HIMACHAL PRADESH
FOREST DEPARTMENT

WILDLIFE MANAGEMENT PLAN

Wildlife Plan for Diversion of 3.53 ha of forest land in favour of Tourism Department for the Construction of Art Culture & Adventure Center (Block No.1 to Block 9) Green Area Parks, Rescuer/Police at Sissu tehsil Keylong Distt. L&S within the jurisdiction of Lahaul Forest Division at Keylong, District Lahaul & Spiti, Himachal Pradesh.

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PREFACE

This Wildlife Plan has been prepared for Scheduled Species like Snow Leopard & Ibex are found in the Diversion Area. This Plan to be undertaken for Conservation of Scheduled Species found in Diversion Area.

This document should be cited as:

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The conservation of wildlife has gained utmost importance in the recent past. The dwindling population of major fauna as well as lesser-known species has attracted attention of Government of India and State Government. A long-term Wildlife Plan for protection and conservation is the need of the hour to save from extinction, has fulfilled the condition with all due care for protection of wild animals so that development and wild animals can co-exist.

1. EXECUTIVE SUMMARY

1.1 AREA DESCRIPTION

Purposed Area for Diversion is near Sissu town in the Lahaul valley of Himachal Pradesh in jurisdiction of Lahaul Forest Division at Keylong. It is around 40 km form Manali and around 35 KM From Keylong located on the right bank of Chandra River. There are many nearby Tourist places Like Rohtang, Khoksar & Chandertaal and many wildlife Scheduled species like Snow Leopard & Ibex are commonly found in the area. The snow-capped mountain ranges of Himachal attract tourists in droves from far and wide throughout the year. Sissu is on the banks of the Chandra River and close to 10,235ft above sea level.

2. Climate / Geography / Wildlife & Conservation

2.1 Climate

Sissu has a cold climate. The average annual temperature for Sissu is 10° degrees and there is about 100 mm of rain in a year. The Mercury level does not exceed 20 C to -25 C through out the Year. One can always enjoy bright sunshine wandering within lush green valley. There is little or no rain in monsoons. The climate remains dry & invigorating. The area remains cold even in the summer season, with a maximum temperature of 20 degrees Celsius. Sissu in Winter is full of snow. During the winter season (November to February), the temperature in Sissu dips below zero degrees Celsius.

2.2 Presence of Wildlife Species

Sissu is located on the right bank of Chandra River. There are many Scheduled species like **Snow Leopard & Ibex** are commonly found in the area. Other **Mammals Species** like **Tibetan Wolf, Red Fox, Weasel, Brown Bear, & Marmots** & **Birds Species** like **Snow Cock, Rock Pigeon, Chukar Partridge, Dove**, & Also some **Butterflies Species** like **Common Copper, Indian Tortoiseshell, High Brown Silver spot & Indian cabbage White** are also commonly found in the area. In winters when Temperature gets below zero degrees Celsius wild animals comes near the river or villages for water & food.

2.3 Geographical Situation

It is around 40 km from Manali and located on the right bank of Chandra river. It is located at 32°29′0″N 77°7′0″E. It is 3,120 m (10,235 ft.) above sea level. Rohtang Pass is home to a diverse range of flora and fauna. The surrounding valleys and mountains are inhabited by rare species such as the snow leopard, ibex, musk deer, and Himalayan brown bear. The pass is also dotted with enchanting waterfalls, pristine lakes, and meadows adorned with colorful alpine flowers. Pir Panjal Range is also connected with Rohtang. However, the diversion area is away from the Pir Panjal and other areas of wildlife presence. Pir Panjal Range and diversion area is separated by Chandra river & hence Wildlife does not cross that area.

Sissu..kml

Figure: Diversion land for Tourism

2.4 Obstruction due to Project

This is an Art & Culture Center under Tourism Department which attracts the tourists in the Area. This leads to disturbance of normal activities of wildlife. Tourism disrupts the feeding and breeding patterns of wildlife. Tourists move too close to animals with the aim of viewing and taking photographs, the animals become aware of the presence of humans and cannot continue with their routine activities.

Tourism leads to destruction and interference of the wildlife's habitat. In places with wildlife that attracts tourists. Tourists may engage in off-road driving and walking through wildlife habitat, which leads to trampling of vegetation and death of small living creatures.

After opening of the Atal Rohtang Tunnel tourist influx has increased in masses and Sissu become first destination to visit. Leaf shedding views during autumn season at Sissu nursery area attract the tourist and it has became selfie- point. All over, Sissu area has capability to attract the tourist. This whole region is not only home to wild herbivores, snow leopards and wolves but also people who cultivate crops and graze their livestock in these vast rangelands. Human-wildlife conflict is commonplace.

However, some precautionary measures may be adopted by project authorities like, **Fencing** to the proposed area, **Birding Trails, Butterfly Garden** to protect wildlife in case of any possible impact on forest fauna due to the project.

2.5 Conservation Values of the Proposed Area

(i) This area is natural habitat of Snow Leopard, Ibex & Red Fox enlisted in the difference schedule of Wildlife Protection Act 1972 and the proposed area is to be used by only for

tourism purpose.

(ii) Site is suitable for raising of Willow (*Salix alba)*, Sea buckthorn (*Hippophae rhamnoides*) and Bhojpatra (*Batula utilis*) as the surrounding of the proposed site bear native species of Salix and Sea Buckthorn and Site is also suitable for raising Juniper (*Juniperus polycarpos*), but the growth of the plants is very slow in this area because of cold temperature & most of the Lahaul region lies above 3000mtrs.

(iii) Site is also suitable for many medicinal plants like Salam Panja (***Dactylorhiza hatagirea*),** Shinghu Zira(*Carum carvi*), Somlata (*Ephedra gerardiana*), van kakdi *(Podophyllum hexandrum*), Patish (*Aconitum heterofhyllum*), Karroo (*Picrorhiza kurroa*), Pashan Ved (*Bergenia cilliata*) & Manu (inula racemosa) Kuth (Saussurea Costus).

2.6 Man-Animal Conflict

This whole region is not only home to wild herbivores, snow leopards and wolves but also people who cultivate crops and graze their livestock in these vast rangelands. Human-wildlife conflict is commonplace: snow leopards and wolves prey on livestock, and people retaliate by killing them. But despite the human-wildlife conflict, people do show positive and neutral attitudes to wildlife (such as finding retaliatory killings wrong or their willingness to engage in conservation activities). Surveys, for instance, show that a majority of respondents showed positive attitudes towards snow leopards. However, some precautionary measures may be adopted by project authorities to protect animals in case of any possible impact on forest fauna due to Project. It is often noted that the environment gets disturbed more during developmental phase of the project. It should be ensured by Project proponents to control quality and time of completion for the project.

Human-wildlife conflict is when encounters between humans and wildlife lead to negative results, such as loss of property, livelihoods, and even life. Defensive and retaliatory killing may eventually drive these species to extinction. These encounters not only result in suffering for both people and wildlife immediately impacted by the conflict; they can also have a global reach, with groups such as sustainable development agencies and businesses feeling its residual effects. The scope of the issue is significant and truly global, but we are nowhere near being able to address it at the scale needed.

Wildlife and the communities that live near it are most directly impacted by human-wildlife conflict. While human-wildlife conflict can result in the decline and potential eradication of species, communities can experience financial losses and threats to health and safety, livelihoods, food security, and property. The costs of living with wildlife are unevenly

distributed and disproportionately fall on communities that often face systemic barriers and have incomes well below the poverty line and access to few economic opportunities, while the global community benefits from healthy wildlife populations and healthy ecosystems that allow us to survive, provide food, and enable livelihoods.

2.7 Signage and warning systems

All warning signs can be grouped into the following categories:

i. **Caution signs**
Simple caution signs are commonly used to alert vehicle drivers to the presence of wildlife crossing zones together with a prescribed speed limit or written message.

ii. **Enhanced caution signs**
Many caution signs are enhanced by adding words like 'Deer Xing (Crossing)' or illuminated with reflective tape, in addition to silhouettes (Outline) of animals.

iii. **Temporary wildlife warning signs**
These signs may be put up to warn drivers/Tourists of wildlife presence during specific times kept and during need can be installed in the Area.

iv. **Posters and billboards**
Color posters and road side billboards shall be put up as part of programs and campaigns to reduce animal mortalities due to collisions with vehicles. They also help to generate awareness of this issue among the public.

2.8 Ways to Save Wildlife

- **Raising Awareness:** Spread the word among friends, family members and the school community about the value and importance of wildlife and wild habitats. Educators need to nurture nature and young minds through Wild Education. Providing easy access to knowledge vital to the well-being of our lands and waters is essential. Public awareness is a must for wildlife conservation because if public will be aware about the wildlife then only they can preserve wildlife. Additionally, reaching out to local schools, community groups, and businesses to collaborate on awareness campaigns can make a significant impact. Remember to emphasize the importance of conservation and the value of protecting wildlife for future generations.

  Role of Young Generation: Catch them Young as the saying goes kids of today should be exposed to various activities of wildlife education and wildlife conservation. The youngsters should learn and be trained to impart knowledge about the variety and value of wildlife and it's management. Wildlife camps through their activities including periodic theory classes, practical works in upkeeping, feeding, animal behaviour studies, coaching on wildlife photography, can teach a lot about the importance of wildlife.

- **Discourage Animals Products:** Using Wildlife products like shawls, ashtray, paint brushes, leather products etc. creates a market for them which in turn becomes an established business which influences more such activities.

2.9 Threats To Wildlife

- Global climate change is causing sea ice to melt.
- Hydroelectric power developments
- Oil spills that occur through oil exploration, development and transportation pollute key habitats
- Increased shipping and oil exploration
- Agricultural and industrial pollutants
- An ever-increasing human population
- Inadequate law-enforcement mechanisms
- Lack of conducive mechanisms for public participation in wildlife conservation processes
- Inadequate financial and logistic supports of conservation areas
- Insufficient information for wildlife resources of the country
- Lack or Absence of awareness about the values of wildlife

Table 1: Detrimental Effects of Tourism

Environmental Factor	Probable Damages	Project Specific Damage
Destruction/ Degradation of natural habitat of Wildlife	(a) Destruction of topography/ physical features/landscape.	(a) The Tourism traverses along river and there will be fragmentation of forest land and pastures. The natural habitat (topography/ landscape) of forest fauna maybe disturbed due to Tourism. However as there are no barricades proposed and crossings and speed limits at different intervals shall be proposed by the project authorities.
Human-Wildlife Conflict	a) Forest destruction b) Habitat intrusion Ecological destabilization c) Contamination of flora and fauna d) Transmission of diseases e) Increased Human Pressure	The animals of this region are adapted to extremely cold conditions and they do not come down from hills in relatively summer seasons, when traffic/ man movement is there. Also, there are no built-ups/ habitations in the forest land (outside or inside the Forest protected Areas). However possibilities of habitat intrusion, ecological destabilization or contamination of flora/ fauna in the region shall be ensured by the Project Authorities to not cause any of these disturbances

Table 2: Proposed Mitigation Measures

S No	Threats	Mitigation Measure proposed	To be implemented by Project Authority/ Forest Authority
(b)	**Habitat loss/ fragmentation/ degradation**	i) Though the Art & culture Center is to be constructed, but precautionary measures may be proposed for avoiding any possible degradation / loss of animal habitat. In any case, if there is a water course (whatsoever small or large may be) willnot be disturbed, blocked or diverted. Water to be allowed to flow uninterrupted. ii) The habitat of natural local Flora that will be disturbed needs to be conserved in separate patches.	Project Authorities
(c)	**Increased human presence and pollution**	i) Vehicles will not exceed speed limits and wildlife warning signs to be installed at access points. ii) Hunting and disturbing of wildlife by project staff will not be permitted while working/ operations of the project sites. Also tourists need to be made aware about the presence of sensitivity of wildlife protection laws. iii) The construction phase within the forest area should be quick, with minimum disturbance. All muck has to be disposed as per the Muck disposal Plan iv) The labour and other project staff shall be camped in sites demarcated for them with proper knowledge of Forest Department.	Project Authorities
(e)	**Habitat Management for Flora and Fauna in Project Area** **(i) Food/ Water Management** **(ii) Cover Management**	(i) Food/ Water for the wildlife in this snow bound areas is a scarce resource. The Forest department should develop and manage water bodies/ water systems like small ponds/ tanks for forest wildlife available throughout the year. (ii) Cover or shelter is another important requirement for the welfare of the species. The cover may be natural or artificial.	Forest Authorities
(f)	**Plantation Management**	Suitable tree plantation should be done by the forest authorities along with development of medicinal plant patches as they will be disturbed during construction & after the tourists visit this area.	Forest Authorities

(g)	**Eco – development work in surrounding village**	The conservation of wildlife or forest cannot be dealt in isolation. The need of the people who were traditionally depended on forest for their livelihood, should get benefit from the project so that their support in wildlife conservation measures can be obtained.	Forest Authorities
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h)	**Flora & fauna**	This area is natural habitat of Snow Leopard, Ibex & Red Fox enlisted in the difference schedule of Wildlife Protection Act 1972 and the proposed area is to be used by only for tourism purpose. Site is suitable for raising of Willow (Salix alba), Sea buckthorn (*Hippophae rhamnoides*) and Bhojpatra (*Batula utilis)* as the surrounding of the proposed site bear native species of Salix and Sea Buckthorn and Site is also suitable for raising Juniper *(Juniperus polycarpos*). These species be planted around the diversion area so as to preserve the biodiversity of the area & wildlife habitat. Site is also suitable for many medicinal plants like Salam Panja (*Dactylorhiza hatagirea*), Shinghu Zira(*Carum carvi*), Somlata (*Ephedra gerardiana*), van kakdi (*Podophyllum hexandrum*), Patish (*Aconitum heterofhyllum*), Karroo (*Picrorhiza kurroa*), Pashan Ved (*Bergenia cilliata*) & Manu (*inula racemosa*) Kuth (*Saussurea Costus*).	Forest Authorities & Project Authorities

PROPOSED BUDGET

ACTIVITY	1st Year		2nd Year		3rd Year		4th Year		5th Year		G Total	
	Phy	Fin. (Rs.)	Phy	Fin. (Rs.)	Phy	Fin. (Rs.)	Phy	Fin. (Rs.)	Phy	Fin. (Rs.)	Phy	Fin. (Rs.)
(A)Education and awareness generation												
i) Awareness programs for staff & locals/ school children		50000		50000		50000		50000		0		200000
ii) Books/magazines/Sign Boards		20000		20000		20000		10000		0		70000
iii) Conservation of medicinal flora near diversion Land	1	100000										100000
iv)Maintenance	1	80000	1	50000								130000
v) Fencing of UPF Sissu both side of NH 3	400	300000										300000
Total												**800000**
(B) Wildlife Protection and Conservation Activities												
i) Fencing/Solar fencing of conservation areas		80000		80000		80000		80000		80000		400000
ii) Removal of plastics & solid waste		5000		5000		5000		5000		5000		25000
iii) conservation Zone development And Awareness and sign boards		200000										200000
Total												**625000**
(C) Human-wild animal Conflict												
i) Training to staff/Locals on rescue of Wild animals		40000		40000		0		0		0		80000

ii) Providing a rescue facility for injured/rescued wild animals		150000		0		0		0		0		150000
iii) Sterilization of feral dogs		25000		25000		10000		10000		10000		80000
iv) Garbage management in towns and villages		50000		50000		50000		50000		50000		250000
v) Strengthening of local veterinary facilities (providing of tranquilizing drugs, rescue material etc.)		50000		25000		10000		10000		5000		100000
vi) Compensation for losses caused to human beings and domestic livestockby wild animals		50000		50000		50000		50000		50000		250000
Total												**650000**
(J) Amenities to staff												
i) Providing LED based Solar lamps/Season Lights for the staff deployed in Anti-poaching Camps		15000		15000		15000		15000		15000		75000
ii) Winter Clothing Gear for Field Staff		200000		100000		50000						350000
iii) Conducting Health camps/Vaccination programs forstaff against endemic diseases		20000		20000		20000		20000		20000		100000
iv) Providing Ration for group patrolling Frontline Staff in the field		25000		25000		25000		25000		25000		125000
Total												**375000**
(H) Field Equipment												
i) Binocular	1	10000	1	10000	1	10000	1	10000	1	10000	5	50000
ii) Digital Camera	1	30000	1	30000		0		0		0	2	60000

iii) Camera Trap	3	30000	3	30000	3	30000	2	20000	2	20000	13	130000
iv) Solar lights	2	40000	2	40000	2	40000	1	20000	1	20000	8	160000
v) Camping Gear/Equipment		50000		25000		25000		25000		25000		150000
Total												**550000**
(B) Capacity, building /training /research /monitoring												
i) Survey/census/estimation of Flora and Fauna		80000		0		100000		0		120000		300000
ii) Consultation services/honorarium to research Scholars		0		50000		0		50000		0		100000
iii) Monitoring, evaluation and impact assessment study		0		0		100000		0		100000		200000
iv) Training for wildlife staff on Wildlife techniques		70000		70000		60000		0		0		200000
v) Exposure visits (India)		0		150000		150000		0		0		300000
vi) Workshops/Seminars		50000		50000		50000		0		0		150000
Total												**1250000**
(G) Wildlife & Eco-Tourism Management												
i) Study to understand the current tourism patterns in Lahaul of environmental, social and economic impacts		100000		0		0		0		0		100000
ii) Preparation of comprehensive Wildlife & Eco-Tourism Plan Area.		200000		0		0		0		0		200000

iii) Creation of nature trails for Wildlife Sighting		80000		80000		80000		0		0		240000
iv) Development of alternative camping sites		100000		50000		50000		0		0		200000
v) Construction & Maintenance of existing trekking paths		50000		50000		25000		0		0		125000
vi) Operational support to the existing Societies		100000						0		0		100000
vii) Training/study tours/workshops/exposure visits for community based organizations/staff		70000		60000		60000		0		0		190000
viii) Procurement of souvenirs for visitors such as T-Shirts, Caps etc.		50000		50000		25000		0		0		125000
Total												**1280000**
(I) Office Expenses												
i) Computers and accessories		80000		40000		20000		0		0		140000
ii) Stationary, Electricity bills etc		20000		20000		10000		10000		10000		70000
iii) Maintenance of Vehicles/ POL		50000		50000		25000		25000		25000		175000
iv) LED TVs, LCD Projectors, etc		50000		0		0		0		0		50000
Total												**435000**
G.TOTAL												**6500000**

CONCLUSION

The conclusions of this Plan are as brought out hereunder:

1. Traffic density on this purposed site is very high. Most of the traffic movement is there in the months of summer. The wildlife animals of this region are adapted to extremely cold conditions and they do not get adaptable temperature in summer season. They do not come down from hills in summer seasons, when traffic/ man movement is expected there resulting in unlikely situation of human-wildlife conflict due to project development. We also need to protect wildlife from pollution and from natural hazards.

   Some of the biggest threats to wildlife are:
   - Illegal wildlife trade.
   - Habitat destruction.
   - Deforestation.
   - Invasive species.
   - Pollution.
   - Climate change.

2. The project impact on wildlife have been discussed in detail in previous chapters of this report.It can be seen that there is no major impact on wildlife habitat, their movement, their behaviour etc. However, it is important to provide some mitigation measures, which may be unforeseen at this stage of development.

3. Site is suitable for raising of Salix, Sea buckthorn, Bhoj Patra & Juniper as the surrounding of the proposed site and Most of the Lahaul region lies above 3000 mtrs. Many medicinal species like Salam Panja, Van kakdi & Shinghu Zira also found near the purposed site.

4. This area is natural habitat of many Wildlife species. We needs to conservation of the wildlife species nearby the Purposed Area. It is also important to make people aware by telling them about the importance of wildlife. Wildlife Conservation is very important to maintain the food chain and ecosystem balance.