

**LAO PEOPLE'S DEMOCRATIC REPUBLIC
NAM THEUN 2 MULTIPURPOSE PROJECT**



**REPORTS 21A AND 21B OF THE
INTERNATIONAL ENVIRONMENTAL AND SOCIAL
PANEL OF EXPERTS**

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**REPORT 21A OF THE INTERNATIONAL
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**For the Nam Theun 2 Multipurpose Project
Lao People's Democratic Republic
12 March 2013**

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**Front cover photo: Woman planting hill rice on extensive “new” burned over
land at Sop On**

LIST OF RECOMMENDATIONS

The POE recommends:

- **1/21A** that in the southern core zone, following Chantavy's protocol, WMPA conservation patrols be repeated at least once a month, including the wet season.
- **2/21A** that Provincial and Central Government authorities take effective action to recognize and halt the subversion of village authorities in the NPA for the illegal Rosewood trade, and to crack down on that trade, including its participants, supporters and enablers within and outside of government at village, district, province or higher level.
- **3/21A** that WMPA ensure that the Law Enforcement staff are provided at least two reliable, functional vehicles, a boat with good motor, motorbikes and laptops.
- **4/21A** that the organizations responsible for monitoring, patrolling and enforcing management of the reservoir, especially the WMPA and the resettlement-based Village Fisher Groups, find or develop mechanisms to complement and harmonize their activities to achieve effective management of the reservoir and its fishery.
- **5/21A** that WMPA develop rigorous criteria for evaluating which existing WMPA staff meet the present requirements and which do not, and to seek to replace the latter with university graduates or experienced staff from conservation organizations.
- **6/21A** that an institutional review of the WMPA and relevant line agencies be carried out to consider the functions that the WMPA should implement in accordance with Decree 471, along with issues of when, how, and to whom implementation responsibilities for different tasks can be transferred.
- **7/21A** that WMPA monitor track construction in the NPA, only allow tracks that are in the agreed upon access plan, and actively halt and as appropriate destroy any other track construction.

1. INTRODUCTION

This is report 21A of the International Environmental and Social Panel of Experts (POE or the Panel) for the Nam Theun 2 (NT2) Multipurpose Project in the Lao People's Democratic Republic. The members of the Panel are D. K. McDowell (consultant, Otaki, New Zealand), T. Scudder (Professor Emeritus, California Institute of Technology, USA) and L.M. Talbot (Professor, George Mason University, Virginia, USA). The main goal for this early 2013 POE mission is to assess the newly reorganized conservation work of the Watershed Management and Protection Authority (WMPA) in the Nakai Nam Theun National Protected Area (NPA). The POE is undertaking mission 21 in two parts. D.K. McDowell and T. Scudder will visit in late May and June at the time of maximum drawdown of the reservoir and will focus primarily on the Nakai Plateau resettlement (Mission 21B), and L. Talbot visited in February and March 2013. This Report 21A covers the mission of L. Talbot.

1.1 The Panel's Mandate

The Panel derives its mandate from the Concession Agreement. This is a 600 page legal document which assigns the POE a contractual responsibility to provide independent review of, and guidance on, the treatment of environmental and social issues associated with the Project, along with some executive functions, and after the Implementation Period of nine years or more, to determine whether the Project's environmental and social goals have been met. The POE remains a standing body for the period of the concession. The POE submits its findings to the Government of Laos (GOL) Minister of Energy and Mines and Deputy Prime Minister Somsavat Lengsavad, addresses recommendations to the GOL, Nam Theun Power Company (NTPC) and the International Financial Institutions (IFIs), and is required to assess the extent to which NT2 meets the requirements of the safeguard policies of the World Bank and the Asian Development Bank on such issues as the environment, indigenous peoples and resettlement with development.

1.2 Panel Activities

POE Member Lee Talbot arrived in Vientiane on February 13. After initial meetings with representatives of the GOL Department of Energy Business (DEB), the Nam Theun Power Company (NTPC), World Bank and Asian Development Bank (ADB) and the U.S. Embassy, he proceeded to Nakai on February 15. The following day was spent in discussions with the WMPA Secretariat at their headquarters in Oudomsouk, and with some NTPC staff.

February 17 was spent travelling from Oudomsouk to Ban Sam in the Teung village cluster accompanied by WMPA's Phoukhaokham Sengphavanh, WMPA's Technical Advisor Chanthavy Vongkhamheng, and NTPC's Phalim Daravong. They proceeded across the reservoir and up the Nam Theun to Ban Makfeung village, shifting from the NTPC aluminum boats to village boats when the river became too shallow. At Ban Makfeung they transferred to motorbikes and proceeded to Ban Thong Noy and thence to Ban Sam on the Nam Pheo River. The next day they met the WMPA patrol and spent five days on foot with them patrolling in the WMPA's southern priority protection zone in the Thongkuang (also called the Nam Nyang) area. On the 23rd they returned on foot to Ban Sam, by village boat to Ban Thong, by motorbike to Ban Makfeung and by boat back down the Nam Theun and across the reservoir to Oudomsouk.

On the 24th in Oudomsouk meetings were held with WMPA and NTPC staff and Bill Robichaud arrived. The following morning Dr. Talbot, Bill Robichaud, Phalim Daravong and deputy to Phoukhaokham, Boun Oum proceeded across the reservoir and up the Nam Xot to Ban Nahao, then walked to the WMPA cluster office at Ban Navang. Joining the WMPA patrol at Navang, they spent the next six days on foot with them patrolling in the Nam Chae priority

zone, and on March 3 returned across the reservoir to Oudomsouk and a dinner working meeting with the WMPA senior management.

The following morning Dr. Talbot and Phalim Daravong proceeded to Thakhek for meetings with Khamphay Phengphaeng-Mouang, Director of the Khammouane Province Environment and Natural Resources Department, and Deputy Governor of Khammouane Province and Vice Chairman of the WMPA Board of Directors, Ouday, and a working lunch with WMPA Director Phouthone Sophathilath, TA Chantavy, Bill Robichaud and local officials. They then proceeded to Vientiane. The next three days were spent in meetings with the Hon. Minister of Energy and Mines, Soulivong Daravong, the Hon. Deputy Prime Minister, Somsavat Lengsavad, the World Bank Representative to Laos, Keiko Miwa, staff of the WB, NTPC, and DEB, Coordinator of the Wildlife Conservation Society (WCS) Lao Program, Troy Hansel, and document review and report writing. A wrap up meeting with GOL agencies including DEB and WMPA, the NTPC, and the IFIs was held March 7 and Dr. Talbot left Vientiane the following day.

1.3 Acknowledgements-Appreciation

The POE is particularly grateful to Deputy Prime Minister Somsavat Lengsavad and to Minister of Energy and Mines, Soulivong Daravong for most productive meetings. The Panel expresses its appreciation for the organizational time and energy devoted by WMPA Director Phouthone Sophathilath and his staff, and also to WMPA's Director of Law Enforcement, Phoukhaokham Sengphavanh, his deputy, Boun Oum, WMPA's Biodiversity Protection Technical Advisor Chanthavy Vongkhamheng, NTPC's Phalim Daravong, and Saola Working Group Coordinator Bill Robichaud who accompanied Dr. Talbot on all parts of the field work with the WMPA patrols and provided important advice and assistance. NTPC's Pat Dye set up a full and worthwhile schedule and NTPC's Phalim Daravong handled the logistics and arrangements in the field and in Vientiane extraordinarily well. The Panel is grateful for the time, information and advice from many individuals, including the Vice Governor of Khammouane Province, World Bank Country Director Ms. Keiko Miwa, WB NT2 Manager Ingo Wiedenhofer, Phouthone Sophathilath, and many others in the DEB and other GOL units, World Bank and NTPC. As has always been the case, the POE received consistently friendly hospitality and assistance from all the Lao and others it has had the pleasure and privilege of meeting.

2. BIODIVERSITY CONSERVATION AND THE WMPA

2.1 Introduction

The POE previously has described the Nam Theun National Protected Area (NPA) and its globally significant biological and cultural diversity, along with the threats it faces. As we have noted before, since the start of the NT2 project, conservation of the biodiversity of the NPA and protection and rehabilitation of forest cover in the watershed have remained a fundamental objective. They are also a primary reason for the involvement and support by the World Bank and other international financial institutions and key environmental organizations. This is in part because protection of the NPA is an explicit offset under the World Bank's OP4.04 requirements for the area inundated, but it is also because of the clear global importance of conserving the area's biological diversity. In a somewhat similar fashion, protection of the area's cultural diversity has been an important objective of the project.

Also as previously described, the Watershed Management and Protection Authority (WMPA) was established to ensure conservation of the NPA and its biodiversity and cultural values. However, at least until recently, the WMPA has been totally ineffective in protecting the watershed's biodiversity. Poaching of Rosewood trees (*Dalbergia* spp.) has been so widespread and open that the more valuable species are now exceedingly difficult to find, indeed, almost extinct, in the watershed and poaching effort is now targeting the less valuable species (*Dalbergia* spp. or possibly *Pterocarpus* sp.). While Rosewood will sprout from stumps, the poachers are digging out the larger roots, effectively removing that potential for regrowth. The proceeds from the illegal trade have brought signs of apparent financial prosperity to most villages in the watershed (including new houses, motorbikes, tractors and abundant beerlao) as well as, of course, to the Lao and Vietnamese traders who drive the process in response to the consumer market.



Water point, Ban Sam, NPA, Southern Zone, installed by WMPA.



Ban Sam: horns of Guar, Banteng and Giant Muntjac on village wall.

The virtually unrestricted poaching of animal life is probably of greater importance than tree poaching to both species extinction risks and ecological function of the watershed. Each year since 1997 the POE has carried out at least annual, extensive foot travel throughout the watershed, seeking in aggregate to cover as much of the NPA as possible. Two of its members are biologists with worldwide field experience, and it has also frequently been accompanied by experienced field biologists. While not constituting watershed-wide systematic wildlife inventories, the POE observations represent a unique 17 year record of careful observations. Each year it has observed fewer terrestrial mammals and their tracks and dung, fewer arboreal mammals, large birds and reptiles. It has not seen signs of tiger for well over a decade. The

POE's observations have been augmented by several years of the WMPA/WCS camera trap surveys of the watershed which have shown extremely few large terrestrial mammals, and the observations of other biologists with experience in the area such as Bill Robichaud. It seems clear that the watershed is in real danger of becoming just another Southeast Asian "empty forest" (i.e., area with trees but no large wildlife in or under them). While more systematic, repeated broad wildlife surveys would be desirable to document how much biodiversity is being lost, the overall trend is clear. WMPA made the rational decision several years back to devote limited funds to protection rather than to continue unquestioned losses.

Last year (2012) the WMPA Board, recently reconstituted under the chairmanship of the Governor of Khammouane Province rather than the Minister of Agriculture and Forestry, appointed Mr. Phouthone Sohathilath as new director of the WMPA Secretariat. Director Phouthone has made a number of staff changes, and as recommended by POE, took on a Biodiversity Protection Technical Advisor. The TA, Dr. Chantavy Vongkhamheng is a Lao with a wildlife Ph.D. from America and wide experience. He was funded for the first seven and a half months by the Liz Claiborne Art Ortenberg Foundation through the Saola Working Group of the IUCN SSC Asian Wild Cattle Specialist Group, and he subsequently has been hired directly for another six months by WMPA with expectation of continued contract extension.

This POE mission and consequently this report focus primarily on technical dimensions, performance and issues at the WMPA level. However, it must be recognized that meaningful high level government and policy support and effective law enforcement by the relevant national and provincial authorities are essential if WMPA is to fulfill its mandates.

2.2 Conservation Patrols

Dr. Chantavy, with Director Phouthone has reorganized the WMPA, and Chantavy has introduced a whole new system for the land conservation patrols. Previously the land patrols were supposedly out for 30 days, but reportedly only spent as little as 4 or 5 days in the forest, mostly or entirely on trails.



Consequently they apparently did nothing to deter poachers nor did they usually collect more than a token few snares. Chantavy's new system has overlaid the 1:50,000 scale topographic maps of the watershed with one kilometer square grids, and for each grid square established a center point with coordinates. Each individual patrol is instructed to visit the center points of a specified series of assigned grid squares. These are recorded by GPS waypoints, track logs and photographs. The GPS units used also plot the movements of each patrol. This procedure assures that the patrols must cover areas off the trails; it assures that village members of the patrols cannot try to steer the patrol away from village poaching or logging (as was tried unsuccessfully on this POE mission); and it provides a simple and accurate record of patrol effort and activities.

Cross country patrol, Southern Zone NPA.

In addition they have identified core zones which they believe hold the most outstanding biodiversity in the watershed that potentially can be protected, as originally recommended by Bill Robichaud some years ago. Recognizing that they cannot patrol the entire watershed intensively, they intend to focus intensive patrolling on these core areas and to have much less intensive patrols elsewhere in the watershed. Once the cores are free of poaching they intend to expand the intensive patrolling areas. The high priority zones in the south are the Thongkuang area (8,451 ha.) and the adjacent Upper Nam Pheo area (5,191 ha.), and in the north the highest priority area is the Thongkacheng (8,105 ha.) and the adjoining lower priority Nam Chae area.

The purpose of POE mission 21A was to accompany, observe and analyse the first patrols carried out under the new system, one in the southern Thongkuang core zone, and the other in a northern priority zone near Navang.

This objective was accomplished. The current plan is to have each core zone patrol composed of 7 trained villagers led by one WMPA staff member. All work together when moving camp, but when operating out of a camp six go into the forest each day while two remain in camp as guards. In the two patrols Dr. Talbot accompanied the patrol members worked together well. Both patrols were well led, energetic and effective. Both generally observed silence during the actual patrolling which is very important if the patrols are to encounter poachers.



Poachers' camp; Lee Talbot sitting on pangolin cage

From the roughly two weeks in the field, half each in the southern and northern priority areas, it is clear that the conservation problems in each are different. The threat to biodiversity in the south (Thongkuang area) is primarily animal poachers from Vietnam flowing across the border. In the north the problem is Lao loggers from outside the NPA, coopting village and cluster heads, logging rosewood and shooting everything they see, along with some snaring.

2.2.1 The Thongkuang (southern) Priority Zone

Until 2011 the Vietnamese poachers apparently had free reign in the area south of the Nam Pheo River undisturbed by WMPA. The POE visit that year found fresh Vietnamese

poachers' camps along the trails that would accommodate well over 100 individuals, most of whom apparently had temporarily returned to Vietnam for the Tet holidays. Since then at least one WMPA patrol and another POE visit in 2012 resulted in the poachers generally moving from large camps on the trails to small ones in the forest, although this mission's patrol did find a few new camps built on the trail. Once this patrol left the trails it appeared clear that there had never been patrols off the trails and that away from the trails the poachers again were free to do as they wished.

In the four days off-trails we found 18 extensive snare lines, some at least three kilometers long. These lines are constructed by cutting brush and branches and building, in effect, a long fence, with gaps generally each five to fifteen meters. Wire snares, mostly from motorbike or bicycle brake cables, are set in each gap. As animals and birds on the ground seek to cross the fence, they go to the gaps and are caught in the snare. The snare lines followed almost every ridge top from the flatlands below up to the cliffs or peak. In addition some lines were placed across the valleys, from ridgeline to ridgeline. It appeared that any terrestrial animal seeking food and water would have to cross the snare lines and risk getting caught. Apparently the poachers come across the border, build or tend to their snare lines, and return home, visiting the snares periodically. As long as they remain in place the snares are lethal to wildlife, even in the absence of the poachers themselves. Therefore the snares represent a massive and continuing threat to what wildlife remains throughout the watershed. Wherever possible the patrol burned the snare line fences and collected snares. Not all snare lines had snares, but in less than four days the patrol picked up 1,575 individual snares. We also found dead muntjacs (barking deer) in the snares, along with a jungle fowl and macaque. Evidence of live wildlife included occasional muntjac droppings, one sighting of duc langur, and wild pig nests, rootings and rubbings. Near the Thongkuang grassland there were tracks and sign of guar and morning calls of at least five different troops of gibbons.



Burning a snare line in the NPA



Dead Macaque monkey in a snare

Judging by the evidence found by the POE last year along the trail (that the POE calls "the Rosewood highway") from Ban Nameo through the grassland, across the Nam Nyang and eastward toward Vietnam, poaching of Rosewood has been a major Vietnamese effort in the

past and doubtless remains so with the collaboration of the Lao villagers along the Nam Pheo and elsewhere. But in the Thongkuang core area there was little evidence of current Rosewood cutting, possibly because little remains. Poachers take Rosewood when they find it but the main current target appears to be wildlife. Consequently, if patrols following Chantavy's program are deployed about once a month, including in the wet season when poaching is reportedly most intense, they should be able to provide significant biodiversity protection to the core zone from the cross border poaching.

The POE recommends:

- **1/21A that in the southern, Thongkuang core zone, following Chantavy's protocol, WMPA conservation patrols be repeated at least once a month, including the wet season.** (The POE notes with appreciation that the activities and budget are now incorporated in the Annual Work Program and Budget for the second half of this year).

The Thongkuang priority zone, including the Thongkuang grasslands themselves, have the potential to be a globally outstanding wildlife area and a potentially great place for ecotourism. In spite of the heavy poaching the grasslands and their immediate surroundings hold gaur, pigs, sambar, at least two species of muntjac, gibbons, macaques and substantial bird life. The surrounding mountains also have duc langur. The grasslands, like the Nakai Plateau below, formerly held banteng. In Ban Sam there was an old banteng skull on the wall of one house which the aged owner said had been shot in the grassland when she was young. When the poaching is adequately under control it could be possible to translocate banteng to the grasslands. There was also the skull and horns of a young saola on the wall of one house, and the Upper Nam Pheo priority zone, adjacent to the Thongkuang one, contains what is thought to be good saola habitat.

2.2.2 The Northern, Nam Chae, Second Priority Zone

After reaching Ban Navang and joining the patrol, the first part of this route was on a wide track reportedly built by villagers from Ban Navang to accommodate removal of wood from illegal Rosewood logging. This wide track ended where a series of two-wheel tractor tracks led in various directions to sites where Rosewood trees had been cut and sawn up. We were informed that outside loggers had learned of our coming some days earlier and had hurried to cut and remove all the Rosewood they could before our arrival. The patrol found piles of Rosewood planks that had not yet been removed. The cut wood at one site had, among other pieces, eleven planks, 2 meters long, about 60 cm. wide and 16 cm. thick.



Poached rosewood planks, later burned



Remains of a poached rosewood tree

The area where the loggers operated seems almost completely void of larger wildlife. However, in the rugged terrain in the Nam Chae zone beyond the logged area the situation is better. After camping beyond the logged area, the first day's patrol found five old snare lines but no snares. Wildlife was much more evident, including elephant dung and guar tracks, along with bear, pig and muntjac sign and duc langur sightings. On the subsequent days of patrolling no snares or snare lines were found, and additional wildlife seen or sign included sambar, gibbons, macaques, brown hornbills and black giant squirrel.

Consequently there appears to be a good diversity of wildlife surviving in the difficult terrain beyond where the logging has already gone but the loggers/hunters have cleaned wildlife out wherever they operated. If the loggers/hunters continue to extend their tracks and operations, even the wildlife in the now-remote areas will be gone.

As reported to us by various sources, the process is that after three well-known middlemen in Oudomsouk receive orders for rosewood they make arrangements with a purported head of illegal logging in Navang, who in turn arranges with the village leadership. Then loggers from the plateau or below come up, set up camps near the end of the existing track and cut Rosewood. They also apparently shoot any wildlife they see. We were told of one loggers' camp that had the drying skins of eight duc langurs. The wood is then brought by two-wheel tractor/trailer back through Navang to the Nam Xot River and transported down by boat. Reportedly the villagers and WMPA staff in Navang know what is happening, but do nothing about it for fear of "being punished" by the village leadership. Over the years the POE has heard the same thing in other parts of the watershed.

On Monday, February 25th the International Herald Tribune and the New York Times had front-page stories about Vixay, the Lao kingpin of the international illegal wildlife trade from Africa, Asia and into Vietnam and China. Subsequently other newspapers around the world picked up the story. Vixay's headquarters are well known (there was even a map in the articles) but he is apparently tolerated or protected by Lao authorities. In the same although less internationally publicized way, the middlemen on the Nakai Plateau and heads of illegal logging are well known, but apparently tolerated or protected by government authorities.

While patrols in this priority zone are essential, it is clear that the underlying cause of the timber and wildlife-poaching problem in the north is beyond the authority and realistic capacity of the WMPA. If anything is to be done about the illegal logging organization outside of the NPA, and the collusion of the village leadership within it, action must come from a higher authority.

The POE recommends:

- **2/21A that Provincial and Central Government authorities take effective action to recognize and halt the subversion of village authorities in the NPA for the illegal Rosewood trade, and to crack down on that trade including its participants, supporters and enablers within and outside of government at village, district, province or higher level.**

The POE notes that the Governor of Khammouane Province has now appointed a taskforce team to investigate the situation, confiscate illegal wood, and educate village leaders. This is a useful first step but it remains to be seen how effective education proves to be in inhibiting such profitable behavior and whether the Governor's action will reach those above the village level who operate, support, and/or protect the illegal activities.

2.3 Land Patrol Issues

Dr. Chantavy's work has at last created an organization with the real potential to reduce poaching in the NPA – for the first time in WMPA's history. To realize this potential there are

several improvements that should be made.

2.3.1 Patrol Staff

The POE previously recommended a law enforcement patrol staff of 16 specifically chosen for their conservation patrol experience, abilities and interests. While other specialties such as agriculture, irrigation, livestock and such may be taken over by district staff (as specified in the PM Decree 471), conservation staff are usually different. Experience worldwide has shown that people transferred from other government agencies rarely make good conservation patrol staff. Special training and enthusiasm and an internal drive are needed. Usually the best approach is to get younger people just out of the university and only keep existing staff if they show real ability, aptitude, drive and effort, and are particularly strong in leading patrols.

2.3.2 Patrol Incentives

The village patrol personnel have received 60,000 kip a day (approximately US\$ 7.50) as “per diem.” This is actually a wage. Then a portion of the 60,000 is deducted for the cost of food eaten by the patrol. The remaining 40,000 or so kip a day is fairly minimal, especially since patrol work is hard and potentially dangerous and it takes the villagers away from their normal and essential livelihoods. As incentive for good patrol work it would appear desirable for WMPA to provide the food on some sort of a fixed basis so that the 60,000 kip is a real wage. We were pleased to hear that the Director is raising the daily amount to 70,000 kip and providing a further addition for hardship, so there is a need to define “hardship” for this worthy purpose.

2.3.3 Patrol Personal Equipment

Uniforms play an important role in the image of and respect for law enforcement personnel, and also have a strong role in the self-image and self-confidence of the wearers. For years there have been recommendations that WMPA provide uniforms for the patrols, and in the past a few apparently have been provided, but the majority of the members of the patrols neither have uniforms nor basic field equipment. We are pleased to note that WMPA is finally requisitioning uniforms and equipment, and hope that adequate supplies can be provided to all patrols. To ensure that the uniforms and equipment are used for official use (patrols, etc.) they could be held at the WMPA cluster offices and checked out when needed.

2.3.4 SMART Database

In the past the MIST database was the standard for management of conservation information. While WMPA had decided to use the MIST it has not yet become fully operational. Now MIST is being replaced by SMART, a newer software program for management of conservation data, including patrolling and other enforcement activities. WWF and WCS are now beginning to use SMART instead of MIST for their protected area activities in Vietnam and Laos. Bill Robichaud has put WMPA in contact with potential training opportunities in the region and it would be worthwhile for WMPA to examine SMART to see if it would be best to handle their information management needs and staff capabilities. As a start WMPA is sending a newly recruited GIS staff member to this training, and the Director of WMPA is to attend a SMART workshop in Vientiane.

2.3.5 Patrol Teams

As noted above, the land patrol teams are scheduled to have one WMPA leader and 7 trained village patrol staff. The POE believes that for many reasons, two WMPA conservation staff would greatly augment the effectiveness of the patrols. Further, if the teams were expanded by one additional village staff, the daily patrols could divide into two four man teams,

each led by a WMPA staff, and still leave two villagers to guard the camp. This would double the area potentially covered by each patrol with the addition of only two members.

2.3.6 Law Enforcement/Patrol Equipment

WMPA's LE staff are expected to deal with five districts, moving from Lak Sao to the southern areas. In addition they must move patrols and other equipment around and set up both mobile and fixed check points. Consequently they need at least two functional and reliable vehicles. One vehicle should be with the head of LE because he stays in Nakai and needs to be able to respond quickly to reports. The LE staff have the most demanding needs of any part of WMPA for reliable, fast vehicles and this argues for new vehicles. The only new vehicles recently obtained by WMPA went to the Director and his two deputies. The LE staff also need one good boat with a good motor and at least four new motorbikes to move patrols and conservation staff around the watershed tracks. In addition, good laptops are required for the WMPA conservation staff. The low-end personal computers owned by some staff are not adequate to download the essential GPS data after each patrol.

The POE recommends:

- **3/21A that WMPA ensure that the Law Enforcement staff are provided at least two reliable functional vehicles, a boat with good motor, and appropriate motorbikes and laptops.**

2.3.7 Informant Network

WMPA reports progress in establishing (or building up) an informant network, to provide intelligence on local poaching and trade of wildlife and timber. Confidential informants are promised a percentage of fines collected from violators they report. There was no opportunity for the mission to assess the network, but the POE commends this development since such informant networks are integral and effective components of conservation (and other) law enforcement in many parts of the world.

2.4 Reservoir Patrol Issues

Reservoir fisheries are a critical component for the livelihood of the resettlers and consequently the reservoir fishery is intended to be maintained for the benefit of the resettlers, not outsiders. However, there is increasing capture of the reservoir fish by outsiders. The recent NTPC report on fishery reported that, among other things, "...illicit landing sites...have proliferated near the dam site with reported catches in the amount of 800 kg/day/trader at one site alone (the amount suggests commercial-scale fishing)." The report also refers to increased transgressions elsewhere in the reservoir, and substantial use of the Special Conservation Areas at the mouths of the watershed rivers, within the area protected by WMPA. In addition there is continued and often quite open collection of rosewood from the NPA by the resettlers proceeding across the reservoir in fishing boats. Both to protect the fishery and the biodiversity of the NPA there is a need for very substantial improvement of reservoir patrolling and management.

The resettlement area-based Village Fisher Groups (VFG) seek to monitor illegal use of the reservoir and seek to catch and stop illegal fishing. The NT2 Reservoir Management Committee does some occasional patrolling focusing on boat registration and compliance, and the WMPA has boat patrols apparently trying to focus on illegal activities related to flora and fauna of the NPA.

It appears that there is a need for the three groups, along with the district police, to better harmonize their reservoir protection efforts; to make them much more cooperative and complementary. One concrete example involves the Special Conservation Areas. WMPA does

not allow the VFGs to enter the Special Conservation Areas under its responsibility, but it could be productive to look into the possibility of WMPA allowing VFGs to do some patrolling in these areas or possibly provide some performance based incentives to the VFGs for patrolling there.

The POE recommends:

- **4/21A that the organizations responsible for monitoring, patrolling and enforcing management of the reservoir, especially the WMPA and the resettlement-based Village Fisher Groups, find or develop mechanisms to complement and harmonize their activities to achieve effective management of the reservoir and its fishery.**

3. WMPA ISSUES

3.1 Staff

As POE has noted previously, a major issue facing the renewed WMPA is staffing. PM Decree 471 requires that WMPA reduce staff and that the staff have capabilities that in many cases are different than the existing ones. Further, when WMPA was set up it was intended that the higher salaries would reflect different and higher capabilities for WMPA's specific requirements than normal government staff. However, in previous years many of the staff were simply transferred from Lao government positions, apparently with little consideration of the unique requirements of managing and protecting the watershed area. So there is now an urgent need to determine rigorously and objectively which staff meet the present requirements and which do not, and to replace the latter with staff better suited for WMPA's unique requirements. As noted above, staff who can effectively manage, protect and administer a protected area are rarely those in current government positions. Consequently the POE strongly recommends that WMPA seek new staff from the ranks of university graduates or conservation organizations.

The POE recommends

- **5/21A that WMPA develop rigorous criteria for evaluating which existing WMPA staff meet the present requirements and which do not, and to seek to replace the latter with university graduates or experienced staff from conservation organizations.**

3.2 WMPA Organizational Structure

Director Phouthone with Dr. Chantavy has reorganized the WMPA to achieve a more effective organization. Because of the past ineffectiveness they dissolved the past Enforcement Division and put the new law enforcement staff reporting directly to the Director. Given the circumstances this appears to be a very good short-term strategy and it emphasizes the importance of law enforcement. In the long run it probably would be desirable to reestablish an Enforcement Division and to recruit a really effective individual as Deputy Director for Enforcement. In the long run this would put enforcement at the same level as the existing two divisions, Participatory Integrated Conservation and Development (PICAD) and Monitoring and Evaluation. Since enforcement plans, etc., as well as PICAD's are channeled to the Monitoring and Evaluation, it is absolutely essential that both the head of Monitoring and Evaluation and the Deputy Director above him be outstandingly able, recognized, well qualified leaders with real expertise in monitoring and evaluation.

3.3 WMPA Board Issues

During the mission there was some discussion of points raised in the minutes of the

WMPA Board meeting of December 2012. There were different interpretations depending on the translation of parts of the minutes, but the suggestion was that changes were being considered in the structure of the WMPA Secretariat, composition of the Board of Directors, and possible changes in boundaries of the NPA. These issues need to be clarified, particularly since any such changes should be discussed with and require the non-objection of the POE and the IFIs.

3.4 Proposed World Bank/GEF Protected Area and Wildlife Project.

During the mission brief discussions were held, and there has been subsequent correspondence, about a proposed World Bank/GEF Protected Area and Wildlife Project, Among other objectives this project could assist WMPA with its reform and with strengthening of its functions, along with strengthening provincial and district MONRE to fulfill the functions envisaged under Decree 471. Part of the proposed project would involve provision of direct assistance to WMPA to review its functions and structure. This could link directly with the institutional review in the following section.

3.5 Decree 471

This decree has been discussed in past POE reports starting with No. 17 in 2010. It has been the subject of a number of meetings in the area but in spite of its great significance to the operations of WMPA little appears to have been done so far to implement it. Consequently an institutional review of the WMPA and relevant line agencies in the area should be very useful to WMPA. The review should consider in detail the functions that the WMPA should implement in accordance with decree 471, along with the issues of when, how and to whom implementation responsibilities for different tasks can be transferred. In effect this would provide an implementation roadmap for Decree 471. This should lead to preparation of an organigram to match the WMPA functions and objectives, followed by preparation of staff profile and TORs which would provide for eventual restructuring and replacement or retraining of staff.

The POE recommends:

- **6/21A that an institutional review of the WMPA and relevant line agencies be carried out to consider the functions that the WMPA should implement in accordance with Decree 471, along with issues of when, how and to whom implementation responsibilities for different tasks can be transferred.**

3.6 Financial Matters

The 2011-2012 Audit is not acceptable as it stands. The reasons are well laid out by NTPC CEO Robino's "request for clarification" letter to Director Phouthone, and do not appear to be adequately covered in the WMPA's letter of response. The POE endorses the NTPC letter and its comments. We are particularly concerned by the fact that no accounting records were kept for the period of the audit (July 2011- September 2012). This revelation adds emphasis to the need for very tight control over expenditures which must be reflected in the annual budget and work plan, and POE's repeated calls for a funding procedure based at least in part on verifiable outcomes achieved. Without such tight and detailed controls and specifications, the POE will not approve the budget and work plan. Because of the weaknesses brought out by the recent audit, we believe that WMPA should consider having an audit conducted twice a year by a respected international company contracted in a competitive and transparent process. In addition to the WMPA board, terms of reference for the audit should be subject to review by the POE, IMA, and the IFIs.

3.7 Control of Track Building

There are at least two vehicle tracks that have been constructed recently within the watershed reportedly to facilitate illegal logging and funded by proceeds from it. One is from Ban Navang into the Nam Chae priority protected zone (seen by the POE on this mission) and the other is reportedly from Ban Thong Noy to Ban Maka or the Vietnam border. Neither was constructed by WMPA nor were they in the agreed track plans for the watershed, i.e. the Watershed Access Restriction Framework. In the CA and SEMFOP WMPA is responsible for conservation management and it has the authority to determine which access tracks should be constructed and which should not. Clearly in the past the WMPA either did not know of this track construction, or looked the other way. In any event, WMPA should monitor any track construction and make sure that only tracks agreed upon in the access plan are built, and if other tracks that are counter to the conservation of the NPA (e.g., to facilitate timber or wildlife poaching) have been constructed they should be rendered inoperable.

The POE recommends:

- **7/21A that WMPA monitor track construction in the NPA, only allow tracks that are in the agreed upon access plan, and actively halt and as appropriate, destroy any other track construction.**

3.8 Agricultural Development Work

The irrigation project at Ban Nameo involves an irrigation ditch which was non-functional and presumably under construction when the POE visited it in 2012. On this visit we were informed that it is still non-functional. In 2011 we visited the large irrigation ditch at Ban Thong Noy which was then dry. It is still dry reportedly because there is not enough water to supply it in the dry season. These are the type of activity that PM Decree 471 requires be handed over to qualified DAFO staff. In our view, they emphasize the importance of having any irrigation or other agricultural projects in the watershed based on careful studies, both of the need for the project and of the practicality of constructing it and likelihood of success. They also emphasize the importance of monitoring of development projects and other WMPA activities in the watershed.

3.9 External Enforcement Expert

As a complement to Dr. Chantavy's fine work, a working visit by an expert with extensive international experience in protected area enforcement should be very useful. We were pleased to hear that WMPA has agreed to this and external funding has been found, and a search is underway to find the right expert.

**LAO PEOPLE'S DEMOCRATIC REPUBLIC
NAM THEUN 2 MULTIPURPOSE PROJECT**



**REPORT 21B OF THE
INTERNATIONAL ENVIRONMENTAL AND SOCIAL
PANEL OF EXPERTS**

**DAVID McDOWELL
THAYER SCUDDER**

30 August 2013

**REPORT 21B OF THE INTERNATIONAL
ENVIRONMENTAL AND SOCIAL PANEL OF EXPERTS**

DAVID McDOWELL & THAYER SCUDDER

**For the Nam Theun 2 Multipurpose Project
Lao People's Democratic Republic
30 August 2013**

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Front cover photo: Women of Sop On planting dry rice in burned over “new” land

LIST OF RECOMMENDATIONS

The POE recommends:

- **1/21B** That in the interests of predictability a timetable on the following lines be negotiated among the parties:
 - That the POE submit to GOL, NTPC and the IFIs no later than 1 November 2013 a preliminary list of measures, with special attention paid to the five livelihood pillars, to help achieve the sustainability of the Resettlement Implementation Process.
 - That to achieve a more credible sustainability finding an eighth LSMS survey be undertaken during the first quarter of 2015.
 - That the RIP review be undertaken following the analysis of the eighth LSMS survey and no later than the end of 2015.
 - That to avoid an inconclusive outcome at this point the Household Income Target assessment be combined with the 2015 RIP Review.
 - That if required, the 2015 RIP Review detail any remaining measures that need be implemented for RIP closure.
 - That in 2016 POE check completion of any such remaining measures.
- **2/21B** That the NRO budget for, and staff, a range of betterment activities during 2015 including activities dealing with, but not restricted to, the five pillars.
- **3/21B** That the Nakai and Khamkeut District Working Groups become the responsible agencies for the oversight and implementation of all development activities that are agreed upon with, and monitored by, the WMPA and that were formerly the responsibility of the WMPA. The major source of funding would be the WMPA development budget.
- **4/21B** That the ten year extension of the resettlers' control over the reservoir fishery be drafted and signed within the next thirty days.
- **5/21B** That only one representative grouping patrol the fishery; a grouping that at the very minimum should include in each patrol relevant hamlet fisher organizations, the WMPA, and militia/police.
 - That special attention continue to be given to fishery co-management in all three clusters at the very least through 2015 so as to continue strengthening hamlet fishery capacities as they relate to cooperation between resettler hamlets, catching fish, marketing fish, processing fish and protecting the fishery for future generations.
- **6/21B** That the planned remote sensing survey of remaining VFA timber resources be undertaken as a matter of urgency in order to provide a basis for forward planning in the forestry sector.

- That the remote sensing survey be complemented by a ground inventory as the IFIs have suggested to the POE.
 - That as soon as the quantity and quality of the remaining VFA forest resource is known a revised strategy be drawn up and approved by the VFA Board in consultation with Village Forestry Committees and other stakeholders, addressing what level if any logging should continue and setting the priorities for use of earnings with special attention paid to fostering a sustainable resource through vigorous regeneration and reforestation programs.
 - That decisions on the future institutional framework for managing resettlement village forests be addressed at the same time in the light of the findings of the resource surveys and experience thus far on the management front.
 - That a greater degree of transparency be achieved in reporting by and to all interested parties, not least the resettlers, on progress in the above areas and in VFA matters in general.
- 7/21B That special attention be paid to capacity building and development in the poorer villages.
- That Agro Forestry and Pasture Development on 0.66 hectare holdings, VFA land and islands as well as pasture development in the drawdown area be pursued with vigor.
 - That ongoing evaluation of the 200+ NRO irrigation systems and development be undertaken in those best suited to hamlet conditions and water availability.
 - That in each village an overarching irrigation Water User Association (WUA) be formed and trained which can monitor and improve the working of the existing 200+ WUAs just as the Reservoir Fishery Association is supposed to monitor and improve each Hamlet Fishery Group.
 - That more gully dams be constructed in carefully selected locations for irrigation, aquaculture and water fowl.
 - That master farmers be encouraged to use and demonstrate use of small mobile pumps.
 - That contract farming and other cash cropping that takes advantage of the improved road to Lak Xao, construction of cassava factories in Lak Xao and along Road 12 to Vietnam and, in general, improved access to Vietnamese markets for a range of crops and for meat, be fostered.
- 8/21B That the Agro Forestry team set, evaluate and periodically update, implementation targets considered necessary before the agro forestry program can be handed over to GOL.
- 9/21B That an Irrigation Team similar to the Agro Forestry Team be appointed for planning, strategizing and implementing a broadly defined irrigation program that includes interrelationships in each of the 14 resettler

hamlets between 200+ NRO irrigation schemes, their WUAs, gully dams and use by individual households of submersible pumps.

- **10/21B** That the Nakai Plateau vaccination program be accelerated and that training activities dealing with all components of the livestock program be intensified in each resettlement hamlet.

- **11/21B** That a modest program of community-based ecotourism tours in and around the reservoir and the NPA be planned and initiated within the non farm pillar, the venture to be midwifed at the beginning by the NTPC's NRO in consultation with the WMPA, the DWG, the RMC and the District and Provincial Tourism Offices, with full participation of the resettler and catchment communities involved and guidance from an experienced private sector ecotourism operator or from the appropriate GOL agency.

- That the objectives be to help lift income levels in the Project area, not least in some of the more accessible watershed villages, and to raise awareness among those involved - and among visitors - of the value of conserving cultural and biological diversity in the region.

- That the ultimate objective be a community-based and managed self sustaining ecotourism program in and around the reservoir and, where appropriate, in the NNT NPA.

- **12/21B** That NTPC make it a priority to continue to pursue with vigor the building up of the capacities of the Village Credit Funds individually and collectively, the strengthening of their procedures and accounting, making their resources more accessible to all and not least the second generation, the poor and the vulnerable, and in preparation for the handover, helping the VCFs collectively to negotiate post-handover support agreements, backed by SERF funds, with the District and its relevant agencies, the LWU and the RDPEO. These measures have a reasonable chance of achieving sustainability of the credit system.

- **13/21B** That, pending the outcome of the current negotiations over the future of the highly successful NT2 Health Program, serious thought be given to ways of avoiding the risk of the lessons learned through the Program being set aside or lost and to further consideration as to whether a direct handover to the Ministry of Health may be the most viable and sustainable alternative.

- That to help ensure that an effective replication process is put in place the two key Lao technical advisors be retained with funding at least until mid-2014 to oversee the process.

- **14/21B** That possible project-related increases in the number and proportion of vulnerable individuals and families needs careful NRO monitoring and analysis.

- **15/21B** That, as the Ahoe continue to integrate themselves into the Nakai resettlement process, they continue to be allowed to visit the old Sop Hia site for as long as they consider necessary, that they be regularly visited by GOL/NRO teams, and that the WMPA learn from their cultural knowledge.

- **16/21B** That careful attention be paid to old and new trends that may provide important information on household and hamlet income and livelihood now that compensation in money and kind has ended and where available evidence suggests a drop in illegal income since 2012.
 - That hamlet modules pay special attention to major differences and their sustainability implications within and between hamlets.
 - That a topical monitoring module focus on the livelihood of second generation families.
- **17/21B** That WMPA step up its work on fisheries protection, be a full participant in all joint patrols, providing thus access to the Special Conservation Areas under its jurisdiction, and exercise strictly its mandate to prevent and/or speedily remove resettlers and other fishers taking up residence in the NPA itself.
 - That the WMPA Director immediately engage, as required by the CA, an independent auditor meeting international standards – which POE interprets as implying an international audit firm - to carry out in full the audit requirements set out in Schedule 4 Part 3: para.5.5 (vii) of the CA in respect of both the previous and the current year and also to assess whether the Secretariat maintains an adequate “accounting record”.
 - That WMPA revisit the issue of the most appropriate level and facilities for providing secondary school services for the central cluster in Ban Makfeung.

1. INTRODUCTION

This is Report 21B of the Environmental Panel of Experts (POE) for the Nam Theun 2 (NT2) Multipurpose Project in Lao PDR. It follows Report 21A, which sets out the Panel's mandate and assesses the reorganized conservation work of the Watershed Management and Protection Authority (WMPA) in the Nakai Nam Theun National Protected Area (NNT NPA), a task undertaken by L. M. Talbot (Professor, George Mason University, Virginia, USA) in February/March 2013.

Report 21B focuses on the Nakai Plateau resettlement process and is the product of a second mission undertaken in May/June 2013 by D. K. McDowell (consultant, Otaki, New Zealand) and T. Scudder (Professor Emeritus, California Institute of Technology, USA).

In moving towards the time when assessments are required of how and when the Resettlement Implementation Period (RIP) on the Nakai Plateau may be adjudged completed those involved have come up against the dilemma of how to define and measure the concept of sustainability. The word occurs 37 times in the Concession Agreement and nowhere more frequently than in the sections on resettlement livelihoods so it was clearly seen as fundamental to the CA drafters.

The dilemma is not new. Countless international meetings and academic conclaves have wrestled with it. There is still no succinct and agreed definition; nor is one likely. There is a consensus that two elements are basic: longevity or long lastingness, and intergenerational justice. The Brundtland Commission perhaps came closest to an acceptable formula. Sustainable development is the kind of development that meets the needs of the present without compromising the ability of future generations to meet their own needs, it decreed. But operationalization of the concept in general is still seen as not possible. A solution is to accept that there is no definition or set of indicators that fits all situations and simply work on indicators and practical measures relevant to particular sectors and circumstances. That is the course being pursued by the POE in the case of the NT2 project.

In summary, the infrastructure work on the Nakai Plateau has a high level of sustainability. To take one key example: the houses are built on concrete piles, clad in termite-resistant hardwoods and most have both bore hole water and roof water catchments available. All have electrical connections and water-sealed toilets. It might have been prudent to have painted the corrugated iron roofs to prolong their life but this has been left to the resettlers themselves.

Maintenance of the infrastructure, including access roads, is often neglected on such projects but here a generous solution has been found: the developers have set up a long-lasting annual fund, the SERF, to ensure inter alia that local shortages of money will not lead to deterioration of the infrastructure. That is a precedent which is worthy of replication in other projects worldwide.

Totally predictable on the basis of experience elsewhere, achieving sustainability in the livelihoods sector continues to be a challenge. It was always going to be so: in agriculture, for example, resettling from near a year-round water supply to inland hilly sites with infertile and erodible soils was and remains a struggle.

We address remaining questions and their implications for resettlement process closure in the body of the report and propose an adjustment of the timetable for closure. Reaching a mutually agreeable on the timetable is a priority for all involved at this stage and an active and ongoing process is underway to achieve this.

1.1 Panel Activities

David McDowell and Thayer Scudder arrived in Vientiane on 25 May 2013, held informal consultations with various people involved in the project on that day and the next and then held meetings and briefing sessions on 27 and 28 May with Sychath Boutesikara of the Department of Energy Business in the Ministry of Energy and Mines (MEM), the Minister of MEM, Soulivong Daravong, the NTPC and the World Bank before driving to Thakhet on 29 May to take part in a representative workshop on project risks and timetabling which carried on the following morning. That afternoon the POE team met with Khammouane Vice Governor Oday Soudaphone and the Resettlement Management Unit (RMU) and then dined with the Vice Governor.

The next three days were spent visiting seven of the 67 XBF downstream villages which had not been accorded the full technical assistance package provided the 92 other impacted villages. The POE spent the next two days in and around the southern Nakai Plateau resettler villages of Sop On, Ban Done and Khon Kaen, observing hill rice cultivation on recently burnt forest land, reservoir fishing activities and drawdown grazing areas, and then went on to monitor agricultural activities around Ban Phonsavang and irrigation ventures in Bouama. Nong Boua was also visited.

The next two days (3 and 4 June) were spent on the reservoir accompanying fishery patrols between Thalang and the dam, observing the demolition of an illegal fishing camp, and making contact again with the Ahoe matriarch who had moved back to Old Sop Hia from Nam Nian with some of her family. A discussion with the Naiban(Headman) of Nam Nian followed that evening. The next morning involved detailed briefings by NTPC's LSMS Survey consultant, David Fredericks, on preliminary findings from the 2013 Survey of the resettlement villages. A briefing on the Health Program followed. That afternoon was spent with the fishery patrol in a Special Conservation Area of the NNT NPA. A four family fishing group was found occupying NPA land and WMPA staff were subsequently reminded in a meeting with the POE that such encampments were not permitted in the NPA.

A fruitful discussion with the new Nakai District Governor, Liengkham Pheng Outhai, and with District and RMU staff absorbed much of the morning of 5 June followed by participatory discussion with NTPC and the Nakai Resettlement Office (NRO). Discussions followed with nutrition consultant Jutta Krahn and LWU representative and RMU Deputy Manager Keola Souliyadeth and a crowded day concluded with an exchange with NTPC Board Chairman Jean- Christophe Philbe and CEO Michel Robino and dinner with World Bank Vice President Axel van Trotsenburg. A further meeting was held with WMPA Director Phouthone Sophathilath alone and then with his senior staff on the morning of 6 June after which the POE returned to Vientiane to begin report writing.

Productive meetings with Minister Soulivong Daravong and Deputy Prime Minister Somsavat Lengsavad were held early the succeeding week and a comprehensive wrap-up session with GOL departments, NTPC, World Bank and Asian Development Bank Heads and staff was held on the afternoon of 12 June, Thayer Scudder flying home that evening and David McDowell three days later.

1.2 Acknowledgements and Appreciation

As always, the POE is immensely grateful for the time and energy devoted by MEM, NTPC, World Bank, ADB and by WMPA, RMU and other GOL staff to setting up and participating in an informative and comprehensive program. We are particularly grateful for the briefings and insights provided by Deputy Prime Minister Somsavat Lengsavad and MEM Minister Soulivong Daravong, the Vice Governor of Khammouane Province Oday

Soudaphone, the Governor of the Nakai District Liengkham Pheng Outhai , the Manager and Deputy Manager of the Resettlement Management Unit Sivixay Soukkarath and Keoula Souliyadeth, the Chairman of the NTPC Board, Jean-Christophe Philbe, the CEO of NTPC, Michel Robino, E & S Director Ruedi Luthi and NRO Manager Xavier Bouan, and the Head of the World Bank Office in Vientiane, Keiko Miwa and ADB Country Director Chong Chi Nai. We were pleased to have the organizing and interpretation skills of NTPC's Phalim Daravong available to us yet again.

2. TIMETABLES

2.1 Introduction

For reasons set out in detail below, the POE has concluded, and will so recommend, that the GOL and the NTPC should be preparing to continue working on resettlement implementation through 2015. In essence this is because in our view it is premature to be attempting to make judgments about sustainability of the various programs before at least 2015. Several attempts have been made to reach agreement on the next steps and these endeavors are continuing but there has been no meeting of minds as yet on the detail of a timetable leading to the Resettlement Implementation Period (RIP) being brought to a conclusion. POE proposes below a way forward which injects as much predictability into the process as is realistic and looks forward to mutually acceptable solutions being reached shortly.

Partially in the interest of clearing the air, POE Report 20 proposed that a workshop on indicators be held during the current visit. A workshop was duly convened in May 2013 with POE participation. It concentrated mainly on risk analysis – a useful exercise which revealed the participants’ view of the level of risk, high in the POE’s view, remaining in achieving sustainable livelihoods – and came to some helpful agreements on how to handle such unclear questions as the entitlements of the second generation of Plateau villagers. It did not address the indicators issue and there was no agreement reached over timing of the steps for achieving a conclusion to the resettlement process set out in the Concession Agreement (CA).

2.2 Reviewing the RIP

When should the RIP review be undertaken? The World Bank proposed in a paper circulated immediately before the recent workshop that the next four substantive steps on the assessment road, ranging from the POE advising whether the CA’s Resettlement Objectives and Principles had been met to the POE recommending measures designed to achieve them if not, all be implemented in the first quarter of 2014.

Subsequently GOL’s Department of Energy Business (DEB) requested the POE to complete the RIP review during the second half of 2014 with RIP closure by the Resettlement Committee targeted for the first quarter of 2015. The POE, seeing these proposals as premature and risking – to no party’s benefit – an inconclusive outcome, was not able to agree to this timing.

We believe that both NTPC and DEB have seriously underestimated the complexity and time requirements of implementing a Nakai Plateau resettlement program that meets CA requirements. The word “complexity” has been frequently used by those with the most experience with development-induced community resettlement. Referring specifically to dams, Michael Cernea, the Bank’s Senior Advisor for Social Policy and Sociology prior to his retirement in 1996, and the author of the Bank’s initial resettlement guidelines, has stated that resettlement is the most complicated component associated with dam construction, a conclusion that Robert Goodland, formerly Senior Environment Adviser to the World Bank and author of the Bank’s Guidelines on Indigenous People, shares.

Ongoing implementation after the resettlement process has been handed over to government agencies and to resettlement communities is especially demanding for small countries like Laos that have yet to develop the necessary staff capacity. Staff capacity will especially be a problem for the NT2 project for two additional reasons. One reason is the staffing demand of the large number of other hydro projects currently under construction. The other reason applies specifically to Nakai District as a result of PMO 471 that requires the

District to take over from the WMPA development activities for communities in the three clusters.

The POE's greatest concern, however, is the current risk that the required sustainability of the five pillars will not be achieved. This view of the risks involved is shared by the Lenders' own monitors, the LTA, in their latest report. The POE, for its part, considers the NT2 level of risk to be high with each of the 5 pillars in comparison with the few dam projects analyzed to date where resettler living standards of the majority either improved as required in the NT2 case or at least recovered through time.

In a study of resettlement outcomes in 50 large dams where adequate data existed for statistical analysis,¹ improvement occurred in only three cases and recovery in another five cases. In two of the three cases, improvement occurred because resettlers were provided with well planned and implemented irrigation projects. One case was associated with Egypt's Aswan High Dam and the other case with Sri Lanka's Pimburetewa Dam. In both cases the resettlers were citizens in countries with world class irrigation-based civilizations. In the third case, Arenal in Costa Rica, resettlers had access to high value cash crops for which there were reliable markets.

In the five recovery cases, Victoria Dam resettlers (also Sri Lankan) sold high value irrigation produce to a nearby city. In connection with Nigeria's Kainji Dam on the Niger River, resettlers were able to profit from a productive reservoir fisheries and to continue flood recession cultivation of onions, a high value cash crop. In the third case, the Kossou Dam in the Ivory Coast, those resettled in the forest zone profited from good market access for two cash crops (coffee and cacao). The other two cases were in China – a country with the best national dam resettlement policies in the world.

To date, few NT2 resettlers have been able to develop even one of their livelihood pillars in a similar way. In this report the POE emphasizes the type of recommendation which, if implemented, could meet CA requirements, provided NTPC is willing to provide the necessary funding and expertise at least through 2015.

Reaching a mutually agreed position on the timetable to be followed over the next crucial years is a high priority for the POE. It is an ongoing process at this time.

The POE recommends:

- **1/21B That in the interests of predictability a timetable on the following lines be negotiated among the parties:**
 - **That the POE submit to GOL, NTPC and the IFIs no later than 1 November 2013 a preliminary list of measures, with special attention paid to the five livelihood pillars, to help achieve the sustainability of the Resettlement Implementation Process.**
 - **That to achieve a more credible sustainability finding an eighth LSMS survey be undertaken during the first quarter of 2015.**
 - **That the RIP review be undertaken following the analysis of the eighth LSMS survey and no later than the end of 2015.**
 - **That to avoid an inconclusive outcome at this point the Household Income Target assessment be combined with the 2015 RIP Review.**

¹ Scudder, Thayer (2005). *The Future of Large Dams: Dealing with Social, Environmental, Institutional and Political Costs*. London: Earthscan.

- **That if required, the 2015 RIP Review detail any remaining measures that need be implemented for RIP closure.**
- **That in 2016 POE check completion of any such remaining measures.**

With regard to the recommendation sub para. above on combining the HIT with the RIP Review, the POE notes that unlike the case of assessing achievement of the Village Income Target, which is clearly assigned in the CA to the POE, assessment of the HIT is not specifically assigned to the POE. As this is an Objective of the RIP, however, and thus needs to be taken into account when the RIP is evaluated by the POE (see clause 3.1(b) of CA Sched.4, Part 1) it is a reasonable assumption that the assessment is to be undertaken by the POE.

A serious problem arises because there has been no basis for making such an assessment for the household income data is rendered unreliable by the unidentified (and largely unidentifiable) inclusion of income from an illegal activity – the extensive harvesting of rosewood from the NPA by resettlers – so an assessment now would come up with a speculative answer only. The illegality of the poaching is attested to by the substantial investment of the GOL’s law enforcement agencies in endeavoring to suppress the activity, by numerous arrests, by extensive confiscations of chainsaws, weapons, boats and snares and by convictions by the courts for what are clearly adjudged by them as acts contrary to Lao law.

What is to be done in these circumstances? The POE recommends that the HIT assessment simply be undertaken as an element of the wider assessments to be carried out in 2015 concerning the status of the RIP at that time.

3. THE NAKAI PLATEAU

3.1. Introduction

The POE found many ways in which implementation of GOL and NTPC responsibilities under the CA were being implemented and in some cases handed over to the Government. Examples include:

- Improvement of the road to Lak Xao.
- Increasing cooperation between NRO and the Nakai District Working Group.
- Handing over to GOL of the SERF program and the financing of primary and secondary school teachers.
- The NTPC health program - to be handed over during 2014.
- The encouraging May 2013 consultancy report on village credit funds.
- Increasing emphasis on developing hamlet² capacities through training and hamlet institutions such as hamlet development committees.
- Gradual improvement of the livestock program and the Fishery Co-Management Program, of the Reservoir Fisheries Association and, especially in the northern cluster, of the Hamlet Fishery Groups.
- Aside from resettler titles to the drawdown zone and to islands within hamlet boundaries, completion of the PLUP process and distribution of land titles.
- Increasing emphasis on agro pastoral forestry.
- Successful commencement of the Community Living Well Program.
- Increased emphasis on, and use of, gully dams.
- Successful initiation of wet season vegetable growing by some 30 households that have stated an interest in continuing vegetable growing during the 2013 rainy season and could serve as model farmers.
- Increased use of drawdown grazing by buffalo and cattle.

Major problems, however, remain including:

- **GOL:**
 - a. Implementation of PMO 471.
 - b. Bridging RMU finance for the remainder of 2012-2013 and reliable and prompt budget delivery to the RMU during the 2013-2014, 2014-2015 and 2015-2016 fiscal years. Hence the need for the RMU and the POE to follow up on Governor Khambai's recent meetings on funding with Minister Soulivong and the Ministry of Finance.
- **All Parties:**
 - a. Need for further improvement in cooperation between NTPC and Nakai District.
 - b. Need for more emphasis on achieving the CA's sustainability requirements for the 5 pillars.

2012 Regulation on Collective Land Titles of the Nam Theun 2 Project, Khammouane Province whereby, under Regulations for Management and Use of Land under Collective Land Title, hamlet refers to the 14 resettlement communities and village refers to the 10 consolidated villages in the three Nakai clusters. Community, as in community health, is an inclusive term that includes both hamlets and villages.

c. Need for improved cooperation, for example, between the Reservoir Management Secretariat, the Reservoir Fisheries Association and Hamlet Fishery Groups, and the WMPA.

- **NRO:**

A number of major time consuming and staff intensive resettler sustainability, capacity building and training problem areas as well as necessary institution building in 14 quite different hamlets which the POE believes will require NRO involvement at least through 2015.

The POE's major concern continues to be an expected decline in hamlet and household income due to the current inability of the five pillars to substitute for the cessation of project compensation and the exhaustion of rosewood on the Nakai Plateau and in the NPA.

Extension of NRO activities need not involve all current staff and expenditures. The most serious problem areas deal with the five pillars of livelihood where the three most important (fisheries, the VFA and agriculture) are high risk, while risks are also associated with the livestock and off-farm pillars. Ongoing NRO involvement is also needed in a number of other areas [see below].

In the sections that follow the POE suggests the type of interventions that the POE believes are necessary for NTPC to fulfill its CA responsibilities and requirements.

The POE recommends:

- **2/21B That the NRO budget for, and staff, a range of betterment activities during 2015 including activities dealing with, but not restricted to, the five pillars.**

3.2 PMO 471

The POE discussed with the Nakai District Governor, the head of the District Working Group (DWG) and the RMU Nakai District development responsibilities under PMO 471. As discussion proceeded, it became clear to the POE that the main problem for the district was the absence of any overall coordination of the district's development implementation responsibilities in the WMPA.

The main outcome of discussion was a suggestion that the District Working Group in both Nakai and Khamkeut Districts take responsibility for the oversight and implementation of all development activities (such as livelihood, education and health) that are agreed upon with, and monitored by, the WMPA and that were formerly the responsibility of the WMPA. The major source of funding would come from the WMPA development budget.

The POE recommends:

- **3/21B That the Nakai and Khamkeut District Working Groups become the responsible agencies for the oversight and implementation of all development activities that are agreed upon with, and monitored by, the WMPA and that were formerly the responsibility of the WMPA. The major source of funding would be the WMPA development budget.**

3.3 Fisheries

3.3.1. Introduction

With the possibility that the VFA will be unable to deliver expected dividends to resettler households by 2014, the reservoir fisheries can be expected to become the resettlers' largest single source of income. At present that income source is at risk because of illegal fishing, especially in the Khamkeut area of the reservoir and in the Special Conservation Areas. All project agencies are aware of this threat and are dedicated to reducing it.



Illegal fishers' camp near Old Nam Nian



Burning poachers' gear

3.3.2 The Ten Year Extension of the Resettlers' Control of the Reservoir Fishery.

While the Government has agreed to extend the resettlers' control of the fishery for another ten years, the District Governor cannot sign the extension until the Reservoir Management Secretariat drafts the extension document. It is essential that that document be drafted and signed within the next thirty days. A speedy implementation is essential because it will show the resettler hamlets that the reservoir fishery is theirs to manage, protect and benefit from for another fifteen years.

The POE recommends:

- **4/21B That the ten year extension of the resettlers' control over the reservoir fishery be drafted and signed within the next thirty days.**

3.3.3. Reservoir Patrolling

The POE accompanied reservoir patrols on two days with one long day involving a trip to the Nakai Dam, the sites of Old Sop Hia and Old Nam Nian, and Nam Malou, as well as a short trip the next day to a major Special Conservation Area. The patrol on the first day was effective because it included all the relevant parties, namely the Village Fishery Association, the Thalang Hamlet Fishery Group, the WMPA and armed Militia. On the second day, the POE was accompanied by three Hamlet Fishery Groups and the WMPA but no Militia was present.

The POE was informed that cooperation in the past between the WMPA and the resettler hamlets has been conflicted in that the WMPA was absent from key patrols or did not allow patrols to enter into the Special Conservation Areas and other zones for which the WMPA is responsible. The POE has been assured by the WMPA that the Authority will

cooperate hereafter, as on the patrols with the POE, with joint patrolling that will also include access to all fish habitats.

The POE was also informed by resettler hamlet fishers and others that the Reservoir Management Secretariat not only did not take the hamlet fishing groups seriously but on occasion carried out its own fishery patrols.



Joint fisheries/WMPA patrol inspecting boats at camp located illegally on NPA land



Close up of illegal fishers' camp in NPA

The POE recommends:

- **5/21B That only one representative grouping patrol the fishery; a grouping that at the very minimum should include on each patrol relevant hamlet fisher organizations, the WMPA, and militia/police.**

That special attention continue to be given to fishery co-management in all three clusters at the very least through 2015 so as to continue strengthening hamlet fishery capacities as they relate to cooperation between resettler hamlets, catching fish, marketing fish, processing fish and protecting the fishery for future generations.

3.4 Forestry Pillar

The crisis in the forestry sector described in POE Report 20 has not been resolved. Indeed in one respect it has been heightened by the PLUP transfer of a significant portion of VFA land – notably in the southern zone - for agricultural activities. The positive development is the progress finally being made in fostering agro forestry on village lands.

It is reported that there is a good prospect that the remote sensing of the volume and quality of the VFA's remaining forest resource, utilizing high resolution satellite imagery allied with ground-proofing, recommended in POE's last report will be undertaken later this year. Such an assessment is an essential prerequisite to a rational way forward. GOL instruction 407 agreed to the harvesting of 6,000 cubic meters of logs in 2012 and an additional 1,500 cubic meters before the current wet season and a further 1,500 cubic meters following the wet season. Logging is then to stop completely until the results of the survey of the resource are available and provide a basis for planning. That is sensible.

There are still some funds coming to resettler families. Logging is being undertaken by the private contractor, apparently (though not necessarily – see below) under an extended contract arrangement. Log prices have fallen. A dividend derived from 2012 harvesting is under preparation and may be paid out in September. Current expectations are that a total of

approximately US\$200,000 will be available, providing around K.250,000 for each resettler family member.

In the POE's estimation this may be the last but one substantial dividend to be paid out by VFA for some time. A further dividend may be payable from a reported tax refund. The Department of Energy Business (DEB) of the MEM organized a meeting last February to address the POE recommendation that taxes paid by VFA be reduced. NTPC helpfully proposed at this meeting that GOL might reduce its tax take from VFA by a half and on a lump sum basis. The Prime Minister approved the proposal in GO 407 on the basis of a trial period of one year to be reviewed subsequently. Since VFA paid taxes of \$608,411 in 2011 the decision may well produce a windfall tax refund in the order of \$300,000 which would be a most welcome development. It will be important to ensure that the net beneficiaries of tax reductions are the VFA budget and the resettlers not the contractor.

In the absence of a current manager it is proving difficult to obtain information of relevance to VFA's future. The Prime Minister also approved in GO 407 the signing of a further logging contract with Leang Fat Hong Company for 2013. It is unclear from VFA sources whether this has been signed or what its status, let alone contents, are. More transparency about the affairs of VFA is desirable.



Sub contractor moving VFA logs, near Ban Done



Overnight fish catch at Ban Done Landing: fish trader from Oudomsouk on right

3.4.1 Future of VFA

Hopefully the planned remote sensing survey will reveal what exploitable resources remain. VFA management's last available forecast was that if past rates of cutting were maintained stocks would be close to exhaustion by mid-2015 or thereabouts. There is little prospect of sustainability in these figures. For if, as seems likely, the current low forecasts of millable timber are borne out by the survey, low annual harvest quotas will not provide a substantial ongoing income or role for the VFA.

Should the VFA be shut down and the remaining forest lands handed over to the resettlers to manage? POE suggests not. A new manager is being recruited. The mill will still be required presumably for several years at a reduced cutting rate and some small dividends may still be payable.

But there are also other unfulfilled expectations from VFA earnings which remain relevant – producing seedlings for agro forestry activities and, in the interests of long term sustainability and most importantly, for the delayed restoration and reforestation of degraded VFA forest lands. Much of any ongoing income from logging – which might, at a reduced level of extraction, be undertaken by the VFA itself - will be required for funding such

programs leading to sustainability. A new manager should desirably have private sector experience in the range of forest cultivation skills and marketing and be able to get alongside and work with the resettlers. If most of the remaining resource is the softwood *Pinus merkusii* a knowledge of the Japanese market would be useful if the existing logging contract is not to be renewed.

The District Governor made a case for VFA going back into the furniture making business, pointing out that there are now no furniture makers on the Plateau and that one was needed. This offers a renewed opportunity for VFA, potentially providing jobs and income, if the resources are available and furniture making skills are identified or developed in the area.

The POE recommends:

- **6/21B That the planned remote sensing survey of remaining VFA timber resources be undertaken as a matter of urgency in order to provide a basis for forward planning in the forestry sector.**
- **That the remote sensing survey be complemented by a ground inventory as the IFIs have suggested to the POE.**
- **That as soon as the quantity and quality of the remaining VFA forest resource is known a revised strategy be drawn up and approved by the VFA Board in consultation with Village Forestry Committees and other stakeholders, addressing what level if any logging should continue and setting the priorities for use of earnings with special attention paid to fostering a sustainable resource through vigorous regeneration and reforestation programs.**
- **That decisions on the future institutional framework for managing resettlement village forests be addressed at the same time in the light of the findings of the resource surveys and experience thus far on the management front.**
- **That a greater degree of transparency be achieved in reporting by and to all interested parties, not least the resettlers, on progress in the above areas and in VFA matters in general.**

3.5 Agriculture

3.5.1 Introduction

As suggested in the general introduction, it is not surprising that change in the nature of the resettlers' agricultural production system has been slow. To shift to a more intensive system of cultivation from a system dominated by low yield swidden cultivation of rice, river bank and village gardens, free grazing of buffalos in the bush and on productive flood plains, and the gathering of NTFPs has globally been difficult and time consuming, especially when most soils in a new habitat are of poor quality and on erodible slopes.

The transition on the Nakai Plateau has become even more difficult since the resettlers interpreted the receipt of additional land as an opportunity, in the southern cluster especially, to expand (after a slow start in 2011) their hill rice fields in 2012 and especially in 2013 toward the southeast edge of the Nakai Plateau. In March 2013 vast areas of productive timber and NTFPs were cut and burnt (see photos). In one village, resettlers who were planting rice in the new lands told us that it took them two hours of walking to reach the end of the cleared area. Elsewhere we were told that having cleared land up to the hills on the edge of the escarpment they could see the Gnommalath plain from those hills and that by this time next year they will have also cleared the hills for the cultivation of hill rice.

As was the case with the 0.66 hectare plots (the cultivation of which declined, especially in the Southern Cluster, during the 2012 wet season), good yields on the new lands under prevailing techniques can only be expected for approximately two years; that is, until harvest time in October 2014.



Contrast the extensive “new” land in this view of Sop On second generation men digging holes for dry rice with the restricted arable land on view in the adjacent aerial photo of consolidated northern villages

In the Central and Northern Clusters new bush land is less available, soils tend to be somewhat better, and intensification can be expected to proceed faster. The Central and Northern Clusters have other advantages. In the Central Cluster, Nakai Tai and Nakai Neua are sited close to the road to Oudomsoek, were only resettled a short distance inland, and are familiar with dry season paddy cultivation. In the Northern Zone two villages, Nam Nian and Nam Boua Kham are politically dominated by more experienced immigrants whose main problem is less access to farm land; hence they are more dependent on fishing and other economic activities.

NTPC’s Nakai Resettlement Office (NRO) is well aware of these different and difficult situations. The POE also expects that they may also realize that coping with them could well require their active presence well into 2015 and perhaps even beyond.

In the recommendations that follow the POE proposes a number of actions that we believe should be able to play an important role in bringing the Resettlement Implementation Period to a successful end. Additional emphasis will be placed on the importance of agro forestry and of small-scale irrigation and gully dams.

The POE recommends:

- **7/21B That special attention be paid to capacity building and development in the poorer hamlets.**
- **That Agro Forestry and Pasture Development on 0.66 hectare holdings, VFA land and islands as well as pasture development in the drawdown area be pursued with vigor.**
- **That ongoing evaluation of the 200+ NRO irrigation systems and development be undertaken in those best suited to hamlet conditions and water availability.**
- **That in each hamlet an overarching irrigation Water User Association (WUA) be formed and trained which can monitor and improve the working of the existing 200+ WUAs just as the Reservoir Fishery**

Association is supposed to monitor and improve each Hamlet Fishery Group.³

- That more gully dams be constructed in carefully selected locations for irrigation, aquaculture and water fowl.
- That master farmers be encouraged to use and demonstrate use of small mobile pumps.
- That contract farming and other cash cropping that takes advantage of the improved road to Lak Xao, construction of cassava factories in Lak Xao and along Road 12 to Vietnam and, in general, improved access to Vietnamese markets for a range of crops and for meat, be fostered.

3.5.2 Agro Forestry and Pasture Development

Following an Agro Forestry consultancy report in January 2013, the May 2013 update of the Agro Forestry Team demonstrates that impressive progress has been achieved within a six month period. Unlike the situation with irrigation, approximately one third of resettler households requested involvement in NRO's new Agro Forestry Program. In NRO supervised nurseries, 10 resettlers have produced over 40,000 seedlings of different plants, while approximately 10 percent of resettler households planted seedlings in their 0.66 ha fields by 6 May, 2013.



A successful gully dam, Ban Done



Productive garden of a vulnerable but valiant old woman, Phonsavang

In Phonsavang, the POE talked with one master farmer, herself a vulnerable person, who had planted in lines several types of fruit seedlings and who intended to acquire seedlings of local village tea. In Sop On, the POE met an elderly couple who were repairing the fencing around their 0.66 hectare plot as a condition for receiving seedlings.

The Agro Forestry Team has prepared an impressive program for planning, strategizing and implementing capacity building in each resettler hamlet, seedling production, budget planning for resettler purchase of seeds and seedlings, and land preparation, fencing, composting and planting.

³ The POE suggests that the RMU irrigation specialist, Mr. Chamthapanya, be seconded to NRO to carry out the necessary training.

The POE recommends:

- **8/21B That the Agro Forestry team set, evaluate, and periodically update, implementation targets considered necessary before the agro forestry program can be handed over to GOL.**

3.5.3 Irrigation: The 200+ Irrigation Systems, 200+Water User Associations, Gully Dams and Resettler-owned Submersible Pumps.

The POE recommends:

- **9/21B That an Irrigation Team similar to the Agro Forestry Team be appointed for planning, strategizing and implementing a broadly defined irrigation program that includes interrelationships in each of the 14 resettler hamlets between 200+ NRO irrigation schemes, their WUAs, gully dams and use by individual households of submersible pumps.**

The POE notes that agro forestry and fishery co-management seem to be the only activities on the NRO Organization Chart 2013 that involve a relatively broad team approach. If that is the case, the POE believes that an equally strong case can be made for institutionalizing a similar team for irrigation as defined above.

The POE uses the situation in Phonsavang to illustrate how an irrigation team could increase the use of irrigation in that hamlet. Phonsavang is an appropriate example because it has several first rate master farmers and is one of the poorer hamlets. Yet the hamlet has no operational irrigation systems nor gully dams in spite of there being the following potential sites in three inlets:

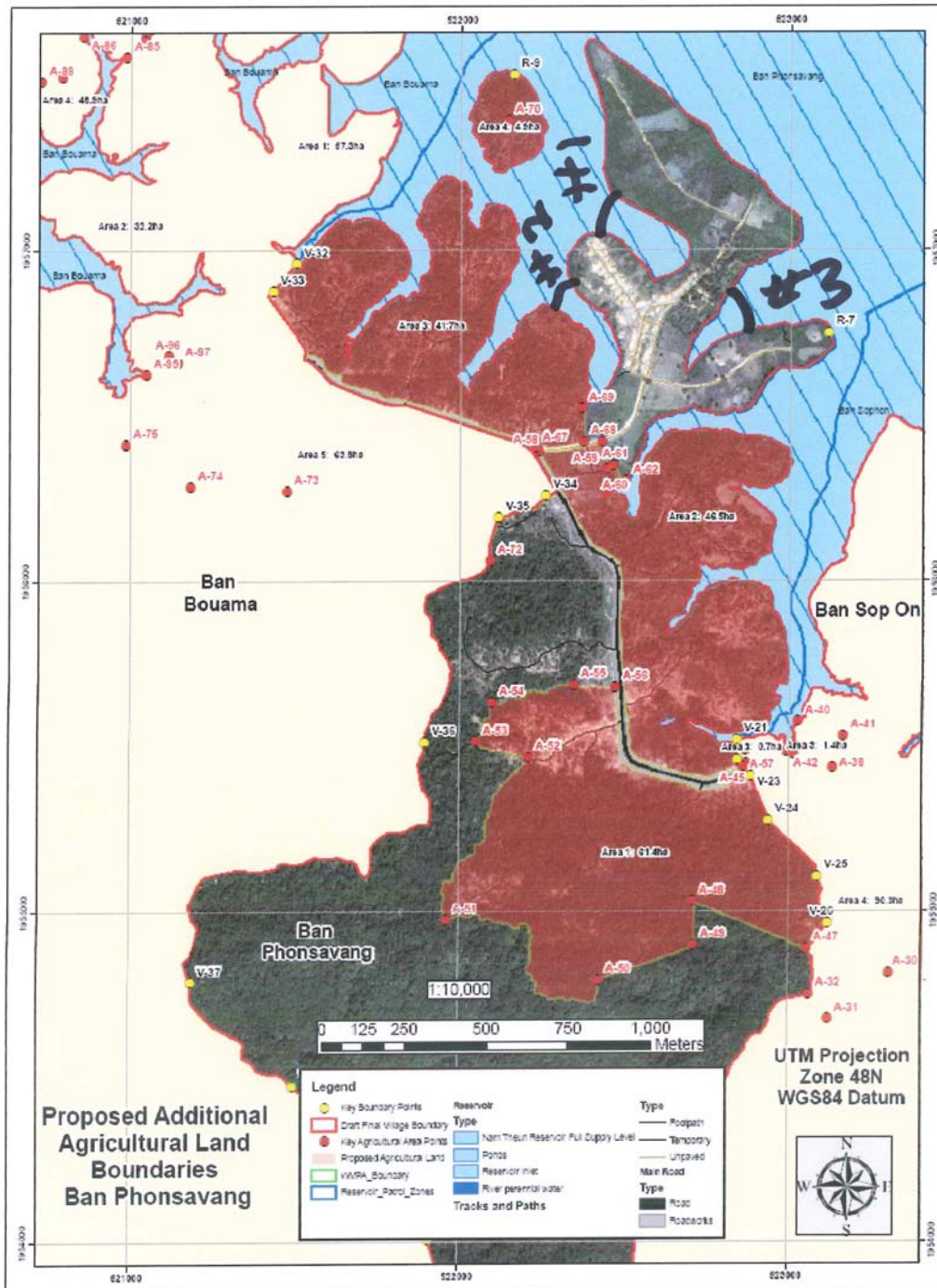
Inlet 1 immediately north east of the hamlet: Currently a non-operating irrigation system serves household gardens and the drawdown area behind resettler houses that have access to Inlet 1. Because the siting of that irrigation scheme seems logical, the irrigation team would consider, evaluate, and prioritize the following options:

- Why has the existing irrigation scheme failed?
- Would turning the inlet into a gully dam, as two master farmers in the hamlet suggested to the POE, provide a more reliable source of water should the existing scheme be rehabilitated?
- Should a community irrigation scheme and WUA be dropped as an option, but a gully dam built to allow individual households to use the gully dam for irrigation with submersible pumps, for drawdown agriculture and grazing, for aquaculture, and for waterfowl?

Inlet 2 immediately west of the hamlet: The team would evaluate whether or not a gully dam here, and one that would serve a majority of Phonsavang households, warrants construction.

Inlet 3: Gully dams on this inlet have a long NT2 history. When the Theun Douane Research Station was established, a gully dam was built for pumping water to the research station on a free-flowing stream that entered into what would become Inlet 3 when the reservoir filled. Another smaller gully dam was excavated above it. The farm gully dam,

though breached, could easily be repaired. Already a Master Farmer, who also happens to be a vulnerable person, has a submersible pump which only needs to be connected to an electrical outlet on the research station to allow her to draw water from the still-flowing stream. Although she is willing to provide all materials needed to connect her pump to the nearest outlet and pay for the electricity, her request was turned down.



Additional agricultural land boundaries of Ban Phonsavang with suggested new gully dam sites marked

This farmer, a widow and blind in one eye, has even without irrigation water, already shown her neighbors in the surrounding eleven 0.66 hectare fields what one can do during rainy season cultivation by growing over 15 crops, including fruit trees, village tea, sugar

cane, chillies, cassava and long beans. She wants, and surely should be allowed, access to the nearest research station outlet, so that she can demonstrate to her neighbors, as a master farmer, the use of a submersible pump for growing both wet and dry season chillies and sweet corn.

Below the original gully dam, three small ones were built as part of the development program for the three households that were settled on the farm to experiment with irrigated agriculture, home lot gardens and livestock management. Initially they were used for paddy rice cultivation and later on, due to low paddy yields, for aquaculture. The Irrigation Team would evaluate whether or not their rehabilitation makes sense.

3.6 Livestock

Good progress has occurred since the POE's last visit. The POE also wishes to emphasize that construction of the improved road to Lak Xao opens up a range of marketing activities to Vietnam, including meat, that NRO should incorporate into their marketing plans.

The POE's ongoing concerns are two. The major one relates to a too low a level of vaccinations for cattle and buffalos (below 20 percent). This is a major concern because when visiting villages in Mahaxai and Gnommalath, the POE was told that currently both buffalos and cattle were dying. Diseases mentioned were translated as Hemorrhagic Septicemia and Anthrax. It would be tragic if current progress with the livestock pillar was undercut by an extension of such diseases from the lowlands and from the catchment (where the POE found an ongoing major epidemic in 2011) to the Nakai Plateau.

In Mahaxai the POE was informed by PAFO that vaccines are available and that villagers are requesting veterinary assistants to come to their villages. Additional training, however, is necessary because too many villagers wait until an animal sickens before requesting vaccination.

Because of ongoing improvements in the livestock sector on the Nakai Plateau, it should be easier to corral cattle and buffalos at the right time to receive reasonably priced vaccinations than in other districts and in the NPA. In Annex 1, the POE includes description of an improved program for dealing with the vaccine cold chain problem.

The POE's second concern is the extreme variation between resettler villages in their acceptance of different components of the livestock program. According to the 2013 first quarter statistics that the POE reviewed, Nong Boua Kham with 158 cattle has 24 of the 64 cattle pens while Thalang with 58 cattle has no cattle pens and Nakai Tai with 324 cattle has only one.

In regard to vaccination of cattle and buffalo the rate in May 2013 was 85 percent of households in Nong Boua while Sop Phene, Sop Hia, Sop Ma and Nam Nian, all with some buffalos and/or cattle, had a zero vaccination rate and no apparent ongoing vaccination program.

Clearly such large variations between different villages will require considerable time and staff to deal with.

The POE recommends:

- **10/21B That the Nakai Plateau vaccination program be accelerated and that training activities dealing with all components of the livestock program be intensified in each resettlement hamlet.**

3.7 Off Farm

3.7.1 Introduction

The Off Farm pillar has yet to attract the type of attention paid to the other four pillars. More attention is needed now for further education and especially vocational training for second generation students who are interested in careers as members of Nakai District's team of development workers.

While the POE is pleased to note more emphasis on training the second generation as electricians and mechanics, training as masons, carpenters and in other skilled professions is also needed for maintaining resettler villages and providing employment opportunities elsewhere.

3.7.2 Ecotourism and the Islands.

Ecotourism is a potential candidate for the Off Farm Pillar. Tourism in general, with ecotourism a prominent element of the mix, has become the fastest growing industry in other areas of Laos and a big earner of foreign exchange. There is scope for a more active promotion of tourism across the NT2 Project area and particularly, in the view of the POE, for niche marketing of community-based ecotourism in the watershed. What the Nakai Plateau, and especially the watershed, offer that are unique and relatively intact are village lives and cultures among a number of Lao minorities and a remaining wildlife and forest resource which is of higher quality than almost anywhere else in the country – or South East Asia for that matter. Recreational fishing may also have a place in the list of attractions.

Tourism is referred to briefly in the CA with an emphasis on capacity building by NTPC. There is also a useful reference in SEMFOP I which suggests that tourism development in the NPA should begin with a community-based nature tourism program, targeting the independent tourists predominantly found in Lao PDR, with “no decisions [to] be taken on large scale tourism development until adequate lessons have been learned from the community-based program”. POE would add to the latter program the cultural experiences of having contact with largely intact minority communities.

POE agrees with the authors of SEMFOP that a tourism resort-type approach is inappropriate at this point in the area's history. If two primary objectives are to lift income levels on the Nakai Plateau and in some of the more accessible watershed villages and at the same time to raise awareness among both populations – and visitors - of the long term value of conserving cultural and biological diversity in the region then a community-based approach seems the best place to start.

Though changing section D1:10 on the 2012 Nakai District regulation on Collective Land Titles of the Nam Theun 2 Project would be necessary to allow “permanent structures,” there may be scope for setting up some “lodges” for tourists on the islands, with recreational fishers one target group. In the interim a modest initial program with close involvement by the communities themselves – with guidance from an experienced ecotourism operator - would be preferable to a large infusion of private sector capital and visitors. That would be premature.

There have already been some studies done on possible ecotourism ventures in the NNT NPA. Four years ago an external consultant, Steven Schipani, wrote a useful report on the subject which sets out the operating context in detail and concludes with an extensive plan calling for the establishment of four community managed ecotourism and wildlife sanctuaries in the NPA and an associated capacity building program both at the village level and among WMPA staff. No significant follow up action was taken by WMPA management. This may

have been because the proposals appear overly ambitious (and expensive) as a starting point in the NNT NPA.

Over the last couple of years a dedicated Australian volunteer, Karlee Taylor, has designed an imaginative three day boat/forest/wildlife trek. Starting in Nakai, and after boating across the reservoir and up the Nam Xot and Nam Mon, tourists would trek through evergreen dipterocarp forest to Ban Thongsath for a village living and cultural experience overnight. Forest camping near Nam Che would follow wildlife viewing on the second day. Early morning gibbon viewing on the third day would preface the return to Oudomsoek. The concept has been floated with WMPA and a private sector company but there is no positive response as yet.

WMPA management has sought guidance from the POE on where to head in this sector. POE suggests that now is a timely moment for a modest initiative to be taken on introducing ecotourism into the NPA. A greatly expanded access to the Nakai Plateau, the natural base for such a venture, will result from the current upgrading and paving of the Thalang/Lak Xao road, opening up the prospect of cross-border Lao/Vietnam tours passing through the NNT NPA. Some small activities are already underway- a Thalang guesthouse, for example, offers treks and reservoir tours with fishing. A proposed WMPA nature reserve where the Nam Theun joins the reservoir, which the POE visited with the WMPA and Karlee Taylor, is directly opposite several resettlement villages which, with nearby NPA villages, could be incorporated as host communities.

3.7.3 Who Leads?

Who might take the lead in initiating a new venture? POE suggests not the WMPA itself since PMO 471 allocates implementation of such development projects to other agencies and WMPA already has more than enough other responsibilities. WMPA has, however, a clear interest in promoting truly sustainable use of the NPA by those with a conservation and development interest and its revenues would benefit were a modest fee charged for each tour. This would not be a “goldmine” for WMPA but some funds would be generated and there would be other less tangible benefits for the watershed.

To POE’s knowledge the WMPA Secretariat has no special expertise in ecotourism but specially selected and trained rangers or guides accompanying ecotours would bring local knowledge of the terrain and biodiversity, interpretation skills and an element of security to the exercise.

Because the venture has the potential to stimulate income-producing activities in both the watershed and Plateau hamlets the logical midwife would be the NRO, with DWG and of course WMPA involved in the initial planning, organization and monitoring. But eventually the objective would be to set in place a community venture which would be self-sustaining.

In the meantime, with its interest in “off-farm activities” and income generation, the NTPC logically should play the major role initially, as envisaged in the CA, on exploring possibilities and in helping with training of those engaged in ecotourism ventures. There would be benefits, as noted above, to resettler hamlets if a nature tourism program allied with watershed village cultural contacts was set up along the lines suggested by the Australian volunteer – Nakai Plateau hamlets themselves might, for example, set up a “homestay” facility linked to the watershed venture, could provide boats (and boatmen) both for cross-reservoir transport and for reservoir and tributary day trips, supply food for the watershed and reservoir tours and possibly stage their own cultural and handicrafts displays in due course.

To get started, an energetic, focused and proven person with practical experience in private sector ecotourism operations elsewhere in Laos might be hired. Such a person might be found in the Nakai area (local knowledge and contacts would be a bonus) but may have to

be recruited from outside. He or she would need a very modest office in Oudomsouk in order to work closely with the NRO and the Nakai District Working Group and Provincial and District Tourism Offices and to provide a “shop front” for the operation. An alternative would be to approach a reputable firm already engaged in ecotourism operations, like Green Discovery Tours, to gauge their interest in being involved.

Where would initial funds come from in addition to those provided by NTPC? The SERF would be one source but additional funding from GOL tourism promotion sources should also be explored.

The POE recommends:

- **11/21B That a modest program of community-based ecotourism tours in and around the reservoir and the NPA be planned and initiated within the non farm pillar, the venture to be midwifed at the beginning by the NTPC’s NRO in consultation with the WMPA, the DWG, the RMC and the District and Provincial Tourism Offices, with full participation of the resettler and catchment communities involved and guidance from an experienced private sector ecotourism operator or firm or from the appropriate GOL agency.**
- **That the objectives be to help lift income levels in the Project area, not least in some of the more accessible watershed villages, and to raise awareness among those involved - and among visitors – of the value of conserving cultural and biological diversity in the region.**
- **That the ultimate objective be a community-based and managed self sustaining ecotourism program in and around the reservoir and, where appropriate, in the NNT NPA.**

3.8 Village Credit (and Savings) Funds

This is essentially a good news story. The POE has been pressing for some years for the setting up of a viable credit scheme on the Plateau. The first steps have been taken and there is a prospect that in the course of time a scheme which meets the tests of utility, accessibility and sustainability will be set in place.

That time is not yet. A refreshingly honest report by a recent External Review Mission has traced the discouraging history of attempts to establish both rice banks and Village Development Funds and the new endeavor to get 16 Nakai Plateau Credit Funds founded based on the experience of credit systems in the Downstream Program. Old debts were 90% cleared first and the new Funds were set up by May 2012. The challenge now is to transform the existing system into a more versatile savings and credit scheme as desired by the villagers.

Much remains to be done. Decisions on loan sizes, loan repayment periods, interest rates and loan products have yet to be made, a broad strategy drawn up, the accounting, monitoring and auditing systems upgraded and training of staff in basic functions, drawing on occasion on external consultants, undertaken. Credit must be made more accessible to all, not least poorer villagers and the second generation of villagers. Micro credit teams need training. Plans are in place to address all this.

The POE’s view is that this initiative is far more promising than earlier attempts. Loans at risk are less than 4% and over the first nine months of operation a dividend of 5% was paid out to shareholders. Assets in each Fund reflect to a degree the comparative affluence of the 16 villages: Sop Hia and Phonsavang have the lowest while Nakai Tai, Done,

Sop On, Nakai Neua and Thalang in that order have the highest asset totals in their funds. But these assets and savings are not substantial and the loan portfolio is not extensive.

The External Review Team was frank about the prospects: the present set-up does not “sufficiently guarantee” the sustainability of the scheme it stated. Noting that the present level of external control through the project and the District are unlikely to be maintained they concluded that it could not be expected that the hamlet credit committees will be able for long to continue their work properly without support. The Team also noted that the District had been reported to be rather passive in its coordination and support role thus far.

It is apparent that from the viewpoint of accessibility to the villagers, outreach and relevance, a further development of the credit system through joining forces in organizing non-financial support services through District agencies, notably the Lao Women’s Union and the Office for Rural Development and Poverty Alleviation (RDPEO), to address recurring problems is highly desirable, indeed vital. Experience across the developing world shows that the chances of attaining sustainability are linked to garnering such ongoing support to enable community credit funds to handle repayment problems, inadequate accounting and fraud. There is also a need to introduce more flexibility into the loan terms to make them more accessible to hamlet members, and extending the mandate in due course to handle a savings facility would reduce the risks involved in keeping cash in villagers’ own houses and eventually provide interest returns if effectively managed.

How might the ongoing support from District, RDPEO and LWU especially capacity building be encouraged and supported? The POE can think of no better way of using a modest proportion of SERF funds than to help build up and sustain a micro-finance system across the villages. The Fund was set up to help mitigate and address resettlement activities, so helping the VCFs acquire the expertise to run themselves qualifies.

The POE recommends:

- **12/21B That NTPC make it a priority to continue to pursue with vigor the building up of the capacities of the Village Credit Funds individually and collectively, the strengthening of their procedures and accounting, making their resources more accessible to all and not least the second generation. the poor and the vulnerable, and in preparation for the handover, helping the VCFs collectively to negotiate post-handover support agreements, backed by SERF funds, with the District and its relevant agencies, the LWU and the RDPEO. These measures have a reasonable chance of achieving sustainability.**

3.9 Health Program on the Nakai Plateau

The outstanding successes of the project’s Health Program have been well documented over the years in POE Reports. This is one of the most impressive of the project programs and merits replication elsewhere. It is important that the program be maintained intact and that its replication occurs widely.

A few examples drawn from this February’s Final Health Checks and Survey for the Nakai Plateau illustrate why this is so. First, the formerly very high incidence of stunting in children under five years on the Plateau has been reduced from 43% to 34% in four years – still comparatively high but the trend is favorable. Secondly, the very high percentages of multiple parasite infections across the Plateau population has been reversed since records were first kept. The reduction is from more than 90% with such infections to nearly 80% with no infections. And the 43% of adults who had malaria at the time of the base line study has been reduced virtually to zero. There were no malaria cases at all reported in this year’s survey. Significantly, child mortality rates have been halved in four years, from 120.5 per

1,000 to 59.4 per 1,000. These figures add up to a big boost in the quality of life of the villagers and they are very appreciative of this.

The advances are not solely due to the Health Program of course. The water supply quality, the sanitation and toilet facilities, better nutrition and health education programs in the villages under the Communities Living Well Program have all helped as have improved access to District health clinics and hospitals.

The survey revealed some interesting trends and one or two disturbing ones. For example, the growth in the number of second generation families has placed a strain on some facilities. A total of 225 households on the Plateau (of a total of 1,440) have no latrine. Most are second generation households. And 54 of 330 water boreholes were not functioning in February, though 93.8% of villagers do still have access to hand pumped water. The POE suggests that there is a case for SERF coming to the rescue in relation to these deficiencies.

Another trend will be more difficult to handle. The survey discovered in looking at the marital status of resettlers that there is a difference of up to 6% in the numbers of males married as contrasted with females and, more worrying, three or more times as many widowed, separated or divorced females as there are males of the same status. Apparently a by-product of growing incomes among the wealthier men on the Nakai Plateau (as well as in the Downstream XBF area) some husbands tend to shed their first wives and seek out younger women.

The point is that there appears to be a distinct prospect of the number of vulnerable women growing substantially if these trends continue. And there are human rights questions involved if, for example, husbands or, following a husband's death, his kin evict wives or widows from co-owned houses and fields. Village planning for safety nets will have to address this issue as well as the second generation issues. (The latter clarified by the recent workshop's agreement that land and access to social services including micro-finance will be extended to second generation families).

3.9.1 Sustaining Village Health

It would be a tragedy were the momentum in greatly improving health services and at an affordable level to be lost in the handover of health services. The quality of the field and other services now provided will be more easily sustained if the present low costs of the services are able to be a permanent feature of the Laos health services scene.

The present plan is apparently to facilitate a handover by incorporating the Health Program for a number of years into a wider Primary Health Care program across several Provinces. This is being planned by an external agency, notably the Luxembourg funded LaoLux organization. While the LaoLux agency is doubtless very professional and well-funded the POE is not aware that it has been very involved in the Nakai Program and is intrigued as to what the net advantage is in bringing an outside agency into the handover at this stage.

A beneficial feature of the NT2 Health Program has been that there has not been a raft of external consultants brought in to build up the structures and procedures of the Program – only one consultant from outside has been closely involved. As the POE understands the situation, at the technical level the Program is now essentially staffed by Lao and the costs of the Program - now the facilities, equipment and training specified in the CA have been largely provided - are not high.

Perhaps the objective is to try to build some of the innovative NT2 Health Program features into a more extensive Primary Health Care program or the judgment may have been made that Lao HP staff still need more training and experience. It does appear anomalous that

a service which seemed like a prime candidate for handing over to the MOH within the next year or so is to be overseen in some way for a further period by an external agency. It is to be hoped that the lessons of the Nakai experience will not be lost in the process.

Negotiations with Lao Lux are proceeding and may be made public in early July. The POE is observing the process closely and would appreciate being kept informed of its direction, progress and rationale.

3.9.2 Replicating the Model

The model system set up under the aegis of NTPC should be replicated. This is the intent of the NTPC, the Health Ministry and the WHO representatives in Vientiane. Analyses of the system have been undertaken and a volume describing the main features is being written by those who set it up. For the purposes of wider dissemination and accessibility to non-professionals it would be most useful also to produce a basic and practical handbook on the system and how to set it up and maintain it as an effective and affordable tool. The POE sees a twenty or thirty page guide on these lines as a valuable further step.

Completion of a substantial technical work, a practical handbook, finishing work begun on a database to inform those who take over the running of the Health Program and keeping an eye on how the system is evolving will occupy the two main medical staff involved (Drs. Pany Sananikhom and Aeudom Silavong) occupied at least on a part-time basis until mid-2014. Thereafter a handover would seem to be timely though the questions remain as to whom, and with what ultimate objective.

The POE recommends:

- **12/21B That, pending the outcome of the current negotiations over the future of the highly successful NT2 Health Program, serious thought be given to ways of avoiding the risk of the lessons learned through the Program being set aside or lost and to further consideration as to whether a direct handover to the Ministry of Health may be the most viable and sustainable alternative.**
- **That to help ensure that an effective replication process is put in place the two key Lao technical advisors be retained with funding at least until mid-2014 to oversee the process.**

3.10 Social and Environmental Remediation Fund (SERF)

The SERF as this innovative fund is commonly called is one of the more imaginative features of NT2. Development projects around the world have faltered or proved unsustainable because hard pressed governments have found it difficult to fund operational and maintenance costs as the management is handed over by the developer. The SERF fills this gap and is a most useful precedent. It should be widely replicated.

The terms of the fund are generous (US\$300,000 each year of operation to 2025, with the 2013 budget adding up to \$567,000 with escalations and carryovers), flexible and relatively un-bureaucratic in its ways of working. The management of the funds has been handed over to a Lao agency and there are checks and balances to ensure tight control of planning and spending. The decision-making process is participatory, it is linked with village development planning and NRO monitors the operation.

Over 33 activities were completed in 2012 ranging from restoration of the Sop Ma schoolyard anti-erosion bank to payments for rubbish collection and purchase of bins to a contribution to the issuing of land title documents.

This is a model operation and NTPC and the GOL and District agencies involved are to be congratulated on its establishment and administration.

3.11 Vulnerable People

One can expect the number of vulnerable individuals and families to increase as the population grows, second generation marriages occur, and the very success of the resettlement process may leave some individuals and households behind. For example, the 2013 health survey reports that already there are three times as many single elderly women as single elderly men, an outcome whose explanation appears to include factors other than just demographic ones.

The POE recommends:

- **14/21B That possible project-related increases in the number and proportion of vulnerable individuals and families needs careful NRO monitoring and analysis.**

3.12 The Ahoie Resettlers

The POE visited Old Sop Hia which is located a relatively short distance from the Nakai Dam site. Currently there were five families resident there. Four have project houses in new Nam Nian. Those four families include Mrs. Khamson, the spiritual leader of the Ahoie, who has moved back to the old site for cultural reasons. She is supported by relatives and in-laws from the other three Nam Nian households that move back and forth between the two sites. Visiting relatives also come to check on their buffalos, to fish, and to gather NTFPs which are in greater abundance around the old site. The fifth house is occupied by a related family, the matriarch of which refused to leave the Old Sop Hia site so the Project provided her with metal roofing of her house and a toilet.



The matriarch of Old Sop Hia, who has returned to her home village site

The POE was pleased to hear information from the LTA that the Ahoie have incorporated themselves into the project livelihood program including cultivating rice in their 0.66 ha fields and that their children are attending school. As the LTA notes, however, they

are not actively involved in resettler village affairs. Indeed, when the POE met with the head of Nam Niam Village Development Committee (VDC) the Ahoe were not represented among the VDC's 12 members. On a previous visit, the POE also learned that Ahoe children were more apt to be harassed at school than other children.

The POE believes that the Ahoe's situation continues to require regular meetings with and attention by joint NRO/GOL community development, livelihood, education, health and CLW teams. The POE also believes that the Ahoe should be allowed to return to Old Sop Hia so long as they feel the cultural and economic need to do so. The POE discussed this recommendation with the WMPA as well as the importance of the WMPA learning from the Ahoe's indigenous knowledge. Their indigenous knowledge is also an invaluable resource for whatever program of ecotourism is developed.

The POE recommends:

- **15/21B That, as the Ahoe continue to integrate themselves into the Nakai resettlement process, they continue to be allowed to visit the old Sop Hia site for as long as they consider necessary, that they be regularly visited by GOL/NRO teams, and that the WMPA learn from their cultural knowledge.**

3.13 NRO Hamlet and Other Monitoring Modules

The POE understands that the NRO is currently completing a series of monitoring modules on the 14 resettler hamlets. This should be an important series that the POE looks forward to evaluating since such a series provides a major opportunity to identify and address important issues as they arise and that may vary in a major way between individual households and hamlets.

Over the years, the POE has identified a number of such issues by following a small number of households. A new issue that arose during our most recent visit involved three households that informed us that one reason why they believed that their income had been dropping was that they had not been able to make any major purchases over the past three years while some earlier major purchases had been repossessed. This is the type of question that the POE hopes will be addressed in the hamlet series and which will be followed up in topic specific monitoring modules where necessary.

One specific topical module that the POE recommends would deal with the livelihood of second generation families including their access to arable land, credit, further education and training, and other available opportunities.

The POE recommends:

- **16/21B That careful attention be paid to old and new trends that may provide important information on household and hamlet income and livelihood now that compensation in money and kind has ended and where available evidence suggests a drop in illegal income since 2012.**
- **That hamlet modules pay special attention to major differences and their sustainability implications within and between hamlets.**
- **That a topical monitoring module focus on the livelihood of second generation families.**

4. ADDENDUM TO POE REPORT 21A: WMPA

In order partly to check on how POE Report 21A had been received and acted upon, David McDowell and Thayer Scudder had two discussions with WMPA representatives during their recent visit. The WMPA Secretariat Director, Phouthone Sophathilath, presented a table showing responses. By and large the Secretariat concurred in the report and has made some progress in implementing its provisions and recommendations. A summary of WMPA's table is attached as Annex Two. Further comments follow:

- While there has undoubtedly been a recent improvement in law enforcement activities in the watershed itself, and a senior WMPA staff member joined the two joint patrols of the reservoir observed by the POE, it was timely to underline once again that the WMPA historically has been ineffective in reducing the level of wildlife, rosewood and fish poaching in and around the NPA. The POE emphasized to staff that joining the reservoir patrols as now initiated was an important function of the WMPA and ensured, for example, that access by the patrols to the Special Conservation Areas was undertaken. The POE also drew the attention of the Director to the setting up of a semi-permanent fishing camp on NPA land and required that he have moved speedily the several people camped there and strictly enforce the regulations regarding such occupations. This will be monitored.
- The opportunity was also taken to explain to staff that the audit irregularities recently detected by NTPC were taken seriously and to recommend that, as required by the CA, an independent auditor meeting international standards be engaged to carry out in full the audit requirements set out in Schedule 4 Part 3: para. 5.5(vii) of the CA in respect of both the previous and current year. A full audit was done in the first WMPA years and the practice should be strictly adhered to – indeed the original international auditing firm carried out the tasks well and should probably be re-engaged. This would help protect WMPA from further embarrassment on the audit front.
- The Director commented that it was inaccurate to suggest that there was no accounting record in WMPA files. Seven files of records were produced as evidence of this. Whether these meet the definition of an “accounting record” would be worth assessment by the new auditor.
- The POE also held informal talks with the leader of an IDA/GEF project which will, inter alia, work on building capacity in the WMPA and review elements of its structure and working arrangements. This new venture appears to fill a big gap in the present WMPA system where capacity building and training in general has seldom been handled systematically. POE will wish to work closely with the new project.
- There were several discussions about a proposed big new secondary school for Ban Makfeung and the central cluster. It was to be a boarding facility. The Provincial Governor had put the idea forward but funding it from the KDP was opposed by the World Bank which foresaw conservation problems with an ambitious project which would mean extensive land clearing and swell the village's population unduly.

The POE agrees that there should be secondary school facilities for each of the three clusters and they should be situated in the watershed itself. But it agrees with the Khammouane Vice Governor's view that a more modest establishment of perhaps four classes and no boarding facilities as such would be more appropriate for Ban Makfeung.

The POE recommends:

- **17/21B That WMPA step up its work on fisheries protection, be a full participant in all joint patrols, providing thus access to the Special Conservation Areas under its jurisdiction, and exercise strictly its mandate to prevent and/or speedily remove resettlers and other fishers taking up residence in the NPA itself.**
- **That the WMPA Director immediately engage, as required by the CA, an independent auditor meeting international standards – which POE interprets as implying an international audit firm - to carry out in full the audit requirements set out in Schedule 4 Part 3: para.5.5 (vii) of the CA in respect of both the previous and current year and also to assess whether the Secretariat maintains an adequate “accounting record”.**
- **That WMPA revisit the issue of the most appropriate level and facilities for providing secondary school services for the central cluster in Ban Makfeung.**

Annex I: Solar power enables storage of livestock vaccines in Laos



Sunlabob Renewable Energy, a social enterprise specializing in renewable energy and clean water access projects in developing regions of the world, today announced the launch of a partnership with the Asian Development Bank (ADB) and the Ministry of Agriculture and Forestry of Laos to supply, install and provide community training for eight solar-powered refrigeration systems that will be used to safely store livestock vaccines and medical equipment in rural villages of Laos.

The eight solar-powered cooling sets – each of which includes one refrigerator and one freezer – will be provided to villages in the Sekong, Savanakheth and Salavan provinces of southern Laos. Overall, the improved access to refrigeration will benefit up to 4,000 people.

Oftentimes, as is the case in many rural developing areas, these villages cannot safely and properly store important vaccines and critical medicines. Further, each of the selected villages has limited healthcare and education opportunities as well as no access to the national electricity grid.

“Access to renewable energy provides a multiplier effect that is critical to sustainable rural development,” said Andy Schroeter, Sunlabob Renewable Energy co-founder and CEO. “Solar energy is not only enabling the refrigeration of vaccines – the carry-on benefits in these communities include improved healthcare and better economic opportunities.”

The solar-power cooling units will offer the necessary equipment and energy supply for proper storage of livestock vaccines, reducing the number of livestock illnesses and deaths while also saving the communities money and time. Each set includes a 700 W energy capacity to produce electricity for the refrigerator and freezer which each have a storage capacity of 166 liters. Sunlabob will not only be responsible for installation and maintenance of the refrigerators and freezers, but also the procurement of the goods and the training of the villagers.

Sunlabob will utilize its community-based approach that focuses on technical training and capacity building within each village to ensure longevity of each cooling system – technically, socially and financially.

“Inclusion and empowerment of the local beneficiaries is a key to successful long-term sustainable rural development,” said Schroeter, in reference to Sunlabob’s approach of establishing village microenterprises through the implementation of renewable energy and clean water.

Annex II: Summary of WMPA response to POE Report 21A:

- **Rec.1/21A:** that in the southern core zone WMPA patrols be repeated at least once a month, including during the wet season.
- **Response:** already in Action Plan/village patrol teams reformed/additional training provided for villagers.
- **Rec.2/21A:** that GOL authorities take effective action to recognize and halt the undermining of village authorities in the NPA for the illegal rosewood trade and crack down at all levels on that trade.
- **Response:** a task force sent by Provincial Gov. sent to three clusters, planks destroyed.
- **Rec.3/21A:** that WMPA assure that the Law Enforcement staff are provided at least two reliable vehicles, a boat with good motor and laptops.
- **Response:** two functional vehicles, two more motorbikes, one 8-person fast boat and six new boat motors being procured and four laptops being purchased.
- **Rec.4/21A:** that the organisations responsible for monitoring, patrolling and enforcement on the reservoir especially WMPA and the VFGs, harmonize their activities to achieve effective management of the reservoir and its fishery.
- **Response:** co-patrol agreement made/first joint patrols made on reservoir and in SCZ.
- **Rec.5/21A:** that WMPA develop rigorous criteria for evaluating which existing staff meet requirements and replace those who do not with university graduates or experienced staff from conservation organizations.
- **Response:** review by WB/GEF expert will help restructure WMPA, refine requirements and profile staff accordingly.
- **REC.6/21A:** that an institutional review of WMPA and relevant line agencies be carried out to determine how to implement Decree 471 and when, how and to whom responsibilities should be transferred.
- **Response:** TOR drafted for a WB/GEF expert to undertake task – TOR are with DPC/MoNRE.
- **Rec.7/21A:** that WMPA monitor track construction in the NPA, permit only tracks in the access plan to be built and as appropriate destroy any other track construction.
- **Response:** WARF needs revision, approval and translation into Lao and non-WMPA tracks need checking and discussion with village leaders on use of existing tracks.