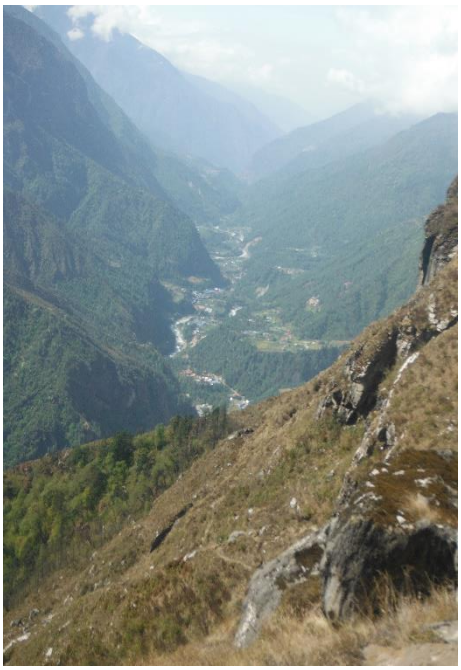
Report on the IUCN Advisory Mission to Sagarmatha National Park



Nepal

Bruce Jefferies (IUCN)

May 2016

Acknowledgements

The mission records its gratitude for the help and support it received from a wide range of organisations and people. Staff from the Department of National Parks and Wildlife Conservation (DNPWC) provided high levels of support and effectively coordinated field trip logistics.

The UNESCO Kathmandu Office deserve a mention for the help they provided to the mission in terms of arranging meetings and logistical support. The mission was fortunate in that it had a well-established network, which provided access to knowledgeable informants, including active and retired protected area practitioners (together with some persons from the Sagarmatha National Park (SNP) area).

Buffer Zone Management Committees, Nepal Government Departments and Agencies and other stakeholders were all willing to share their time and ideas. This positive and helpful approach was appreciated.

1 Executive Summary

From 1 to 10 May 2016, an IUCN Advisory Mission visited the World Heritage property of Sagarmatha National Park, in order to provide advice on a number of issues, including the Kongde View Resort, tourism management, waste management, and other issues. Based on previous experience, including World Heritage assignments in other locations, the mission took a precautionary approach. This included efforts to cover a lot of issues and to anticipate and address the significant number of threats and problems that are impacting on the Outstanding Universal Value (OUV) of the property.

On many occasions, during both formal and informal consultations, the term "best of the best" was applied. This expression was an integral part of the mission's efforts to clearly share and articulate the special nature of the property, and its position as an internationally significant site. This concept was based on the notion that "maintenance of the property's OUV is a primary protected area management function".

This mission report, unapologetically records numerous issues and threats. A number of these have been reported on for (at least) 2-3 decades and, as they are threatening the integrity of the property's OUV, are serious and need urgent attention.

It is not an appropriate function of an advisory mission to provide recommendations on whether the property should be considered as being in danger. There are, however, strong indicators that the property is under significant pressure from a wide range of direct threats[1] including *inter alia:*

- Kongde Lodge and trail development
- Helicopter use and associated impacts
- Management planning shortcomings
- Waste management
- Plans to extend the road to Surke (on the boundary of the BZ)
- Cargo / goods ropeway to Namche Bazar
- Large teams of ponies for shifting freight
- Mountaineering Tourism – (an activity that is not addressed in planning documents)
- Expeditions to climb Mt Everest are reaching unsustainable levels.
- Global warming
- GLOF Threat Management

[1] The Open Standards for Conservation Practise define direct threats as the proximate human activities or processes that have caused, are causing, or may cause the destruction, degradation, and/or impairment of biodiversity. Threats can be past (historical), ongoing, and/or likely to occur in the future.

- Proliferation of lodges

The line of reasoning here is that each issue on the above list has a tendency to be considered as an individual issue. The mission's apprehension is centred around the reality that it is the cumulative consequences of these threats that are degrading the property's natural and cultural values.

Regarding the specific issues that the IUCN Advisory Mission was requested to provide advice on (as outlined in the Terms of Reference), the following recommendations are made:

Kongde View Resort and access trail

The mission recommends that the State Party:

1. provide to the World Heritage Centre an official survey definition of the legally defined location of these facilities and their relationship to the gazetted boundary of the property, in order to definitively clarify whether the two commercial lodges are (or are not) located inside the property;
2. carefully assess the impacts of the lodges and their access trails on the ecology and biodiversity of the area where they are located, and implement adequate measures to minimize and mitigate these impacts;

Assessment of waste management provisions

The mission recommends that the State Party:

3. Instigate a feasibility assessment on viable / cost-effective options for dealing with the treatment and disposal of human waste in the upper part of the property;
4. During the management plan review include viable / cost-effective options for dealing with the treatment and disposal of human waste in all parts of the property and Buffer Zone;
5. Support, in both policy and financial terms, SPCC's efforts to develop sustainable waste management strategies and facilities;

Tourism infrastructure and related activities

The mission recommends that the State Party:

6. provide to the World Heritage Centre information on
    a) the number and capacity of lodges located within the property and its buffer zone, and
    b) the owners of these facilities and whether they are operated by the owners or are leased;
7. apply international best practice in terms of managing helicopters and aircraft in the property, in order to minimize disturbance from noise and visual impacts,
8. investigate entering into concession / license arrangements, including the payment of appropriate fees, with helicopter companies operating within the property,
9. control and regulate activities which helicopters may be used for within the property;

Visitor carrying capacity and limits

The mission recommends that the State Party:

10. consider, as part of the management plan review process, options for establishing an appropriate visitor carrying capacity - particularly for peak periods;
11. Implement an objective analysis of a wide range of protected area management considerations and take into account: best practice protected area management, biodiversity and ecosystem resilience, economic sustainability, livelihoods, political feasibility, social and cultural sensitivities etc.

Management Planning

The mission recommends that the State Party:

12. Ensure that the management plan integrates
    a) a well-established vision,
    b) appropriate strategies,
    c) pragmatic SMART[2] (Specific, Measurable, Achievable, Realistic, Time-bound) objectives and
    d) activities that can be translated into annual work plans and budgets
    e) details on the primary responsibilities of the different stakeholders, in order to contribute significantly towards alleviating the uncoordinated management structure that currently prevails.
13. approach a NGO partner experienced in the application of the Spatial Monitoring and Reporting Tool (SMART) and seek support for developing and implementing a patrol and monitoring methodology based on SMART;
14. establish a working group including inter-alia DNPWC (Convener), Nepal Army, Buffer Zone Management Committees, Sagarmatha Pollution Control Committee and a SMART system practitioner to complete a feasibility assessment – including human capacity development needs, costings for mobilising the SMART patrolling and monitoring methodology.
15. consider putting in place a process for planning and implementing an Open Standards workshop. Draft Workshop Objectives could include:
    a) Participants will gain a sound understanding of the conceptual framework and methods of the Open Standards by working through the key elements of the process;
    b) After the workshop participants will be confident and able to access support to enable them to complete a first iteration plan for their project;
    c) Participants will gain basic insight into the use of Miradi software to document the planning process;
    d) The Project facilitators and trainers will identify issues and needs related to supporting mainstreaming of Open Standards practice in the DNPWC and develop a plan for addressing this.
16. ensure that joint/collaborative management approaches are ingrained in all management interventions in the property, within the context of an active and progressive contemporary approach to protected area planning and management.

Community-Based Flood and Glacial Lake Outburst Risk Reduction Project

The mission recommends that the State Party:

17. ensures the environmental compliance measures that are an integral part of the Letter of Agreement (LOA) are fully complied with;
18. make certain that Buffer Zone Management Committees are involved in briefing Army engineers and associated staff in terms of responsibilities to respect Sherpa / Buddhist cultural and spiritual values and practices;
19. ensures that UNDP and the project proponents be required to include in the compliance and monitoring process conditions relating to:
    a) Provisions to cover the costs of DNPWC staff (or suitably qualified independent consultants) to monitor compliance;
    b) Deposit of a substantial bond in the name of DNPWC to contribute to restoration and rehabilitation in cases of inadequate or unacceptable standards of compliance.

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[2] *SMART = is a mnemonic acronym which provides criteria to guide the setting of objectives for protected area management. The description includes objectives that are; Specific, Measurable, Achievable, Realistic and Time bound.*

Buffer zone management and World Heritage

The mission recommends that the State Party:

20. defer preparing and submitting a boundary modification to include existing buffer zones within the property;
21. prepare, as part of a revised management plan, strategies, objectives, and activities that take account of the important function of BZ;
22. re-address this when the next State of Conservation report to the World Heritage Committee is drafted.

A number of additional recommendations that have the potential to transform the management of the property are offered by the mission expert. These are addressed in this report and are summarised in Box 1 on pages 24-25**Error! Reference source not found.**.

2 Background to the Advisory Mission

At its 36th session, the World Heritage Committee recommended the State Party of Nepal to consult the Mountains Biome Specialist Group of the IUCN World Commission on Protected Areas for technical advice on the overall state of conservation of the property, with particular attention to the impacts of the Kongde View Resort and tourism on the Outstanding Universal Value of the property, and the proposed buffer zone. It also recommended the State Party consider the possibility of inviting an advisory mission by the Mountains Biome Specialist Group to the property to provide advice on these matters.

By letter of 15 March 2015, the Government of Nepal requested assistance from the World Heritage fund to support an advisory mission to Sagarmatha National Park. The Director of the World Heritage Centre confirmed in a letter dated 7 April 2015 that the above-mentioned mission would receive support from the World Heritage Fund.

The Advisory Mission was carried out by Mr. Bruce Jefferies, representing IUCN.

3 Advisory Mission Terms of Reference

In particular, the mission was requested to perform the following tasks:

i. Assess the overall state of conservation of SNP, with particular attention to the impacts of the Kongde View Resort located within the property, garbage management and tourism on the Outstanding Universal Value (OUV) of the property, and provide recommendations for the way forward;
ii. Review the draft Management Plan 2015-2019 for SNP and its Initial Environmental Evaluation (IEE) report submitted by the State Party, and provide technical advice in support of enhanced tourism planning, development and management;
iii. Address the concern of the Department of National Parks and Wildlife Conservation (DNPWC) of Nepal regarding infrastructure work under UNDP's Community Based Flood and Glacial Lake Outburst Risk Reduction Project (CBFGLORRP) in the Khumjung Village Development Committee (VDC), which is integrated into the draft Management Plan 2015-2019, by providing appropriate advice on its impacts and suggest mitigation measures;
iv. Discuss the result of the consultations between the DNPWC of Nepal and local Sherpas and other stakeholders regarding the possibility of making the existing buffer zone of the SNP a formally recognized buffer zone to the World Heritage property and, in case the State Party (SP) wishes to submit a minor boundary modification for this, provide technical advice on the required documentation;

4 General Observations on the ToR and Mission

It needs to be taken into account that in the time assigned for this mission, the field visit was only able to virtually "scratch the surface" of the property, which comprises some 1,148km^2 plus a Buffer

Zone of some 275 km^2. Several factors contributed to this situation. A primary consideration included health and safety in terms of the high altitude of most of the property. Another inhibiting factor was the apparent lack of resources to extend the mission beyond 15 person days. This included travel time from the consultant's home-base to and from Nepal (4-days), 10 days of field work, consultations and various meetings in Kathmandu and report drafting.

For these reasons, it was not feasible to carry out site inspections or meet concerned stakeholders, and provide definitive recommendations as required under Task # iv in the TOR.

Previous experience, and informed medical advice, demonstrated that gaining altitude too quickly in the Himalayas can result in serious, and in some cases, life-threatening adverse medical circumstances. During the planning phase, the mission strongly advocated an amendment to the original mission program as promulgated by the State Party so as to take this concern into account.

Refer ***Error! Reference source not found.~~Error! Reference source not found.~~*** *~~Annex 1 Mission Route Map~~*

Consequently, the field inspection program provided inadequate opportunities to observe and report on field conditions and allow an objective evaluation of the scope of the complex matrix of issues that the property is experiencing; for example, the expectations outlined in Task # i of the ToR. That being said, the mission was able to meet and interact with a wide range of stakeholder groups. A positive / contributing factor was that the mission was fortunate in that it had access to a well-established network and was able to facilitate useful discussions and meetings with a cross-section of informants, including NGOs, protected area practitioners, tourism industry interests, and representative organisations e.g. Nepal Mountaineering Association.

Refer ***Error! Reference source not found.~~Error! Reference source not found.~~*** *~~Annex 3 Mission Schedule - Interviews and field notations~~*

5 Kongde View Resort and access trail

The mission ToR placed significant emphasis on assessing impacts on the property from the construction of two commercial lodges that are, in all probability, inside the property. It needs to be stressed that the legally defined location of these buildings and their relationship to the gazetted boundary of the property can only be definitively established by an official survey. The legal issues surrounding the Kongde Hotel development, therefore, currently remain unresolved.

The mission notes a divergence of opinion on these facilities. The representative of Thamserku Travel Group (refer www.thamserku.com), whom the mission met prior to visiting the site, explained that his company had conclusive legal documentation proving ownership of the land in question as well as official approval to construct the facilities. Unfortunately, the Nepal Government does not have copies of the land transfer or purchase records. It seems these were destroyed during the period of civil unrest when the Salleri District Office was burnt to the ground. Consequently, the only copies of documentation that were available are those held by the company that is the owner of the development. The mission notes that various stakeholders have expressed their opinion that documentation may have been illegally obtained, and that the facilities had been constructed illegally.

The development occupies three plots of land, two of which have been sold to separate (but possibly related) developers. The site occupied by these hotels is a well-used Yersa (summer grazing settlement). It is conceivable that this land has some form of traditional user right or ownership.

The appropriateness of this development is vexed and contentious. The facilities are located at 4,250 metres above sea level (masl) and command impressive 360^0 views of the upper part of the property, including the Nuptse-Lhotse wall and Mt Sagarmatha, which form the northern boundary of the property.

The site where these facilities are located is difficult to access on foot. From the Dudh Kosi Valley access involves a 2,000m climb; the alternative is a 7 – 8 hr trek from Thame gaining some 500m over rough terrain (the mission traversed this route). Generally, this means that the sites are serviced by helicopter. Both the hotel development and Thame access trail are located within, arguably, one of the property's most ecologically intact and biodiversity-rich areas. One lodge was badly damaged by the 2015 earthquake and has been partially demolished in preparation for rebuilding. The second hotel had been repaired and was almost fully functioning.

Hotel operations, apart from helicopter servicing intrusions, are in general confined to the immediate area occupied by the hotel. Although no technical information such as the plans and specifications for the disposal of waste were available, the mission was informed that waste water and sewerage was disposed of through a septic tank system. Other waste was burnt on site or transported by porters to the valley and disposed of in conjunction with one of the company's other hotels, which is located on the main trail at the village of Phakding.

The trail from Thame to the Kongde hotels does, however, present a range of threats and impacts. In the first instance the mission understands that the trail was constructed without DNPWC approval, (this needs to be verified). As pointed out above, the trail bisects an extremely sensitive and ecologically intact and biodiversity rich part of the property. Given that the justification for the property's inscription on the World Heritage List under criterion (vii) includes a reference to its characteristic flora and fauna, the mission concludes that the trail from Thame has more impact on the property's OUV than the two accommodation lodges the mission was tasked to evaluate.

The mission recommends that the State Party:

1. provide to the World Heritage Centre an official survey definition of the legally defined location of these facilities and their relationship to the gazetted boundary of the property, in order to definitively clarify whether the two commercial lodges are (or are not) located inside the property;
2. carefully assess the impacts of the lodges and their access trails on the ecology and biodiversity of the area where they are located, and implement adequate measures to minimize and mitigate these impacts;

6 Assessment of waste management provisions

Following the first ascent of Mt. Everest in 1953, mountaineering and tourism activities have continued to increase in the Khumbu region. In the 1980's national and international media highlighted the issues associated with waste management within SNP, including human waste and garbage.

In 1991 the Sagarmatha Pollution Control Committee (SPCC) (with the support of WWF Nepal Program) was established as a non-governmental / non-profit making organization legally registered with the Government of Nepal. Since its establishment SPCC has been actively engaged in waste management in SNP and is the authorized local organization responsible for monitoring garbage as part of the permit required for expeditions and climbing treks. SPCC has established direct coordination with local communities. SPCC is responsible for the management of garbage in major settlements and along trekking trails and is developing sustainable waste management strategies and facilities with the long-term goal of keeping Khumbu clean.

In the context of SNP, waste can be defined as garbage, refuse, sludge, air pollution and other discarded materials including solid, liquid, semi-solid, from tourism (commercial and non-commercial), agriculture, and other activities. Examples of discarded waste within the property are: metal, garbage, oil, aerosol cans, gas cylinders, construction and demolition debris, recreational equipment (tents, climbing equipment, etc.).

The mission concluded that, apart from the treatment and management of human waste, the efforts being made by the SPCC are adequate. Although it was not possible to observe sites that are of

concern, such as the regular overnight stopping places, a few stakeholders expressed reservations at how human waste from the base camp is dealt with. The mission understands that sealed containers (lined with plastic bags) of human waste are transported to Lobuche (about one days walk from the base camp) and disposed of in an open pit. The potential for the pit to leech contaminants and untreated waste into adjacent watercourses is very real.

The mission recommends that the State Party:

3. Instigate a feasibility assessment on viable / cost-effective options for dealing with the treatment and disposal of human waste in the upper part of the property;
4. During the management plan review include viable / cost-effective options for dealing with the treatment and disposal of human waste in all parts of the property and Buffer Zone;
5. Support, in both policy and financial terms, SPCC's efforts to develop sustainable waste management strategies and facilities;

7 Tourism infrastructure and related activities

Over the last thirty years there has been a transition from families offering lodging and food to trekkers to the present day where lodges now offer rooms with attached bathrooms, including deluxe and super deluxe suites, and common rooms with facilities including Wi-Fi internet, room service, laundering, hot shower, restaurant, bar services and bakeries.

Except for the peak visitation periods of October / November (Autumn season) and March / April (spring season), the demand for visitor accommodation is probably significantly exceeded by the supply. One reliable source estimated that there were some 600 lodges within the property. At several key locations, such as the trail to Everest Base Camp (EBC) and in the Gokyo Valley, lodge owners compete for business by offering accommodation at little or no cost on the condition that guests purchase their meals at the place where they are staying. This clearly unsustainable business practice has the potential to contribute to environmental degradation because lodge operators (both owners and lessees) are forced to cut corners in terms of solid waste disposal, garbage, etc.

Another contributing factor is the obvious and steady increase in owners of land within the buffer zone who build lodges and then lease them to "non-residents". These arrangements are generally made with people who have come from outside the property, have little or no sensitivity to cultural or environmental values, and need to generate significant revenue to pay the lessor, purchase fuel and food, and pay service staff.

For about the last 5-8 years it has been recorded in various reports that an exponential increase in aircraft activity, particularly helicopter flights, has taken place within the buffer zone and the property. The mission observed that helicopter flights from Lukla to various locations within the property commenced as early as 6 am and continued almost unabated as long as weather and flying conditions allowed, on some days for more than ten hours. The mission was advised that on a regular basis 4 helicopters operated out of Lukla airport while on some days up to 7 helicopters were using it.

Marketing and promotion for a wide range of helicopter supported activities within the property include skydiving, rescue operations, medical evacuations, sightseeing, general cargo activities and a "taxi service" between a variety of locations within the property.

The maintenance of the property's OUV is a primary protected area management function. The mission notes that SNP was inscribed on the World Heritage list under criterion *(vii) to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;*

The mission considers that the "aesthetic importance" component of the property's OUV is compromised by the unrelenting noise and visual impacts directly caused by uncontrolled / unregulated helicopter use.

The mission unreservedly accepts that some helicopter use is justified, particularly in relation to emergency situations. It is, however, conservatively estimated that as much as 70% of the helicopter traffic that takes place within the property (as opposed to the Buffer Zone) is for sightseeing, shifting freight, tourism-related commercial use, and to transport passengers who have insurance policies that allow them to use helicopters when they are, basically, to weary to trek back to Lukla. The mission was informed that there had even been occasions when climbing expeditions at the Everest Base Camp had dispatched a helicopter to Kathmandu to purchase ice-cream.

The mission recommends that the State Party:

6. provide to the World Heritage Centre information on
    a) the number and capacity of lodges located within the property and its buffer zone, and
    b) the owners of these facilities and whether they are operated by the owners or are leased;
7. apply international best practice in terms of managing helicopters and aircraft in the property, in order to minimize disturbance from noise and visual impacts,
8. investigate entering into concession / license arrangements, including the payment of appropriate fees, with helicopter companies operating within the property,
9. control and regulate activities for which helicopters may be used within the property;

8 Visitor carrying capacity and limits

The mission was unable to undertake a comprehensive analysis of visitor statistics. It is, however, well documented that visitation from the mid 1970's, when under 4,000 visitations were recorded, has grown to an estimated 35,000 visitors during the 2014/15 reporting period. This clearly illustrates that there has been incremental and significant growth.

Recording visitors passing through the entrance gate at Jorsale is important as it provides a base figure on which trends can be computed to provide important management indicators. Unlike many other protected areas, where visitor use is based on annual figures, the situation is more complex in SNP.

An often disregarded and significant factor in terms of physical impact is that each visitor usually stays for 12 days (probably longer). For park management purposes this is a more relevant figure as it represents an estimated **420,000 visitor days** per year. This estimate only takes account of foreign / entrance fee paying visitors and it is generally accepted that each visitor, particularly those participating in an organised trekking tour, is supported by three support staff (porters, cooks, kitchen staff, and guides) while visitors that organise their own trek usually hire the services of two porter / guides.

Based on figures recorded during a consultation with the Nepal Mountaineering Association (NMA), the mission developed an indicative estimate that the number of **user days** that DNPWC visitor numbers for 2014/15 would equate to is estimated at **1,735,000 User / Visitor Days per year**.

Refer **Error! Reference source not found.**~~**Error! Reference source not found.**~~~~Table 1 Estimate of number of User / Visitor Days 2014/15~~

Table 1 Estimate of number of User / Visitor Days 2014/15

Designation	Estimated Number of Users/ visitors	Estimated number of days each group spend in SNP	Total Estimated Number of Users/ visitors
Regular Tourist 2014/2015	35,000	12	420,000.00
Expedition Members	150	40	6,000.00
Local support Staff	105,000	12	1,260,000.00
Expedition Support Staff	1,200	40	48,000.00
Indicative totals	141,350	104	1,734,000.00

The mission was informed that as a conservative estimate, 70% of the visitor pressure is concentrated during two 8-10-week periods (Autumn and Spring seasons) and it is generally during this period when visitors experience overcrowding, accommodation limitations, lack of access to porters and support staff, and increases in commodity prices.

Physical impacts are almost certainly more evident during these periods but can also be observed throughout the year. These impacts include garbage disposal, waste management, general sanitation, trail erosion, overcrowding at monasteries and religious sites, congestion on trails and bridges, excessive noise impacting on natural quiet (all previously reported).

Stakeholders also informed that visitors using the trails would, on occasions, need to spend in excess of 1-1 ½ hours to cross one-way bridges or safely negotiate narrow parts of the main trail when trains of donkeys were approaching.

The mission recommends that the State Party:

10. consider, as part of the management plan review process, options for establishing an appropriate carrying capacity - particularly for peak periods;
11. Implement an objective analysis of a wide range of protected area management considerations and take into account: best practice protected area management, biodiversity and ecosystem resilience, economic sustainability, livelihoods, political feasibility, social and cultural sensitivities etc.

9 Management Planning

9.1. Problematic Management Structures

The complex geographic, administrative, socio-economic and cultural realities of the property strongly indicate that an integrated and cohesive management and administrative structure is needed, and that this would enhance management effectiveness, and deliver increased protection for the property's OUV. The term a "problematic Protected Area (PA) management structure" refers to elements that are incompatible in terms of achieving a unified management approach. Examples include the tourism industry where several government- and semi-agencies are involved. For example, mountaineering permits are issued by the Ministry of Tourism for peaks in excess of 8000 m - including Mount Sagarmatha. DNPWC issues entry permits for the National Park while the Tourism Agency Association of Nepal (TAAN) issue trekking permits and the Nepal Mountaineering

Association is authorised by the government to issue climbing permits for approved peaks below 8,000 m.

Organisations that have an administrative/and or management role within the National Park include:

- Buffer Zone Management Committees
- Buffer Zone User Committees
- Buffer Zone User Groups
- District Development Committee
- Department of National Parks and Wildlife Conservation
- Various International and National /Non-Governmental Organizations
- Ministry of Culture, Tourism and Civil Aviation
- Nepal Mountaineering Association
- Nepal Tourism Board
- Sustainable Tourism Development Committees
- United Nations Development Program / Global Environment Facility

It is not unprecedented that a diverse matrix of organisations and interest groups have responsibilities for activities within a protected area. A fundamental consideration is, however, that each stakeholder is aware of, and makes a meaningful contribution to, the effective management of the property.

The mission recommends that the State Party:

12. Ensure that the management plan integrates
    a) a well-established vision,
    b) appropriate strategies,
    c) pragmatic SMART[3] (Specific, Measurable, Achievable, Realistic, Time-bound) objectives and
    d) activities that can be translated into annual work plans and budgets
    e) details on the primary responsibilities of the different stakeholders, in order to contribute significantly towards alleviating the uncoordinated management structure that currently prevails.

9.2. Uncoordinated patrolling and enforcement systems

Enforcement and compliance with the Nepal Governments Acts and Regulations are a fundamental protected area management responsibility and function. A coordinated approach to patrolling and enforcement that embraces all areas within the property is necessary to ensure enhanced levels of protection, as well as improved management effectiveness.

The Wildlife Conservation Society (WCS) with support from several international donor/support organisations have developed and field tested an extremely practical Spatial Monitoring and Reporting Tool (SMART)[4].

[3] SMART is a mnemonic acronym which provides criteria to guide the setting of objectives for protected area management. The description includes objectives that are; Specific, Measurable, Achievable, Realistic and Time bound.

[4] The Spatial Monitoring and Reporting Tool (SMART) is designed to improve anti-poaching efforts and overall law enforcement effectiveness in National Parks. SMART enables the collection, storage, communication, and evaluation of data on: patrol efforts (e.g. time spent on patrols, areas visited and distances covered), patrol results (e.g. snares removed, arrests made), and threat levels. When effectively employed to create and sustain information flow between ranger teams, analysts, and conservation managers, the SMART Approach can help to substantially improve protection of wildlife and their habitats.

The mission recommends that the State Party:

13. approach a NGO partner with experience in the application of the Spatial Monitoring and Reporting Tool (SMART) and seek support for developing and implementing a patrol and monitoring methodology based on SMART;
14. establish a working group including inter-alia DNPWC (Convener), Nepal Army, Buffer Zone Management Committees, Sagarmatha Pollution Control Committee and a SMART system practitioner to complete a feasibility assessment – including human capacity development needs, costings for mobilising the SMART patrolling and monitoring methodology.

9.3. Lack of systematic management effectiveness monitoring

Addressing the lack of systematic management effectiveness monitoring is particularly relevant to SNP and its management effectiveness. The mission and the Chief Warden completed a cursory management effectiveness evaluation. However, in the time available it was not possible to accurately gauge the degree to which management strategies are being implemented and how well these actions are protecting the OUV of the property.

A specific item in the terms of reference was a requirement for the mission to "Review the draft management plan 2015 to 2019 for SNP and its Initial Environmental Evaluation (IEE), and provide technical advice and support of the enhanced tourism planning development and management".

As part of this responsibility the mission reviewed the 2006-2011 SNP and Buffer Zone Management Plan (Sherpa, Clark *et al*. 2006). The mission considers that the 2015 – 2019 Management Plan is inadequate in terms of its ability to provide direction and guidance for managers, staff and SNP stakeholders.

Part B: of the 2015 – 2019 Management Plan "The Proposed Management" comprises a useful checklist of relevant topics. This has not been translated into SMART (Specific, Measurable, Achievable, Realistic, Time Bound) objectives. Consequently, the mission considers it would be virtually impossible to accurately monitor the implementation of the management plan as the objectives and strategies are not formulated in a way that they can be translated into a monitoring framework. Section 11.4 Logical Framework Analysis goes some way towards establishing indicators and means of verification, but these lack definitive indicators that clearly define current status vs. realistic assessment of expectations and future status. Indicators need to be measurable and related to a specific information need, such as the status of a conservation target (species ecosystem or biodiversity), change in direct threats, or progress towards an objective. Indicators can be both quantitative measures or qualitative observations. Good indicators meet the following criteria:

- Measurable: Able to be recorded and analyzed in quantitative or in discreet qualitative terms;
- Clear: Presented or described in such a way that its meaning will be the same to all people;
- Sensitive: Changing proportionately in response to actual changes in the condition or item being measured.

Methods are specific techniques used to collect data to measure an indicator. A good method meets the criteria:

- Accurate: The data collection method has little or no margin of error;
- Reliable: The results are consistently repeatable - each time that the method is used it produces the same result;
- Cost-Effective: The method does not cost too much in relation to the data it produces and the resources the project has;
- Feasible: The method can be implemented by people on the project team;
- Appropriate: Acceptable to and fitting within site-specific cultural, social, and biological norms.

The methodologies chosen for SNP should not be overly complex or sophisticated - if park managers can get the information they need using a simple, inexpensive method, it is far preferable to do this than to choose a complex, expensive method. While the information gathered may be less precise, it is generally sufficient for the scale and types of decisions that need to be made by managers. Measuring results should be a relatively small portion of the park budget and should be well integrated into existing patrolling, enforcement and compliance systems.

At both the initial briefing and on the last day of the mission a short workshop on the Open Standards for Conservation Planning and associated application of appropriate supporting software was presented. The workshop was attended by about 20 DNPWC staff, and senior practitioners within the department expressed significant interest in receiving capacity building and training.

The Open Standards for the Practice of Conservation have been developed by the Conservation Measures Partnership (http://www.conservationmeasures.org) and are supported by the Conservation Coaches Network (http://www.ccnetglobal.com). The Open Standards have been used by teams globally who have an aspiration to be more systematic about their conservation and environmental planning, and to integrate planning more effectively with implementation, monitoring and evaluation, and adaption. The Open Standards and support materials are based on the experience and lessons learnt from hundreds of conservation projects across the globe. More information can be found at http://cmp-openstandards.org.

The Open Standards are supported by Miradi Adaptive Management Software Program (Miradi means "project" in Swahili). Miradi Share is a web based extension of the software that enables file sharing among team members and the broader conservation community. Further background and information is available at https://www.miradi.org.

Supporting the Open Standards for Conservation Practice is the SMART (Spatial Monitoring and Reporting Tool) patrolling and monitoring approach discussed above. This methodology provides a practical, contemporary and replicable approach for monitoring the implementation of park management plans.

The mission recommends that the State Party:

15. Consider putting in place a process for planning and implementing an Open Standards workshop. Draft Workshop Objectives could include:
    a) Participants will gain a sound understanding of the conceptual framework and methods of the Open Standards by working through the key elements of the process;
    b) After the workshop participants will be confident and able to access support to enable them to complete a first iteration plan for their project;
    c) Participants will gain basic insight into the use of Miradi software to document the planning process;
    d) The Project facilitators and trainers will identify issues and needs related to supporting mainstreaming of Open Standards practice in the DNPWC and develop a plan for addressing this.

9.4. Poorly understood / implemented Joint Management systems and practices

The conservation objectives for Nepal's Protected Areas include generic objectives that take into account biodiversity and ecosystem functions with responsibilities and outcomes of sustainable management shared among authorities, local stakeholders and the general public.

Through these and other functions, ecosystems are important providers of livelihood opportunities locally, nationally, and even internationally. Kothari *et al.* (1996) describes Joint PA Management as "The management of a protected area and its surrounds with the objective of conserving natural ecosystems and their wildlife, as well as of ensuring the livelihood security of local traditional

communities, through legal and institutional mechanisms which ensure an equal partnership between these communities and governmental agencies".

This is a particularly relevant aspect of the property's overall management. The bottom line in terms of joint management, particularly in the context of SNP, is that the complexity, including training and resources, for joint management to be successful are both significant and not particularly well understood or implemented.

The mission recommends that the State Party:

16. ensure that joint/collaborative management approaches are ingrained in all management interventions in the property, within the context of an active and progressive contemporary approach to protected area planning and management.

10 Community-Based Flood and Glacial Lake Outburst Risk Reduction Project

The mission was specifically tasked to "provide appropriate advice on [the] impacts and suggest mitigation measures" of the UNDP/GEF Community-Based Flood and Glacial Lake Outburst Risk Reduction Project. Lack of time and resources meant that the mission was unable to inspect the site where this project is being implemented. The site is located at 5,200 m asl, and is some five – six days walk from Lukla.

Project staff provided a briefing to the mission, which indicated that all aspects of the project had been well thought through including communication, awareness and outreach. During the mission's consultations with communities, however, significant reservations were expressed on more than one occasion regarding the use of the Nepal Army to carry out the required construction works. These reservations were founded on the lack of cultural and spiritual sensitivity in relation to Sherpa / Buddhist values.

The DNPWC expressed reservations regarding the actual civil engineering approaches that were being adopted and the possible impacts on the property's OUV. It was uncertain whether DNPWC were formally asked to approve this project and this point should be clarified.

In terms of impacts and mitigation, the only resource material the mission had access to was the briefing session and a copy of a PowerPoint presentation. The PowerPoint presentation suggests that environmental compliance measures are strongly anchored in a Letter of Agreement (LOA) between UNDP, the consultants, and Nepal Army who have been contracted to undertake actual construction works. These include:

- Regulated workforce and visitor access at the construction site;
- Sound pollution regulations and the banning of explosives;
- Stringent garbage and waste collection and transportation provisions (implementation of the bring back principle);
- A focus on maintaining the property's OUV during the design construction and operation/maintenance period;
- Monitoring of quarrying, excavation and rock disposal;
- Orientation and briefing programs for workforce before construction work commences;
- DNPWC/SNP/Department of Hydrology and Meteorology monitoring and surveillance;
- Independent audit of all construction works.

The mission is of the opinion that, provided all sections of the Environmental Compliance Schedule are professionally implemented, the construction work would have marginal physical impact on the property's OUV.

The mission recommends that the State Party:

17. ensure the environmental compliance measures that are an integral part of the Letter of Agreement (LOA) are fully complied with;

18. make certain that Buffer Zone Management Committees are involved in briefing Army engineers and associated staff in terms of responsibilities to respect Sherpa / Buddhist cultural and spiritual values and practices;
19. ensure that UNDP and the project proponents be required to include in the compliance and monitoring process conditions relating to:
    a) Provisions to cover the costs of DNPWC staff (or suitably qualified independent consultants) to monitor compliance;
    b) Deposit of a substantial bond in the name of DNPWC to contribute to restoration and rehabilitation in case of inadequate or unacceptable standards of compliance.

11 Buffer zone management and World Heritage

An area of some 275 km^2 was formally declared as a Buffer Zone (BZ) in 2002. These areas include a population of over 7,500 people. Provisions are included under Government of Nepal legislation to form a Buffer Zone Management Committee (BZMC) and under these provisions 3 Buffer Zone User Committees (BZUCs), and 28 Buffer Zone User Groups (BZUGs) have been established and are operational.

A point, which needs emphasis, is effective BZs are areas that are designated to support and enhance the protection of the property and that BZs incorporate the notion of a gradient of protection around core areas. BZ zones are, therefore, an important part of the planning and development of Management Plans, and demand coherent objectives and practical conservation strategies.

The mission facilitated several discussions relating to the requirement in the ToR to:

- Discuss the result of the consultations between the DNPWC of Nepal and local Sherpas and other stakeholders regarding the possibility of making the existing buffer zone of the SNP a formally recognized buffer zone to the World Heritage property and, in case the State party wishes to submit a minor boundary modification for this, provide technical advice on the required documentation;

Community consultations did not suggest that this was an important issue for communities and that they had other and, in their view, more pressing priorities. This view was reiterated by DNPWC staff who accompanied the mission and they were not persuaded of the necessity of a boundary modification to formally recognize that the BZ should be recognised and included in the property.

The mission was sympathetic to this hesitancy, which is based around the reality that the State Party has a matrix of immediate and pressing management issues to address, and that this matter could be deferred and brought up again in the future.

The mission recommends that the State Party:

20. defer preparing and submitting a boundary modification to include existing buffer zones within the property;
21. prepare, as part of a revised management plan, strategies, objectives, and activities that take account of the important function of BZ;
22. re-address this when the next State of Conservation report to the World Heritage Committee is prepared.

12 Additional issues

In addition to the tasks laid out in the mission ToR, the mission expert was able to assess a number of other issues that are considered relevant for the management of the property and the conservation of its OUV. These issues are discussed in the following sub-sections, and the mission expert offers recommendations for each of them, which are also summarized in Box 1 (pages 24-25).

12.1. Alteration to natural fire regimes (Fire & Fire Suppression)

Fire within the property is a concern of medium proportions. The Chief Warden pointed out that uncontrolled and human induced fires have the potential to significantly modify the property. Fire and fire suppression, including increases in frequency and/or intensity outside of its natural range of variation, would have a significant impact on most of the property's national and internationally recognized conservation values.

The property's mid and lower altitudes are comprised of several fire-dependent ecosystems. Many of the elements that are associated with fire-dependent and fire-sensitive ecosystems are beginning to be better understood. Research and understanding, including application of the relatively new science of fire ecology, needs to be integrated into the management plan. When the management plan is revised, a section that takes into account relevant scientific principles that are part of the notions associated with contemporary fire ecology principles should be considered.

Several helicopters are based at Lukla airstrip. DNPWC might consider opening discussions with a reputable helicopter company to locate a monsoon bucket at a strategic location(s) that could be employed for firefighting purposes. Monsoon buckets can be collapsible and the size of each bucket is determined by the lifting capacity of the helicopter. As well as a monsoon bucket, the use of a fire retardant foam and the ability to pump water from the monsoon bucket into smaller tanks for application by ground-based firefighting crews would be a useful consideration. A significant area of concern is a lack of local capacity and preparedness to fight a fire if it broke-out in an area that is difficult to access. This indicates that there is a need for training of helicopter pilots and ground staff.

The mission considers that the use of helicopters and associated firefighting equipment is in all probability the only realistic response to address threats to the property from natural or human induced fire.

The mission recommends that the State Party:

A. establish a dialogue with a helicopter company to discuss the possibility of locating monsoon buckets at strategic locations, which could be employed for firefighting purposes;
B. when revising the management plan, ensure that there is a section that takes account of scientific principles associated with contemporary fire ecology principles and management, and capacity building for both helicopter pilots and on the ground staff.

12.2. Unregulated resource use and poaching

There is some evidence that this continues as a threat to the property. There is, however, an apparent lack of data on actual use and subsequent trends. The mission solicited from participants, during consultation forums, perspectives relating to wildlife poaching. These indicated that wildlife hunting was not a major issue as almost all of the park's local residents were aligned to Buddhism, which provides strong religious and ethical reasons for not harming other living beings. These traits are, however, not characteristics of the non-Buddhist segments of the community that make up an increasing percentage of local residents. This group is comprised of porters, service staff, and lessees of Sherpa owned commercial ventures (including hotels). The mission was informed of instances of the Nepal Army protection units locating and removing traps that had been set to capture Musk Deer.

An area of concern is the use of juniper for well-established Puja cultural practices such as burning each morning outside local houses as well as during special ceremonies. It is well recorded that large amounts of juniper are burned during Puja ceremonies to protect both Sherpas and expedition members at Everest Base Camp. Significant amounts of this slow-growing high altitude species are consumed annually for these events.

The mission recommends that the State Party:

C. formulate, as part of the suggested SMART (Spatial Monitoring and Reporting Tool) monitoring approach, methods to collect data on the use of living natural resources from the property, including but not limited to the use of juniper for local cultural practices.

12.3. Destructive mining practices (Mining & Quarrying)

Significant impacts from quarrying activities were evident at several locations within both the buffer zone and the property. Rock is used for a wide range of activities, including commercial and family house construction, post-earthquake reconstruction, rock walls to protect gardens and agricultural land, construction of walking trails and other infrastructure requirements.

The mission, unreservedly, accepted that the utilisation of local rock for construction purposes is unavoidable and justifiable. Nevertheless, rock should be sourced from areas outside the property where feasible, and no rock extraction for commercial or industrial purposes should take place within the property.

As a consequence of quarrying there are significant areas of disturbance which, with active management, should be subject to site restoration and rehabilitation measures. The amount of labour required for this would be relatively small when compared with the physical effort and manpower that is employed to extract rock. Site restoration would be a reasonable condition when approval for rock extraction is given, and this should be supported by some form of financial bond to ensure that all of the conditions of permits are observed.

The mission recommends that the State Party:

D. ensure that the Management Plan include a specific section on quarrying, which should encourage that rock is sourced from outside the property where feasible and prohibit commercial or industrial extraction of rock from within the property,
E. detail a comprehensive set of conditions for quarrying both within (where unavoidable) and outside the property,
F. specify restoration and site rehabilitation standards that incorporate revegetation.

12.4. Uncontrolled grazing practices (Other Ecosystem Modifications)

Significant areas are used by local people for grazing domestic stock. The mission was informed that actual numbers of traditional grazing animals are progressively reducing. One reason for this is that traditional ways to invest surplus income from tourism was to acquire yaks and crossbreeds, whereas these days, income is invested in infrastructure such as hotels or property in Kathmandu or in some cases overseas.

Over the last 5 years, donkeys have been introduced to transport freight, including building materials and tourism supplies and these animals are causing additional impacts. These include damage to local trails and localised areas of intensive grazing pressure. The most obviously affected local area is the outskirts of Namche Bazar (it needs to be noted that time constraints prevented an assessment of other areas). The mission was informed that Namche Bazar is the termination point for donkey transport. However, photographs on the internet show donkeys as far as the Everest Base Camp.

The mission was informed that there are currently approximately 500 registered donkeys operating within the buffer zone and the property – with a possible further 500 unregistered donkeys. Groups of up to 60 donkeys are commonly encountered along the trail between Lukla and Namche Bazar. This causes significant congestion and, on occasions, visitors report delays of up to one hour at narrow sections of the trail and suspension bridges. As well as causing congestion, these animals excrete a significant amount of dung which attracts flies and emits an unpleasant odour.

It is worth noting that the use of donkeys is a recent and non-traditional form of transport. Previous transportation methods included the use of porters, cross bred cattle, and yaks.

The construction of roads in several rural areas of Nepal, including to Jomsom in the Annapurna Conservation Area, has resulted in a surplus of donkeys which have apparently been relocated for use within the buffer zone and property.

The mission recommends that the State Party:

G. collaborate with the Buffer Zone User Committees to formulate and implement measures to better manage the use of donkeys (recognising that this is a relatively new and non-traditional form of freight transport).

12.5. Conflicts for space and resources between humans and wildlife (Work & Other Activities)

This threat basically relates to competition between humans and wildlife. Almost all human activities will, in some way or another, have varying degrees of impact on wildlife and include: encroachment for agricultural land, human induced fire, grazing, collecting Non-Timber Forest Products (NTFPs), collecting fuel wood, tourism and recreation, and infrastructure development.

This is a particularly relevant threat to the property as it includes, both within the boundaries of the protected area and within the designated buffer zones, significant populations of ungulates and carnivores, and agricultural land.

Coupled with the needs of subsistence populations and the existing and increasing tourism demand, this threat should be given deliberate consideration during the revision of the management plan. Specific objectives, strategies, tasks and resource estimates will need to be an inherent part of this process.

A priority consideration is related to the invasion of agricultural land, in particular potato fields, by Himalayan Tahr (*Hemitragus jemlahicus*). The mission observed, at several locations, significant numbers of Tahr occupying agricultural fields. This suggests that research related to grazing competition between livestock and Himalayan Tahr is needed.

The mission recommends that the State Party:

H. evaluate levels of conflict between communities and wildlife, including the invasion of agricultural land, in particular potato fields, by Himalayan Tahr,
I. ascertain levels of grazing competition between Himalayan Tahr and livestock,
J. investigate application of solar powered electric fences (on an experimental basis) as an option to reduce human-wildlife conflict,
K. include appropriate measures to address this issue in the revision of the management plan.

12.6. Roads and Associated Infrastructure

No roads presently reach within an estimated 40km of the property. The government endorsed plan to construct a road from the District Headquarters (Salleri) to the village of Surke (about 3-4 km from Lukla Airport and the boundary of the park buffer zone) will have significant social, economic, and environmental impacts on the property and buffer zone settlements.

Associated with the construction of the road are proposals to construct an aerial rope way to transport goods from the road terminus to Namche Bazar.

The mission recommends that the State Party:

L. provide to the World Heritage Centre details on the plans to construct a road from the District Headquarters (Salleri) to the village of Surke (about 8 km from Lukla Airport),
M. ensure that before this major project is commenced the social, economic, and environmental impacts on the property and buffer zone is assessed,

N. ensure that Environmental Impact Assessment (EIA) is undertaken in line with IUCN's World Heritage advice note on Environmental Assessment5,
O. include in the EIA an assessment of direct, indirect and cumulative impacts on the property from proposals to construct an aerial rope way to transport goods from the road terminus to Namche Bazar;
P. incorporate in the revised management plan proactive approaches for evaluating impacts, including an independent review of the impacts on the property's OUV.

12.7. Other Infrastructure

The mission was struck with the positive contribution that hydro-generated electricity is making to both natural environment and community livelihoods. Reticulation of sustainable generated electricity has, without question, reduced the reliance of both commercial and local households on firewood for heating and food preparation.

Khumbu Bijuli Company (KBC) power plant is situated in the Thame valley and the plant has a capacity of 620 KW. The infrastructure was constructed with financial assistance from the Government of Austria and the Government of Nepal. KBC has been responsible for the operation and management of the power plant since 1999. The company is governed by the Board of Directors consisting of three local representatives (appointed by the three user groups) and a representative appointed by Nepal Electricity Authority (NEA). The mission met with staff, management and the Chairperson of KBC and was impressed by the professionalism and commitment of the staff, which included personnel, the majority of whom were local residents, who had worked for the company since its inception.

Nevertheless, the mission is concerned that infrastructure associated with micro hydroelectric power schemes is proceeding with seemingly little or no reference to scenic or natural values. An example viewed by the mission relates to the pen-stock pipes for KBC's Thame Scheme which recently needed to be replaced because of significant rusting and corrosion. The mission observed that the old pipes had been discarded, in some cases by simply pushing pipes into adjacent vegetation. This is an unacceptable practice and park administration should insist that the pipes be removed and disposed of in a responsible manner.

Other examples the mission observed in the Buffer Zone were visually intrusive and it seems that little or no consideration was given to protecting scenic values during design and construction phases.

The mission recommends that the State Party:

Q. Takes into account the impacts of infrastructure associated with micro hydroelectric power schemes on scenic or natural values during planning and construction.
R. Require that the Khumbu Bijuli Company remove the replaced pen-stock pipes and that these be disposed of in a responsible manner outside the property.

12.8. SNP visitor centre refurbishment

The National Park visitor centre located on the hill immediately above Namche Bazar was constructed some 35 years ago, and was structurally damaged during the 2015 earthquake. Some repairs have been carried out and the visitor centre is reasonably weatherproof at the present time.

It was not possible to carry out a structural assessment of the building but it was obvious that this facility, which is a key location where visitors can be made aware of the property's natural and cultural values, needs careful consideration.

[5] http://www.iucn.org/sites/dev/files/import/downloads/iucn_advice_note_environmentalassessment_18_11_13_iucn_template.pdf

The mission suggests that an architect and structural engineer be engaged to carry out an appraisal and provide a cost estimate for strengthening and renovating this facility. The architectural company that designed and supervised the construction of the visitor centre (Narendra Pradhan and Associates narendrapradhan@hotmail.com) expressed interest to the mission in assisting and could be contacted to help move towards a workable outcome.

Associated with the above is an opportunity to upgrade the natural and cultural interpretive displays and information. The mission was impressed at the number of visitors that are taking time to visit the interpretive displays and, according to DNPWC staff, visitors appreciate the information that the visitor centre provides.

The mission recommends that the State Party:

S. consider developing the ToR for an architect and structural engineer to carry out an appraisal and provide a cost estimate for strengthening, renovating and upgrading the interpretive displays in the visitor centre.

12.9. Commercial Activities within the Property

Following the field inspection, the mission was left in no doubt that the property will continue to be a magnet and draw significant numbers of international and regional visitors. Marketing of the property has been successful both through traditional as well as the increasing use of social media. The expectations of visitors are varied and usually focus around a wide range of aspirations including: adventure, challenge, learning, experiencing and appreciating nature, solitude, stress release, skill development, and risk taking (usually in the form of mountaineering).

Section 6 of the National Parks and Wildlife Conservation Act (1973) makes provision for the "Operation of Services within National Park or Reserve". Part 2 of Section 6 is more explicit in that it states that "no person shall operate services or facilities of any kind within the national park, reserve or conservation area, without entering into a contract under Sub-section 1".

The property provides the State Party with significant opportunities to "capture" revenue in the form of license fees and other forms of service contracts. As well as including provisions for the payment of appropriate fees, concession type documents need to include a number of other provisions that are routinely part of Protected Area concession arrangements.

These are identified in the management plan as objectives / strategies and actions which are defined in some detail. The types of activities that require some form of permit or licence include: commercial activities including tourist operations, construction and operation of infrastructure, excavations for rock mining, waste management including discharges, and research proposals.

All commercial activities should, depending on scale and an assessment of likely impacts, trigger the requirement for an Environmental Impact Assessment. These should be used to formulate conditions that the permit holder needs to adhere to.

The Mission recommends that the State Party:

T. consider ways to set up and manage a system to control the use of the property for commercial purposes and that all businesses and other appropriate activities operate under some form of concession or permit.

13 Consolidated schedule of Mission Recommendations and conclusions

Kongde View Resort and access trail

The mission recommends that the State Party:

1. provide to the World Heritage Centre an official survey definition of the legally defined location of these facilities and their relationship to the gazetted boundary of the property, in order to definitively clarify whether the two commercial lodges are (or are not) located inside the property;
2. carefully assess the impacts of the lodges and their access trails on the ecology and biodiversity of the area where they are located, and implement adequate measures to minimize and mitigate these impacts;

Assessment of waste management provisions

The mission recommends that the State Party:

3. Instigate a feasibility assessment on viable / cost-effective options for dealing with the treatment and disposal of human waste in the upper part of the property;
4. During the management plan review include viable / cost-effective options for dealing with the treatment and disposal of human waste in all parts of the property and Buffer Zone;
5. Support, in both policy and financial terms, SPCC's efforts to develop sustainable waste management strategies and facilities;

Tourism infrastructure and related activities

The mission recommends that the State Party:

6. provide to the World Heritage Centre information on
    c) the number and capacity of lodges located within the property and its buffer zone, and
    d) the owners of these facilities and whether they are operated by the owners or are leased;
7. apply international best practice in terms of managing helicopters and aircraft in the property, in order to minimize disturbance from noise and visual impacts,
8. investigate entering into concession / license arrangements, including the payment of appropriate fees, with helicopter companies operating within the property,
9. control and regulate activities which helicopters may be used for within the property;

Visitor carrying capacity and limits

The mission recommends that the State Party:

10. consider, as part of the management plan review process, options for establishing an appropriate visitor carrying capacity - particularly for peak periods;
11. Implement an objective analysis of a wide range of protected area management considerations and take into account: best practice protected area management, biodiversity and ecosystem resilience, economic sustainability, livelihoods, political feasibility, social and cultural sensitivities etc.

Management Planning

The mission recommends that the State Party:

12. Ensure that the management plan integrates
    f) a well-established vision,
    g) appropriate strategies,

h) pragmatic SMART[6] (Specific, Measurable, Achievable, Realistic, Time-bound) objectives and
i) activities that can be translated into annual work plans and budgets
j) details on the primary responsibilities of the different stakeholders, in order to contribute significantly towards alleviating the uncoordinated management structure that currently prevails.

13. approach a NGO partner experienced in the application of the Spatial Monitoring and Reporting Tool (SMART) and seek support for developing and implementing a patrol and monitoring methodology based on SMART;
14. establish a working group including inter-alia DNPWC (Convener), Nepal Army, Buffer Zone Management Committees, Sagarmatha Pollution Control Committee and a SMART system practitioner to complete a feasibility assessment – including human capacity development needs, costings for mobilising the SMART patrolling and monitoring methodology.
15. consider putting in place a process for planning and implementing an Open Standards workshop. Draft Workshop Objectives could include:
    e) Participants will gain a sound understanding of the conceptual framework and methods of the Open Standards by working through the key elements of the process;
    f) After the workshop participants will be confident and able to access support to enable them to complete a first iteration plan for their project;
    g) Participants will gain basic insight into the use of Miradi software to document the planning process;
    h) The Project facilitators and trainers will identify issues and needs related to supporting mainstreaming of Open Standards practice in the DNPWC and develop a plan for addressing this.
16. ensure that joint/collaborative management approaches are ingrained in all management interventions in the property, within the context of an active and progressive contemporary approach to protected area planning and management.

Community-Based Flood and Glacial Lake Outburst Risk Reduction Project

The mission recommends that the State Party:

17. ensures the environmental compliance measures that are an integral part of the Letter of Agreement (LOA) are fully complied with;
18. make certain that Buffer Zone Management Committees are involved in briefing Army engineers and associated staff in terms of responsibilities to respect Sherpa / Buddhist cultural and spiritual values and practices;
19. ensures that UNDP and the project proponents be required to include in the compliance and monitoring process conditions relating to:
    c) Provisions to cover the costs of DNPWC staff (or suitably qualified independent consultants) to monitor compliance;
    d) Deposit of a substantial bond in the name of DNPWC to contribute to restoration and rehabilitation in cases of inadequate or unacceptable standards of compliance.

Buffer zone management and World Heritage

The mission recommends that the State Party:

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[6] *SMART = is a mnemonic acronym which provides criteria to guide the setting of objectives for protected area management. The description includes objectives that are; Specific, Measurable, Achievable, Realistic and Time bound.*

20. defer preparing and submitting a boundary modification to include existing buffer zones within the property;
21. prepare, as part of a revised management plan, strategies, objectives, and activities that take account of the important function of BZ;
22. re-address this when the next State of Conservation report to the World Heritage Committee is drafted.

The mission expert offers additional recommendations that have the potential to transform the management of the property (Box 1).

Box 1: Additional recommendations

Alteration to natural fire regimes (Fire & Fire Suppression)

The mission recommends that the State Party:

A. establish a dialogue with a helicopter company to discuss the possibility of locating monsoon buckets at strategic location(s), which could be employed for firefighting purposes
B. when revising the management plan, ensure that a section that takes account scientific principles associated with contemporary fire ecology principles and management, capacity building for both helicopter pilots and on the ground staff.

Unregulated resource use and poaching

The mission recommends that the State Party:

C. formulate, as part of the suggested SMART monitoring approach, methods to collect data on the use of living natural resources from the property, including but not limited to the use of juniper for local cultural practices.

Destructive mining practices (Mining & Quarrying)

The mission recommends that the State Party:

D. ensure that the Management Plan include a specific section on quarrying, which should encourage that rock is sourced from outside the property where feasible,
E. detail a comprehensive set of conditions for quarrying both within (where unavoidable) and outside the property,
F. specify restoration and site rehabilitation standards that incorporate revegetation.

Uncontrolled grazing practices (Other Ecosystem Modifications)

The mission recommends that the State Party

G. collaborate with the Buffer Zone User Committees to formulate and implement measures to better manage the use of donkeys (recognising that this is a relatively new and non-traditional form of freight transport).

Conflicts for space and resources between humans and wildlife (Work & Other Activities)

The mission recommends that the State Party:

H. evaluate levels of conflict between communities and wildlife, including the invasion of agricultural land, in particular potato fields, by Himalayan Tahr
I. ascertain levels of grazing competition between Himalayan Tahr and livestock,
J. include appropriate measures to address this issue in the revision of the management plan.
K. investigate application of solar powered electric fences (on an experimental basis) as an option to reduce human-wildlife conflict;

Box 1 (continued)

Roads and Associated Infrastructure

The mission recommends that the State Party:

L. provide to the World Heritage Centre details on the plans to construct a road from the District Headquarters (Salleri) to the village of Surke (about 8 km from Lukla Airport),
M. ensure that before this major project is commenced the social, economic, and environmental impacts on the property and buffer zone settlements is assessed
N. ensure that Environmental Impact Assessment (EIA) in line with IUCN's World Heritage advice note on Environmental Assessment1,
O. include in the EIA an assessment of direct, indirect and cumulative impacts on the property from proposals to construct an aerial rope way to transport goods from the road terminus to Namche Bazar;
P. incorporate in the revised management plan proactive approaches for evaluating impacts, including an independent review of the impacts on the property's OUV.

Other Infrastructure

The mission recommends that the State Party:

Q. Takes into account the impacts of infrastructure associated with micro hydroelectric power schemes has on scenic or natural values during planning and construction.
R. Require that the Khumbu Bijuli Company remove the replaced pen-stock pipes and that these be disposed of in a responsible manner outside the property.

SNP visitor centre refurbishment

The mission recommends that the State Party:

S. consider developing the ToR for an architect and structural engineer to carry out an appraisal and provide a cost estimate for strengthening, renovating and upgrading the interpretive displays in the visitor centre.

Commercial Activities within the Property

The Mission recommends that the State Party:

T. consider ways to set up and manage a system to control the use of the property for commercial purposes and that all businesses and other appropriate activities operate under some form of concession or permit.

Annex 1 Mission ToR

TERMS OF REFERENCE
IUCN Advisory Mission to Sagarmatha National Park, Nepal
1 to 10 May 2016

At its 36th session, the World Heritage Committee recommended the State Party of Nepal to consult the Mountains Biome Specialist Group of the IUCN World Commission on Protected Areas for technical advice on the overall state of conservation of the property with particular attention to the impacts of the Kongde View Resort and tourism on the Outstanding Universal Value of the property, and the proposed buffer zone, and also to consider the possibility of inviting an advisory mission by the Mountains Biome Specialist Group to the property to provide advice on these matters. By letter of 15 March 2015, the Government of Nepal requested assistance from the World Heritage fund to support an advisory mission to Sagarmatha National Park. The Director of the World Heritage Centre confirmed in a letter dated 7 April 2015 that the above-mentioned mission would receive support from the World Heritage Fund.

The Advisory Mission will be carried out by Mr. Bruce Jefferies, representing IUCN.

In particular, the mission will perform the following tasks:

1. Assess the overall state of conservation of SNP, with particular attention to the impacts of the Kondge View Resort located within the property, garbage management and tourism on the Outstanding Universal Value (OUV) of the property, and provide recommendations for the way forward;
2. Review the draft Management Plan 2015-2019 for SNP and its Initial Environmental Evaluation (IEE) report submitted by the State Party, and provide technical advice in support of enhanced tourism planning, development and management;
3. Address the concern of the Department of National Park and Wildlife Conservation (DNPWC) of Nepal regarding infrastructure work under UNDP's Community Based Flood and Glacial Lake Outburst Risk Reduction Project (CBFGLORRP) in the Khumjung Village Development Committee (VDC), which is integrated into the draft Management Plan 2015-2019, by providing appropriate advice on its impacts and suggest mitigation measures;
4. Discuss the result of the consultations between the DNPWC of Nepal and local Sherpas and other stakeholders regarding the possibility of making the existing buffer zone of the SNP a formally recognized buffer zone to the World Heritage property and, in case the State party wishes to submit a minor boundary modification for this, provide technical advice on the required documentation;

The State Party will assist the mission to conduct the necessary field visits to key locations. In order to enable preparation for the mission, the following items are provided to the mission:

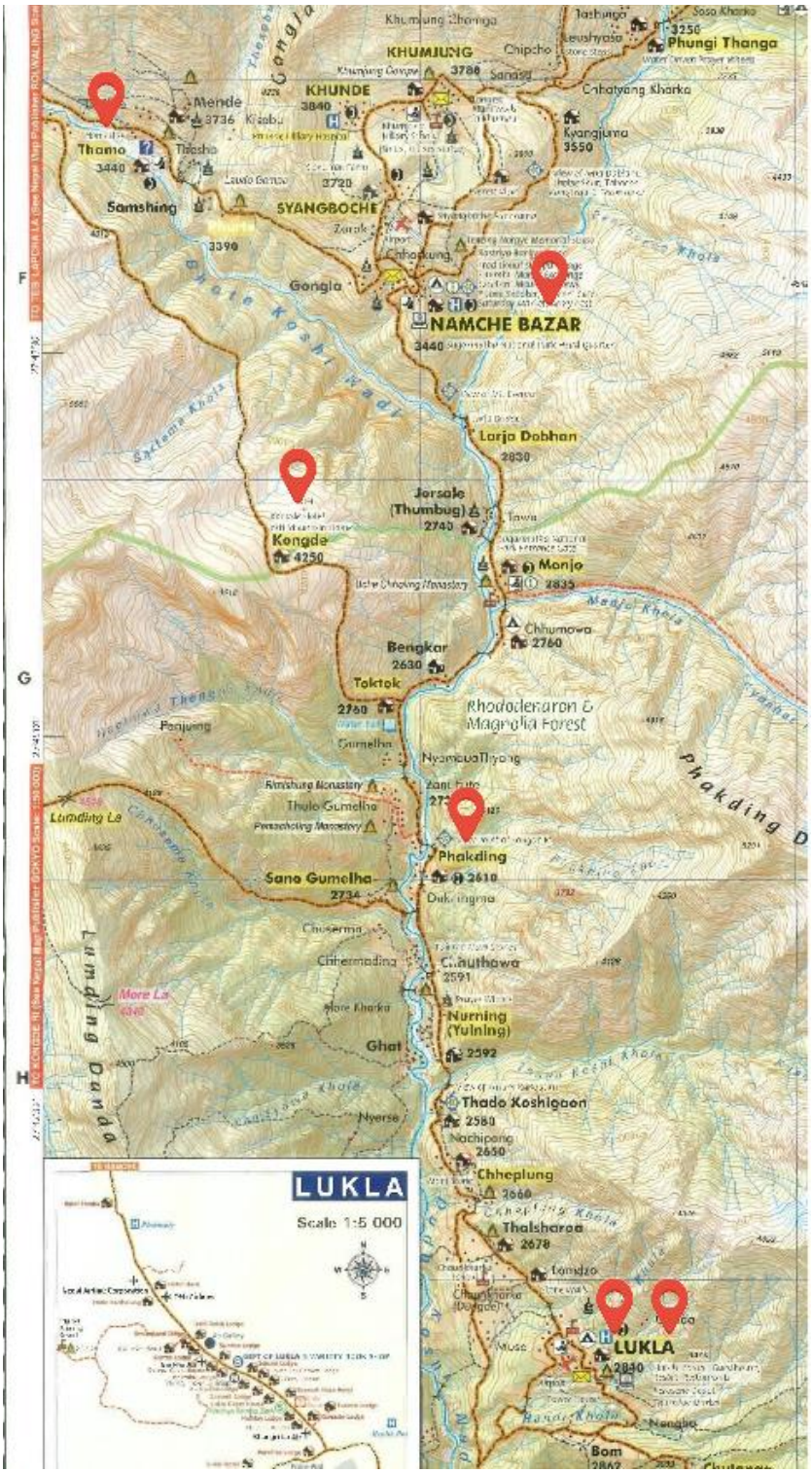
a) The draft 2015-2019 Management Plan for Sagarmatha National Park and its buffer zone;
b) The Initial Environmental Examination (IEE) Report on the abovementioned management plan;
c) Further background information on the Kongde View Resort

The mission should hold consultations with the Nepali authorities at national, regional and local levels, including representatives of the Department of National Parks and Wildlife Conservation, as well as Park Management, representatives of the Kongde View Resort, and other relevant stakeholders (researchers, NGOs).

Based on the results of the above-mentioned assessments and discussions with the State Party representatives and stakeholders, the mission will develop recommendations to the Government of Nepal with the objective of providing guidance on the issues addressed in points 1-4 above, in order to ensure the long-term conservation of the property's Outstanding Universal Value. It should be noted that recommendations are made within the mission report (see below), and not while the mission is still on-going.

The mission will prepare a concise mission report on the findings and recommendations of this advisory mission. The Advisory Mission Report shall only be submitted to IUCN World Heritage Programme, no later than 24 May 2016. Following internal review by IUCN World Heritage Programme and further exchanges between IUCN World Heritage Programme and the mission expert, the report will be finalized and submitted to UNESCO World Heritage Centre by 31 May 2016. UNESCO reserves the right to distribute the mission report to the State Party.

Annex 2 Mission Route Map



Stage	Map Itinerary	
❶	**3rd May**	Kathmandu to Lukla. Lukla to Phakding
❷	**4th May**	Phakding to Namche
❸	**5th May**	Namche DNPWC Headquarters
❹	**6th May**	Namche Bazar to Thame.
❺	**7th May**	Thame
❻	**8th May**	Thame to Kondge View Resort
❼	**9th May**	Kondge to Lukla
❽	**10th May**	Lukla to Kathmandu

Annex 3 Mission Schedule - Interviews and field notations

Mission Members		
	Mr. Bruce Jefferies	IUCN International Consultant
Associated Organisations / Personnel		
1	Mr. Christian Manhart	UNESCO Representative to Nepal
3	Dr. Dhakal	DNPWC
4	Suraj Silwal	UNESCO intern
5	Mr. Ganesh Pant	Chief Conservation Officer, Sagarmatha National Park (SNP)

Date	**Time**	**Program**	**Remarks**
24 March		Mr. Guy Cotter – Adventure Consultants – Wanaka NZ	Adventure consultants have been organising expeditions to the Mount Everest region for more than 10 years. The primary purpose of meeting Mr. Cotter was to obtain a perspective on mountaineering / expedition type tourism.
Thursday 28 April		Mission Arrival Kathmandu	
Friday 29th April	9am	Review Project Documentation -	National Park Management Plan 2006 – 2011 (Lhakpa Sherpa, Les Clark Version) National Park and Buffer Zone Management Plan 2016 – 2020 etc.
	3pm	Consultations with Ang Rita Sherpa - Chairperson Partners Nepal, Himalayan Trust Nepal, President Everest (Sagarmatha Chapter Committee)	Ang Rita Sherpa is from Khumbu (Kunde Village) completed his undergraduate training in New Zealand. He has a well-developed perspective on SNP and provided useful insights on some of the issues mission would be evaluating.
Saturday 30 April		Meeting with Mr. Biswanath Upreti (Retirement Director-General DNPWC) Invitation from Mr. Ang Tshering Sherpa (Pres Nepal Mountaineering Association) to participate in Mt Manaslu and M t Lhotse Diamond	Useful forum for networking.

		Jubilee (1st ascent) celebrations	
Sunday 1st May		Meeting Lhakpa Norbu Sherpa Co-author of SNP management plan 2006 – 20011. Previous Chief Warden SNP Retired CEO The Mountain Institute (TMI)	General discussions - some specific points we discussed included: Competitive atmosphere for funding within the local NGO community DNPWC need to demonstrate a more active and participatory role with tourism management (at all levels) Stress the fact that the BZMC played a different role to tourism management bodies and that these committees have little professional knowledge or influence on tourism related matters Suggested that establishing a Protected Area Advisory Committee could be considered. Put forward that a strong point of the previous management plan was the emphasis that was placed on a community/business/SNP partnership approach. Stated that there were many examples of a lack of SNP management influence evident in the post-earthquake reconstruction period Discussed the setting of visitor numbers - stated that this would only be needed for a few set periods/times during the year and suggested that most of the time visitor numbers were able to be coped with Peak periods needed to be better managed Put forward ideas for dealing with tourism congestion including trails for up and down the valley traffic- installing 2 bridges at congested points et cetera pointed out that there were two salient points that need to be covered (1) lifestyle and welfare of local people and (2) tourism infrastructure and limits. In this context he made the comment that some local people don't care about tourism but demand an acceptable lifestyle and upgraded standard of living. commented that there was a lack of transparency in terms of park management - in particular revenue management and distribution were an ongoing concern.
Monday **2 May**	09:00	Meeting with consultants and IUCN Representative at UNESCO Office	
	10:00	Meeting at Department of National Parks and Wildlife Conservation	DNPWC, Ministry of Forest and Soil Conservation, Ministry of Culture, Tourism and

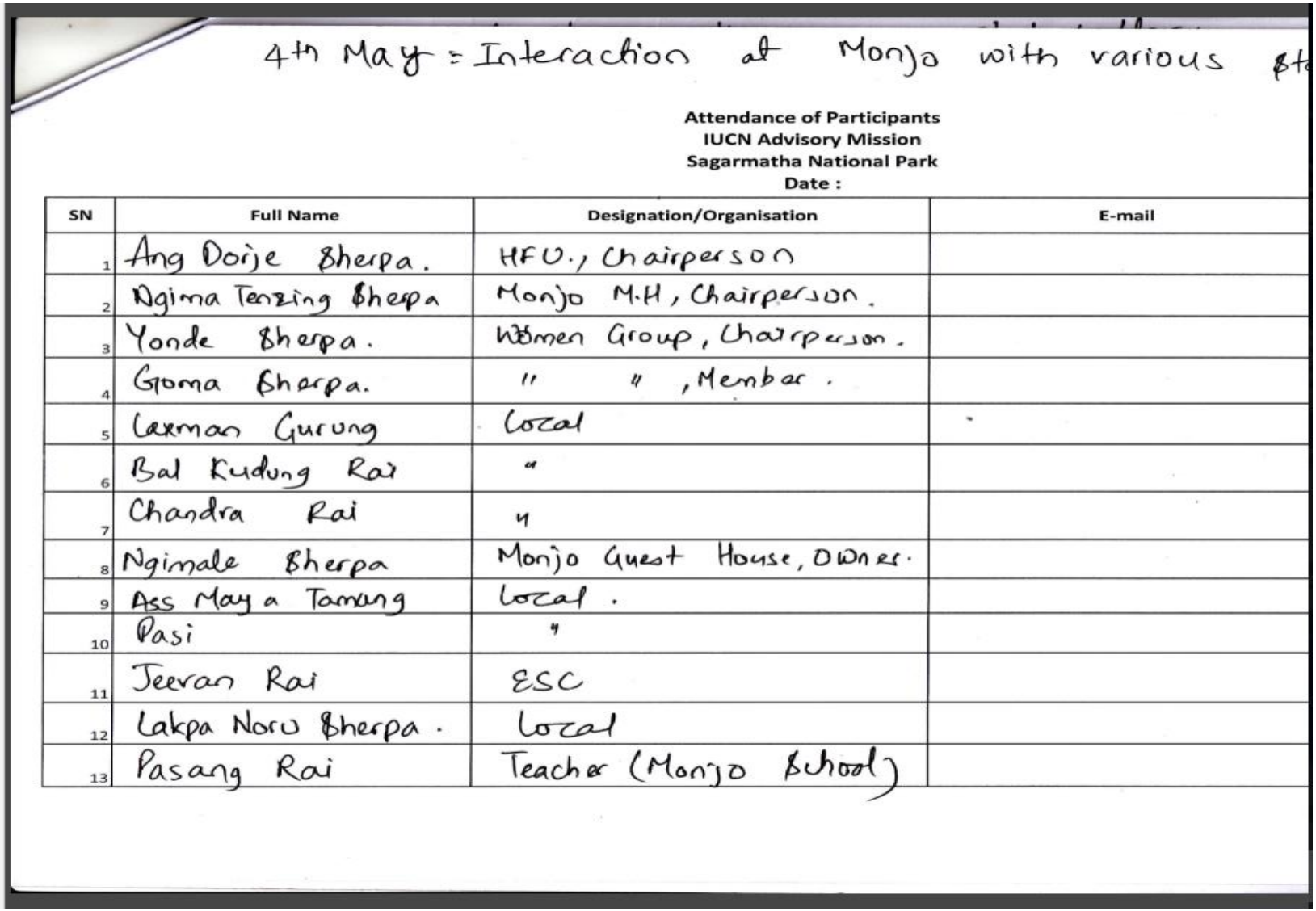
		(DNPWC) • Discussion on the 2016-2020 Management of SNP • Discussion on Community Based Flood and Glacial Lake Outburst Risk Reduction Project (CFGORRP) • Minor boundary modification (MBM) (buffer zone of SNP is not currently part of the WHS and MBM proposal should be submitted to WHC.	Civil Aviation, Nepal Tourism Board, Department of Hydrology and Meteorology (Top B Khatri) Refer to Attachment 2 for participant's names and designations.
	14:00	**NGO Stakeholder consultation at UNESCO Office** • Presentation on World Heritage Convention and 38th (2014) World Heritage Committee Decision • IUCN's role as Advisory Body and the aim of the mission by IUCN expert: objective of the visit and what type of information is expected from the stakeholders	Bruce Jefferies is provided a power overview of relevant topics he would be taking into account during the evaluation mission **Eco Himal, Thame Trust**, Hotel Association Nepal (HAN, Travels Agency Association Nepal (TAAN), Nepal Mountaineering Association (NMA), **Sagarmatha Pollution Control Committee,** Kathmandu Mountain Spirit, Tourism Industry Division (Kathmandu), Yeti Mountain Home (Thamserku Group), WWF, ICIMOD and Nepal National Mountain Guide Association. (http://www.nnmga.org.np/)
	17:00	Meeting with Yeti Mountain Home (Thamserku Group) about Kongde View Resort and Kongde Mini Resort: waste management and land ownership	
Tuesday 3 May 2016	07:00am	To Airport	
	11:45am	Flight to Lukla from Kathmandu	
	12.30pm	Arrival to Lukla. SNP Chief warden and officials welcome the mission team at Lukla Airport	Lunch Paradise Lodge (Interview with local owners)
	1:30pm	Trek to Phakding Trek approximately 4h. 2,860m at Lukla - descending to	

		2,610m at Phakding	
	Approx. 17:00	Arrival to Phakding.	
	Overnight in Phakding		
Wednesday 4 May			
	8:00	Trek Phakding to Namche	2,600m to 3,600
	__:__	Meeting en-route at Monjo Meeting with local community: -Update on the mission goals -Discussion on tourism impacts, human wildlife conflict, GLOF hazards, snow melting, solid waste management etc.	Organized by SNP Chief officer, Ganesh Pant.
	17.00	Arrive Namche Bazaar	
	Overnight Namche Bazaar		
Thursday 5 May			Acclimatization day and meetings
	10:30	NGO, government and private sector stakeholders	NGOs, tourism companies, Buffer zone management committee, Village Development Committee (VDC), Sagarmatha Pollution Control Committee.
		IUCN expert and UNESCO with clarification of mission objective	Bruce Jefferies to do
		Presentation of Sagarmatha National Park	Mr. Ganesh Pant, Chief Conservation Officer of SNP
		Presentation of Sagarmatha Pollution Control Committee (SPCC)	
		Discussion on tourism impacts, human wildlife conflict, GLOF hazards, snow melting, solid waste management etc. with different stakeholders.	
		Dinner hosted by SNP	Mr. Ganesh Pant, Chief Conservation Officer of SNP
	Overnight in Namche Bazaar		
		Trek Namche Bazar to Thame.	4 – 5 hr. trek 200m gain

		En-route meeting with technical and management staff of Khumbu Bijuli Company (KBC), Hydro scheme.	
	Overnight in Thame.		
		Consultation with Head Lama Thame Gompa: culture integrity of SNP World Heritage etc. Short trek up Tengpo Valley Meeting with SNP Thame Protection Unit	
		Dinner in Thame	
	Overnight in Thame		
Sunday 8 May		Trek Thame to Kondge View	7 hours' trek. 3,800 – 4,250m
	16:00	Discussion with the management staff on relevant matters including waste management.	
		Dinner	
	Kongde Hotel,		
Monday 09 May		Trek Kondge to Lukla	2.000m descent
	17:00	Lukla	
	Overnight Lukla		
Tuesday 10 May	08:30	Flight Lukla to Kathmandu	
	9:30	Arrival to Kathmandu airport	
Wed 11 May		Debriefing with Mr. Uday Thakur Secretary Ministry of Forests and Soil Conservation	

Thursday 12 May	9.30am 10.30am 11.30am	Meeting this Elizabeth Hawley (previous secretary Himalayan Trust) Mr. Mingma CEO Himalayan Trust (Nepal) Mr. Ang Tshering Chairman Nepal Mountaineering Association	
	1.00pm	Mr. Dawa Steve CEO ASTREK Group	
Friday 13th May		Workshop preparation Workshop DNPWC	
Saturday 14th		Meeting with Mr. SP Pandey (Former Warden SNP) Review Notes Report Preparation	
Sunday 15th	 9.00pm	Review Notes Report Preparation Depart Kathmandu	
Monday 16th	8.am	Arrive Singapore	
Tuesday 17th	 7am	Travel Singapore – Auckland	
Wed 18th		Travel Auckland to Home base	

Annex 4 Stakeholder Meeting Participants (various locations)



4th May = Interaction at Monjo with various St

Attendance of Participants
IUCN Advisory Mission
Sagarmatha National Park
Date :

SN	Full Name	Designation/Organisation	E-mail
1	Ang Dorje Sherpa.	HFU., Chairperson	
2	Ngima Tenzing Sherpa	Monjo M.H, Chairperson.	
3	Yonde Sherpa.	Women Group, Chairperson.	
4	Goma Sherpa.	" " , Membar.	
5	Laxman Gurung	Local	
6	Bal Kudung Rai	"	
7	Chandra Rai	"	
8	Ngimale Sherpa	Monjo Guest House, Owner.	
9	Ass Maya Tamang	Local.	
10	Pasi	"	
11	Jeevan Rai	ESC	
12	Lakpa Noru Sherpa.	Local	
13	Pasang Rai	Teacher (Monjo School)	

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SNA

Attendance of Participants
IUCN Advisory Mission
Sagarmatha National Park
Date : 5th May 2016

N	Full Name	Designation/Organisation	E-mail
1	Bikumar B.K	Himalayan Primary School- Pricipal	kumarbbkm@yahoo.c
2	Pemba Sherpa	Namche Water Supply Committee	pgsherpa@gmail.com
3	Jaya Ram Neupane	Sagarmatha National Park	Judgejayaram1071@gmail.com
4	Rashani Devi Karki	Sagarmatha National Park	Yaskarki41@yahoo.com
5	Lama Kaji Sharpa	SPCC - Vice President	Zambalahome@gmail.com
6			
7			
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क्र.सं.	नाम	पद संस्था / ठेगाना	
1)	Ang Dorji Sherpa	H. F. U. Chairman	
2)	Ngima Tenzing Sherpa	Monjo MH. chairperson	
3)	Yande Sherpa	Women Group. Chairperson.	
4)	Dema Sherpa.	" " committee.	Domr Sherpa
5)	LAXMAN GURUNG		
(6)	Bal Krishna Rai		
7)	Chandra Rai		
8	Ngimale sherpa.	Monju guest House.	Ngimale.
9	Ass maya Tamang.	Monju.	Assmaya.
10	— पत्नी	मोन्जो.	पत्नी
11	Jeevan Rai	ESL	
12	Lhakpa Noru Sherpa	local	
13	Pasang Rai	Teacher (monju school)	Pasang
(14)	Kami Dorjee Sherpa	local.	
(15)	Ngawang Doma Sherpa (women group)		
(16)	Christian Manhart	UNESCO	
(17)	Bruce Jefferis	IUCN expert	
(18)	Dr. Dhakal	DNPWC	
(19)	Mr. Ganesh Pant	SNP	

Attendance of Participants
IUCN Advisory Mission
Sagarmatha National Park
Date : 5th May 2016

Namche S

SN	Full Name	Designation/Organisation	E-mail
1	Suraj Silwal	UNESCO	visitsuraj20@gmail.com
2	Kapindra Rai	SPCC	Kapindrarai@yahoo.com
3	Pasang Kanchi Sherpa	SPCC	sherpap23@gmail.com
4	Sonam Gyalgen Sherpa	DZMC SNP	sonam_namche@hotmail.com
5	Tej Narayan yadav	Inspector of police	police office
6	Major Jyoti K. Thapa	Barahadal Coy, protection unit	JKt3063@gmail.com
7	Ngawang Tshering sherpa	Khumbi ila Buffer zone Cy Secretary	nt_sundokpa@yahoo.com
8	Sabita Rai	Border Bafer Administration Office	9842896043
9	Shambhu Basnyala	Khumjung School - Principal	Basnyala2012@yahoo.com
10	Pemba Tshering Sherpa.	" " (Mgnt Committee Chairperson)	everestbakery.sherpa@gmail.com
11	Dr Maheshwor Dhakal	DNPWC	
12	Christian Manhart	UNESCO	
13	Bruce Jefferis	IUCN	