

**Long-Term Research And Conservation Field Station In Nakai-Nam Theun
National Protected Area, Central-Eastern Laos For Improvement Of
Management Strategy And Conservation Of CEPF's Priority Species**

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ENVIRONMENTAL IMPACT ASSESSMENT AND MANAGEMENT PLAN

Report to CEPF's Regional Implementation Team

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I - INTRODUCTION

This project aims to develop the country's first permanent research facility in one of the most important areas of the Indo-Burma biodiversity hot-spot: Nakai-Nam Theun National Protected Area, for a long-term research and conservation programme. This document presents the Environmental Impact Assessment and Management Plan associated with the project.

II - CONSTRUCTION

1. GENERAL DESIGN AND LOCATION

The field station will be built in the Navang/Thaiphaiaban clusters, along the Houay (=stream) Sanap (i.e. between the Nam [=river] Chae and Houay Thong) (Figure 1, Figure 2). The location of the field station will be in an area of secondary forest, where a small village cluster used to occur some 40 years ago.

The location of the field station is based on its accessibility. The site can be reached first by boat from the reservoir (from Ban Oudomsouk/Nakai headquarter) along the Houay Sanap followed by a foot trail of about 6 kilometres.

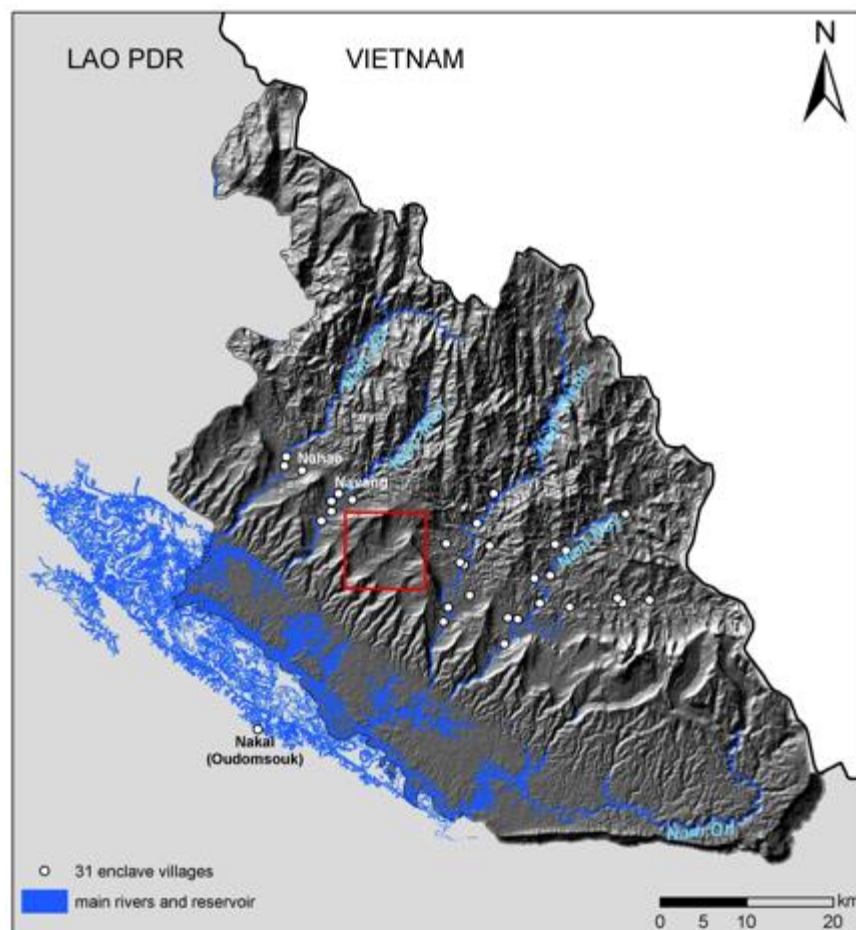


Figure 1: General location of project site in Nakai-Nam Theun National Protected Area.

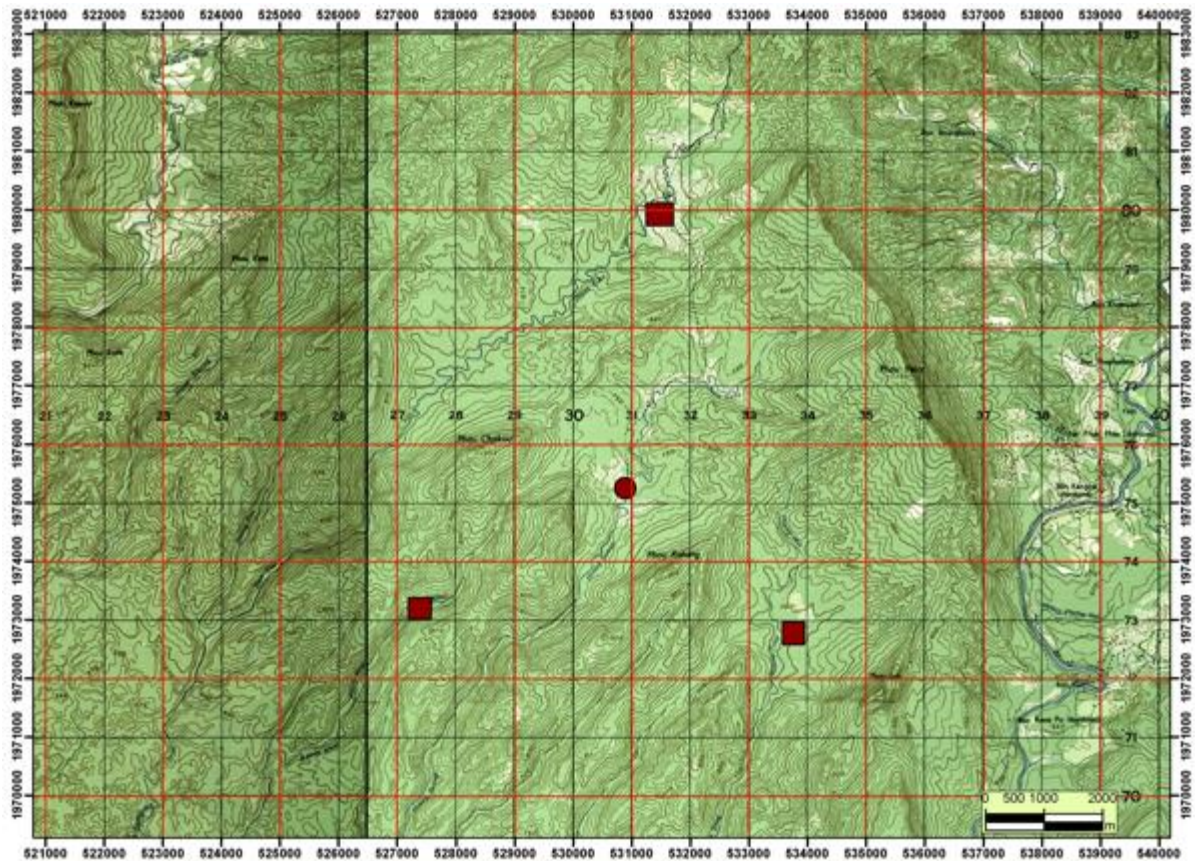


Figure 2: Approximate planned location of the field station (circle) and of patrolling substations around, planned to be developed in collaboration with the Watershed Management and Protection Authority (squares).

The planned design of the field station is as follow (Figure 3):

- i. A traditional wooden house to accommodate up to 12 people: 2 long-term residents (responsible for the maintenance of the station), 6 semi-permanent research assistants and 4 visiting researchers/students/volunteers.
- ii. A traditional wooden house to accommodate the managing/coordination personnel (2 persons), with adjoining shower/toilet.
- iii. One teaching/training building.
- iv. Two external toilets/shower (concrete built).
- v. One external wooden kitchen
- vi. An open-air sitting area (with roof)

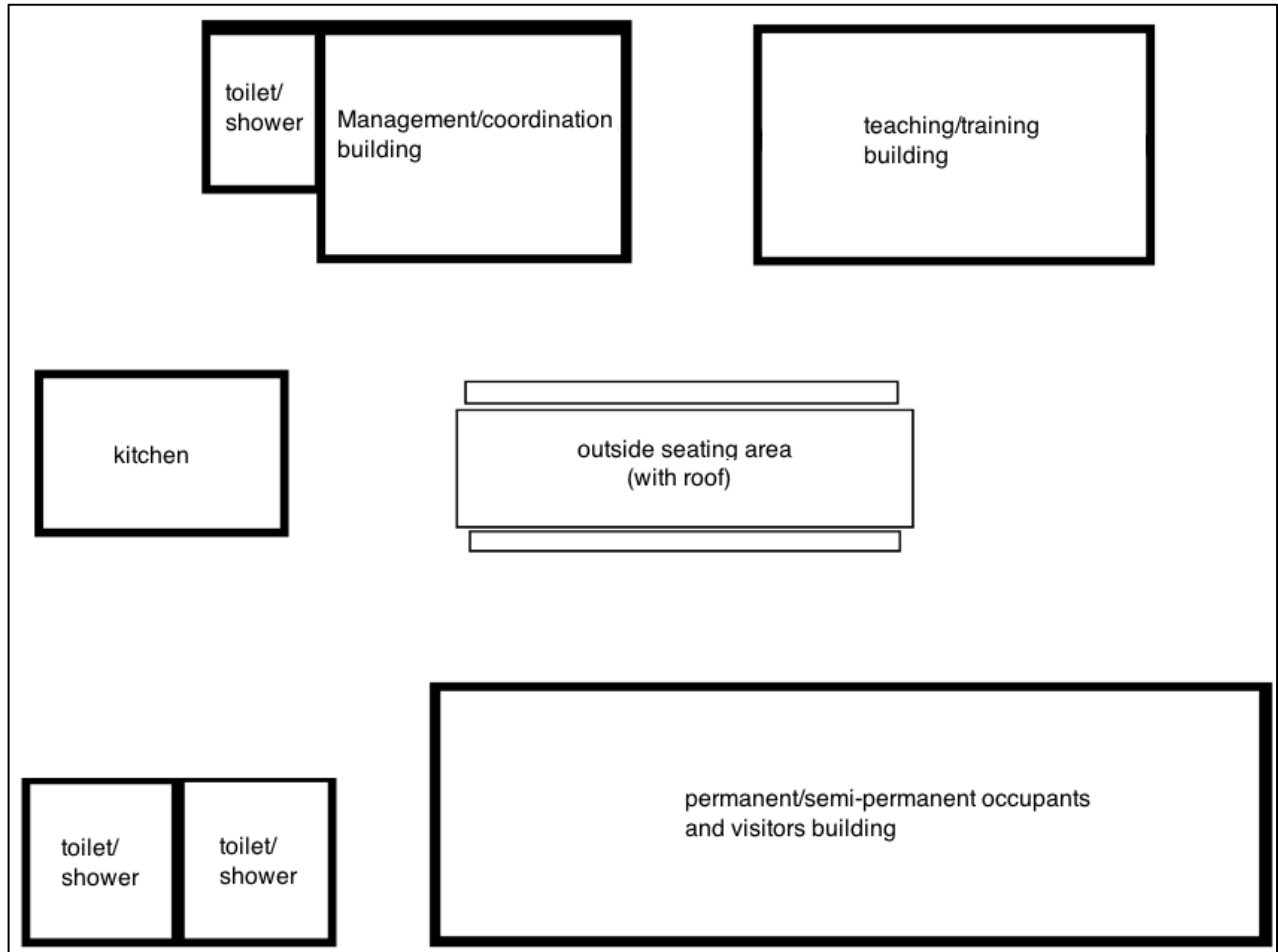


Figure 3: general proposed arrangement of the field station (note: not represented to exact proportions)

2. WORKERS' HEALTH AND SAFETY

Members from the local community will be contracted for the construction. Their health and safety will be ensured by the presence of both the project coordinator and project manager at all times during the construction period. The team will be at all times in radio or phone contact with nearby villages and the main headquarter outside the NPA. This will ensure rapid communication in case it is needed. An adequate first aid kit will be brought on site and both the project coordinator and project manager will be knowledgeable to its use. The project manager has obtained a certificate of First Aid.

3. MATERIAL SOURCE AND CONSTRUCTION METHOD

The material used for the construction will be sourced within the Forest Use Zone where only common/non-valuable species that are authorized to be harvested under the Lao Forestry Law (Government of Lao PDR, 2007) will be collected. Only the structure of the houses will be made using larger trees (no more than 15 cm of diameter); the roofs, walls and floors will be made of palm leaves or bamboo, (according to the traditional construction method) readily available and a sustainable source of natural material.

Only traditional equipment will be used to collect the material (e.g. axes, large knives) to avoid noise disturbance from motor machinery.

III – AIR EMISSIONS

Cooking by the permanent staff at the field station will result in CO₂ emissions from the traditional open fire. To reduce these emissions, we aim to purchase efficient cooking stove such as the ones that have been developed in Cambodia by GERES (<http://www.cambodia.geres.eu/>); these stoves are 35% more efficient in terms of heat energy, which reduces the amount of wood needed of 20 to 25% and a reduction in CO₂ emissions (GERES, 2009). In the future, we will also assess the possibility to install a biogas plant to produce gaz used for cooking (learning from the expertise of the Biogas Project of Sae Lao Project, <http://saelaoproject.com/>)

IV – ENERGY SUSTAINABILITY

We will use solar energy to power any electrical appliances. These will be ordered from the Laos-based company Sunlabob (<http://www.sunlabob.com/>), specializing notably in renewable energy in rural, remote areas.

V – WATER QUALITY AND MANAGEMENT

Sanitary products (soap, washing powder etc.) and insect repellents made with natural products will be purchased for use at the station. Any temporary visitor will be asked to use natural/biodegradable products.

Any other contaminant products will not be allowed on site. All waste will be disposed of in a safe way to avoid littering and contaminating water and soils.

Open-air defecation will be forbidden on site. Sanitary or compostable toilets (e.g. <http://www.sustainingcommunities.org/technologies/sanitation/>) will be built and used systematically by occupants and visitors.

VI – WASTE MANAGEMENT

A waste management plan will be put in place where all waste will be sorted by category and stored in specific secure and labelled containers:

- Plastic and glass: any plastic/glass material will be reused when possible, those that cannot be reused will be transported securely back to the main village headquarter, outside the NPA to be disposed of safely.
- Hazardous waste e.g. batteries: batteries and other hazardous waste will be transported securely back to the main village headquarter, outside the NPA to be disposed of safely.
- Vegetable-based food waste: all plant-based food waste will be composted on site in a wooden container for this purpose. Compost-worms will be used to accelerate the process. These will be obtained from the organic farm in Vang Vieng (<http://www.laofarm.org/>)

- Animal-based food waste: Animal-based food waste will be collected separately in its purposed container to be burnt regularly on site at a purposed site.

At all times we will adopt conscious and ethical behaviour to reduce the amount of waste produced and use innovative ideas to reduce and/or reuse. All occupants will agree to comply with these methods and behaviours and be trained regularly to follow these objectives.

Human waste: sanitary or compostable toilets will be built and used systematically by occupants and visitors.

VII – NOISE MANAGEMENT

The permanent occupants and visitors will agree to keep noise at minimal at all times. Loud sound systems will not be allowed at the station. Only small devices will be allowed (radio, mobile phones) and earphones should be used as much as possible.

VIII – BIODIVERSITY AND FORESTS MANAGEMENT

The field station will act as the centre point for research on wildlife at this site. To ease movements of researchers, we will establish a grid-based trail system. These will be made with the minimal disturbance to the forest (no big trees will be cut). Some paint will be used to clearly mark the trails.

The location of the field station is on secondary forest with low density of trees and therefore disturbance on primary forest will be minimal.

Research on primate species (e.g. gibbons and doucs) will necessitate habituation of groups. We will follow the best practice protocols during this process. The team responsible will be well trained and supervised. Ethical behaviour towards animals will be adopted at all times. Regular law enforcement patrols and permanent researcher presence will prevent the presence of poachers at the site, which could represent a threat to human-habituated primates. The team will wear the same uniform at all times and use a sound signal for all contacts with habituated groups.

Only dead wood will be collected as source of charcoal for cooking.

Only the following animals species will be allowed to be collected for consumption on site (in accord with current regulations): fish, frogs and rats with a sustainable traditional hunting methods used for collection.

Only the following sustainable plant species sources will be allowed to be collected for consumption on site (in accord to current regulations): rattan, bamboo, palm, mushroom, ferns, other small herbaceous species. In addition, we will maintain a small vegetable garden to reduce collection of wild species.

We will work in collaboration with the management authority of Nakai-Nam Theun National Protected Area to put in place a patrolling strategy around the site of the field station in order to protect the wildlife (e.g. Figure 2).

All permanent and semi-permanent occupants, and any visitor to the field station will need to sign for their agreement a Code of Conduct detailing all the protocols necessary to adopt when on site. They will all receive regular training on it.

All permanent and semi-permanent occupants, and any visitor to the field station will receive training on wildlife and forestry laws and regulations in place in Laos.

IX - OCCUPATIONAL HEALTH & SAFETY

1. GENERAL OPERATION

The field station will be permanently maintained by villagers (couple) from a nearby village (2 couples will be identified and rotated every 2/3 or 4 weeks).

Research assistants will be villagers from the nearby villages that will be selected for their interest and capability in the work. They will receive regular training for the tasks needed. They will stay at the field station for determined periods of time, depending on the ongoing research projects. Several research assistants will be selected and rotated. All personnel will receive a salary for their services.

Short-term visitors (researchers, students, assistant volunteers) will participate in some research projects.

We will work in collaboration with the management authority of Nakai-Nam Theun National Protected Area to put in place a patrolling strategy around the site of the field station (e.g. Figure 2).

2. HEALTH & SAFETY FACILITIES

Access to the field station is relatively easy in case of emergency evacuation needed: a well marked trail (~5 km) will lead to the boat station. The boat ride is about 1h30 to reach the main headquarter outside the NPA from where basic medical assistance can be provided before reaching the closest hospital by car (~1 hours).

Marked trails will be used around the site. Any short-term visitor not familiar with the area will need to go into the forest with a local assistant at all times with GPS, map and walky-talky. Any local person going alone into the forest will bring a walky-talky.

The buildings will be mounted traditionally on poles to prevent risks of flooding indoors during rainy season.

An antenna will be installed in order to get phone reception at the site. A comprehensive list of any contact numbers that may be necessary will be put up at several key locations at the field station for the occupants to use if needed. All

occupants and visitors will have received training on using communication devices.

All visitors will need to sign a responsibility disclaimer. All visitors will be required and responsible to obtain their own insurance.

The list of rules (Code of Conduct) of the field station will be put up at several key locations at the field station for the occupants to see.

Training will be provided to all occupants on hygiene rules to ensure their health and those of others and avoid transmission of disease. They will be trained and encourage to use the sanitary toilet and forbidden to defecate in open air. Drinking water will need to be boiled systematically.

A comprehensive first aid kit (including gloves and masks) will be on site. The project manager and project coordinator will be responsible for it and ensure it is well maintained and complete.

Fire risk will be prevented by keeping all cooking spaces individually located at a few metres from the main building. All potentially occupants will have received training on basic rules to adopt.

3. COMMUNICATION AND TRAINING

All permanent and semi-permanent occupants, and any visitor to the field station will receive training on the use of equipment and facilities at the station.

All permanent and semi-permanent occupants, and any visitor to the field station will receive training on hygiene rules (including use of sanitary toilets, cooking hygiene, drinking water processing i.e. boiled).

All permanent and semi-permanent occupants, and any visitor to the field station will need to sign for their agreement a Code of Conduct detailing all the protocols necessary to adopt when on site. They will all receive regular training on it.

All permanent and semi-permanent occupants, and any visitor to the field station will receive training on wildlife and forestry laws and regulations in place in Laos.