

**CONSERVATION & MANAGEMENT PLAN FOR
SCHEDULE-I
SPECIES RECORDED IN THE STUDY AREA OF
PROPOSED SOAPSTONE MINE
AT
VILLAGE-DYALI KUROLI,
TEHSIL- DUGNAKURI, DISTRICT-BAGESHWAR,
UTTARAKHAND**

PROJECT PROPONENT

**M/s Jai Mata Di Mines
Village-Dyali Kuroli,
Tehsil- Dugnakuri, District-Bageshwar,
Uttarakhand**

PREPARED BY

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CONSERVATION & MANAGEMENT PLAN

FOR SCHEDULE I SPECIES
(Panthera pardus & Ursus thibetanus)

Found in 10 km radius of
M/s Jai Mata Di Mines, Village-Dyali Kuroli, Tehsil-Dugnakuri, Distt.-Bageshwar,
Uttarakhand

1.0 Introduction

This conservation plan is developed with the aim to reduce any impact on the natural habitat of scheduled I species found in vicinity of the project. Mining is an anthropogenic activity which might pose loss of natural habitat directly or indirectly due to project activity. Though the intensity of impact on Schedule-I species have been identified as low, with local scope and temporary in duration, the conservation plan is being prepared, in consultation with local Forest Officials to bring the impact to an insignificant level (Ref. Table below). General threat to the species has been taken into consideration while preparations of this conservation plan.

Table: Impact Analysis of Project Activity on Schedule I species

No	Project Activity	Impact on Sch I Species	Intensity (Low/ Medium/ High)	Duration (Temporary/ Permanent)	Scope (Local/ regional/ Zonal/ global)	Significance of Residual Effect after application of Conservation Plan
1.	Mining Activity:) Disturbance from Noise & vibration in the core zone during period of mining) Activities of labour) Disturbances in habitat) Human – animal conflict	Low	Temporary	Local	Insignificant of permanent nature.
2.	Hauling of mineral) Disturbances in habitat) Human – animal conflict	Low	Temporary	Local	Insignificant of permanent nature.

Two schedules-I species *i.e.* **Leopard and Asiatic black bear**. Biological importance of Leopard along with its conservation and management plan and environmental mitigation are as follows:

1. *Panthera pardus* (Leopard or Panther)



1.1 Classification

Kingdom	Animalia
Phylum	Chordata
Class	Mammalia
Order	Carnivora
Family	Felidae
Genus	<i>Panthera</i>
Species	<i>P. pardus</i>

1.2. Conservation Status

The Leopard is classified as Near Threatened as per the IUCN red list of threatened species and species is mentioned under the Schedule-I of Wildlife Protection Act, (1972). *Panthera pardus* is listed in CITES Appendix I. Despite India and Nepal being contracting parties to CITES, national legislation of both countries does not incorporate and address the spirit and concerns of CITES. Trained human resources, basic facilities and effective networks for control of poaching and trade in wildlife are lacking.

1.3. Ecological Distribution of *Panthera pardus*

On the Indian subcontinent, topographical barriers to the dispersal of this subspecies are the Indus River in the west, and the Himalayas in the north. In the east, the lower course of the Brahmaputra and the Ganges Delta form natural barriers to the distribution of the Indochinese leopard. Indian leopards are distributed all over India, in Nepal, Bhutan, Bangladesh and parts of Pakistan. In the Himalayas they are sympatric with snow leopards up to 5,200 m (17,100 ft) above sea level. They inhabit tropical rain forests, dry deciduous forests, temperate forests and northern coniferous forests but do not occur in the mangrove forests of the Sundarbans. Even though the Leopard is found all across the country there is no reliable estimate of its population. A review of literature regarding population densities of Leopard in Asia indicates that although the species may have a wide geographical range, it is unlikely to occur in relatively high abundance.



Distribution Range of Indian Leopard

1.4. Biology of *Panthera pardus*

1.4.1 Physical Description

The Indian leopard (*Panthera pardus*) is widely distributed on the Indian subcontinent (Southeast Asia, and China). They are still relatively abundant in these regions. Of the species as a whole, its numbers are greater than those of other *Panthera* species, all of which face more acute conservation concerns. The Indian leopard (*Panthera pardus*) is classified as Near Threatened by IUCN since 2008. The species *Panthera pardus* may soon qualify for the

vulnerable status due to habitat loss and fragmentation, heavy poaching for the illegal trade of skins and body parts in Asia, and persecution due to conflict situations. They are becoming increasingly rare outside protected areas. The trend of the population is decreasing. The Indian leopard is one of the five big cats found in India, apart from Asiatic lion, Bengal tiger, Snow leopard and Clouded leopard.

1.4.2 Habitat

On the Indian subcontinent, topographical barriers to the dispersal of this subspecies are the Indus River in the west, and the Himalayas in the north. In the east, the lower course of the Brahmaputra and the Ganges Delta form natural barriers to the distribution of the Indochinese leopard. Indian leopards are distributed all over India, in Nepal, Bhutan, Bangladesh and parts of Pakistan. In the Himalayas they are sympatric with snow leopards up to 5,200 m (17,100 ft.) above sea level. They inhabit tropical rain forests, dry deciduous forests, temperate forests and northern coniferous forests but do not occur in the mangrove forests of the Sundarbans.

1.4.3 Behavior

Although leopards are silent most of the time, they may give a hoarse, rasping cough at repeated intervals to advertise their presence to conspecifics. Males use this unique call to announce territorial boundaries. If another leopard is in the vicinity, it may answer with a similar vocalization and continue vocalizing as it exits the area. Males also grunt at each other and females call to potential mates when in estrous. Some leopards may purr while feeding.

1.4.4 Food and Feeding

The diet of the Leopard is highly varied, including both large and small prey. It often consists mainly of small and medium-sized mammals (5 to 45 kg), but may range from large beetles to ungulates (hoofed mammals) several times their size. Leopards are probably the most accomplished stalkers and climbers of the big cats. Their varied diet includes wildebeest, impalas, reed-bucks, Thomson's gazelles, jackals, baboons and storks. They routinely drag carcasses bigger than themselves into trees to avoid losing prey to other carnivores. Mostly they prefer hunting at night. Like other felids (i.e., members of the cat family), Leopards

commonly kill their prey with a bite to the throat, although smaller prey may be dispatched with a bite to the nape or back of the head.

1.4.5. Reproduction

The reproductive season is year-round but peaks during the rainy season in May. In China and southern Siberia, leopards mainly breed in January and February. Females are in estrus for 7 days and have a 46 day long cycle. Gestation last 96 days and females usually give birth once every 15 to 24 months. Typically, females stop reproducing around 8.5 years old.

Leopards are promiscuous, as both males and females have multiple mates. Females attract potential mates by excreting pheromones in their urine. Females initiate mating by walking back and forth in front of a male and brushing up against him or swatting him with her tail. The male then mounts the female while frequently biting her nape. Copulation last an average of three seconds with six minute intervals between each copulation bout. A single breeding pair may copulate up to 100 times per day for several days, during which time they share food resources.

1.5. Ecological Threats and Conservation Plan

1.5.1. Direct Population Threats

Direct population threats include all reasons and actions which directly reduce the numbers of Leopard in wild other than the natural death of the animal. This is mainly due to reduction in their habitat range, forest degradation, scarcity of food and water in their habitat etc. In Indo-Malaya, leopards are threatened primarily by habitat loss (deforestation) as well as poaching for illegal trade of skins and canines. In India, leopards are feared for their attacks on people.

➤ Conservation Plan

The Wildlife Protection Act (1972) provides us with the statutory framework for wildlife conservation, and declared that hunting is a deadly crime against wildlife while, forestation will be done surrounding the mine area for enhancement of habitat, protecting the loss of Leopard diversity due to habitat loss.

1.5.2. Conflicts with Human/Farmers

Leopard-human conflict is a serious problem in India and the subcontinent and is another cause of significant mortality of Leopards. India's Forest Department is entitled to set up traps only in cases of a leopard having attacked humans. Expansion of agriculturally used land, encroachment of humans and their livestock into protected areas are main factors contributing to habitat loss and decrease of wild prey. As a result, leopards approach human settlements, where they are tempted to prey on dogs, pigs and goats- domestic livestock, which constitutes an important part of their diet, if they live on the periphery of human habitations.

➤ Conservation Measures

The prey species preferred by Leopard will be conserved to insure sufficient prey availability, which will also reduce the conflict with humans. Biological fences will be used to protect the livestock from the leopard attack. The awareness among the farmers will be generated through the formal educational programmes.

1.5.3 Poaching

A significant immediate threat to wild leopard populations is the illegal trade in poached skins and body parts between India, Nepal and China. Illegal trade in Leopard body parts (skin, bones, and claws) continues to threaten the survival of the species in the wild. Buyers choose the skins from dealers or tanneries and smuggle them through a complex interlinking network to markets outside India, mainly in China. Seized skins in Kathmandu confirm the city's role as a key staging point for illegal skins smuggled from India bound for Tibet and China.

➤ Conservation Measures

The Wild Life Protection Act (1972) provides us with the statutory framework for wildlife conservation, and Poaching is a deadly crime against wildlife. Few poachers are caught or punished. One solution that would fit just about any circumstance though, would be to administer stiffer laws and harsher sentences for those caught poaching.

During formal interview and discussion with local it was noted that study area is not prone to poaching or any other wildlife violence related to leopard or any other species. But, precaution

will be always taken while dealing with wildlife. The contact information of concern wildlife and forest department will be provided to every worker or at the field office. If any kind of poaching or other offense is noticed; it will be immediately clued-up to the concern Forest and Wildlife Officials.

1.5.4 Habitat Threats

Loss of forest areas outside parks and reserves poses a major threat to leopard because it causes population fragmentation, thereby leaving small, nonviable populations within the parks or their movements in human territories which raise conflicts. Furthermore, habitat degradation outside the parks, caused by overgrazing, overharvest of forest products, expansion of agricultural areas, and mining of minerals also possess threats to the habitat of species.

➤ Habitat improvement

Leopard lives in a variety of dry and wet forests, and also in some grassland, where boulders and scattered shrubs and trees provide shelter. The leopard has the widest habitat tolerance of any big cat in India. Habitat of the species will be improved by planting suitable species in surrounding areas. The prey species preferred by leopard will be conserved to insure sufficient prey availability, which will also reduce the conflict with humans.

2. Asiatic black bear (*Ursus thibetanus*)



2.1 Classification

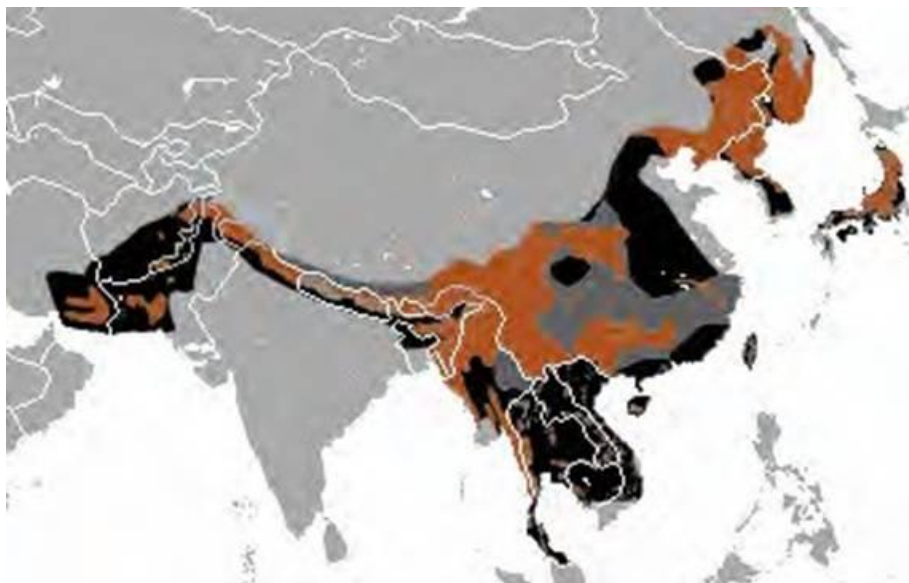
Kingdom	Animalia
Phylum	Chordata
Class	Mammalia
Order	Carnivora
Family	Ursidae
Genus	Ursus
Species	<i>U.thibetanus</i>

2.2 Conservation Status

The Asiatic black bear is classified as Vulnerable on the IUCN Red List of Threatened Species and is mentioned under the Schedule-I of Wildlife Protection Act (1972). Bears are endangered for their gall bladder and bile to which medicinal properties are attributed.

2.3 Ecological Distribution

The Asiatic black bear (*Ursusthibetanus*), also known as the Asiatic black bears are known to damage agriculture and horticultural crops, apiaries, fish farms, livestock, and humans. They are found in Himalayan ranges in India along with Afghanistan; Bangladesh; Bhutan; Cambodia; China; Myanmar; Nepal; Pakistan etc.



Distribution range of Asiatic black bear in India

2.4 Biology of Asiatic black bear

2.4.1 Physical Description

Asiatic black bear are normally observed in remote dense forest, however due to scarcity of food, they may enter the villages near forest boundary areas and attack domestic animals and human beings.

Asiatic black bear have long snout and their lips are detached from the gum. Mobile and protrusible, lips are well adapted to the forceful intake and expulsion of air. Bears have a large protrusible tongue. The claws are longer in the forefeet than the hind and are good digging implements. The bear's palate is deeply concave. The gap between the teeth permits the passage of air as middle pair of incisors in the upper jaw is absent. The animal produces enough suction force to suck out termites from mounds. Asiatic black bear are mainly nocturnal. Their sense of smell is well developed but their sight and hearing usually poor.

2.4.2 Habitat

Asiatic black bear live in a variety of dry and wet forests, and also in some grassland, where boulders and scattered shrubs and trees provide shelter. The dentition indicates that bears are more herbivores and there is a departure from carnivore. In fact, they are omnivorous. Their diet includes largely insects and grubs which can be dug out from the ground or from the underneath of bark of standing trees or fallen logs. They eat termite and bee nests by suction and creating a vacuum in the nest by keeping snout close to the mound. Bears sometimes raid sugarcane and maize crop incase their habitats have food shortage.

2.4.3 Behavior

It is a nocturnal insectivorous species of bears. Adult Asiatic black bear may travel in pairs, with the males being gentle with cubs. They may fight for food. They walk in a slow, shambling motion, with their feet being set down in a noisy, flapping motion. They are capable of galloping faster than running humans. Asiatic black bear are excellent climbers, including cubs. They climb to feed and rest, though not to escape enemies, as they prefer to stand their ground.

Asiatic black bear mothers carry cubs up to 9 months-old on their backs instead of sending their cubs up trees as the primary defense against attacks by predators, such as tigers, leopards, and other bears. They are good swimmers, and primarily enter water to play. To mark their territories, Asiatic black bear will scrape trees with their forepaws, and rub against them with their flanks. Asiatic black bear have a great vocal range. Sounds such as barks, screams, grunts, roars, snarls, whickers, woofs, and yelps are made when angered, threatening, or when fighting. When hurt or afraid, they shriek, yowl, or whimper. When feeding, Asiatic black bear make loud huffing and sucking noises, which can be heard over 100 m away. The species is the most vociferous when mating, and make loud, melodious calls when doing so. They make their day beds out of broken branches in trees, and rest in caves during the wet season.

2.4.4 Food and Feeding

Among natural diet, Asiatic black bear prefer to feed on different kind of fruits. Usually during the monsoon season, they dine on mango, fig, ebony etc. and also on some flowers. Asiatic black bear climb trees and knock down honeycombs, later collecting the sweet bounty on the forest floor. Beetles, grubs, ants, and other insects round out their diet. During food shortages, Asiatic black bear prefer to eat carrion. They sometimes raid farm crops.

2.4.5. Reproduction

The breeding season for Asiatic black bear varies according to location: in India, they mate in April, May and June, and give birth in December and early January, while in Sri Lanka, it can be done all year. Sows gestate for 210 days near about 7 months, and typically give birth in caves or in shelters under boulders. Litters usually consist of 1-2 cubs, rarely 3. Cubs are born blind, and open their eyes after four weeks. Asiatic black bear cubs develop quickly compared to most other bear species: they will start walking a month after birth, become independent at 24-36 months, and become sexually mature at the age of 3 years. Young cubs will ride on their mother's back when she walks runs or climbs trees until they reach a third of her size. Individual riding positions are maintained by cubs through fighting. Intervals between litters can last 2-3 years.

2.5 Threats and Conservation Action Plan for Asiatic black bear

2.5.1 Direct Population Threats

Direct population threats include all reasons and actions which directly reduce the number of bears in wild other than the natural death of the animal. In India, people capture bears to use as use as 'Dancing' bears and sometimes for the medicinal market which reduces numbers in the wild.

➤ Conservation Plan

The Wild Life (Protection) Act (1972) provides us with the statutory framework for wildlife conservation. In India, hunting and capturing Asiatic black bear is a deadly crime against wildlife. Few poachers are caught or punished. One solution that would fit just about any circumstance though, would be to administer stiffer laws and harsher sentences for those caught poaching. Enhancement of habitat for protecting the loss of Bears diversity due to habitat loss, forestation and grassland development will be done surrounding the mining area.

2.5.2 Conflicts with Human/Farmers

Asiatic black bear are known for their aggressiveness, both towards humans and towards other large mammals. They seem to avoid human contact, when possible, but may encounter humans when they are enticed into croplands or when people enter the forest. Asiatic black bear seem to have a low tolerance toward people when they inadvertently meet. There are lots of described incidents of mauling of humans by Asiatic black bear.

Conflict arises mainly due to scarcity of food for Asiatic black bear in the forest and it enters residential area in search of food resulting in animal-human conflicts. This may be reduced by (1) Planting suitable food trees and (2) Public awakening of importance of animal in the local ecology. (3) Compensation to the victims of attack by Asiatic black bear.

➤ **Conservation Plan**

The role of Asiatic black bear in cropland ecosystem is very crucial, and the damage done by them is negotiable in terms of direct benefits and environmental services. The awareness among the farmers will be generated through the formal educational programmes.

2.5.3 Poaching

Poaching and smuggling of Asiatic black bear from present study area is not well known. At present time Asiatic black bear populations in India appear to be significantly threatened by poaching. It was studied and concluded that bear parts are less important in local areas of species distribution; hence gall bladders and other parts from poached bears are typically exported to Singapore, Bangkok, Hong Kong, or other intermediary ports, and eventually to Japan, South Korea, or Taiwan. News of poaching of species is common. Many times Government successfully rescues and release trapped Asiatic black bear into wild.

Since the Mughal era, the practice of Bear Dancing by the nomadic Kalandar community to entertain the Mughal emperors was followed in India. Though, use of Asiatic black bear in performances for livelihood by Kalandars is one of the complicated issues facing conservation of this threatened species. Yet, this is not in practice under present circumstances.

➤ **Conservation Plan**

The Wild Life (Protection) Act (1972) provides us with the statutory framework for wildlife conservation, and Poaching is a deadly crime against wildlife. Few poachers are caught or punished. During formal interview and discussion with locals it was noted that study area is not prone to poaching or any other wildlife violence related to Asiatic black bear or any other species. But, precaution will be always taken while dealing with wildlife. The contact information of concern wildlife and forest department will be provided to every worker or at the field office. If any kind of poaching or other offense is noticed; it will be immediately clued-up to the concern Forest and Wildlife Officials.

Moreover, workers will be trained and educated about the importance of Asiatic black bear for ecology and ultimately for humans; an internal attraction towards the species will be tried to

develop. More importantly, worker will be made aware of wildlife crime and also subsequent penalties and punishment.

Rescue Plan and Public Awareness Programme

After the rescue plan and awareness programme by Government and various NGOs, many Asiatic black bear are rescued and rehabilitated successfully. Permanent livelihood rehabilitation of communities involved in such practice is one of the best and sustainable solutions for this threat. If any such captive bear is found in the study area, with the collaboration of concerned authority rescue plan will be adopted and also help will be provided in developing a viable alternative livelihood.

2.5.4 Habitat Threats/Loss

Loss of forested areas outside parks and reserves poses a major threat to Asiatic black bear because it causes population fragmentation, thereby leaving small, nonviable populations within the parks. Furthermore, habitat degradation outside the parks, caused by overgrazing, overharvest of forest products, expansion of agricultural areas, and mining of minerals also possess threats to the habitat of species.

➤ Habitat Improvement Plan

Asiatic black bear live in a variety of dry and wet forests, and also in some grassland, where boulders and scattered shrubs and trees provide shelter. Asiatic black bear are considered vulnerable animals and they are threatened by habitat loss.

Habitat of the species will be improved by planting suitable species in surrounding areas, including species part of diet and shelter. The water bodies in and around the forest areas will be maintained in good condition for use by wildlife.

Other than plant products, diet of Asiatic black bear chiefly includes termites, insects and honey. It will be instructed to workers as well as local residents not to destroy or damage termite structure and also extract honey in optimal quantity. Honey is the favorite of Asiatic black bear.

2.4 Asiatic black bear -Human Conflicts

Asiatic black bear are known for their aggressiveness, both towards humans and towards other large mammals. They seem to avoid human contact, when possible, but may encounter humans when they are enticed into croplands or when people enter the forest. Asiatic black bear seem to have a low tolerance toward people when they inadvertently meet. There are lots of described incidents of mauling of humans by Asiatic black bear.

➤ Conservation Plan to Mitigate the Conflicts

Conflict arises mainly due to scarcity of food for Asiatic black bearing the forest and it enters residential area in search of food resulting in animal-human conflicts. This may be reduced by (1) Planting suitable food trees and (2) Public awakening of importance of animal in the local ecology. (3) Compensation to the victims of attack by Asiatic black bear.

➤ Plantation of Forage Trees

Conflicts generally arises when Asiatic black bear enters in croplands and human settlements, which indirectly reflect the condition of adjacent forested areas; i.e. its ability to support bears. The availability of insufficient food material in wild leads bears to enter in human world. Cropland as source of food invites the animal which causes a serious conflict with humans. Plantation of suitable species and also conserve other dietary forest products of Asiatic black bearis the only effective way to reduce the conflicts. Trees of *Morus alba*, *Mangifera indica*, *Ziziphus mauritiana*, *Syzigium cumini*, and *Ficus* spp. will be planted within Asiatic black bearhabitat. Corridors of Asiatic black bearwill be identified and also preserved in the area.

3.0 Common Public Awareness Programme for Wildlife Protection and Conservation

Among all the threats of biodiversity, lack of awareness is the major cause for their loss. Hence, public awareness programmes will be conducted regarding the issues, conflicts and facts of wildlife, especially for the entire schedule-I species present in the buffer zone. Any kind of illegal collection or poaching noted in the study area will be immediately informed to the concerned authority.

Conservation education and public awareness are useful tools in changing the behavior of people. Illegal entry into the forest for collection of forest products should be stopped. Awareness programmes about various wildlife species, their ecology, habitat, food & feeding and behavior will be conducted in the Buffer Zone. Programmes will target to make aware of all groups (Community Forest User Group, Women's groups, Villagers of the Buffer Zone, School Teachers and Students). Monitoring of aggressive and problem animals (radio collaring and tracking) and informing of local people about these animals is recommended. Recommendations against walking inside or at the edge of the forest during night-time hours, and at dawn or dusk should also be avoided to reduce human and animal encounters.

Moreover, workers will be trained and educated about the importance of the entire wild animal for ecology and ultimately to humans; an internal attraction towards the species will be trying to develop. More importantly, worker will make aware of wildlife crime and also subsequent penalties and punishment. For the more, aware of people for protection their selves and all the wild animals, signboards will also be placed in the buffer zone with slogans.

Involvement of local people in conservation activities will be ensured by organizing meetings and seminars from village to village on regular basis to carry the people along with implementation. Functions like Van Mahotsav and World Environment Day will be organized in a befitting manner to which village heads and other members of gram Panchayat, local leaders and members of regional NGO may also be invited. The discussion may evolve around habitat loss, human-wildlife conflicts and how best the vegetation can be revamped etc. Moreover, a training workshop for all mine workers will be conducted in starting of any project. It will include the formal training on the importance of biodiversity and also to make available the information of the flora and fauna of high conservation value present in the surrounding areas. Information on Wildlife policies and Government regulation and penalties will be provided to workers.

4.0 Tentative Budget for Conservation Plan

S.N.	Conservation Activity	Capital Cost (Rs. in lakhs)	Annual Recurring Cost (Rs. in lakhs)
1.	Habitat Improvement		
	o Creation village forests / Plantation on Gram Panchayat land of selected villages @100 tree/year	1.00	0.50
	o Creation of ponds in the village and their maintenance	0.50	0.25
2.	Implementation of legal safety measures by public-Forest Depart participatory programme	0.50	0.25
3.	Protection of habitat area of Schedule-1 species by participatory programme of public-Forest Department	0.50	0.25
4.	Training and Public Awareness Programme	0.50	0.25
Total		3.00	1.50