IRN Comments on Nam Song and Nam Leuk
Environmental Mitigation Implementation Plan

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A. NAM SONG

1. Funding Allocation Insufficient

For Nam Song, the 2001 *Nam Song Draft Impact Analysis Report and Action Plan*, funded by the ADB, found that found that Nam Song "has caused severe impacts on aquatic ecosystems and human use by 13 villages, of the river downstream of the Diversion Weir. Negative impacts of smaller magnitude have been experienced along the Diversion Canal (3 villages) and on the Headpond and the Nam Song upstream of the Diversion Weir (2 villages)." The report estimated total losses since diversion (a period of 6 years) to be valued at nearly US$2 million. Yet the current report is proposing a total of $200,000 for both Nam Song and Nam Leuk. This is clearly inadequate to compensate for the losses sustained by communities impacted by both projects.

2. Itchy Skin for Villagers Downstream of Nam Song

P25 states that "In the past few years, there was no evidence and complaints of increasing in level of skin itchiness reported by villagers after bathing in the Nam Song River downstream of the dam". This contradicts the findings by IRN in June last year, where villagers reported itchiness from snails and waterweeds in the following villages:

- Ban Pon Song
- Ban Houay Hintit
- Ban Pak Vang
- Ban Thao Tan
- Ban Phon Thong
- Ban Vang Khi

How did Dr. Montri arrive at the conclusion that there were no complaints of skin itchiness downstream of the dam?

3. Ban Vang Xong

Dr. Montri correctly states that one of the major problems facing this village is shortage of agricultural land. These villagers were relocated as a result of the project. Villagers were given a small plot of land around their house, but no agricultural land. One of the key issues here is food security due to a shortage of agricultural land, yet the report does not recommend giving any extra land to villagers to compensate for their losses.

4. Issues not covered in the report

There is no mention of compensation for losses of boats, gillnets and other fishing equipment as a result of the project.

<u>Ban Somsanouk</u>

This is the village affected by the diversion canal which takes water from the Nam Song to the Nam Ngum reservoir. Villagers here lost a lot of land to the diversion canal (anywhere from 1/3 to ½ of their agricultural land), and to a transmission line and road construction. People were compensated only a small amount which was supposedly to pay for their labor in clearing the land. There was no compensation given for the actual land, and the amount of compensation given was inadequate to purchase replacement land. People were given about 700,000 kip per rai.

The villagers link the transmission line construction with the dam, and while there was no transmission line installed for Nam Song, EdL is responsible for transmission line construction in Laos. Given that project-impacted villages have been affected by a transmission line constructed by EdL, these impacts should be considered as part of the current mitigation and compensation plan.

B. NAM LEUK

Water supply issues for villages along Nam Xan

Thamdin and Thaheua villages: the report says that these villages have year-round clean water supply, yet villagers have reported the water supply is insufficient, particularly during the dry season. Insufficient water supply in Ban Thamdin was reported in the PPAR for Nam Leuk of June 2004.

C. GENERAL ISSUES RELATED TO WATER SUPPLY RECOMMENDATIONS:

- it is not clear how it was decided on which system was appropriate for which village, and how much research was done to ensure that the recommended systems will provide sufficient water for the entire village
- In Ban Vang Xong (Nam Song) and Ban Houay Leuk, the recommended water systems are groundwater pumping and gravity fed water supply system, which incurs electricity costs to pump the water. How will these costs be paid?

D. GENERAL ISSUES RELATED TO FISH PONDS:

Aside from the points raised by the reviewer (see comments following this) about the inappropriateness of the recommended options, some other issues were not addressed in the report:

- Who will pay for the inputs to the fish ponds (eg seed and food?) The report mentions EdL to provide seed, but for how long and how much?
- Where will the seed come from?
- Who will conduct training for the villagers in how to use the fish ponds?
- How profitable will the ponds be for the villagers?
- How much work will they take to maintain?

Comments on "Environmental Mitigation Implementation Plan: Nam Song and Nam Leuk Hydropower Development Projects"

These comments were written by an expert who has worked extensively in small-scale aquaculture and fisheries projects in Thailand and Laos for over a decade. The reviewer has requested to remain anonymous.

As part of the EMIP's so-called "livelihood Development" (p.56), it is proposed to build a number of fish ponds in all but one of the villages identified as "impacted" by the two projects. The two types of pond recommended are described as follows:

- SPFG – Small Plastic Fish Pond and Garden – a 2m x 4 m x 1 m (i.e. 8m^3) hand-dug pond lined with a plastic sheet, used for raising "herbivorous fish" to be fed by termites (a contradiction in itself), which are themselves raised in a "hole" next to the pond. The area around the pond is supposed to be planted with a few fruit trees and a selection of vegetables and herbs.
- VFPG – Village Fish Pond and Garden – similar to SPFG, but bigger and unlined. It may be made by: a/ "blocked reservoir of any size" (seems to refer to making a barrage dam across a stream to form a small reservoir, or b/ digging (not mentioned by hand or machine) a rectangular earthenpond of no smaller than 4 x 8m (i.e. 32 m^2 +) in area. Again the surrounding area is supposed to be planted with a mixture of fruit and vegetables.

It appears that just one of each type of pond will be provided per village, apart from Ban Vang Xong which is listed as being provided with 2 SPFG's, while Ban Khan Mak is not provided with either type of pond (no explanation given). No information is given on who will be the beneficiaries of these ponds and gardens; how they will be managed; or how much fish they will likely produce. But from previous experience in Lao PDR from various aquaculture extension projects (e.g. UNDP's Provincial Aquaculture Extension Project. LAO/97/007), it would be reasonable to expect an average level of productivity from a small, well-managed pond somewhere in the range of 900 – 2,500 kg/ha[1], depending on the location, stocking level, fertilisation regime, feed given, and a number of other factors. Hence, for the ponds recommended above, one might expect fish production of about:

- SPFG = 1.44 kg – 4 kg of fish (based on two harvest per year)
- VFPG (32 m^2)[2] = 2.88 - 8 kg of fish (based on single harvest per year)

According to estimates, average per capita fish and living aquatic organism (LAR) consumption in Laos is approx. 22 – 56 kg/person/year[3], again depending on many factors too numerous to mention here. Therefore, the two mitigation methods recommended could theoretically provide the following percentage of the average person's fish consumption in a year, based on pond dimensions given and a median fish productivity figure:

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1 Guttman H. and Funge-Smith S. (2000) The Role of Aquaculture in Rural Subsistence Livelihoods in Lao PDR. Procvincial Aquaculture Development Project Phase II Formualtion Mission. STS Field Document No. 9. Food and Agriculture Organisation, Bangkok.

2 NB: as a pond gets bigger in area, it does not imply that yields remain at the same level as small ponds, but usually decline as management also tends to become more difficult for farmers with limited external inputs

3 Guttman and Funge-Smith, ibid.

	Fish productivity (kg/year)	% of average fish consumption provided by pond
SPFG	2.72	4.9 -12.4 %
VFPG	5.44	9.7 – 24.7 %

As the average Lao household contains on average 6 – 7 persons, it can therefore be concluded that the ponds recommended, even if well managed, will form a small contribution to the fish consumption patterns and needs of a single household. As presumably prior to dam construction, fish and LAR were the major source of protein for most household's diets in the impacted villages, then each and every household would have to be provided with a fish pond large enough to compensate for the lost fish productivity from the river, ***and*** given adequate extension support and back-stopping assistance until such time as they have adequate proficiency in managing the fish pond or derive adequate food and income from other alternative sources to restore their livelihoods to pre-dam conditions.

As presented by the consultant at present, the single fish pond of each type to be dug in the villages will have a negligible effect on fish or food production overall, so therefore cannot be considered as mitigation or compensation for lost fish productivity.

Section 4.2.3 "Sustainable Fishery Management for Rural Livelihood" (p. 58) states that, "it is recommended that EdL should consider long-term fish releasing and stocking (R&S) program into the following streams:

- Upstream river of the Nam Song Dam
- Downstream river below the Nam Song Dam
- Upstream river of the Nam Leuk Dam
- Downstream river below the Nam Leuk Dam"

The report recommends EdL to consider stocking fish into the impacted rivers a range of "local fish species", then lists (and provides a photos in the Annex) of a sample of Mekong Basin species. The list itself appears to be taken from the MRC Fish Database, and are species which were identified by the MRC Fishery Programme several years ago as being of conservation importance and worthy of further research and monitoring. As such, most are species found in the mainstream Mekong and major lowland tributaries of the Mekong River. It should be noted that many of the species listed are not naturally found in upland streams or mountain tributaries such as the Nam Leuk's middle and upper reaches or the Nam Song river system. As such, they can be considered as non-native species to the local ecosystem, even though all are indigenous to the Lower Mekong Basin. It should also be noted that some of the species are considered "rare", "threatened" or endangered" and are included on the IUCN Redlist (e.g. *Chitala blanci, Tenualosa thibeaudii, Probarbus julienne, Prpobabrbus labeamajor*, and *Catlocarpio siamensis*), while one other species whilst not on the Redlist is extremely rare or possibly already extinct (*Aaptosyax gryppus*).

It should be noted that in Lao PDR, there is no capacity to breed or raise most of the species listed, so the only way to stock them in the rivers mentioned would be to capture them from the wild and transport them to the impacted rivers, which in itself is an expensive and risky exercise that would likely result in high mortality of fish during capture and transportation. Then there is the question whether any of the species mentioned, stressed from handling, transportation and stocking, would survive, adapt and thrive in a new aquatic environment. My own prognosis of

their survival chances is low, especially if the aquatic environment is degraded and fragmented from its ambient state, by the dam and associated infrastructural development. Added to which, most of the species listed are migratory and need to undertake long-distance migrations to complete their life cycles, something which will be impossible now there is a dam blocking migration routes upstream and down. Thus the proposed mitigation exercise of restocking would be of limited or zero value, even if technically possible under ideal circumstances.

Hence, having read the proposed mitigation measures for fishery impacts, brief as they are, I would conclude that the consultant has a very limited understanding and even less practical knowledge or experience of aquatic ecosystems and dam impacts in general; the aquatic fauna of the Mekong Basin in particular; aquaculture and fisheries options; and the needs of rural communities in Lao PDR, especially those negatively impacted by hydropower schemes. Thus, I would conclude that the consultant is poorly qualified to undertake such a study, in a field clearly outside his/her own area of expertise, and should employ someone with adequate knowledge and experience in the field.