



Asian Development Bank

Southeast Asia Department

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Dear Mr. Matsumoto,

It was a pleasure meeting you in Tokyo last November 2008 where we discussed the earlier joint response from ADB and WB on the issues raised by Mekong Watch (MW) via your letter dated 28 October 2008. As we have agreed, please find in the attachment the responses to questions regarding the Nam Theun 2 (NT 2) Project. I apologize for the delay in responding as it took sometime for us to coordinate with NTPC to obtain the detailed responses.

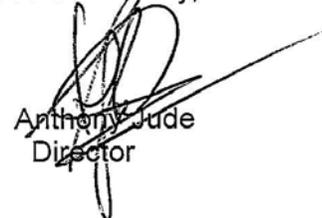
I would like to point out that the Project's Environmental and Social programmes are jointly implemented by NTPC and the Lao Government. Indeed, by the project Concession Agreement, just under half of all required actions in these fields are to be implemented either by the Government or jointly by the Lao authorities and NTPC. We have therefore also shared this document with the Lao Ministry of Energy and Mines.

Concerted effort has been made to address the points raised in your letter here and please be informed that the Social Development Plan (SDP) which was prepared during the project preparation has been superseded by other project documents in many places. It would therefore be very useful if in the future MW could also meet with NTPC staff to learn more about project plans and results that is coming from the field. If needed, we could help facilitate this meeting.

The Nam Theun 2 Project is perceived by NTPC as a combined industrial and rural development project, and the Project's staff is very committed to achieving excellence in all its aspects, particularly as regards the welfare of those most affected by the project. I also emphasize that the development programme efforts being implemented in the project should be flexible and be able to evolve as the situation on the ground becomes apparent — we do not stick to a rigid plan that was designed long before activities began.

I assure you that ADB and its IFI partners will make all efforts to monitor the Project timely and appropriately. We welcome the information exchange with Mekong Watch.

Yours sincerely,



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## I. Agriculture

1. One of the major flaws of the agricultural livelihoods restoration program is that market for cash crop still has not been found, even though resettlement is already near completion and demand from construction work is set to decrease. Will the program continue to focus on cash cropping to restore livelihoods or is there any plan to seek different way of livelihood restoration? If the program will continue to focus on cash cropping in the future, please describe the prospect for finding market for cash crops, and/or plans for creating market opportunities.

The development of markets goes hand-in-hand with continuous consultation with villagers, evolving crop production, monitoring of the ability of the population to adapt to new technologies, and various other factors. Expectation of instant market creation is not realistic, as confirmed by the Concession Agreement, which allows the government and NTPC five full years after physical relocation to meet the specified target incomes. The project is currently in the first or second year following physical relocation (depending on village) and NTPC estimates that around half the resettled Nakai villagers have already reached the initial income objective of passing the government poverty line, which they did not do prior to the project (as documented in baseline surveys).

It should be pointed out that the resettlement programme will not be considered “near completion” until 2013, when livelihood activities have been given a fair chance of evolving and maturing. Construction workers were never identified as a major market for Nakai products. Other markets are being actively identified, with a full-time team on Nakai working with villagers to identify demands that these farmers can realistically aim to meet. The livelihoods programme will continue to work with cash crops but has already diversified to offer more traditional livelihood options to households which are slower to adapt. Rice is one of these.

2. Have agricultural lime, inorganic and organic fertilizer inputs been made on farmers agricultural plots? If these have already been made, have assessments been made as to the effectiveness of these inputs on agricultural plots? If these inputs have not been made, please advise why this has not been done in line with SDB recommendations?

Yes, such inputs have been made available to farmers. To improve soil fertility, particularly pH and nutrients, 600 tonnes of thermophosphate inorganic fertilizer was provided. In addition, compost production training has been organised to show villagers how to make compost by themselves using buffalo manure and rice straw. While some farmers are following this method and applying compost to vegetables, the practice has not yet become widely replicated in all villages. The results of all inputs are continuously being assessed.

These actions are conducted in accordance with the recommendations of CIRAD studies into the long term sustainability of farming the soils on the Nakai Plateau. These studies were commissioned by NTPC as it became evident that the recommendations of the earlier Social Development Plan (SDP) could not be applied wholesale to all situations across the Plateau.

It is important to note that the SDP is a design document and while it remains an excellent reference for implementation of the project, it is not a contractual document. Since the project started, implementation of the Environmental and Social programmes has undergone constant review, inline with the “adaptive management” required by the Concession Agreement, to ensure the objectives

of the project's binding contractual documents (principally the Concession Agreement) are met in a sustainable way. These reviews are reflected in each Annual Implementation Plan, which record the changes made in policy and in project-related government administration and legal aspects, since Financial Closure of the project. For example, significant increases in the budgets envisaged in the SDP and EAMP have long since been established.

3. What are the reasons, as understood by the World Bank and ADB, to abandon the plan to construct irrigation systems and terraced rice fields?

There are no plans to abandon irrigation. However, the idea that irrigation can be implemented as a pure engineering solution to food supply on the Plateau must be considered carefully. The fundamental agricultural problem is rather one of plant nutrition due to poor soils. Attempts to impose complex infrastructure systems onto communities that have never before operated such mechanisms are unlikely to be sustainable. Likewise, adding large volumes of water to essentially low-grade shallow and acidic topsoils might provoke more environmental damage than agricultural benefit.

Rather, development of irrigation systems is being carried out in line with the desire and ability of communities to operate such systems in areas where topsoil has already been consolidated by preliminary cycles of input addition, and then by environmentally sustainable agricultural practices such as direct seeding mulch-based conservation agriculture, which allows preservation and enhancement of soils in the long run. All designs must be validated and tested by the villagers at household level. Terraced rice fields tend to develop in cultures with many years practice of irrigated rice growing and would most likely not be successful if immediately introduced on the Nakai Plateau to people used to swidden cultivation. In addition, development of terraced fields on the agricultural plots would require mechanised earthwork, which given the fragility and shallowness of the topsoil, could seriously damage fertility for several years. Moreover, terracing is used for cultivation of flooded rice, whereas only upland rice is so far being considered on Nakai.

4. Is there any plan to develop paddy rice crops under the agricultural livelihood program? If so, please explain a detailed plan of how this is to be carried out.

There is no imminent plan to develop paddy fields under the Agricultural Livelihood Programme as most of the soil on the Plateau cannot retain water for rice cropping. Moreover, it has been recommended by agronomists that the soil not be ploughed because the layer under the top soil (below 10–15 cm) is sandy: ploughing this kind of earth will only bring the sand up to the surface, which is worse for crops. Therefore, direct seeding on mulch cover is being recommended as a conservation agriculture technique that will improve the soil and make various crops, perhaps including paddy, possible in the medium term.

In the meantime farmers are planting rainfed rice in degraded forest areas, which is permitted by the local authorities and Village Forestry Association as far as it is sustainable. At the moment most households are already able to make up the shortfall in rice yields with income from diversified sources.

5. If there are no plans to provide wet rice paddy, please explain how villagers will be able to secure their rice needs.

In line with Lao government policies, the project pursues a target of providing people with the opportunity to develop more livelihood options than available in their previous subsistence mode, and is committed to elevating villagers' income above the poverty level. With the opportunities gradually presented by the relocation to the new villages, plus the market access and facilities afforded by the project as a whole, it is planned that incomes will rise (they are already doing so) and that people will not rely on rice growing to completely fulfil their livelihood needs. More diverse occupations have already become available and will continue to develop, giving people on the Plateau the ability to purchase rice, other foodstuffs and consumer goods. For the next four years, in the event of incomes not enabling vulnerable households to purchase sufficient food, the project is committed to making up the shortfall until alternative opportunities are fully developed.

## II. NTFP Collection and Forestry

6. If there is a plan to address the difficulties that the resettled communities are facing to collect NTFP, please describe the plan in detail.

NTFP collection is an activity that forms part of the daily/weekly routine of the villagers as it was prior to resettlement. Of the 200 km<sup>2</sup> of resettlement forests, there are ample zones from where types of NTFPs can be sourced. Indeed, our income surveys indicate that villagers currently derive 8% of their revenue from NTFPs, mostly from the production forest on the west side of the reservoir. There is no separate plan to address NTFP collection difficulties, but the project's Agriculture Livelihood Programme encourages agro-forestry zones as part of the conservation agriculture approach. These areas will be ideal for certain NTFPs if embraced by local farmers. The issue of access to protected areas for collection of forest products is a matter of government policy and local practice, and one that the Watershed Management and Protection Authority will address as conditions evolve in the area.

7. From the 20,800 hectares of production forest, approximately how many hectares of forest land are suitable for production forest purposes? Please include a detailed explanation of how the present production forestry plan stands, particularly with providing dividends to village households.

The figure of 20,800 ha represents the total Resettlement Area, not the total forest area.

The Nakai Plateau Village Forestry Association (VFA) has for the past few years been active producing the sawn wood supply needed to build houses in the resettlement villages. In total, it has processed and supplied nearly 13,000 m<sup>3</sup> of high quality hard wood in accordance with the SDP. At a recent VFA Board of Directors Meeting it was decided that dividends would be distributed to the resettled villagers, the owners of the VFA. The process of shareholder registration is currently under review by the government. Once the process is complete and approved, the declared dividends will be paid out to the shareholders.

Several community consultations have been held over the past few years, especially this past year, which can be described as a transitional period for the VFA. Production capacity is now shifting from planks for house construction and the Association is working on defining a long-term business plan and marketable product mix. In accordance with the SDP, the government is allocating a wood

quota and the VFA is currently deciding and marking which trees are the most suitable for use this year. The government and the VFA are working together to define the appropriate annual quota (in cubic metres) to ensure not only the sustainability of the VFA business model, but also the sustainability of the natural resources within the Community Forest Areas.

As the VFA is a separate and legally recognised business owned by the villagers, it would not be appropriate for NTPC to publicly disclose financial details related to its business operations. However, it would be of great benefit to the villagers if the VFA gained new customers, and thus we encourage visits to the VFA website: <http://www.vfa-nakai.com/>.

8. If forest is converted into farmland in order to compensate for flaws in the agricultural livelihoods restoration program, benefits from forest, to which affected communities are entitled, will be lost. Please describe the views of the World Bank and ADB on the conversion of the forest into farmland in this particular case. If the forest must be converted into farmland in the future, would the affected communities be provided with a different form of compensation/benefits?

Use of degraded areas of the Community Forest for grazing or cultivation has been considered since 2005, as an adaptation of the SDP models which did not optimise the integration of the various livelihood components (especially agriculture, livestock and forestry). This new use of forestry land will not be conversion *per se*, as it will be conducted only in degraded forest areas (i.e. forest with no commercial timber value and minor ecosystem contribution) and there will therefore be no loss of forestry production. A joint survey by the VFA and the Livelihoods team is already ongoing to better identify these areas and their potential. No compensation is planned for an action that will itself provide benefits with no losses: the land in question is already degraded and will be further harvested by the Village Forestry Association before being replanted.

### III. Fishery

9. It has been 2 months since Mekong Watch informed the World Bank and ADB about the boat accident. Has there been any investigation into the accident by the World Bank and/or ADB? If so, please provide us the findings of the investigation. If the fault lies on NTPC as villagers reported, we believe that the family of the deceased should be compensated appropriately. Please describe the views of the World Bank and ADB on this issue.

Internal investigation revealed that this tragic accident was caused by a boat piloted by two employees of NTPC, both local villagers. Compensation has been supplied to family of the victim of this negligence and the boat pilots have been removed from duty. Details of this accident were all disclosed at a public workshop.

10. In your views, what kind of measures should be in place to prevent similar accidents in the future?

Following the accident NTPC immediately revised safety procedures and increased investment in safety equipment. Around 2,000 life jackets have been distributed to villagers around the reservoir. Training for boat drivers has been reinforced to counter any temptation to ignore safety regulations and boat piloting procedures. It is true that many of the villagers are unable to swim and are unused to deep water. Increased public awareness campaigns are being

conducted on the dangers of the water and on the need to wear lifejackets and to fasten them properly. Regular consultations keep the company informed of local feelings towards the reservoir and fishery. As a result of these consultations the project-supplied fibreglass boats were, prior to the accident, redesigned and fitted with foam linings and seats to render them 'unsinkable'.

#### IV. Livestock

11. The preference for villagers to grow rice competes with areas for fodder production, how will these conflicting production systems be reconciled under village agriculture systems?

There is no competition between fodder and rice production. On the contrary, the agro-ecological system promoted by the project relies on rotation between rice and forage on the same plot. The forages used are *Bracharia r.* and *Stylosanthes g.*, which provide soil improvement through increase of organic content (and Nitrogen in the case of Stylo), upward migration of mineral elements, improvement of soil texture and hydric properties, plus protection against erosion and weeds. The two productions are therefore linked, with the fodder crop benefiting the rice cultivation. Most of the agricultural plots, and indeed most of the land on the plateau, could not sustain continuous cultivation of rice over several cycles without heavy reliance on external fertilizers and/or use of these agro-ecological techniques.

It should be noted that fodder is grown not only in the 0.66 ha agricultural plots allocated to each household, but also on land granted to villages and households by prime ministerial decree<sup>1</sup>. Therefore land use competition may be less critical than assumed by Mekong Watch. In addition, the idea that villagers "prefer to grow rice" may need clarification or qualification. Among the various different cultures – all of which grew and consumed rice as a staple - and agriculture systems present on the Plateau prior to project activities, the raising of cattle was prominent. It is still obviously a source of significant wealth for some villages and families. Large animals are traditionally valued in Laos as savings mechanisms, concentrating rural capital for use in times of celebration or need. Various agronomical studies and programmes in Laos have identified the great potential of the country as a supplier of meat to an undersupplied regional market. In areas with a strong tradition of animal husbandry, plus land not favourable to high rice yields, it may make sense to encourage integrated agricultural systems that seek to raise people's income levels.

The large numbers of cattle kept before inundation of the reservoir, many of which were semi-wild and of disputed ownership, have had to be reduced. Before the project, various large herds on the Plateau were owned by the Lao army and non-Nakai residents. These were prioritised for removal. NTPC has identified, vaccinated and, through this process, bought cattle from all owners wishing to sell and these animals are to be donated to agricultural development programmes administered elsewhere in Laos by FAO. At the same time, all resettled villagers were presented with livestock by the project as a guarantee that even those with nothing before the project would be given the opportunity to create wealth through animal raising.

The livestock programme concentrates on intensification of management as part of an integrated agriculture, forestry and soil improvement approach.

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<sup>1</sup> Broadly, PM Decree 24 states that Nakai land belongs to all resettled villagers.

Leguminous and non-leguminous forages (good for soils) are planted for feed (low labour input) and cattle are kept in yards (supplied by the project), and their dung collected. This concept of growing food for cattle is foreign to the villagers, but by working with 'lead farmers' the project is demonstrating its value: land quality is improved, fewer animals are lost, animal health and weight improves, and as feed is available in the dry season also, cattle keep their value all year round.

The balance of pasture, forage growing and other crops is expected to vary in different villages and locations according to soil performance and the suitability of the reservoir drawdown zone. In general, villagers are encouraged to grow the crops that best suit their needs and the soils they have.

It is planned that as lead farmers continue to 'demonstrate by doing', with intensive technical assistance from government extension services, NTPC and research organisations, other farmers will adopt the same methods. It is envisaged that by the end of the resettlement period gradual conversion to more focused and intensive management of income generating activities will allow people on Nakai to integrate into the market or cash economy. However, this transition will not occur within one or two years.

12. What measures will be taken to address the difficulties that resettled communities are facing to raise livestock in the resettlement area?

The managed decrease in numbers to roughly half of the former livestock population should help, as will intensification of husbandry methods, registration and the animal vaccination campaign. With these measures in place, buffalo will gain a higher value and better sale potential than was previously the case. In addition the rounding up of the many feral buffalo in the area will free grazing resources. These are not wanted by livestock traders and so have no current sale value. The aim is for a smaller, better fed and healthier population that produces animals with higher prices. This should enable farmers to conduct livestock raising as a business that is suited to the local environment. Marketing consultation results show that the people in the area are receptive to this approach.

#### **V. Small-scale business**

13. What measures are planned in order to secure customers and markets, so that livelihoods of the resettled communities can be restored through small scale business?

It should first be noted that small-scale businesses are only one component of livelihood activities. While these businesses will definitely contribute to livelihoods improvement, they are not intended to achieve this goal alone. Some of them will (and already do) consist of services such as mechanics, barbers and blacksmiths supported by loans through the Village Development Committees. Customers and market are in that case local. Some others rely on local production: fish, agriculture, livestock, forestry, and - in the medium term - tourism. The marketing chains for these are being currently investigated jointly by the marketing team with the villagers. Sustainability of the market and customers is of course a core issue taken into account throughout the whole process.

The Lao National Tourism Administration is examining the situation on Nakai and has held discussions with the district authorities. The Nakai Reservoir Management Committee also has a unit looking into tourism potential. It is hoped

that outside interests do not take over the resources of Nakai by investing in hotels or guest houses which would affect local villagers' interests. As the reservoir and land uses are still stabilising, tourism is regarded as a medium-term goal, but one that certainly must not be neglected: the number of foreign visitors to Nakai has already increased since the road from Thakek was upgraded by the project and advertisements are now appearing from the Khammouane Tourist Office and in private guest houses in Thakek for activities associated with the Hinboun-Lak Sao-Oudomsouk-Thakek 'loop'.

## **VI. Food Aid**

14. According to resettled communities, they are neither able to produce sufficient amount of rice to feed themselves, nor make enough income to purchase rice. Under such circumstances, NTPC must not stop food aid. Please describe the views of the World Bank and ADB on this issue.

The fact that the food aid period has come to an end has been widely communicated to villagers through the government's Resettlement Committee and Resettlement Management Unit. NTPC has provided the food aid stipulated in the Concession Agreement and both the government and the company feel that continued indiscriminate distribution of free food is not consistent with sustainable resettlement or rural development, but may rather create a state of dependency among resettled families that interferes with their active involvement in the various livelihood programmes. This view is widely shared among the monitoring agencies and most rural development practitioners. However, for those villagers identified as "vulnerable", a special programme is in place to ensure continuous food aid for those in real need.

To respond more specifically to this question, further information is needed about the sampling of the population on Nakai who expressed such "grave concerns". Sampling for feed back is very sensitive to the numbers and locations of people. The Livelihood Programme no longer follows a blanket approach but rather acknowledges that differences in income are increasingly due to the adaptability of individual households to the technical assistance being provided. A customised programme is thus being developed for the various quintiles of the socio-economic strata in order to address specific needs. With the latest NTPC figures suggesting that just over half the population are already meeting income targets, and that many others are close to doing so, it is likely that the majority of resettled villagers now have enough income to carry on without subsidies.

## **VII. Grievance Mechanism**

15. Our field visit found that there are resettled villagers who have strong concerns but not able to use the grievance mechanism. Voices of the politically disadvantaged should not be ignored. In your view, what measures necessary to ensure that such voices are heard and addressed?

Our experience has not revealed such cases. The grievance process is government-run with assistance from NTPC and is, according to the Independent Monitoring Agency, being handled appropriately. It may be that access to the grievance procedure is proving difficult for some due to problems of communication. However, to resolve those complaints identified by Mekong Watch, more information would be required, including an explanation of what is meant by the term "politically disadvantaged". The project works with a variety of

social and ethnic groups and does not distinguish between these in matters of rights and access to services.

### **VIII. Biomass Clearing and Water Quality Issues**

16. Please explain why biomass was not cleared as stated in SDP and EAMP.

That water quality in the Nakai reservoir is adversely affected by biomass degradation is an expected phenomenon in the first few years after impoundment. NTPC opted for a combination of the four classic approaches for limiting this phenomenon and its impacts: (i) aerating devices, (ii) location of water intake in the upper layer of the reservoir, (iii) partial aerial biomass removal, (iv) fill and flush prior to operation. The first of these two items rely on the technical design of the project, are largely described in the EAMP, and are not further detailed here.

#### **A. Vegetation Clearance**

It should be noted that most of the rapidly degradable biomass, which is a major contributor to the immediate water quality degradation, lies in the soils or on surface of the soils, which are not affected by mechanical removal of trees (about 60% of the biomass on average in the case of the Nakai Plateau). This is one reason why experts consider that clearance of vegetation does not prevent water quality degradation in the first years (though it does, however, shorten the duration of anoxic event, to say three years instead of five).

In 2007, NTPC and GoL designed a programme to selectively remove ligneous vegetation from the permanently inundated area of the reservoir (below Maximum Operational Level, i.e. 525.5 masl). This clearance was conducted between January and May 2008 to limit the risk of vegetation regrowth and erosion of bare earth. It was carried out by Ministry of Agriculture and Forestry (MAF) contractors, with NTPC funding and monitoring. Analysis of detailed Ikonos imagery dated 2003 clearly shows that 50% of this area was then free of ligneous vegetation. The combination of the additional clearance and pre-existing situation means that more than 60% of the permanently inundated area (i.e. area below MOL) was clear of ligneous vegetation prior to impoundment (this figure rises to 88% if one considers the area upstream of Ban Thalang only).

Not all the vegetation could be removed, because of (i) technical reasons (slopes, riverbank difficult to access, bamboo clumps that were very difficult to cut), and (ii) the request of the WMPA not to access the right bank of the Nam Then river for clearing, in order to limit the risk of poaching or illegal logging.

#### **B. Fill and Flush process**

The Fill and Flush strategy aims to remove rapidly degradable biomass (mostly from upper soil and small vegetation) and the resulting degraded water through release at times and locations chosen to produce less environmental than would occur if this were released during normal operation. In the case of NT2, these releases have been scheduled for the wet seasons 2007-2009, when the dilution factor is highest, and are made exclusively to the Nam Theun River through the Dam Site, to an area far less populated than the Xe Bang Fai area. Flushing commenced in 2007 after partial impoundment of the reservoir, when water quality degradation had already begun.

Close to 11 billion m<sup>3</sup> will have been flushed through the dam site by the scheduled Commercial Operation Date in 2009. This represents three times the volume of the reservoir. The volume to be released in the 2008-2009 dry season will represent less than 10% of this total.

17. If degraded water from the reservoir will be flushed, how will the environmental and social impacts in the downstream area will be assessed beforehand, and avoided or mitigated.

The practice of flushing, as discussed above, will affect the Nam Theun River in Khamkheut District. It is also likely that water of poor quality will be discharged from the reservoir during the first few years of commercial operation, and the project has built in several features to mitigate that eventuality. These include engineering features: an extended regulating pond and complex regulating dam; the crossing and siphon to avoid disturbance to rivers in the immediate downstream locality, and the long downstream channel with aerating weir.

The US\$16m Downstream Programme has also been designed to mitigate water quality and flow change impacts downstream of both the dam, in Khamkheut, and the powerhouse, mainly along the Xe Bang Fai. In all areas monitoring of riverbank erosion, suspended solids, infrastructure, water quality, hydrology and fish catches commenced early in the project and will continue indefinitely. The programme will identify specific project impacts in each locality and adjust its livelihood development activities accordingly. These are broadly based on fisheries (natural and aquaculture, agriculture and livestock, sanitation and water management, socio-economic and environmental monitoring, and protection of physical cultural resources.

Downstream of the Nakai Dam reduced discharge and water quality in the Nam Theun may affect fisheries to such an extent that protein supply becomes an issue in local communities. With this in mind, a protein security programme has been established to monitor protein consumption and provide emergency support if required. So far, after seven months, no negative trend in protein consumption has been detected. Livelihood restoration activities in this area are based on village preferences expressed in consultation meetings and include land development for paddy and corn, aquaculture, pig and cattle raising, and weaving. Activities began in July 2008 and will cover eight villages (around 1,400 households) by the end of the year. The programme will eventually reach 37 villages across the district and has already established Grievance Committees in these villages to strengthen the consultation process and ensure that the situation in each community is reported and addressed.