MAPPING NATURE FOR PEOPLE AND PLANET: ELSAs MAPPING IN NEPAL

Final Stakeholder's Consultation Workshop held at Dhulikhel Lodge Resort (DLR)

MARCH 1, 2023

MINISTRY OF FOREST AND ENVIRONMENT, CLIMATE CHANGE MANAGEMENT DIVISION, SINGHA DARBAR, KATHMANDU AND UNDP CO NEPAL, LALITPUR

1 Introduction

The world's natural capital, which is the foundation for all ecosystem services and sustainable development, makes life possible on Earth. Half of the United Nation's Sustainable Development Goals (SDGs) are tied to nature, including water security, food security, livelihoods, peace, health, renewable energy, sustainable cities, and climate mitigation and adaptation. Thus, environmental degradation may result in disastrous consequences for human health, jeopardizing both human and nature. The Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES) report details of the unparalleled loss of natural capital, threatening the extinction of one million species, whereas the Millennium Ecosystem Assessment depicts degradation of 15 of 24 ecosystem services, the loss of 60 percent of populations over 16,000 species, the drop of the world's tropical forests to half, and 40 percent of Earth's land degradation. These reports are dragging the world's attention to the significance of taking prompt action to address climate change, biodiversity loss, and the likely repercussions to ensure a sustained living on the planet. Investing in preservation and restoration of highly valuable ecosystems can ensure that essential ecosystem services continue to support societies, such as through carbon.

As a result, CBD Parties came together in December 2022, during the 15th Conference of Parties in Montreal, to finalize and adopt the new Kunming-Montreal Global Biodiversity Framework and its 23 targets. Parties will now need to align their national biodiversity targets, and will require support in identifying and prioritizing nature-based solutions to protect, manage and restore ecosystems in order to preserve critical biodiversity, mitigate climate change, and foster resilience to climate change impacts. Not only will this help countries to meet their commitments to the CBD; it will also help them achieve objectives under the other Rio Conventions and the 2030 Agenda for Sustainable Development.

Credible and high-quality spatial data, together with map-based information, assist governments and policymakers by providing adequate information on where to take actions to achieve the best results vis-à-vis national environmental goals. The United Nations Development Programme (UNDP) and partners have developed a method for mapping Essential Life Support Areas (ELSAs) using spatial data that provides policy makers with a 'Map of Hope' to understand where nature-based actions should occur to lead to sustainable outcomes. So far, 13 pilot countries are working with UNDP to co-create an ELSA map and use it to meet the country's national goal on biodiversity, climate and sustainable development.

Nepal currently has an insufficient scientific framework and lack effective decision support tools that provide policy makers with adequate information to identify the country's ELSAs, and work to protect, sustainably manage, and restore nature within them to achieve national needs and priorities. This also negatively influence the achievement of the Sustainable Development Goals (SDG) in the country. The project Mapping Nature for People and Planet, implemented in Nepal, will support the country in using an innovative methodology to develop a 'Map of Hope' through a joint effort bringing together the Government and UNDP, and with funding from the Swedish International Development Cooperation Agency (Sida). The project will also lead to the creation of a secure, private space on UN Biodiversity Lab to access and use global and national spatial datasets. These tools will support Nepal in achieving critical national priorities for climate change mitigation and adaptation, disaster risk reduction, and water

security. The proposed project has five main components: (1) identify relevant national stakeholders and the top priority policies for Nepal; (2) identify existing national datasets in link with these national priorities; (3) develop science-based approaches to identify ELSAs, (4) create and refine maps as per national feedbacks; and (5) provide policy recommendations. At the end, the following outcomes will be achieved:

- UNDP CO Nepal and Government's partners have access to global or national datasets that address policy priorities through UN Biodiversity Lab;
- National stakeholders across Nepal are involved on the long term and can support the prioritization process for disaster risk reduction, climate change mitigation and adaptation, and water security across the nation;
- UNDP CO Nepal and Government's partners have access to the ELSA webtool for Nepal to iterate the analysis in response to changing national priorities;
- UNDP CO Nepal and Government's partners have access to high resolution LULC data and automated time series data on biodiversity intactness/carbon/human footprint, which will help to monitor and report efforts on food and water security, climate and disaster risk reduction over the country;
- UNDP CO Nepal and Government's partners have access to all relevant and existing global data layers to help mapping carbon neutrality available on UN Biodiversity Lab;
- UNDP CO Nepal and Government's partners can learn from other pilot countries how to use the final ELSA map to obtain the best results and translate them into national policies, notably the National Adaptation Plan and other relevant applications.

To achieve these outcomes, a series of consultations and meetings were organized jointly with the Government's partners (Ministry of Forest and Environment – MoFE; Climate Change Management Division - CCMD) and UNDP. An introductory meeting was organized at Kathmandu **on 4th May 2022.** It focused on introducing the project Mapping Nature for People and Planet in Nepal and its vision for the country, involving a range of national partners and stakeholders to discuss the importance of the project's outcomes that would support national decision-making processes through the use of national and global spatial datasets. Similarly, the first stakeholders meeting was organized in a joint effort of MoFE, CCMD and UNDP CO Nepal **on 22nd August 2022** and recognized the importance of involving relevant stakeholders in the different meetings/consultations to identify existing national datasets, increasing their access, and allowing them to be used in the ELSA mapping exercise in Nepal. The second stakeholder's meeting, called Policy Hackathon, was hosted on **11-12 October, 2022,** and focused on the exercise to identify the most important existing national policy targets that guide the ELSA analysis for Nepal.

The last and final stakeholder consultation was hosted from **27th February to 01 March 2023** at Dhulikhel Lodge Resort (DLR). The consultation brought national experts and the global science team together to co-create the first iterations of Nepal's ELSA map, and discuss the trade-offs between before selecting the final ELSA map for the country. The format of the consultation was hybrid – Nepalese participants met in person, while the global team joined remotely via Zoom – and enabled participants to have several

interactive sessions. All participants were previously involved in reviewing the progress made since the first stakeholders' consultation, and understood the principles of Systematic Conservation Planning (SCP) - the science behind ELSA. Participants were also reminded of the Policy Hackathon process, and the selected 10-priority policy targets. The global science team gave a presentation of the ELSA webtool for Nepal, illustrating how the different area-based targets and data can shape the final ELSA map. At the end, national stakeholders were involved in an interactive weighting exercise to co-create of the Nepal's ELSA map. A series of questions and interactions focused on the ELSA methodology, presentations, and first iterations of the maps generated after the weighting exercise. The event is detailed in the following sections.

2 Objective and agenda of the consultation

- Review the project vision and the findings from the previous consultations and subsequent data collection process;
- Review of Systematic Conservation Planning (SCP), the science behind the project;
- Weighting of – or rank the importance of – national and global collected datasets on biodiversity, climate change, and human well-being;
- Co-creation and iteration of Nepal's ELSA maps via the country's ELSA webtool;
- Discussion of the results of the analysis, potential applications, and next steps.

The agenda of the final consultation can be found here.

3 National stakeholders' who attended the consultation

The list of participant for this consultation is accessible here.

4 Summary of the final stakeholders' consultation

4.1. Opening session: Introduction to Mapping Nature for People and Planet and its vision for Nepal (ELSAs)

Mr. Yamnath Pokharel, Under Secretary of CCMD/MoFE and Focal Point of the ELSA mapping project opened the session by welcoming participants to the final stakeholder consultation for the project Mapping Nature for People and Planet in Nepal. He greeted the high-level participants: Joint Secretary from the Ministry of Forest and Environment; Chief of the Climate Change Management Division (CCMD), Dr. Buddhi Sagar Poudel; other participants from different ministries, departments, centers and institutions. He thanks the Joint Secretary, Shiva Regmi, and other CCMD team and Under Secretary MoFE/CCMD, for their participation and support. He also greeted UNDP colleagues joining remotely through Zoom, Casandra Llosa, Scott Atkinson and Di Zhang. He thanked the global science team from UNDP, led by Jamison Ervin, for its work on the project. Participants in the room and on Zoom all introduced themselves.

Immediately after formally opening the session, Menaka, National Consultant for Nepal regarding ELSA mapping project, explained about vision of ELSA mapping for Nepal, objectives of the final stakeholders consultation, and insisted that this is an important project with successful previous stakeholder consultations. The purpose of the project is to identify areas for protection, restoration, and sustainable management actions to achieve national targets. The final consultation will lead to the co-creation of the ELSA map for Nepal and discussions around the results.

Taking over the facilitation of the meeting, Di Zhang greeted the participants and thanked them for their flexibility in hosting the meeting in a hybrid format. She highlighted some key logistics to the consolidation that can go smoothly. She reminded participants that a workshop webpage was available for the participants, on which it is possible to access the recording and presentations of each sessions. Di thanked the continuous support from UNDP CO Nepal and MoFE in the implementation of this project. All online participants then turned on their videos, and a photo was taken. Di then invited Vijaya Singh, Policy Advisor, resilience and disaster preparedness at UNDP CO Nepal, to take the floor.

Mr. Deepak KC took the floor on the behalf of Vijaya Singh. He thanked the participants for taking the time to attend this important event. He reminded the participants that about a year ago, was hosted the inception consultation for this project; Nepal has done lots of progress since then, and has come up with a certain level of confidence that this project will be finalized and will improve project further work at the national level. He highlighted the importance of having access to the experience of the other pilot countries. The thanked other relevant institutions, such as the Department of Survey, DHM and some other non-government institutions such as International Centre for Integrated Mountain Development (ICIMOD), World Wildlife Fund (WWF) that have provided significant inputs for this analysis. From the beginning, there were broad consultations with the different Ministries and relevant stakeholders. MoFE formed the Technical Committee (TC) to support the project, and a few technical committee meetings were held to discuss and explore the spatial data, policy documents, and relevant reports needed for the

ELSA analysis. The TC provided lots of support in collecting relevant spatial data, despite the challenges due to their diversity and disaggregation across different individuals and organizations; the process was lengthy. The data used for the analysis will be uploaded and accessible through a private workspace on the UN Biodiversity Lab. Where national datasets were not available, global datasets were used. The ELSA project is of importance, as it provides an indication of where to protect, manage and restore nature, using a dynamic system and cutting-edge technology. He encouraged participants to provide as much input as possible during this final consultation. To conclude, he handed the floor to Menaka Panta to provide an overview of the progress made in implementing this project.

4.2. Progress since the first stakeholder consultation and vision for mapping Nepal's ELSAs: Dr. Menaka Panta, Consultant/UNDP

Presentation

Menaka started her presentation by reminding the participants of the initial meeting on May 4th, 2022, attended by 24 participants from different organizations and departments. At that time, the Global Team, led by Jamison Ervin, presented the vision for the ELSA project in Nepal. Following discussions focused on exploring spatial data – including on the type of national spatial data that could be accessed and used freely for this mapping project. The first official stakeholder consultation was then organized on 22nd August 2022, with a focus on national spatial data specifically. The discussion was held with different stakeholders participating from government and non-government offices and other institutions. All comments, issues and suggestions raised by stakeholders during the different consultations were documented, as shown on the pictures in the presentation. The focus of this consultation was on the vision of the project, as well as technical tools available, such as the UN Biodiversity Lab and the ELSA webtool. The focus was also on the national datasets to be used in the analysis.

The second consultation meeting, called Policy Hackathon, was organized on October 11-12, 2022, with the aim to identify the existing national policy targets that are most important for ELSA mapping in Nepal. Enrique Paniagua, a policy expert from Global Team, reviewed six national policies and strategies documents from Nepal to identify Nepal's relevant existing nature-based policy targets. During the consultation, stakeholders provided inputs on national policy targets identified during policy review process. The meeting was guided by the policy hackathon guidelines, which thoroughly described every step of the process. A final sheet was handed over to the Global Team, who was able to determine the final 10 policy priorities for Nepal that would guide the ELSA analysis. Based on these, experts were able to identify existing national datasets that would be used in the analysis.

Following this consultation, the global science team received 20 layers in different thematic areas and extra 8 sectoral reports and spatial layers of Vulnerability and Risk Assessment (VRA) from the national experts in Nepal; the final decision to use or not some datasets was made by the science team. Some of datasets are Nepal national boundaries; national protected areas; corridors; and Landover Monitoring System 2019, Forest Cover and Forest Types of Nepal, DRR, Agriculture and Food Security, Forest, Biodiversity and Watershed management, Water and Irrigation, Soil of Nepal, etc. The discussion focused

on how ELSA can support Nepal: the analysis results can be embedded in conservation of rare and endangered species, improving the management system of protected areas, preservation of agrobiodiversity, development of the system of information, personnel and scientific support, development of the system of ecological monitoring of biodiversity and ecosystems, expansion of international cooperation. They can also guide funding opportunities for eco-tourisms projects in the country, such as the development of ecotourism management plans based on ecosystem approach, leading to the determination of norms for recreational loads in specific areas where anthropogenic pressures and the effects of climate change can alter greatly biodiversity and ecosystems. The results can also be used for public awareness on the condition of ecosystems, biodiversity, and landscapes of Nepal. The results of the project could be useful in reducing land degradation, biodiversity conservation, and sustainable management of landscapes. ELSA can also lead to the creation of tools to disseminate scientific and practical knowledge about the state of ecosystems and landscapes, protected areas, and ecological network of Nepal.

There was no question from the participants following the presentation.

4.3. Introduction to Systematic Conservation Planning: The science behind ELSA to support national priorities – Prof. James Watson, University of Queensland, Australia

Recording

The following presentation focused on Systematic Conservation Planning (SCP). A brief introduction was already shared during the first stakeholder consultation, and later on during the Policy Hackathon.

The recording of Dr. James Watson, Professor of Conservation Science at the University of Queensland, was played. He introduced the topic of Systematic Conservation Planning (SCP). Traditionally, conservation has focused on establishing protected areas based on iconic species, excluding ecosystem services to humans and non-iconic biodiversity. With the explosion of data from the fourth industrial revolution, we now have access to the types of spatial data layers that we need to map biodiversity, ecosystem services, and threats at all levels, engaging in a more data-driven type of conservation.

SCP advocates for conservation areas that are Connected, Adequate, Representative, and Efficient (CARE). Connected conservation areas ensure that populations support each other, recolonization is possible, and animal movement occurs. Adequate conservation ensures that the total area under protection is enough to ensure the persistence of biodiversity features. Representative refers to conservation across a full range of species, ecosystems, and ecosystem services, not just iconic species. Finally, efficient conservation areas achieve their objectives at a minimal cost.

These criteria are designed to help people identify the best places to protect. However, identifying the 'best' regions is an inherently human and political process based on what is important in a given place – this could be natural resources, ecosystem services, traditional knowledge and heritage, or many other

factors. Thus, to design an effective conservation plan, we must identify our broad goals, specific targets, and financial or political constraints.

There were no questions following James Watson's presentation.

4.4. Using Systematic Conservations Planning (SCP) to create the Essential Life Support Areas map of Nepal: Oscar Venter, UNDP

Presentation

The following presentation was given by Dr. Oscar Venter, Lead Scientist for this project, providing an overview of the activities in the upcoming sessions leading to the creation of the ELSA map. The overall task for this consultation is to identify Nepal's ELSAs, which, if protected, sustainably managed or restored, will support Nepal's nature-based commitments on biodiversity, climate change, and human well-being. The ELSA map will indicate where the nature-based actions should take place in the country.

There are several design criteria that guide the analysis and have been identified through the process:

1. **These processes should directly support National policy commitments**. This is why the heart of the ELSA analysis lies in the Policy Hackathon. Once the priority policy commitments have been identified, the focus should be on identifying and collecting existing national datasets that best support those policy commitments.
2. **Multiple actions should be considered at once**. The focus is simultaneously on protection, management, and restoration. Sustainable management, for instance, can include sustainable agriculture or sustainable forestry; similarly, restoration can include restoration of deforested areas, or restoration of other important ecosystems for the country; finally, protection is not just about government-protected areas – we are also considering other effective conservation measures (OECMs). It will be important to define, across the different areas, where human activities (such as resource extraction, ecotourism, etc.) can take place or not.
3. **Tools and concepts of Systematic Conservation Planning (SCP) must be used**. SCP is a process that uses spatial data to meet management objectives, and aims to focus and promote complementarity across several national objectives.
4. **All the work is spatially explicit, and aims to look at managing the land, identify ELSAs across the territory strictly at the national level**. As the national team looks for datasets, we are really looking for those data sets that are available for the whole country.
5. **The process harnesses national expert opinions and stakeholders' values**. The Global Team works very closely with the national partners to include national expertise throughout the process leading to the identification of ELSAs. All participants in interactive sessions can share their values, opinions, and knowledge to improve the process.
6. **The ELSA process identifies indicative areas**. The results from this process will be a map that can indicate the best or most critical essential areas in the country. These are not necessarily precise locations for implementing programs; they are the result of the best scientific methods, and the

best national and international datasets. The map then needs to be checked with local stakeholders and local knowledge holders before moving towards the implementation.

7. **National datasets guide the ELSA analysis; global datasets are taken into account when national datasets are not available**. Additionally, hard constraints also need to be taken into consideration. These constraints are locations that are not available for protection or for restoration, and cannot be considered as potential ELSAs. Examples of these are the urban areas across the country, where people live and work, and are therefore not available for broad protection, restoration or various forms of sustainable management.
8. **The ELSA process needs to be flexible and to allow exploration of how results change under different scenarios before producing the final ELSA map.** For this purpose, an online ELSA webtool is created; it integrates all spatial input datasets and runs optimizations based on SCP, showing the results in real time. It allows stakeholders to explore trade-offs between different features of the map through a thorough stakeholder consultation, before reaching consensus on the ELSA map that reflects best the values of stakeholders.

Before concluding the presentation, Oscar Venter reiterated that the ELSA process considers multiple actions in the landscape. The nature-based actions are broadly defined as protection (which can be protected areas or other effective conservation measures); sustainable management (often including sustainable management of agricultural area); and restoration. The Human Footprint is used to define the level of human activity and development. These places might be suitable for sustainable management, restoration, and protection.

The presentation was followed by Q&A session.

Question #1: What role does the ELSA analysis play to support protected areas management in Nepal, especially in relation to achieving the target of 30% protection, considering input from national experts, biodiversity hotspots, and restoration and sustainable management goals?

Response #1: A large proportion of Nepal is already effectively protected, and the data indicating where those protected areas, are used in the ELSA analysis. The ELSA map is building on existing data. During the co-creation session, we will look at some policies on protected area expansion and the different possible scenarios; we will be looking at options and scenarios for 30% of protection. Comments made by the national experts around biodiversity hotspots and connection are important to shape the analysis. There are also specific policy targets for restoration and sustainable management that must be taken into account.

Question #2: How does the availability and the scale of plant diversity data, especially concerning endemic plants, impact the ELSA analysis for Nepal? Could you elaborate on the challenges associated with obtaining national-level data, harmonizing and then using datasets focused on specific areas? Moreover, how can participants contribute alternative sources of data during the final session?

Response #2: The question is about the issue of the rich plant diversity across Nepal. We have measures of species richness in the data that we are going to use for the ELSA analysis; the next session of the day is a deep dive into the data used for Nepal. It was not possible to get national data on endemic plants; this

is one of the challenges that often comes up in the countries we worked with. Additionally, the data must be at the national level; we cannot use datasets on species that are focusing on one single area. As such, some of the datasets that were shared with us could not be directly used. The last session today will be appropriate to suggest potentially other data that you might be aware of on endemic plants.

4.5. What are the national priorities in Nepal? - Dr. Menaka Panta, UNDP

Selected policy commitments for the analysis

Menaka presented during this session. She reminded the participants that, during the last workshop on 11th - 13th October 2022, the Policy Hackathon was held. The outcomes of the consultation, based on the results from the working groups, were shared afterward. The Policy Hackathon was carried out based on the guidelines prepared by the Global Team. It was organized to identify the existing national policy targets that are the most important to guide the ELSA analysis for Nepal. The entire work was done through exercises in working groups (4). Participants were invited to review a summary Excel sheet and select the national priority policy targets. Each group worked on its own Excel sheet; in the end, all sheets were compiled and sent back to the Global Team to review, before it was summarized as the outcome in one single Excel. Based on the experts recommendations, the Global Team selected the top 10 priority policy targets for Nepal.

To identify Nepal's priority nature-based policy targets, the following selected policy documents reviewed by the Global team and the Policy Expert:

- National Biodiversity Strategy and Action Plan (NBSAP)
- Second Nationally Determined Contribution (NDC)
- National Adaptation Plan 2021-2050
- National REDD+ Strategy
- National Water Plan and
- Climate Change Policy

Based on the guidelines, experts first identified national aspirational nature-based policy targets, and then area-based targets presented in these policy documents. An aspirational target is a target that indicates a clear value or goal for the category that can be achieved through nature-based actions. An area-based target only refers to when a policy action includes a specific area by name (such as a specific region, a forest/mountain range) that can be located on a map. Experts then categorized each of the national nature-based policy targets by theme (1-10 Aspirational target and 11 Area-based targets) as below.

(1) Ecosystem integrity and conservation
(2) Species conservation
(3) Food security
(4) Water security
(5) Land degradation neutrality
(6) Climate change mitigation
(7) Disaster Risk Reduction and climate adaptation

(8) Urban health
(9) Jobs, livelihoods and green recovery
(10) Sustainable forest management
(11) Area-based targets

Categories such as ecosystem integrity & conservation can help improve the management and conservation of forest, protected areas, and watersheds. Similarly, climate change mitigation with restoration and management targets can help with degraded forest land, specifically in the Chure region. Likewise, disaster risk reduction and climate change adaptation, with specific targets on the assessment of vulnerability of ecosystems and species are important to focus on the impacts of climate change, setting up conservation targets and implementing necessary adaptation measures. The REDD+ Strategy, the NBSAP, and the NAP, offer the majority of the targets, which all are mappable. The 10 national priority targets that were selected are shown in detail below.

ID	Theme	Selected priority target	Policy doc
1	Ecosystem integrity & conservation	2.1 Improve the management and conservation of forests, protected areas, and watersheds at the landscape level by promoting integrated conservation, ecosystems based adaptation measures, and participatory models of ecotourism.	National REDD+ Strategy
2	Species conservation	Promote and restore Rare, Endangered, Endemic, and Threatened species (timeframe: 2030, 2050).	National Adaptation Plan 2021-2050
3	Food security	7.1 Support climate-smart agriculture such as agroforestry, ecological farming, sloping agricultural land technologies, minimum tillage, direct seeding technologies, and use of farm yard manure.	National REDD+ Strategy
4	Water security	Secure river- and forest-based watershed resources (timeframe: 2025, 2030).	National Adaptation Plan 2021-2050
5	Land degradation neutrality	Zoning of land according to land-use	Land Use Policy 2015

6	Climate change mitigation	Restore and manage degraded forest land, including in the Chure region.	Second Nationally Determined Contribution (NDC)
7	DDR & climate adaptation	CC-A4 Assessment of vulnerability of ecosystems and species to the impacts of climate change, setting up conservation targets, and implementing necessary adaptation measures.	National Biodiversity Strategy and Action Plan (NBSAP)
8	Urban health	Increase urban forest coverage and conserve ecosystems that are stable and sustainable (timeframe: 2025, 2030).	National Adaptation Plan 2021-2050
9	Jobs, livelihoods, and green recovery	FB-B3 Designing and implementation of targeted programmes to promote agroforestry and private forestry (including trees on farm), and enhance alternative livelihoods to reduce dependency on national forests.	National Biodiversity Strategy and Action Plan (NBSAP)
10	Sustainable forest management	FB-A2 Improving forest productivity, biodiversity conservation, and climate change resilience of forests through sustainable management. At least 50% of the production forests to be brought under sustainable management by 2020.	National Biodiversity Strategy and Action Plan (NBSAP)

The definition of nature-based actions via the ELSA map will build on these top 10 priorities. The focus will be on defining these nature-based actions in the national context, and the national experts will discuss and recommend a framework on different parameters like protection, mitigation, restoration, etc. This will lead to a customized scientific ELSA analysis based on national vision and national data. The science team will set the ELSA analysis parameters with the guidance of national experts: during exercise, experts will assign a weight to each dataset included in the analysis, reflecting the expert's opinion on the dataset relative importance. In total, there are 36 data layers to be used in the analysis. Once all the weighting contributions from the participants are in, the science team will combine them and define the final score for each dataset. This will lead to the creation of the ELSA map to locate where nature-based actions can support the achievement of national priorities. National experts will then be able to discuss possible trade-offs and synergies between different data layers, which will lead to revising the first iteration, and produce a second iteration of the ELSA map for Nepal.

Once the final map is approved and validated, it will guide the development of policy recommendations to implement findings. The Global Team will work with local experts, government, and UNDP CO, to produce policy recommendations on how to use the ELSA map and the project results to support the implementation of the nature-based actions.

The ELSA process is an iterative process where the countries are in the driver seat, and can choose how to use the result of the ELSA process to support the design, implementation and monitoring of strategies towards nature-positive developments. The ELSA webtool will be shortly available and handed over to the national team, together with a Webtool Manual and a Science Brief. This will enable continued co-creation and revision of the ELSA map as the national context shifts.

Question #1: How did the science team manage to build this system to support their country's national policies? Were there some case studies, and examples that you showed earlier that we could refer too?

Response #1: The Global Team first started the ELSA project in the year 2019. So far, it has completed the ELSA project for 13 countries, including Costa Rica, Uganda, Kazakhstan, Peru, Colombia, Haiti, the Dominican Republic, Cambodia, Ecuador, South Africa and Chile; more recently, the project is being implemented in Liberia and Nepal. Different countries have different priority targets, and the ELSA process is customized based on their national priorities. For instance, in Costa Rica, we focused on climate change mitigation; after the projected of ELSA, the country used the outcomes of the project to shape their national plan for climate actions (National Adaptation Plan). In Colombia, the country really used ELSA for water security. As such, when the Global Team implements the ELSA project in a country, there is always a focus on the country's priorities, so ELSA is a useful tool.

Oscar added that, with some countries, there has been a continuous updating of the ELSA process. Costa Rica is a very good example: there was an initial ELSA analysis, that then led to a more detailed analysis on climate change. Right now, the Global Team is working with Colombia, Ecuador, and Peru to build off their initial ELSA process to focus on protected areas. It allows to learn from pressures that exist within protected areas, needs for restoration in some places, and strategic management and others. The team is working with those countries to look within the protected areas and beyond protected areas, to specifically focus on other effective area-based conservation measures (OECM). Di added that a resource package summarizing the work in the different pilot countries was available, that will be shared after the workshop.

Question #2: Food security is one of the categories for the ELSA analysis, but the document cited – the National REDD+ strategy – is not the right policy document for that, as it focuses only on the forest sector. In addition, on species conservation, you are referring to the National Adaptation Plan (NAP), when the right policy document should be the NBSAP. How was the policy review carried out?

Response #2: The policy analysis focuses on compiling and analyzing the nature-based targets of the key policy documents in Nepal. National policies may contain targets of different kinds. For example, the National Adaptation Plan may have targets related to species because the experts that developed the plan probably consider it important for biodiversity climate adaptation. The policy targets are first analyzed to determine if they classify as nature-based solutions targets and, if so, they get selected and sorted out by categories. This analysis is presented to the national participants, who then choose the main 10 targets that should serve as bases for the ELSA maps.

5 ELSA targets for protection, management, restoration - Oscar Venter, UNDP

5.1 Explanation of the percentages of national territory allocated for each action in the analysis

The area-based target for management comes directly from policy commitment, so the managed category is set to the target of about 25% of Nepal's area. This comes from this policy commitment that forests under community-based management will comprise at least 60% of Nepal's forest area. We looked at the total area of forest in Nepal, and set the target that 60% of that area should be under community-based management. There is also another target that was not used because it is slightly less ambitious: at least 50% of the production forests are to be brought under sustainable management by 2020.

5.2 Feedback and discussion from national stakeholders

Oscar presented on "ELSA targets for protection, management, restoration". He explained about **sustainable management** and its broad aspects. The management techniques used for sustainable forest management are those that increase soil organic material, reduce erosion, and increase habitat structure while also supporting human needs. Sustainable management is defined as "sustainable forest management techniques" that are used for community livelihoods and food security, and to promote ecosystem functions. These techniques include sustainable forest management that increases soil organic material, reduces erosion, and increases habitat structure, while simultaneously supporting human needs. Nepal's economy depends on effective community forest management. As mentioned earlier, the selected area-based target for management comes directly from the policy commitment and is of about 25% of Nepal's area; in addition, policy documents indicate that at least 60% of Nepal's forest area will be included. As such, the target for the total area of forest in Nepal should be that 60% is under community-based management. From those existing policies, it looks like there is a strong focus on sustainable forest management, particularly community-based management. The question therefore is: where is this sustainable forest management possible? This will determine the hard constraint for sustainable management.

The presentation also discussed another action for Nepal, which is forest **restoration**, the same question arises. The working definition in Nepal is: "Forest restoration, in particular actions to assist in the recovery of forest ecosystems that have been degraded or destroyed". Restoration can involve actively planting trees or removing pressures so that nature can recover on its own. It does not always mean to fully return an ecosystem to its original state. The area-based target for restoration is 3% of Nepal's area to be restored by 2020, with at least 5% of forested ecosystems to be restored through the implementation of the REDD+ Program. The final question is about where restoration could occur in the country. For this, the science team mapped all the ecosystems in Nepal to show where, historically, forested areas were. This is done using information coming from global dataset, notably on forest structural integrity.

The other discussed nature-based action is **protection**. In Nepal, it refers to protected areas and other effective area based conservation measures (OECMs). These areas can allow for some human use, such as tourism, harvesting of trees, firewood, fodder and non-timber forest products. Protection always maintains ecological conditions, improves environmental outcomes, prevents, and controls its deterioration. Currently, 23.55% of the forestland area is considered under protection in Nepal. However, under the new Global Biodiversity Framework Target 3, countries are encouraged to ensure that at least 30% of land areas and of sea areas, especially areas of particular importance for biodiversity and its contributions to people, are conserved through effectively and equitably managed, ecologically representative and well-connected systems. Protection as a nature-based action could be implied in the areas where human footprint and the measure of the habitat condition can be done.

The last nature-based action is an action that only a few countries have taken into consideration, for which there were very clear policy commitments on **urban greening** and blue infrastructure. This is the case for Nepal, with a focus on urban greening. It defines as the "act of restoration of green space and trees, and serves to decrease the urban heat effect by 2-3 degrees Celsius, improving the health and well-being of

urban residents, and providing habitat for some biodiversity". The area-based target for this nature-based action is specifically cities, covering a much smaller space of the country. That explains why this area-based target is smaller and only 0.3% of Nepal's land area is used for this particular target. There was not a lot of information from the policy hackathon or policy review; instead, the science team used a default value that is equal to the average used in other countries where urban greening was taken into consideration. Where can urban greening occur? It can occur within urban areas of Nepal – areas with built environments, and places where people live; this is shown in yellow on the presentation.

Question #1: What is the first nature-based action presented in Nepal? Is it focused on conservation areas? Did the team consider the proximity of population density to protected areas, as it may put pressure on conservation areas? Negative impacts should be taken into consideration.

Response #1: The human footprint data used in the ELSA mapping includes population density and urban infrastructure. The calibration is based on existing protected areas in Nepal, which takes into account the fact that people are living within these areas. About 95% of the area of the existing protected areas have a human footprint score of less than 17. This is indicative of the types of habitats that are included or protected in Nepal. Areas with a higher human footprint score than 17, such as densely populated areas with the most amount of infrastructure and roads, are not considered within ELSA. However, places where people are living are considered as possible for protection in the ELSA mapping given how protected areas are established in Nepal.

Question #2: Many areas in Nepal have people living around buffer zones and community forests, and there is a significant exchange of material energy between these goods that often leads to conflicts. It is important to consider this in the ELSA mapping, as simply categorizing these areas as human food sources may not adequately address the complexities of the situation. The relationship between people and the natural ecosystem needs to be taken into account seriously.

Response #2: Oscar thanked the commenter for their input, although the understanding was limited due to microphone and sound issues. Oscar agreed and noted that sustainable management and restoration actions can help achieve both conservation and livelihood goals in the same landscapes.

6 Presentation and demonstration of the ELSA web tool- Oscar Venter, UNDP

6.1 Live Demonstration of the webtool for Nepal

6.2 Illustration of how the different area-based targets, data, and weightings influence the final map

Oscar provided a brief demonstration on the webtool for Nepal. To show how weights influence the ELSA mapping, he showed and explained the function of the tool briefly. The expert and stakeholder weights of the input data were extracted to initiate and influence the mapping. He further briefly showed the ELSA workspace and tool for Nepal and explains how to set nature-based actions and the planning features data sets. Anyone can request access to the tool and create their own maps with different scenarios. There are

24 different data sets called planning features, each expressing different environmental outcomes in Nepal based on policy commitments.

Oscar and the global team demonstrated a tool for biodiversity conservation planning and protected areas. The tool has multiple layers of data, including information on underrepresented ecosystems, key biodiversity areas, climate change policies, and agricultural yield gaps. Oscar emphasized the importance of setting weights for each layer to guide the tool's trade-off analysis when identifying Essential Life Support Areas. The tool generates an ELSA heatmap for Nepal, which shows areas where multiple environmental values overlap and are more likely to be important for conservation. The trade-off analysis is taken into consideration while identifying Essential Life Support Areas, because all policies speak to values. They do not speak to how they are important relative to one another from the policy. The tool takes into consideration every one of those 26 spatial layers and overlaps them together in basically GIS process and it's giving them all the same weight in that process. Similarly, carbon is as important as food security for environmental values. The result is the heatmap where many environmental values overlap, specifically in certain locations, which are more likely to become key in the final ELSA map.

Oscar discussed a mapping tool that uses weights for different layers, like key biodiversity areas, biodiversity conservation planning and protected areas, policies around climate change. He showed how the map changes when different weights are given to the layers, and mentioned that the next session will cover assigning weights to each layer. The audience was invited to ask questions about the tool and reminded that the work done in the workshop will be made available to them after the project.

Question #1: The speaker raised a question about the operational definition of Key Biodiversity Areas and protected areas. They mention that not all protected areas may necessarily be biodiversity areas, such as higher altitude snow-covered areas, which may not have any biodiversity due to being rangeland. We can find the species of floral plants. They are biodiversity areas, but all snow covered and bare soil. Above 5,000 meters, there are way less biodiversity areas. In that case, we need some caution when interpreting the maps.

Response #1: Oscar acknowledged the previous comment about the need for operational definitions in the mapping of Key Biodiversity Areas and protected areas. He mentioned that the next session will look at each layer in detail and there will be time for discussion about the data quality and relevance. He encouraged participants to share any input about the relevance of the layer or the quality of the data during the weighting session.

7 Expert review and stakeholder weighting: Datasets on biodiversity and climate change - Scott Atkinson, Di Zhang, UNDP and Menaka Neupane, UNDP CO

7.1 Weighting of data sets

The data layer in ELSA analysis is divided into four groups: base maps, national boundary layers, network, and country boundaries. The base maps are made up of the national boundary, while the planning units are the features of the layers. The features include land cover, land use, agricultural areas, urban areas,

degradation of forests, and ecoregions. The baseline is broken down into planning units and in the country, with a custom equal-area projection of 450 meters. The actual data features relate to biodiversity, climate change adaptation, mitigation, and human well-being. The zones are analyzed, which can be categorized into protect, manage, and restore order, and specific actions. Locking in specific planning units is typically done in conservation planning scenarios, as protected areas are already accounted for and managed. Planning features are spatial data used as proxies to calculate national priority policy targets. These features may not be explicit to a particular target but can be used to determine richness or metrics on other targets. One layer can correspond to a single or multiple planning targets, and individual errors may appear multiple times. Weighting is a crucial aspect of planning features, as it provides a ranking or prioritization of planning future over others. It allows stakeholders to put their preferences and personal biases into the process. Weights are configured according to the importance of the features and their outcomes in relation to other outcomes. Stakeholders' confidence in the data being used is also considered. To set weights, stakeholders should provide a weight for their confidence in the data and rate it against other data sets. The ELSA tool currently has an average value of five, but if a value of 10 indicates a layer is very important, it should be given an average importance.

The second data layer, underrepresented ecosystems, is based on protected areas data set. This data set is the global best available data set on habitat, distribution, and ecosystem distribution on the planet based on various factors of geology and environment support. The discussion continued this way focusing on each of the datasets used in the analysis, including intact and wilderness areas, underrepresented ecosystems, and the importance of considering the impact of different data sets on conservation. The discussion also included discussing the potential impact of assigning equal importance to different data sets and the need for more comprehensive approaches to conservation.

Question #1: Why are we using zero to ten values. Why not 12, 11, 10 and less than zero values?

Response #1: Programming models can take any value, but they limit the range of values from 0 to 10 to make it easier to understand. This is done by normalizing the values from 0 to 10, which is easier to understand for users.

8 Expert review and stakeholder weighting: Datasets on human well-being - Scott Atkinson, Di Zhang, UNDP and Menaka Neupane, UNDP CO

8.1 Weighting of data sets & Q&A

Data include agricultural yield gaps, potential clean water provision, drought risk, flooding risk opportunities, urban greening opportunities, Community Managed Lands, Productive Managed Forests, and Water Bodies.

These layers are used to identify areas where there is potential to increase food production, increase food security, and maximize the output from areas that are currently under good production. Additionally, they are used to calculate the average flood risk of a pixel in a watershed, the differential vegetation index of a pixel, and the urban greening opportunities. Furthermore, they used to identify areas where there is not

much vegetation in those urban areas. These datasets are important for identifying areas where there is potential to increase food production, increase food security, and maximize the output from areas that are currently under good production.

The datasets discussed are indigenous managed lands, productive managed forests, water bodies, and lock-in areas. Indigenous managed lands are based on the Landmark data, while productive managed forests are based on the MODIS Net Primary Production data. Water bodies are derived from the national land cover maps from 2019, while lock-in zone is derived from the protected areas of the country.

Question #1: Does this ELSA platform allow some computational interface so that the weight is in the calculation overlaying? When you say automated, what do you mean? The question was about the functionality of the system.

Response #1: The ELSA webtool is designed specifically to run the ELSA analysis developed for countries, and offers complementary services to UN Biodiversity Lab (UNBL). The ELSA webtool can be used to create and iterate the ELSA map based on changing national priorities and needs. It enables users to change a variety of parameters - including the weights of feature layers, area-based targets, and lock-in options, run the optimization analysis, and download and review the resulting ELSA map. The ELSA webtool of Nepal is built within the UNBL platform that provides an interactive interface to set key parameters for the ELSA optimization. The webtool interface has integrated prioritizr in the backend. Prioritizr is a systematic conservation planning (SCP) tool - perhaps you are familiar with things like Marxan, which is also a commonly used SCP tool. Different in algorithm, prioritizr used integer linear programming (ILP) approach to find optimization. By running on a Gurobi solver, the ELSA webtool find the optimal solution to a spatial planning problem close to real time. The ELSA webtool on the UN Biodiversity Lab takes between two to six minutes to create the ELSA map.

Question #2: How can we continue this process? How we can develop the capacity of government employees and sustainability of this project? How can we develop the map easily?

Response #2: How to move this forward within governments and developing capacity is a good question. It is useful to use a GIS system and/or a platform for decision makers that do not have GIS expertise. There is often a disconnect between policy and science, and a need for increasing capacity to connect both. The intention with the ELSA webtool is that we can support or improve decision-making processes. This is essentially a decision support tool in addition to your private workspace on UN Biodiversity Lab.

Nepal is the first country where we were trying to integrate the ELSA webtool into the UN Biodiversity Lab platform. In addition, it could allow the development of capacity to be a little bit easier because the tool is more simplified and runs on servers that are more powerful.

Regarding the sustainability of the project: most of the projects do have long-term financing issues; however, part of the process of developing a capacity and encouraging users could be beneficial as more users use the tool together and collaboratively. In addition, because users can go in without much experience or knowledge in GIS, they can go in and they can change values that can reweight values. They

can change targets that can play around with numbers, and it is an iterative process of producing ELSA outcomes.

Session Closed by Chair, CCMD: The chair of the session summarized ELSA as a digital presentation of global data tailored to local needs. Participants learned that the ELSA webtool is a very interactive tool, which is very useful for us to take appropriate decisions, and this simplify the work on the implementation of conservation activities. This project can bring substantive tools and innovative technology that will be user friendly and applicable. He also noted that precipitation levels are on the rise, which has a negative impact on Nepal's livelihood and well-being. He reflected on the issue around the definition with the Global Target 3 and the 30% of the land covered by the system. Therefore, it is important to be cautious about how Global Target uses terminology.

9 Expert review and stakeholder weighting: Datasets on biodiversity, climate change and human well-being - Di Zhang, Oscar Venter, Menaka Panta, UNDP

Summary: The second day of consultation focused on the co-creation of the Essential Life Support Areas Map for Nepal. The main objective was to produce the first iteration of the ELSA map, which will show how nature-based actions can lead to the achievement of the ten priority policy targets selected for Nepal during the Policy Hackathon. The science team has used input from yesterday to refine the ELSA analysis. The lead scientist, Dr. Oscar Venter, will give an introduction for today's session and provide a recap of the outcome of the sessions. The most important aspects of today's work are the outcomes from yesterday's session and the spatial optimization for multiple objectives, multiple zones, done in real-time, using an interface, and that can be interpreted. This is the only process that we know of anywhere that does this, and it brings together expertise and other knowledge holders, and stakeholders together, bringing in new forms of information, not only looking at spatial data, but also bringing in deeper expertise and put it together with these tools and the data.

9.1 Reflection

Oscar took the floor to present today's session. He reminded participants that yesterday, the group took a first look at the tool, the user interface, how to set scenarios to identify the ELSA maps, how to view the map and change the weights. Participants looked at all of the individual datasets and used their expertise and understanding of the important values in the country. Following that, weights were given for each one of the data layers. Today, the goal is to use a multi-objective planning software. Participants are looking at climate adaptation, mitigation, ecosystem services, and human well-being; it is quite rare to have all the features taken into account together at once. The process considers multiple zones or nature-based actions; additionally, we are looking at protected areas, sustainable forest management, forest restoration, and even urban greening. The non-technical interface to be used allows us to engage the participants in real time instead of coming with a static map.

10 Co-creation of Nepal's ecological heat maps – Oscar Venter, UNDP

10.1 Review results of stakeholder weighting

The ELSA map focuses on spatially identifying places for nature-based actions, including protection, restoration, and sustainable forest management. The first action is protection, which aims to protect 30% of the country's land area. The software will search for the best places for protection within yellow areas. The second action is forest restoration, which aims to reforest 3% of the country. The third action is sustainable forest management, which focuses on 60% of forests under Community sustainable management. This target is based on national data and is about 25% of the country's land area. The final action is urban greening, which involves active restoration of urban green spaces or trees. The target is 0.3% of the country, but the area is considered for urban greening, as it is a small part of Nepal's land area.

10.2 Generation of the ecological maps based on stakeholders' weights

The discussion revolves around the trade-offs between different planning approaches, such as ELSA and REDD+. The ELSA approach focuses on capturing and capturing the most vulnerable layers, such as agricultural climate stress, operational carbon intact, wilderness areas, and flooding risk opportunities. The percentage of recovered recoverable carbon is smaller, with ELSA at 73% of the right, which is more focused on climate change and carbon planning. The weight given to each layer is also shown, with recoverable carbon being given a higher weight. However, some other layers, like intact wilderness areas and drought risk, are given a higher weight. The discussion then moves on to the first layer, agriculture climate stress, which is under-used for agriculture and is projected to experience high climate change and potentially run into food and production issues. Sustainable management practices and increasing soil fertility could benefit these areas and increase their adaptive capacity. ELSA plans for 24 layers at once, compared to the traditional approach of planning separately for biodiversity. This measure shows the percentage of these layers covered by ELSA compared to how they could be covered if planned directly.

In conclusion, the ELSA approach of integrated planning and the trade-offs between different planning approaches are crucial for achieving better protection of biodiversity and reducing the risk of climate change. This discussion is not currently being held. The suggestion is to explore different scenarios, changing the weights of the first three layers and see how it affects the overall map. The team has a good understanding of the country, with 2500 plots and a national organic carbon map. They will provide the global data set for soil organic carbon and national year data layers. They will determine if this data is applicable and create an ELSA machine setup for the discussion. The team will also explore recoverable carbon for the national layer and have an action item to acquire national data for the global layer.

10.3 Review results

Summary: The objective of today's session is to co-develop the ELSA map, using stakeholder weights from yesterday's exercise. The map will be analyzed to determine how well it represents biodiversity,

climate change, and human well-being. The nature-based actions are protection, restoration, and sustainable management. This software will look for the best places to protect, restore, and sustainably manage the environment in Nepal. The datasets will need tweaking and updating before presenting the actual ELSA map. The most important details in this text are the policy commitment to ensure 60% of forests under community sustainable management, the target area for urban green and blue infrastructure, and the importance of data layers. Participants should also pay attention to the importance of values and other inputs when mapping, as well as the need to remove national parks and conservation areas from the map. The tool will ensure that the "manage" zone is not considered within protected areas, and the other point raised about excluding steep slopes should be included before the final session.

The ELSA webtool is trying to solve a mathematical problem of where protection, sustainable management, restoration and urban greening can take place at the same time to support targets for biodiversity, climate and sustainable development. Additionally, the webtool is analyzing the ELSA map to determine if some measures of biodiversity or some measures of human well-being fall through the cracks and are not well captured in the final ELSA map. This is the result of a stakeholder weighting exercise conducted by the UNDP Global Team and the co-creation of social ecological heatmaps for Nepal. The tool now has a user interface where users can adjust the weights or settings to create the ELSA heatmaps and the map itself.

The results of the exercise showed that there tends to be high weights for the features around biodiversity or ecosystems. The ELSA map in Nepal has two areas with the highest weights: Degraded Forest and Climate Mitigation Potential. Lower weights are seen for climate mitigation potential, such as recoverable carbon and vulnerable soil, and high moderate weights for human well-being such as productive forests, indigenous communities, managed lands, urban greening opportunities, and flood risk opportunities. It is difficult to predict the final outcome of the map based on these weights. The most important layers are almost twice as important as the least and ordinary layers, so the tool will try to capture better those layers with higher weights. Using the weights, it is possible to create the first ELSA map, and use other fine scale data to overlap with the areas; ELSA heatmap can be used to show concentrations of environmental values, biodiversity, climate change, and human well-being in Nepal. In the first iteration, the layers include threatened species, threatened ecosystems, and ecosystems that are not well represented in protected areas, as well as areas where biodiversity is under threat or rare.

Human well-being layers include agricultural yield gaps, potential clean water, and areas that can help buffer against flooding and urban greening opportunities. When identifying Essential Life Support Areas, the tool is able to distinguish those different layers and how they can benefit from the different actions. To interpret the map, it is important to go back to all the input layers, as the map is a combination of all those different ingredients or input layers, and the weights given to them. We must look at the correlation between an environmental value map and a digital elevation model for Nepal. The biodiversity map is made up of input layers such as intact and wilderness areas, ecosystems that are underrepresented by current protected areas, threatened ecosystems, degraded forests, lower elevation areas, and a map of land degradation. The dynamic tool that the core area will available is used to highlight the valleys and highlight the intact places of the country. We look at the correlation between where people live and the need for

better representation in protected areas. The ELSA action map reflects the area-based targets for each action and locks in existing protected areas.

Urban Greening is also identified as an action in the Essential Life Support Areas due to ambitious targets for protection and forest management. The ELSA analysis showed that the ELSA combined planning is performing well for the vast majority of environmental variable values in Nepal, but there are five layers that do not do as well. These five layers include intact and wilderness areas, agricultural climate stress, drought risk, and flooding risk opportunities. The tool ran other scenarios for more isolated planning only for certain values, and the trade-off column shows the percentage contained within the ELSA areas of each layer compared to the scenario that does best for that layer. The tool can be used to increase the weights for one or all or any of these five layers so that they are better represented in the final ELSA map. A table analyzing the performance of the ELSA map shows that 55% of intact and wilderness areas are captured within the ELSA map. The percentage captured and ELSA relative to what could potentially be captured is shown, with recoverable carbon being only captured and ELSA at 73% of the right. The weight given to each layer is shown, with recoverable carbon being not given a high weight.

There is an option to create a new version of the ELSA map that better captures these layers, but there are trade-offs between these layers. The next exercise undertaken by the participant aimed to collect opinions and votes for increasing the weighting score for five layers of agricultural, climate stress and so on; these are the five layers are the least covered in the ELSA analysis to have the biggest trade off, so they have been selected. The first layer is agricultural climate stress, which is projected to experience high climate change and potentially run into food production issues. It has a moderate weight of 6.7 and is below the threshold of 85. If the room prefers to increase the weight, this will be captured by a voting process and count the hands. The most important details are that ELSA plans for 24 layers at one time, while Ministries plan separately. This measure shows the percentage of layers covered by ELSA compared to how they could be covered if planned directly. The lower the number, the bigger the trade-off. The most important details in this text are the five layers used to create the lowest rate of a pipe, the options to remove or lower the value, and the potential opportunities for future iterations.

It is suggested that the five layers should be evaluated with hard work, and that three examples should be given to illustrate the differences between the five layers if given higher risk or droughts. The most important details are the suggestions for a modification to the ELSA mapping tool. The suggestion is to get feedback on which layers should have a higher weight, run a few scenarios, and analyze the results before determining which version of the map is the preferred choice. The data can be recreated with the tool, and the variables can be increased – this is all decided by national stakeholders. If a variable is important, it can reach up to 9; or maybe up to 10. The most important details are that global data sets do not reflect hydrology, and that if they are used correctly, the score can be increased to 100%. If they are still underrepresented, the weights can be increased to 9-10, and the first three layers can be qualitatively evaluated. The variable can be improved, and the first three layers should be explored quantitatively to determine if it is worth doing. The participants suggested exploring different scenarios to change the weights of the first three layers and see how it affects the overall map.

The trade-off exercise took a bit of time and the session had to end. The science team suggested to explore different scenarios after the workshop and share the different iterations of the ELSA map with colleagues in Nepal for final approval.

Questions #1: The first question focused on the fact that weights are not the only important input to take into consideration – policy targets are too.

Response #1: The Global Team appreciates that feedback. In some ways, the way they were running this workshop for Nepal is unique because participants are all together in the same room, allowing them to converse more freely. It is beneficial to participants, but limits the amount of time spent online with the science team. Normally, we would have the session that we did yesterday where we looked at those actions and the space trains in the definitions. We normally then have that a week in between so that we can get that feedback and then we have a week to work on integrating it. The feedback we are receiving now is about excluding areas of greater than a certain slope and using national definitions or the categories; this is the sort of feedback that the science team needs. Unfortunately, because of the modalities of this workshop, the session has to end without being able to generate more iterations of the ELSA map. The science team will make the changes offline and will send several iterations of the ELSA maps.

11 Reflection and next step

Summary: Ms. Jamison Ervin, Manager of the UNDP Global Program on Nature for Development, congratulated colleagues in Nepal on the progress made for the past days and months. She came back to the framework used for the step-by-step analysis.

1. Identify policy priorities in Nepal, which included conserving ecosystem integrity, species conservation, food security, water security, land degradation neutrality, climate change mitigation, disaster risk reduction, climate change adaptation, urban health, jobs and livelihoods in recovery and sustainable forest management.
2. Identify national and global data to guide the analysis – in the case of Nepal, most data is national and global data is used only when national data is missing.
3. Identify nature-based actions in the National context of Nepal, which included identifying area-based targets for each action and determining spatial datasets that can be used to spatially define where each action can occur.
4. Design a customized scientific else analysis based on the National vision and data, which included selecting and processing and compiling the data to map priority commitments.
5. Set parameters with Nepal. The National experts have gathered expert opinions to assign weights to each spatial data set to reflect the priority of each policy commitment.
6. Create the ELSA map to locate where protection management restoration can help Nepal achieve its goals.
7. Review and revise the maps with national experts.
8. Step 8 is policy recommendations to implement discoveries. This involves assessing the ELSA maps in the context of Nepal's national policies and creating policy recommendations based on the

results. Finally, the UNDP country office in Nepal will assist in developing policy recommendations for how to use the ELSA map.

9. The last step is taking action and monitoring results. It involves engaging across central coordination, applying recommendations in different contexts, monitoring commitments through dynamic indicators, and iterating ELSA maps and related policies.
10. Throughout the project, communicating achievements and results is key, which is a learning process for partner countries.

Jamison thanked the Ministry of Forest and Environment, UNDP Country Office, and all participants for participating and sharing their expertise.

12 Closing remarks

Dr. Buddi Sagar Poudel, Chief of the Climate Change Management Division from the MoFE, took the floor. He thanked Jamison Ervin for her support since the beginning of the project. He also insisted on the need to improve the analysis and the final maps. He confirmed that the ELSA webtool can be useful for all experts and decision makers, and to the wider audience. He, as many others, looked forward to receiving the different iterations of the ELSA maps. He thanked the UNDP Global team, participating ministries and colleagues.

Di Zhang gave warm thanks to the team who has made this consultation possible. It could not have done this without leadership from UNDP CO in Nepal, in particular **Vijaya Singh and Deepak K.C.** who have provided valuable guidance and insight to develop and implement this project in Nepal.

Special thanks also goes to Menaka Panta, who followed all the details of the organization of the workshop, who took notes, provided technical feedback, and has been essential in collecting and consolidating all the data for the project. Di also thanked **Mr. Yamnath and Dr Buddhi Sagar** for their continued support in this project, and more broadly the support of colleagues within the MoFE. This project also wouldn't have been possible without the support of the data providers in Nepal, who supported Menaka and our team in accessing and using existing data sets.

Di thanked **Jamison Ervin** for creating this vision and inspiring us in exploring; **Scott Atkinson** and all others special experts who have led the creation of rigorous scientific methods to make this work possible. High regards to **Marion Marigo and Casandra Llosa** who ensured the organization of this workshop and the coordination of the project, exclusively supporting this project in Nepal, and to **Annie Virnig** for her advice in the science.

Lastly, Di thanked **all the participants** for sharing their time and their knowledge to shape this project. The science team will continue to count on them as they develop the maps iterations. Di formally closed the final consultation Mapping Nature for People and Planet in Nepal. She insisted that participants can reach out to the global team anytime if they have any questions or further suggestions.