Stakeholder Analysis in Snow Leopard Landscape Management Planning

Advice Document Addendum to the General Guidelines for Climate Smart Snow Leopard Landscape Management Planning

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1. Background

The home range of an individual snow leopard can range in size from 200 km^2 to more than 1,500 km^2; thus, a landscape containing a healthy population of snow leopards can span thousands of square kilometres - much larger than most protected areas located across snow leopard range. Further, studies have shown that over half the snow leopard population in the world may occur outside protected areas, thus making it imperative to design and implement conservation efforts at the landscape level. Securing such a large area for snow leopard conservation is a complex undertaking as it is likely to encompass a variety of traditional and modern land uses such as agriculture, animal husbandry, forestry, resource extraction, rural and urban development and conservation. This large-scale human-wildlife interface means that numerous stakeholders are naturally a part of landscape level management.

Who is a stakeholder? A stakeholder is an individual, group or institution that has an interest in or is impacted by a project. Stakeholders, particularly influential ones such as government departments or industries, can play a decisive role in how a landscape is managed. Most of these agencies are active in the landscape due to long-standing and legitimate mandates. Their role may complement conservation (e.g. protected areas, fulfilling sustainable livelihood requirements), or conflict with it (e.g. large infrastructure or unsustainable resource extraction projects), but in either case can be seen as crucial for local or national interest by local people and/or policymakers.

For the landscape management planning process to be successful, it is crucial to not only work closely with local communities (as discussed in Addendum 2: Participation in Conservation), but also to identify and engage with the other stakeholders in the landscape. In this document, we discuss ways to identify the stakeholders in a snow leopard landscape, analyze their activities and roles in the landscape and strategically engage with them during the landscape management planning and implementation process.

This document is intended to provide additional guidance on stakeholder analysis, as a supplement to the existing guidance framework developed by the GSLEP, titled, "*General Guidelines for Snow Leopard Landscape Management Planning.*"
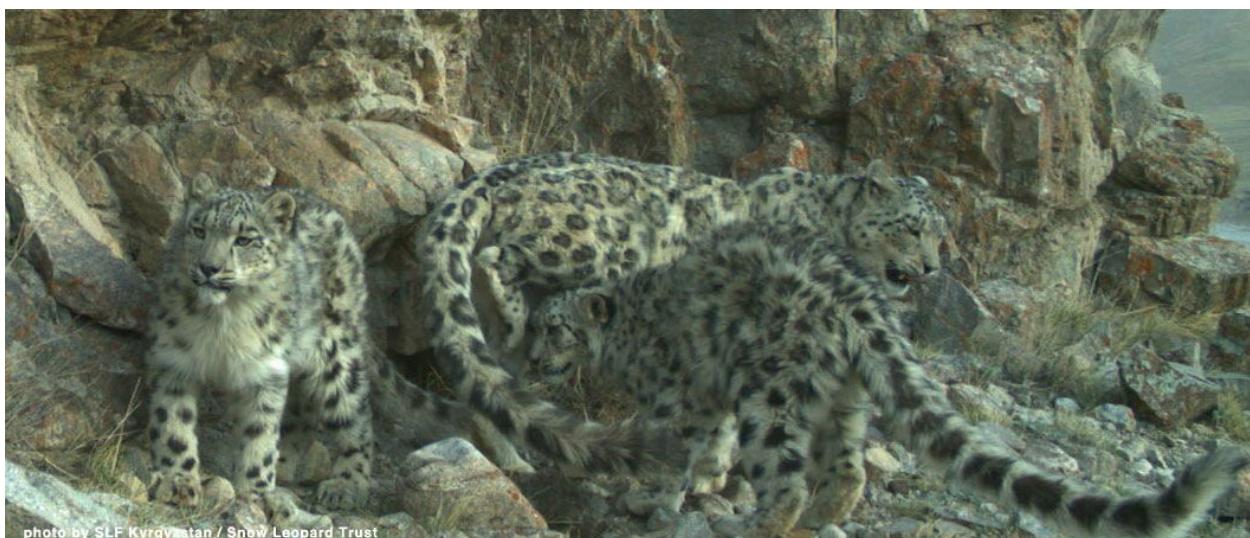
Photo 1. A female snow leopard takes care of her two cubs in Kyrgyzstan's Sarychat-Ertash State Nature Reserve. Photo Credit: SLF Kyrgyzstan / Snow Leopard Trust

2. Identifying Stakeholders

2.1 Identify known stakeholders

The first step in conducting a stakeholder analysis for your landscape is to identify all of the known stakeholders in the landscape. First, consider the types of stakeholders in the landscape. Once you have identified the types of stakeholders in your landscape, you can then systematically list the individual stakeholders that fall within each type. Often the best way to search for these stakeholders is to have discussions with key people in district administration, local NGOs and local communities and through the perusal of websites. These methods can also assist in finding some less known stakeholders. Here are some examples of types of stakeholders frequently found in snow leopard landscapes:

- **Local communities** including both small villages and larger towns or cities located within the landscape, as well as downstream
- **Local traditional institutions** such as pasture user groups, village elders and women's groups
- **Religious institutions**, such as monasteries or mosques that may own land and may be respected by the community
- **Government agencies**, both local and national, who are in charge of human welfare, economic development, national security, conservation, etc. These include the district or county administration, line agencies and the department that will lead the implementation of the management plan
- **Non-governmental agencies** with their own economic development, social welfare and/or conservation goals and objectives
- **Private businesses and industry** including small local businesses and enterprises, as well as national or multi-national corporations
- **National and international donor agencies** who often have keen interest in supporting tenable welfare, development or conservation programs in the region
- **Academic institutions** including Schools and Universities that may help generate crucial information on themes such as biodiversity, socioeconomics that are crucial for a good management plan
- **Politicians** at different levels of governance are important as they respond to public opinion and make policies for both conservation and development

2.2 Discover and identify unknown stakeholders

While you may be aware of most of the stakeholders within your landscape, it is possible there are other stakeholders of whom you may not be aware. For example, a resource extraction company could be quietly holding a license on a parcel of land to use in the future, or a government agency that is not currently operating any projects in the landscape could be planning the construction of a road five years from now. The resource extraction company and the government agency, as well as the populations, communities and institutions that will be affected by the projects, could thus be considered stakeholders in the landscape and should be engaged during the landscape management planning process.

One method of discovering unknown stakeholders in the landscape is to engage in discussions with the known stakeholders. You should talk to local community members, government officials and NGO partners and inquire about other institutions that may be working in the area. It should be noted that the entire stakeholder analysis process is not a linear one, but rather an iterative process that may require multiple inquiries and discussions with key contacts, as well as repeated analysis and engagement as information is gathered.

Finally, you should think beyond the boundaries of your landscape. Are there communities, populations or industries located outside of your landscape that are dependent on it? Where are they located? How and to what extent are they dependent on the landscape?

3. Analyzing Stakeholders[1]

Stakeholder analysis in project management is the process of identifying the individuals or groups that are likely to affect or be affected by the project, and assessing how the interests of those stakeholders should be addressed in a project plan, policy, program or other actions. Thus, stakeholder analysis consists of weighing and balancing all of the competing demands on a project by those who have a role in it, in order to arrive at fulfilling the project's obligation.

Therefore, the goal of stakeholder analysis is to develop better understanding and cooperation between stakeholders and the project team and, ultimately, assure successful outcomes for the management plan (see Appendix 1 for an example).

Once you have identified the stakeholders in your landscape, you can begin your analysis to determine which stakeholders may serve as key partners or threats to snow leopard conservation efforts, and ultimately how you will engage each stakeholder in the landscape management planning process (see Addendum 4: Integrated Management and Governance of GSLEP Landscapes). The broad steps of Stakeholder Analysis, including how the information can be utilized for management plan implementation, are given below:

3.1 Categorize the stakeholders

Broadly categorize agencies under sectors such as production (e.g. agriculture, veterinary, horticulture), welfare (e.g. health, rural development), business (e.g. local small business, tourism, industry), administration (e.g. district administration, village level elected body), infrastructure (e.g. roads, power projects), national security (e.g. army or paramilitary), conservation (e.g. forestry, NGOs), etc. The agencies can also be tagged as government, non-government, traditional, etc. (see section 2.1 Identify known stakeholders above). Each agency can also be tagged at spatial or administrative levels as local, regional, provincial or national.

3.2 Gather key information on stakeholders

To better analyze the stakeholders in your landscape, gather as much information as you can on each stakeholder. Importantly, this information can include their mandates, projects (past, present and future), key personnel, funding sources, existing partnerships, relationships with other agencies and

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[1] This document uses the term Stakeholder Analysis, but the same is also referred to as 'Institutional Analysis' in some sources.

legal standing of their work. The recommendation is to create a table or chart to organize this information (see Appendix 2).

Additional queries can include:

- What is their environmental impact on the landscape? You can explore if there is any environmental impact assessment (EIA) of their project.
- What is their level of political and financial influence? This, naturally, is a sensitive matter but crucial for the management plan. It is important for the team to know this, but need not be included in the management plan document as such.
- What is their estimated level of support for landscape management planning? Assess this after you have explained the management plan process to them (see section 4.1 Conduct outreach to stakeholders section below)
- Where specifically in the landscape are they located, working or planning to work?
- Which management strategies and/or direct threats are they related to (e.g. research and documentation, habitat management, policy and legislation, fund raising, poaching and human-snow leopard conflict management, etc.)

Photo 2. Stakeholder meeting. Photo: Snow Leopard Trust.

As previously mentioned, this information can be gathered from conversations with stakeholders or from publicly available information such as websites. Annual reports or development plans produced by district administration or institutions can often be a good source of information as well. In many instances, however, the best way to gather information about a particular stakeholder will be to speak directly to that stakeholder. Ensure that you are able to speak with the concerned official or community leader or key informant. More information about engaging directly with stakeholders is provided below.

Information on projects and programs should be gathered for at least the past five years and for five to ten years in the future as well.

3.3 Prioritize stakeholders and identify areas of convergence and divergence

Once you have gathered information on the stakeholders in your landscape, you will have at least an initial understanding and list of which stakeholders may be potential partners in snow leopard conservation and the landscape management planning process and which may serve as threats. You can take this understanding a step further by analysing the information you have gathered to rank the stakeholders according to their level of importance for snow leopard conservation in the landscape and their potential level of partnership and collaboration in landscape management planning (see Addendum 1: Strategic Management Planning in Snow Leopard Landscapes and Appendix 2 below).

Furthermore, identify specific areas of convergence where collaborative work can be included in the management plan, as well as areas of divergence where dialogue and negotiations may need to take place to minimize negative impacts on the landscape.

Photo 3. Stakeholders collaborate on a snow leopard landscape management plan in Nepal. Photo: Koustubh Sharma.

With regard to convergence, identify where already existing projects or work synergizes with the conservation goals under the management plan. For example, the Agriculture Department may have an existing pasture development scheme with enough resources for work throughout the landscape. The management plan, too, may recognise habitat restoration through pasture development as an activity. Early discussions and identification of these shared goals can lead to collaboration in terms of the pastures to be selected, fodder species or methods to be used, etc. The work can be carried out in a manner that benefits both the Agriculture Department and its constituents and snow leopard

conservation (see more on convergence mechanisms in Addendum 4: Integrated Management and Governance of GSLEP Landscapes).

It is also clear that there will be areas of divergence where mandates of projects or agencies conflict with the landscape management plan and conservation goals. These areas of divergence can be included in the threats to your landscape management plan with details provided about how the conflicting project will harm conservation. Determining how to address areas of divergence can be challenging as they may be led or invested in by powerful interests such as businesses, government departments or entire communities. Early detection and details about such a project can help in preparing steps for resolution. The team should identify the problem clearly, study all related interests, legal issues and political support. It will also be useful to consult with subject experts to learn about any alternatives. These may include negotiations to stop or alter the project. In some cases, suitable compensatory mechanisms or offsets can be negotiated that can help other aspects of the management plan. In some rare cases where the impacts can be demonstrably negative, data can be provided to specialised agencies to take legal recourse.

4. Engaging with Stakeholders

Once you have identified and conducted an initial analysis of the stakeholders in the landscape, meet with the stakeholders that you have not yet met with and continue to meet with stakeholders that you have already had discussions with if necessary. The team visiting the stakeholders is extremely important for the landscape management planning process as they are possibly the first interface for the stakeholders to learn about the process, its goals, objectives, philosophy and their possible role in it. The manner in which the team interacts with the stakeholders is crucial; these aspects are discussed below:

4.1 Conduct outreach to stakeholders

Your initial discussions with stakeholders may be your primary method of learning about them, their involvement in the landscape and their potential status as partners in snow leopard conservation and the landscape management planning process.

For the stakeholder, it may be their first time hearing about the landscape management planning process. This is a good opportunity to inform them about the GSLEP landscape conservation initiative, its goals and leadership and to answer any questions that they may have. Specifically, stakeholders are often concerned about new restrictive protected areas – you can use this opportunity to inform them that this initiative is not about the creation of vast protected areas, but is about developing an inclusive landscape management program where they are likely partners.

While the landscape management planning process is ideally a collaborative process, you should think strategically about the best way to initially engage with each stakeholder. Should you reach out to them directly or through a mutual connection or institution? Do you need permission to meet with them? Will a letter of introduction from a suitable politician or officer be useful? Would it be better to meet with multiple stakeholders at one time in a workshop or official meeting? What questions should you ask? The team can also think of producing a simple flier in the local language with brief information on the

GSLEP process, the national Government's commitment to it, and the plan's inclusive nature for conservation and development. Such printed information can be a positive reference for them.

4.2 Form an assessment team

As mentioned above, the team doing the assessments is key to the process. Here are some basic guidelines for your assessment team:

1. Select an effective team of staff, students and volunteers who are interested in the process.
2. Invest in the team's capacity, helping them to understand the management plan, its philosophy, goals and implementation approach.
3. Invest in informing any team members that may not have been involved in the stakeholder analysis process about the stakeholders so that they have the right questions ready (see section 3.2 Gather key information on stakeholders above). The team members should be in a position to ask questions and provide feedback if any issue or scheme is inadvertently left out in the discussions.
4. If questions arise that the team cannot answer, they should revert back to the stakeholders for answers or responses.
5. The team should be respectful and courteous irrespective of the stakeholder's behaviour or status.

5. Conclusions

Stakeholders can have legitimate stakes in the landscape that may complement or conflict with snow leopard conservation goals. A stakeholder analysis process enables you to optimize the benefits of positive programs by avoiding duplication, involving diverse agencies in conservation, saving conservation funds and generating long-term collaboration. At the same time, this analysis allows us to deal with potential conflicts with stakeholders through a better understanding of the conflicts and space to negotiate a settlement using a proactive, rather than a reactive, approach. The stakeholder analysis can, thus, strengthen conservation in the landscape using a true partnership-based approach (see Appendix 1 for an example).

References

- Sutherland, W. (2000). Conservation Handbook: Research, Management and Policy. Blackwell Publishing. Oxford, UK. (see Chapter 7: Conservation Planning, Chapter 8: Organisational management and fund raising, and Chapter 14: Integrating Conservation and Development)

- Anonymous (2011). Management Plan for the Upper Spiti Landscape Including the Kibber Wildlife Sanctuary. Wildlife Wing, Himachal Pradesh Forest Department & Nature Conservation Foundation, Mysore. (See Chapter 2.4 Institutions in Spiti and Chapter 7: Set up Mechanisms for Collaborative Conservation.)

Appendices

Appendix 1: The need of stakeholder analysis in management planning: an example

A snow leopard landscape spans across 10,000 km^2 that includes 10 villages. Using an analysis of biodiversity values, traditional threats to biodiversity and needs of local communities, a management plan was prepared that dealt extensively with local issues. The plan also identified four critical snow leopard areas that had demonstrably better values for wildlife and arranged for its conservation with local communities. Activities aimed at managing livestock depredation by snow leopards was worked out with the most affected communities through detailed participatory processes. Further, given the very poor situation of energy for both cooking and lighting a program to provide subsidized cooking gas and solar lighting was arranged at considerable cost (30% of the management plan's allocations). Three scenarios are discussed below:

1. Energy: In the second year of the management plan implementation, the team, after considerable effort, was able to arrange for solar lighting in 3 of the 10 villages. However, at the same time the Government's department of energy already had a program for solar lighting through decentralized solar plants in five of the large villages along with an integrated solar kit that also charges mobiles for the remaining five smaller villages. The need for the solar lanterns in the villages supported by the management plan declined in another year and was discarded by the villagers.

2. Conflict management included corral improvements for livestock for which 20% of project costs were kept aside. Village meetings were held and corral improvement work was planned in four priority villages. However, since the problem of depredation and heavy winter snowfall had been acute for the past years, the villagers had been demanding covered corrals from the local administration. The animal husbandry department had already approved corral improvement for all 10 villages and the program began around the same time as the management plan implementation, thus making the effort by the management plan redundant.

3. Grazing-free reserves: Four critical snow leopard areas were identified with the support of local people. However, in year three of the management plan implementation, the infrastructure department began work to connect two important border posts that passed through one of these critical snow leopard sites. Upon inquiring with the department, they said the project had been cleared as a project of national importance after an Environmental Impact Assessment five years ago, and implementation began as soon as funds were available and cannot be altered at this stage.

In all of the above examples, prior information about the programs of other agencies would have greatly helped the management plan's focus areas and efficiency. In the case of solar lighting and corral improvements, precious funds could have been saved while also providing an opportunity for the other departments to participate in conservation. In the case of the road and grazing-free reserves, prior consultation could have helped in potentially negotiating realignment.

Appendix 2: An example of stakeholder analysis from the Upper Spiti Landscape

A) Table excerpted from the Upper Spiti Landscape Management Plan (Anonymous 2011) illustrating institutional data collected.

Table 2.10: Information on Line Departmental mandates collected through a discussion workshop in November 2009 and personal interviews with concerned officials.

Sr.No.	Department	Mandate	Thrust areas	Flagship Schemes
1.	Desert Development Program	All schemes at watershed level development (mainly water and soil conservation related)	• Water Resource Development, Soil conservation, Horticulture and pasture development. • All Spiti at watershed level (works with watershed committees.	• Water Resource Development - Tank canal construction. • Soil conservation – Land development, check dam construction. • Horticulture development – apple and poplar plantation in lower valleys. • Pasture development. – (unclear, but from discussions it emerged that it mainly entails in diverting water to pastures) • Artificial glaciers (Snow harvesting) in Tashigang and Getey.
2.	Block Development Office	• Implementation of various development schemes for alleviation of poverty and empowering people to have sustainable livelihood. • Encouraging and implementing decentralized planning	• Development of infrastructure in rural areas • Generation of employment and poverty alleviation • Providing basic amenities like drinking water and sanitation • Land development and water/snow harvesting	• National Rural Employment guarantee scheme (NREGA) • *Swarnjayanti Gram Swarozgar Yojna* • *Indira Awas Yojna* • Total Sanitation Campaign • Tribal Sub-plan • Drought Area Development Program • Integrated Watershed development program

Sr.No.	Department	Mandate	Thrust areas	Flagship Schemes
3.	*Sarva-Shiksha Abhiyan*	• Universalization of elementary education • 100% enrolment of school going age children • 100% retention, zero dropouts • To provide quality education, improve infrastructure and innovative schemes	All Primary, Middle, Higher and senior secondary schools	• Provide Teacher training. • Community mobilization • Yoga education to all physical education teachers • Exposure tours, health hygiene, First aid Training to all school children.
6.	Animal Husbandry	• Genetic improvement of livestock • Improve Health Status of Livestock • To keep animals disease free	• Genetic improvement of livestock for milk production • Availability of feed and fodder • Prevention of major outbreak of diseases	• Shepherd Insurance program • Provision of feed in 100% freight subsidy. • Provision of fodder seed in 50% subsidy
7.	Agriculture Department	• Increase agriculture production. • Provision of new agricultural technologies and agricultural implements. • Promotion of organic fertilizer material such as Gobar khaad (dung compost) and Kechua Khaad (vermicompost).	• Promotion of improved seeds. • Promotion of new irrigation techniques, such as sprinkler and drip irrigation	• Distribution of improved seeds and new technologies in agricultural implements. • Promotion of organic agriculture. • Laghu Sinchai Yojna (micro irrigation project) - providing sprinklers, tank, drips etc. • Promotion of green fodder and green manure. • Promotion of organic fertilizers (Dung and vermicompost) in the place of chemical fertilizers. • Awareness campaigns among farmers. • Promotion of mixed-agriculture.

Sr.No.	Department	Mandate	Thrust areas	Flagship Schemes
8.	Horticulture	• Expansion of area under horticulture • Subsidized distribution of fertilizers • Distribution of Apple	Spread apple is all potential sites of Spiti	• Horticulture Technology mission • Development of Horticulture • Distribution of subsidized horticulture material, apple, apricot (saplings) and irrigation material such as water storage tanks and hose pipes.
10.	Him Urja	Providing alternate sources of energy, especially for rural areas	• Micro-hydel projects to provide much needed power in remote areas • Popularize use of solar products	• The Lingti power plant (2 X 200 KW) for Lallung and Pin panchayats • Street lighting (c. 100 installed in Kaza, Tabo & Kibber) • Free distribution of solar cookers (500 being distributed free in Pin) and 200 to schools across Spiti • Six Micro-hydel projects planned, 1.5MW each (Takling, Guru Padma Sambhava, Lobzang Tandup in Mane, & Saral)
11.	HP State Electricity Board	Providing power to all parts of Spiti	Hydroelectricity power generation	Ratang nala power project (2MW) caters to 63 villages covering 3,240 users)
12.	State Bank of India (SBI)			• *Kisan* credit card – loans of upto Rs1 lakh at 7% interest (Rs10-15 thousand per bigha) • *Krishak Uthan Yojna* – loans upto Rs 50 thousand at 7% interest. • *Sahyog Niwas Yojna* – loans upto Rs 50 thousand at 8% interest • Life insurance scheme- entire premium amount is returned after 10 years.

Sr.No.	Department	Mandate	Thrust areas	Flagship Schemes
13.	Public Works Department (PWD)	Develop infrastructure in Spiti	• Construct & maintain roads and buildings in Spiti • Implement the *Pradhan Mantri Grameen Sadak Yojna* (PMGSY)	• Since the decade beginning in 1999 *c.* 117 km of new roads have been added (11.7km/year) with about 102 km being metalled (10.2km/year) • In the same period 47 residential and 36 nonresidential buildings have been added at an average rate of c. 9 per year
14.	Khadi Bhandar	Popularize *khadi* products and help sale of local production		• Local production has had limited success, but a Sheep Wool Centre is present in Kaza • Sale of products has been on an average Rs. 3.36lakhs annually since 2005
16.	Employment exchange	Channelize job opportunities		Till late 2009, 1,140 people were registered of which 29 (2.4%) had be placed
	NGOs			

Sr.No.	Department	Mandate	Thrust areas	Flagship Schemes
1.	Ecosphere (www.spitiecosphere.com)	• "Ecosphere is a social enterprise, which is a collaborative effort of the local community of Spiti and professionals from diverse backgrounds, with a wide spectrum of skills and experience, effectively spanning the bridge from the general to the niche. • Our focus is to create sustainable livelihoods that are linked to nature and culture conservation. As a social enterprise it is our mandate to address the triple bottom-line of conservation, development and economies…"	• Responsible tourism • Organic and natural products from the Himalaya that conserves its ecosystem and sustains local livelihoods • Conservation: Enabling a more sustainable future by linking local economies, conservation and development • Handicrafts development: From 'thangka' paintings on silken canvas, 'zama' with local clay to woolen handicrafts with natural dyes.	• Organizing eco tours and helping communities set up homestays • Help people produce and market organic agricultural produce that includes those from seabuckthorn • Developing marketable handicraft produce from Spiti to augment household incomes • Leverage income generation to help in conservation works
3.	World Wide Fund for Nature (WWF – India) (www.wwfindia.org)	Conservation and awareness generation in India	Responsible tourism in Spiti	WWF is collaborating with Ecosphere to understand tourism in Spiti, and its possible future course to make it environment and culture friendly. NCF is also providing some technical support to this programme

Sr.No.	Department	Mandate	Thrust areas	Flagship Schemes
4.	Nature Conservation Foundation, Mysore (www.conservation.in)	Promote knowledge based conservation in India	• Focused quality research on ecology & human society • Develop effective conservation models, especially using local support • Spread awareness about wildlife and environmental conservation • Help improve local capacity, planning and implementation of conservation works	• Developing snow leopard & prey species monitoring protocols • Understanding and managing people-wildlife conflicts • Developing models for maintaining socially fenced areas for conservation • Awareness programmes directed at school children, teachers and youth • Helping in conservation planning and implementation (this management plan)

B) Example of Stakeholder analysis highlighting areas of convergence and divergence with conservation goals. Please note that these are summarized for sectors rather than each agency per se.

Table 7.1: Sectoral convergence for conservation in Spiti based on mandates and thrust areas noted in interviews and by analysis of ITDP 2007-08 Annual Plan document (Table 2.10; Appendix 2.5). 'Convergence' here refers to the possibilities of using departmental mandates for wildlife conservation.

See clubbing together of the various line departments into sectors w.r.t. Spiti in Table 2.11.

Sector	Comments on Convergence or Divergence
Agriculture & allied	• Cash crops such as green peas and recently, apple, have created major avenues of cash income for communities. A possibility of further diversification of cash crops such as apricots is also possible. These are likely to reduce direct dependence of people on local resources • Agriculture & Horticulture Departments have laid emphasis on organic agriculture in their mandates. While this is a positive effort to preserve the traditional organic practices, additional areas under cultivation may put greater demand on rearing more livestock for dung alone; a practice that can potentially be detrimental for local rangelands. This needs to be monitored. • Both the Agriculture & Horticulture Departments have excellent facilities for training and extension of farmers. These structures can be useful to convey environmental messages. • The research and education facilities of the Y.S. Parmar University of Agriculture & Technology, and the Horticulture Department in Tabo, can be very useful in helping with conservation oriented agro-ecology research, monitoring and implementation.

Sector	Comments on Convergence or Divergence
	• The Agriculture & Horticulture Departments are aware of their socioeconomic responsibility, especially of helping the economically poorer sections and women.
	• The Horticulture Department in fact states a clear environmental objective as "Develop horticulture as an environment friendly enterprise for economic development, environment conservation and development of ecotourism"
	• Irrigation projects appear to have both, positive and negative impacts on conservation. The economic resources generated from the fields mostly help in making the communities less dependent on other local resources. The seepage from the channels (khuls) often enrich the adjacent pastures. However, the labour force used to construct and often to maintain the channels are from outside, who are known to disturb wildlife or cause undue disturbance.
	• Historically, harvest of water for agriculture has led to reduction in productivity of pastures, especially those close to glaciers and springs.
Animal Husbandry & allied	• Fodder development programmes are an important aspect of the Animal Husbandry Department and can greatly reduce grazing pressures from rangelands and confining pressures to limited areas near settlements
	• Value addition of endangered livestock breeds such as the Chumurti horses is an important aspect, and can be leveraged in the tourism business
	• Prophylactic care and treatment of livestock against diseases and parasites is an important aspect of the department, something that clearly helps conservation of wild herbivores. Such care, especially close to the 'core' reserves identified in this plan can be very helpful for conservation
	• Fisheries Department has had a slow growth in Spiti as local communities revere fishes and avoid eating or killing them. Some aspects of fisheries, such as angling can have potential in tourism and are recognized by the department
	• Any move to increase livestock numbers can have damaging impacts on rangelands and wildlife in general and this needs to be avoided.
	• Some exotic fishes such as the Arctic char are being introduced in rivers and streams of Spiti and can potentially wipe out the native fish fauna
Central	• The BADP, DDP and SADA are all central resources with crosscutting priorities in particular areas. They provide inputs in fields of infrastructure, agriculture, animal husbandry, soil conservation, etc; all fields that have a significant environmental imprint
Disaster	• Primarily flood control department. Mandated to help in emergencies with high potential for prevention of erosion
Cooperatives and Industry	• Industrial development and commercial activities through cooperatives remain primarily potential options for augmenting local incomes and can be leveraged for conservation activities

Sector	Comments on Convergence or Divergence
	• Programmes for providing credit, skills training, marketing, transport and even tourism enterprise is possible
	• Both departments have programmes for training of youth and others in managing and running cooperatives or small-scale industry, including exposure visits to organizations of national repute. Locally prevalent skills in Thangka paintings, rock carving, woolen products and yak based products can be channelized under this initiative
	• Scoping studies can be conducted to determine the various environment friendly options of industry in the landscape
	• The State Bank of India, Kaza provides loans for entrepreneurs, students and even setting up self help groups
Education	• The Sarva Siksha Abhiyan has high potential in providing scholarships, infrastructure, but especially in facilitating nature camps on a regular basis. Production of education and awareness material is possible through the SSA that can have a large impact through out the landscape
	• Education is the cornerstone for opening up the opportunity of employment, both in organizations and for self-employment, which in turn can help reduce local dependence
	• Technical education can open up opportunities for youth to develop skills, especially in vocational fields
	• The Public Library can be an important place to have interesting books and publications on wildlife and nature in general, which can help develop interest among the young and old alike. There is a need to revitalize the library in Kaza
	• The Information & Publicity Department of the Government can help with information dissemination on wildlife values, do's and don'ts for outsiders as well as for local communities
	• The Youth Services & Sports already recognizes the importance of environmental conservation and had kept it as its theme in 2006-07 priorities under ITDP
	• The National Service Scheme (NSS) of the Youth can also be channeled for environmental works
Employment	• The Employment Assurance Scheme, the Jawahar Rozgar Yojna and the ongoing Mahatma Gandhi Rural Employment Guarantee Scheme (MGREGA) are major vehicles of bringing in employment opportunities in all fields in the landscape.
	• Many of the civil works under the plan can potentially tap MGREGA resources
Energy	• Power is the backbone of development. There is however a major deficit of electricity in the landscape, with even the Sub-Divisional HQ having a constant shortage year round. Mini & Micro (and even Pico) Hydel projects in general planned by the HP SEB and Himurja should help overcoming this shortage

Sector	Comments on Convergence or Divergence
	• Conservation agencies often try to invest considerably in the energy sector (solar power, wind power and LPG) with the assumption that these will reduce dependence on local fuel resources. Himurja has a comprehensive mandate to provide solar devices free of cost or at substantial subsidy in the entire landscape. Works on community managed micro-hydel, solar lighting, and maybe even solar cookers and geysers can be complemented by the Management Plan process with some monetary contribution and with prioritization of communities participating in active conservation initiatives • Large power projects aren't yet lined up in Spiti, but they often can cause serious environmental damage and need to be avoided.
Environmental	• The Wildlife Department is the main implementer of this Management Plan. Other departments such as agriculture, soil & water conservation, DDP, BADP also have a role in carrying out environmental works in the landscape • The Forest Department provides fuelwood from outside the landscape (up to 70% of the need), which takes off pressure from at least the local shrubbery. They are also making efforts in habitat restoration, protection of wildlife and community-based catchment area protection to improve habitats and wildlife values • The Wildlife Department is involved with development of pastures immediately around the village lands. This subject needs sounder research to develop ways of doing it most efficiently and using native species. • The Science & Technology (S&T) sector has a mandate to contribute towards solar passive heating of houses to conserve fuel use in winters and promote green houses to enable produce of fruits and vegetables. • The S & T have proposals for rainwater harvesting, but in the Spiti landscape it may be wiser to develop means of tapping the snow/ice using innovative means such as artificial glaciers for both irrigation of crops and water for pasture development. This has been done in Ladakh. • Products from seabuckthorn are an important aspect of their mandate and considerable research on the subject has already been done in the DRDO's High Altitude Lab in Leh, Ladakh (Field Research Laboratory). This can be channalized for use in Spiti, along with efforts of agencies like Ecosphere • A word of caution regarding seabuckthorn harvest – local people have noticed that their harvesting the berries in autumn deprives numerous bird species of this fruit and have on their own reduced and regulated its harvest. The impacts of harvesting the berries (which in most cases is outside village land) needs to be understood • S&T have a mandate to organize Children Science Congress and Science Clubs. These can be utilized effectively in conservation awareness programmes too. They also have a provision to take school children on study tours, which can be tapped for tours to other conservation areas that can help children appreciate their resources better

Sector	Comments on Convergence or Divergence
	• They have programmes for capacity enhancement of local staff, awareness and community members in a variety of subjects and these resources can be channelized better for conservation initiatives based on this plan
Governance	• The Panchayats will make an important interface in the negotiations between the planners and local communities for designating reserves and other related activities
Health	• Since Spiti is an important site for medicinal plant production and traditional use (through the amchi system the Bhot Chikitsa Paddhati), this style of treatment and healing can be encouraged and channeled into tourism industry too • Herbal gardens as maintained by the Forest Department and agencies such as Pragya can become important tourist attractions where knowledge dissemination is arranged (also for local people) • Tremendous caution however needs to be observed for regulating the commercial use of the medicinal plants • The Hospitals are already aware of the safe disposal of medical waste items and this needs to be maintained
Infrastructure	• A top priority sector of the Government in Spiti, this is critical, but can have serious environmental consequences too • The departments involved are PWD, Irrigation & Public health • As of now no clear mechanisms for minimizing environmental impacts of roads and buildings are envisioned. These need to be brought into the agendas of the departments dealing with infrastructure. • All these departments do most works through contractors who bring in outside labourers. The serious threats some of these people can pose to the local environment needs to be understood and mitigated as discussed elsewhere in this Plan (Table 6.1). It is important to have a mechanism for monitoring and addressing these issues
Tourism	• Tourism infrastructure and systems are being promoted that should ultimately help communities. However, a clear linkage with how this will help the community isn't yet stated clearly. • The schemes for preparing publicity and informative material in the form of both print and audio-video formats can be of great help in promoting responsible nature/wildlife tourism • There is a scope of encouraging community based schemes such as homestays and eating places in the region that provide a good cultural experience to visitors • Adventure sports can be encouraged that includes river rafting, mountaineering, etc

Sector	Comments on Convergence or Divergence
	• Capacity enhancement of local youth is possible with the help of tourism and mountaineering departments/agencies
Transport	• Transport facilities into Spiti are rudimentary at present and are often considered one primary cause of limited tourism in the region. Targeted improvement in local transport can help in this cause apart from the much needed help to the local communities
Welfare	• The Rural Development, Civil Supply, The HP SC/ST Development Corporation (HPSCSTDC), Youth Services, etc are important parts of the Government machinery dealing with welfare of the population, an aspect critical to local livelihoods as well as conservation. • Employment generation is an important focal area as also poverty alleviation. Channelizing these programmes in conservation areas through the Planning process can help build the constituency of conservation • The Rural Development Department has already stated goals dealing with promoting environment friendly practices in all its areas of support that include soil conservation, moisture conservation, pasture development, horticulture and agricultural works • Skill based capacity enhancement in a variety of vocational fields in provided for • Promoting Self Help Groups (SHGs) and self employment (through Swarnajayanti Gram Swarozgar Yojnai, Sampoorna Grameen Rozgar Yojna (SGRY), and employment through NREGA, etc • The HPSCSTDC has schemes for promoting tourism enterprises (guest houses, taxi, dhaba, etc.), handicrafts, agriculture and industry related initiatives by community members through SHGs • There is support for skills development available with the HPSCSTDC • Support for awareness generation through publicity material is available with the HPSCSTDC