

LAO PDR NATIONAL UXO/MINE ACTION
STANDARDS (NS)



Chapter Twenty One
Environmental Management

**National Regulatory Authority for
the UXO/Mine Action Sector in Lao PDR**

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Environmental Management

1. Introduction

UXO clearance operations in support of humanitarian and development provide for the safe use of land by communities and development organisations. However, it is counter productive to carry out such operations if the land is contaminated in other ways that affect its use, or the environment is damaged to an extent that it affects the lives of the local communities.

As a minimum land used for UXO clearance operations, including the surrounding environment, should be left for the local communities in a similar condition to what it was before UXO clearance operations commenced. In order to ensure this occurs there are certain procedures for environmental management that must be complied with by clearance organisations operating in Lao PDR.

2. Scope

This chapter details the minimum requirements for environmental management during UXO clearance operations in Lao PDR.

3. Statutory Requirements

Statutory requirements covering environmental management are included in the Lao PDR **'Environmental Protection Law (EPL), 3 April 1999'**. UXO/mine action organisations are, where applicable, to comply with the environmental management provisions included in the EPL.

Note: It is the responsibility of UXO/mine action organisations to ensure that the most up-to-date versions of the relevant laws are referred to.

3.1. Definition of Environment

The EPL defines environment as follows:

"Environment means any organic and inorganic feature, existing naturally or created by mankind and surroundings such as people, animals, plants and others, and the positive and negative interactions and impacts between them, either restrictive or favourable for human and natural life."

"Environment includes soil, water, forests, plants, animals, bacteria, mountains, rocks, minerals, air, which constitute the ecosystem; archaeological artefacts, historical heritage, urban and rural settlements, buildings, vibrations, radiation, colours and odours that created by humans are important elements of the environment."

3.2. Obligation to Protect the Environment and Natural Resources

"Lao citizens, aliens, stateless persons and residing foreigners, engaged in any production or service have a responsibility to protect the environment".¹

"All persons and organisations have an obligation to protect natural resources".²

1. Environment protection law, article 4.

2. Environment protection law, article 13.

4. General Requirements

UXO clearance operations are to be carried out in a manner that ensures, where practicable, that:

- a. Previously contaminated areas are left in a state in which they are suitable for their intended use.
- b. Non-contaminated areas affected by UXO clearance operations are left in a similar condition to that which they were in before UXO clearance operations commenced.

5. Worksites and Accommodation Facilities

5.1. Site Selection and Layout

Environmental management is to be considered in the site selection and layout for worksites and accommodation facilities.

Temporary accommodation facilities are to be located in consultation with local communities to ensure that they do not affect local economic activities or social and cultural values. They are to comply with all national or local regulations concerning the construction of temporary facilities.

Temporary accommodation sites are to be well drained and, if necessary, have sufficient soil depth to permit the digging of toilets, wastewater soak pits and rubbish pits. The establishment and operation of temporary accommodation facilities is to be carried out in a manner that avoids or minimises erosion and the discharge of silt into any watercourse.

5.2. Toilets

Toilets should be provided on each clearance worksites and for temporary accommodation facilities. Personnel are not to deposit human waste on the soil surface or in water courses.

Toilets should be provided at a minimum of one for every 20 persons and they are to be located at least 20 m from any clearance worksite administration or control point, accommodation or food preparation areas, watercourses or wells. Where toilets are dug into the ground, the depth of the hole is to be sufficient to allow 0.5 m of earth cover over the toilet pit when it is filled in.

5.3. Domestic Rubbish

All domestic rubbish is to be removed from the site, buried or burned on a daily basis. Solid waste and ash left over from burning is to be either removed from the site or buried.

Rubbish removed from the site is to be disposed of at approved rubbish dumping sites. Any rubbish spilled during the removal process is to be cleaned up.

Rubbish is only to be buried with the approval of the local communities and then in locations agreed to by them. Rubbish pits are to be properly located away from accommodation and food preparation areas, watercourses and wells, and are to be located and constructed so as not to contaminate groundwater. Rubbish pits are to be deep enough to allow at least 1 m of earth cover over the rubbish when they are filled in and are to be constructed large enough to take all the rubbish from the site. Where possible, rubbish in pits is to be burned or covered over on a regular basis.

5.4. Domestic Burning

Burning for cooking, domestic heating and for rubbish disposal is only to be carried out provided the burning is supervised and adequate precautions are taken to ensure that fire does not spread.

5.5. Waste Water

Waste water from washing, bathing or kitchen areas is to be drained into properly constructed soak pits. Waste water is not to be released so that it will enter watercourses. Soak pits are to be constructed large enough to take the amount of waste water generated.

5.6. Domestic Water Supply

The supply of domestic water is to be carried out in a manner that does not affect the supply of water to the local communities; unless the local communities have been properly consulted on this matter and have agreed to any arrangements made.

5.7. Control of Vermin and Disease Carrying Insects

When applicable, clearance organisations are to implement preventive measures for the control of vermin and disease carrying insects.

5.8. On Completion of UXO Clearance Operations

On completion of UXO clearance operations, all buildings, equipment, surplus materials, fencing (except that marking contaminated areas) and other such items are to be completely removed. Toilets, soak pits and rubbish pits are to be filled in, covered with soil and the surface stabilised to prevent erosion and to allow natural regeneration of vegetation. As far as is practicable, all disturbed areas are to be restored to their original condition.

6. UXO Clearance Operations

6.1. Debris, Rubble and Wire Removed from a Clearance Site

Debris, rubble, wire and any other remains of obstacles removed from a clearance site are to be dumped in a cleared area adjacent to the worksite. When applicable, local communities are to be consulted when locating this dump site.

6.2. Obstruction of Water Courses

Watercourses are not to have the flow of water obstructed during UXO clearance operations; unless it is necessary to divert or dam the watercourse to allow clearance to be conducted. If it is necessary to divert or dam a watercourse, the land owners/users or local authorities are to be consulted and their agreement obtained before the dam is constructed.

6.3. Toxic Wastes

Any toxic waste products of UXO clearance operations are not to be buried. They are to be collected and removed to an approved disposal area.

6.4. Degradation of Air Quality

When clearance organisations are conducting UXO clearance operations, they are to remain aware of the location of local communities, the prevailing wind conditions in the area and the ability of these prevailing winds to carry smoke, dust and toxic fumes to local communities. They are to ensure that the impact on local communities of any degradation of air quality is minimised.

Clearance organisations are to liaise with local communities and authorities to explain the scope, scale and duration of any likely air degradation and the long-term benefits to be achieved as a result of this short-term inconvenience.

6.5. Mechanical Operations

When mechanical operations are conducted, the ground over which the operations were conducted is to be left as close as possible to its original state such that it is suitable for its intended use. For example:

- a. Ground that is to be used for agriculture is to have the topsoil in place (on the top of the ground) after UXO clearance operations are complete.
- b. Cleared ground is not to be left with excavation holes as a result of mechanical operations.
- c. Where vegetation is removed from ground that is subject to erosion, measures are taken to stabilise the ground on completion of mechanical operations.

When machines are serviced or repaired in the field, any used parts or by-products from the work are to be collected and disposed of in an environmentally acceptable location and manner. The dumping of oil or other materials onto the ground or into any watercourse is prohibited. Drained oil or other materials is to be contained using a drip pan or other suitable receptacle and disposed of in an environmentally acceptable manner.

Machines are only to be operated within the designated clearance worksite, within the boundaries of any temporary accommodation facilities or any other areas approved by the Lao PDR National Regulatory Authority (NRA) for training or testing purposes. Tracked machines are not to be driven on sealed roads unless absolutely necessary. If tracked machines have to cross sealed roads, timber is to be laid down to protect the road surface from damage.

Machines are to be properly maintained. Any fuel or oil leaks that occur are to be promptly repaired.

6.6. EOD Operations

When selecting a disposal site, including those cases in which in-situ disposal is conducted, the disposal site is to be selected to ensure that the planned disposal operations can be carried out safely and will not cause undue damage to property, infrastructure or areas of cultural or historical significance. Consideration is also to be given to the effects of ground shock and noise and the impact this will have on local communities.

Communities which own, control or live in the vicinity of land on which EOD operations are to be carried out are to be briefed on the operations in accordance with the requirements of **Chapter 5 of NS, 'Worksite Preparation'**. Where damage to property or infrastructure is possible, the property owners or local authorities are to be consulted about the operations. If necessary, advice to minimise damage is to be given to property owners close to disposal sites.

When carrying out EOD operations involving potentially toxic or contaminated components, consideration is to be given to the contamination of the surrounding area by toxic or contaminated substances, for example, White Phosphorus (WP).

When an area ceases to be a permanent disposal site, it is to be refurbished in accordance with the requirements of the local communities, and if necessary, the land formally handed over.

6.7. Contamination of Previously Safe Areas by UXO

Clearance organisations are to ensure that previously safe areas are not contaminated through the unauthorised or unplanned movement of UXO. They are to:

- a. Ensure all personnel are aware of, and comply with, the prohibition on the movement of mines and UXO from worksites unless as part of a disposal activity.
- b. When moving UXO as part of a disposal activity, take an accurate count of the items moved and confirm that they have all been destroyed in the new location.
- c. Thoroughly check the immediate environs of all mechanical clearance or disposal worksites to ensure that no UXO have been 'thrown' into these areas.

7. Fuel, Oil and Lubricant (FOL) Areas

Where it is necessary to establish fuel storage facilities, proper precautions must be taken to ensure that FOL is stored safely and does not contaminate the soil or groundwater. These precautions include:

- a. No fuel storage facilities are to be positioned closer than 30 m to a watercourse.
- b. All storage tanks, containers and fuel dispensing equipment are to be regularly maintained to ensure that there are no leaks.
- c. Vehicle and equipment fuelling should be undertaken on a hard surface or over drip pans to ensure that any spilled FOL is contained.
- d. Adequate fire fighting equipment is to be positioned at the fuel storage facility. As a minimum, this is to be a serviceable CO² fire extinguisher.

8. Vehicle Maintenance Areas

When maintenance, repair or washing of vehicles and equipment is required on worksites, specific areas are to be designated for this activity. The environmental precautions to be taken include:

- a. Waste water from vehicle washing is not to be released so that it will enter watercourses. If necessary, soak pits are to be constructed.

- b. The dumping of oil on the ground is prohibited. Drained oil is to be contained using a drip pan or other suitable receptacle and disposed of in an environmentally acceptable manner.
- c. Any used parts, by-products of the maintenance or other rubbish (except waste oils) are to be disposed of as for domestic rubbish.

9. Transportation of Contaminated Materials

During the transportation of any contaminated, toxic or flammable materials with the potential to damage the environment, the precautions that must be taken to ensure that risk is minimised include:

- a. All materials must be transported in containers that will minimise or prevent spills or leakage.
- b. Materials are to be securely loaded in the transport.
- c. Appropriate fire precautions are to be taken relevant to the materials being transported.
- d. Vehicles carrying contaminated material are to be driven in a safe and careful manner.

10. Areas of Cultural or Historical Significance

Prior to commencing operations, clearance organisations are to investigate the immediate vicinity of the worksite to identify any areas of cultural or historical significance. They are also to liaise with local communities and authorities to aid in the identification of such sites.

Having identified any areas of cultural or historical significance, clearance organisations are to take all possible steps to prevent damage to these sites. Such action may dictate that any mines or UXO found at the worksite are removed to another area for destruction. If these items are unsafe to move and in-situ demolitions are necessary, protective works are to be used.

If any article is located during UXO clearance operations and is suspected of being of cultural or historical significance, work in that area is to cease and the matter is to be immediately reported to the NRA.