction of access road.
- PAPs belong to Katu, Arak, Lavi and Laven (Mon-Khmer linguistic group), all of which are regarded as ethnic people, and Lao-Tai linguistic group. 95% of PAPs are Katu, while 2% is Arak.
- It is required to establish Resettlement and Ethnic Minority People Plan in which program of resettlement, livelihood restoration, ethnicity consideration be included. Resettlement area is expected to be near the access road with enough capacity.

Table 6.4-6 Optimization Result of Houay Lamphan Gnai Project

Item		Specification
Catchment Area		237km ²
		Main Dam 144km ²
		Tributary Weir 93km ²
Main Dam	Height	79m
	Length	630m
	Effective Storage	122 mil. m ³
	Area of Reservoir	6.8km ²
Headrace Tunnel	Length	2,831m
Transmission Line	Length	12km
Access Road	Length	22km
Output		84.8MW
Annual Generation		452GWh

- Reservoir area is covered by evergreen woodland, coffee plantation, rice paddy, cardamom field and the secondary forests. The area has been developed and thus the impact on flora and fauna