

# CONFERENCE PROCEEDINGS

## FIRST NATIONAL CONFERENCE ON INVASIVE ALIEN SPECIES MANAGEMENT IN NEPAL

12–13 December, 2025

Budhanilkantha,  
Kathmandu



Government of Nepal  
Ministry of Forests and Environment  
Forest Research and Training Centre  
Babarmahal, Kathmandu





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**Government of Nepal**  
**Ministry of Forests and Environment**  
**Forest Research and Training Centre**  
**Babarmahal, Kathmandu**



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## **Foreword**

It is with great pleasure that the Forest Research and Training Centre (FRTC) presents the proceedings of the National Conference on Invasive Alien Species Management in Nepal. This conference marks an important step in Nepal's continued efforts to understand and address the growing challenges posed by invasive alien species. I would like to sincerely acknowledge Dr. Rajendra K.C., former Director of FRTC, for his dedicated leadership and unwavering support in strengthening the institution's commitment to invasive species management.



Invasive alien species pose a significant threat to our native biodiversity, ecosystem functions, and the livelihoods of local communities. Considering Nepal's rich biological diversity and complex socio-ecological systems, effective management of these species requires sound scientific evidence, strong policy coordination, institutional collaboration, and meaningful engagement of all stakeholders.

The conference, organized by FRTC, provided a valuable national platform for researchers, government agencies, practitioners, local communities, and development partners to share knowledge, experiences, and innovative management approaches. I am confident that the insights and recommendations documented in these proceedings will contribute to national planning and help strengthen coordinated action in the years ahead.

I extend my sincere appreciation to all distinguished participants, presenters, and collaborators for their valuable contributions. I also thank the organizing committees for their hard work and dedication in successfully conducting the conference.

I would further like to acknowledge the team involved in preparing these proceedings, led by Ms. Sunita Ulak, Undersecretary, FRTC, and Mr. Pratik Pandeya, Research Officer, FRTC. Valuable contributions were also made by the rapporteurs Mr. Raj Kumar Giri, Mr. Milan Dhungana, and Mr. Alankar Dhungana (Undersecretaries, FRTC), along with Mr. Madav Neupane, Mr. Ananda Khadka, Ms. Bimala Lama, and Ms. Manju Ghimire (Officers, FRTC). The dedicated support provided by Rabina Bhattarai, Samikshya Parajuli, Riya Pandit, Manoj Dulal, Niharika Rai, Aruna Pyakurel, Sandip Tamang, Jivan Sharma Gaire, and Samikshya Poudel (Interns, FRTC) is also gratefully acknowledged.

On behalf of the Forest Research and Training Centre, I trust that these proceedings will serve as a useful reference for researchers, policymakers, practitioners, and students, and will encourage continued efforts toward sustainable management of invasive alien species in Nepal.

**Rabindra Maharjan**  
**Director General**



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# 1. Introduction

## 1.1 Background

Invasive alien species are globally recognized as one of the major drivers of biodiversity loss. These species have serious ecological, economic, and social threats across ecosystems. More than 37000 alien species have been recorded globally, of which 3500 alien species have been recognized as invasive alien species across the globe. The global annual costs of biological invasion were estimated to exceed \$423 billion in 2019. Some invasive alien species do have benefits to people however it does not mitigate their negative impacts (IPBES, 2023; Diagne et al., 2021).

The threats and challenges from invasive alien species are rapidly increasing all over the world and are predicted to increase. Even without the introduction of new species, existing populations of invasive alien species will continue spreading through all ecosystems. Amplification of and interactions among direct and indirect drivers of change will profoundly shape and exacerbate the future threats from invasive alien species. Invasive alien species have been recognized as a global threat to biodiversity, ecosystem and human wellbeing by many international reports, treaties and conventions and emphasized in management (IPBES, 2023). The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) recognizes invasive alien species as one of the major direct drivers of biodiversity loss worldwide similarly the Convention on Biological Diversity (CBD), through the Kunming–Montreal Global Biodiversity Framework focused to prevent the introduction, establishment and spread of invasive alien species. Other international instruments, including the Sustainable Development Goals (particularly Target 15.8), the International Plant Protection Convention (IPPC), and the World Organization for Animal Health (WOAH), further highlight the risks posed by invasive alien species to agriculture, food security, trade, human health, and ecosystem services.

Overall, international evidence shows that the impacts of invasive alien species exceed the costs of their management. Consequently, coordinated and sustained action at global, regional, and national levels is essential to reduce their spread, mitigate their impacts, conserve biodiversity, and safeguard nature's contributions to people and overall quality of life. As invasive alien species are increasing rapidly at the global level, Nepal has not remained untouched by this growing challenge. Nepal's diverse geographical, topographical, and climatic conditions, together with expanding human activities, provide a favorable environment for the establishment and spread of invasive alien species. In the agriculture sector, Nepal ranks third among 124 countries in terms of vulnerability to the impacts of invasive alien species (Paini et al., 2016). In Nepal the number of new records is increasing, with approximately one new species reported every two years. 29 Invasive alien species have been recorded in Nepal of which 5 species are included among the world's 100 worst invasive species (FRTC, 2025).

In Nepal, IAS have emerged as a major threat to biodiversity, agriculture, and ecosystem services. The country's diverse topography, ranging from lowland Terai to high Himalayan regions, combined with rich biological diversity, makes it particularly susceptible to invasions. Forest ecosystems are negatively affected by invasive alien plant species as they can outcompete native vegetation, alter habitat structure and reduce biodiversity. Aquatic ecosystems are affected by invasive fish and aquatic plants, which disrupt native species and ecosystem functioning (Ricciardi & MacIsaac, 2015). Agriculture, being a primary source of livelihood for a large proportion of the population, is highly vulnerable to IAS. These species can reduce crop yields, degrade pasturelands, and increase management costs (Eschen et al., 2021). Despite the growing evidence of ecological and economic damages, public awareness and coordinated

efforts to manage IAS in Nepal remain limited. These species threaten native flora and fauna, alter habitats, impact agricultural productivity, and exert pressure on natural resources. Over the past decades, several scientific studies and field observations have documented the proliferation of various invasive species in forests, farmlands, wetlands, and urban areas across the country. While efforts have been initiated to manage some problematic species, a national-level dialogue among stakeholders remains essential to build a shared understanding, exchange knowledge, and foster coordinated action.

## 1.2 Rationale

Nepal faces growing threats from IAS, which continue to degrade ecosystems, impact biodiversity, and affect the livelihoods of communities. Despite these impacts, national efforts to manage IAS remain weak and fragmented. Given this urgent and complex situation, there is a critical need to bring together diverse stakeholders including government institutions, research and academic bodies, NGOs, community representatives, and development partners to build a shared understanding of the IAS issue and agree on collective actions. The proposed national workshop will serve as a platform to share knowledge, assess the national context, discuss effective management approaches, and formulate evidence-based, policy-relevant recommendations. It will also help align national efforts with international commitments such as SDG 15.8 and Target 6 of the Global Biodiversity Framework.

## 1.3 Objectives

1. To review the current national status of IAS, including their diversity, distribution, impacts, policy frameworks, and ongoing management interventions.
2. To raise awareness among diverse stakeholders on the global and national dimensions of the IAS problem.
3. To build national consensus and foster synergy among stakeholders for effective policy and programmatic responses to prevent and control IAS.

## 1.4 Workshop structure and methodology

The First National Conference on Invasive Alien Plant Species Management in Nepal was organized by the Forest Research and Training Centre in collaboration with the Ministry of Agriculture and Livestock Development, Department of Forests and Soil Conservation, Department of National Parks and Wildlife Conservation, Tribhuvan University, Nepal Academy of Science and Technology, FAO, UNDP, WWF, NTNC, ZSL, LWR, Forest Action, RECOFTC and IUCN.

It was structured as a two-day national-level conference designed to integrate policy dialogue, scientific exchange, and practical experience sharing with participation of key stakeholders from all three tiers of government, governmental and non-governmental organizations, academic institutions, researchers, students, journalists, forest user groups, farmers, implementers, students and other principal stakeholders with six different technical sessions.

The National Conference featured the following components:

- Opening Ceremony
- Keynote Address: National Scenario & international Scenario
- Invited oral presentations on diverse thematic topics
- Interactive panel discussions
- Poster exhibitions showcasing research findings and innovations
- Community experience and lesson sharing by practitioners, managers, and community members
- Signing commitment letter to managing invasive alien species.
- Closing Ceremony and Adoption of Declaration

### 1.4.1 Thematic Areas

The technical sessions were organized around **three major thematic areas**, reflecting the national priorities and challenges related to invasive alien plant species management:

#### Thematic area- I: Introduction and Spread

1. Biosecurity (Plant and animal quarantine) and biological invasions

2. Exotic species for forestry and agroforestry plantations
3. Fishery, aquaculture and aquarium as pathways for exotic species introduction
4. Floriculture and invasive plant introduction
5. Introduction and spread of invasive species through trade, travel and tourism
6. Infrastructure development and biological invasions

#### **Thematic area- II: Impacts and Control**

1. Threats of invasive species to agriculture and food security
2. Impacts of invasive alien species on indigenous people and local communities
3. Integration of invasive species control in participatory forest management
4. Invasive species management in protected areas and Ramsar sites

#### **Thematic area- III: Coordination, Collaboration and Policy**

1. Integrating invasive species management in urban planning and urban biodiversity conservation
2. Roles of conservation and development partners in the introduction, spread and control of invasive alien species
3. Biological invasions in school and university curricula

### **1.5 Call for papers and posters**

For the conference, the technical committee identified thirteen thematic areas under which focused discussions were to be conducted. Based on these themes, subject-matter experts working on invasive alien species were identified and invited to contribute. To ensure coherence and depth of discussion, the Technical Committee developed guiding questions for presentations under each theme. In order to enhance the quality, relevance, and effectiveness of the presentations, half-day author consultation and discussion meetings were organized at the Forest Research and Training Centre (FRTC) meeting hall. These meetings enabled presenters to refine their content and align their presentations with the conference objectives and thematic focus.

Altogether, thirteen presentations were delivered by invited lead presenters, while the remaining presentations were selected through an open call process. The Conference Secretariat officially announced the Call for Oral and Poster Presentations through the FRTC website and social media platforms. Interested contributors were requested to submit abstracts outlining the content and methodology of their proposed presentations to the Conference Secretariat. All submitted abstracts were reviewed by a designated technical review team.

In response to the open call, the Secretariat received a total of 21 abstracts for oral presentations and 7 abstracts for poster presentations. Following the technical review, seven papers were selected for oral presentation based on their scientific quality, relevance, and clarity. Fourteen papers initially submitted for oral presentation were recommended for poster presentation, resulting in a total of 21 poster presentations. Three submissions were rejected due to not meeting the required quality standards.

Selected presenters were formally notified by the Conference Secretariat and provided with specific suggestions and guidelines for the preparation and submission of their full papers and posters. Out of the 21 posters selected, 15 were presented during the conference. The posters covered a wide range of topics aligned with the workshop theme and provided an opportunity for researchers and practitioners to present their work, exchange ideas, and receive feedback from experts and peers. The list of poster presentations delivered during the conference is presented in annex III.

### **1.6 Participation**

Participation in the conference was designed to be both physical and virtual. The Advisory Committee, Technical Committee, and Secretariat jointly identified key stakeholders whose participation was essential to ensure effective and meaningful deliberations. Accordingly, stakeholders were invited physically in various roles, including experts, panelists, experience-sharing presenters, guests, and general

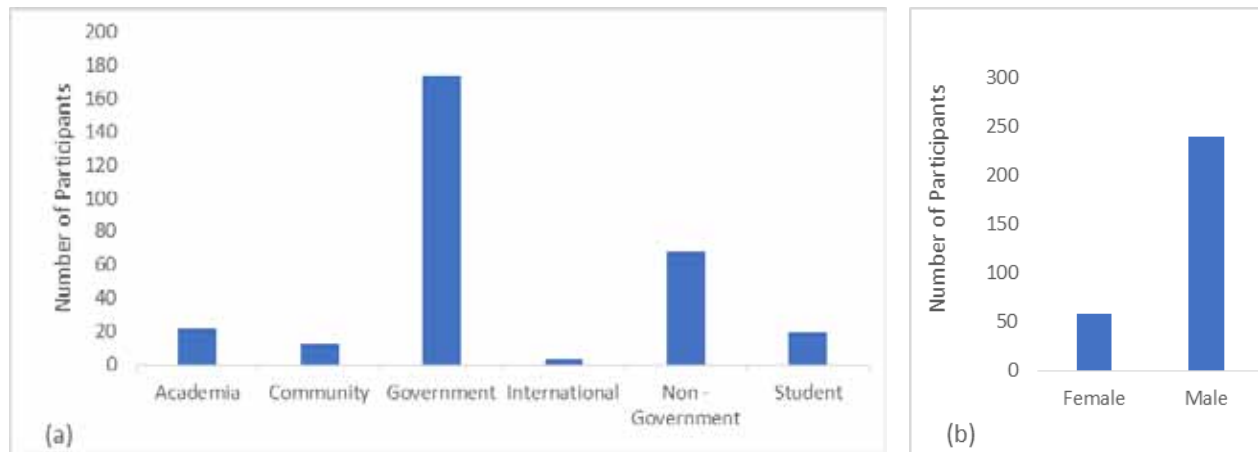


Fig 1: Proportion of participants in conference: (a) by affiliation type (b) by gender

participants. Approximately 300 participants attended the conference in person over the two-day period. In addition, more than 300 participants registered for online participation, of whom approximately 150 actively joined the conference sessions. Representing federal, provincial, and local governments; universities and research institutions; national and international non-governmental organizations; community and collaborative forest user groups; agriculture and fisheries sectors; students; researchers; and academicians. This diverse representation ensured inclusive discussions and promoted cross-sectoral learning. The total list of participants is presented in the annex V.

### 1.7 Workshop date and venue

The Conference was conducted from 12 to 13 December 2025 (26 to 27 Mangsir, 2082) at the Park Village Resort, Budanilkantha, Kathmandu.

### 1.8 Cost estimate

The conference was organized in collaboration with numerous governmental and non-governmental organizations. FRTC had allocated a seed fund in the annual program of the fiscal year 2082/083 for the organization of the conference. Furthermore, FRTC issued an open call for collaboration, irrespective of financial contributions. While some organizations contributed financially, others offered technical assistance and demonstrated solidarity in addressing invasive alien species (IAS) management issues. The total estimated cost of the conference was NPR 39,850,800 which included costs such as logistics, stationery, transport, venue charges including food and accommodation to the participants as well as the publication of proceedings and a special issue of *Banko Janakari* after the conference. The details of the committed amount and the actual billed amount for the collaborating organizations is presented in table 1.

Table 1: Commitment by different supporting organizations and actual amount billed

S.N.	Supporting Organization	Committed Amount	Actual Billed Amount	Surplus Amount
1	FAO Nepal	1,365,000.00	1,142,500.00	222,500.00
2	UNDP Nepal	620,000.00	561,600.00	58,400.00
3	WWF Nepal	500,000.00	429,049.00	70,951.00
4	ZSL Nepal	300,000.00	264,267.00	35,733.00
5	Lutheran World Relief	300,000.00	280,500.00	19,500.00
6	NTNC	300,000.00	298,546.00	1,454.00
7	RECOFTC	80,000.00	80,000.00	-
8	IUCN	100,000.00	-	100,000.00
	<b>Total</b>	<b>3,565,000.00</b>	<b>3,056,462.00</b>	<b>508,538.00</b>

## 2. Conference Organization and Management

### 2.1 Government approval

The Ministry of Forests and Environment, through a secretary-level decision dated 4th Bhadra 2082, approved the concept note and granted consent to organize the National Conference on Invasive Alien Species Management in Nepal. The conference was conducted from 26-27 Mangsir 2082 in Kathmandu. To conduct the conference effectively and smoothly, the following Advisory committee, Technical Committee and Secretariat were established.

### 2.2 Organizing Committees

#### A. Advisory Committee

The advisory committee of ten members headed by the Secretary of the Ministry of Forest and Environment was constituted to provide the strategic guidance and overall direction for the conference.

- Dr. Rajendra Kumar Mishra - Secretary, MoFE (*Chair*)
- Dr. Januka Pandit - MoALD, Joint Secretary (*Member*)
- Dr. Rajendra K.C - Director General, FRTC (*Member*)
- Dr. Buddhi Sagar Poudel - Director General, DNPWC (*Member*)
- Mr. Dharendra Kumar Pradhan - Director General, DoFSC (*Member*)
- Dr. Sanjeev Kumar Rai - Director General, DPR (*Member*)
- Mr. Nabaraj Pudasaini - Chief, REDD IC (*Member*)
- Dr. Prakash Kumar Sanjel - Director General (*Member*)
- Dr. Rajesh Malla - Deputy Director General, FRTC (*Member-Secretary*)

#### B. Technical Committee

The technical committee headed by deputy director general with fourteen members was

constituted with responsibility of scientific and technical guidance to the conference by finalizing thematic areas, reviewing abstracts and presentations, supporting technical sessions, and ensuring the overall quality and credibility of the conference outputs.

- Dr. Rajesh Malla - Chair, DDG (*Coordinator*)
- Mr. Hari Bhadra Acharya - DNPWC, US (*Member*)
- Mr. Meghraj Poudel - DOFSC, US (*Member*)
- Mr. Dipak Lamichhane - DPR, US (*Member*)
- Ms. Yam Kumari Shrestha - DOA, US (*Member*)
- Dr. Sandesh Bhattarai - NAST (*Member*)
- Mr. Rajendra Kumar Bhattarai - NARC (*Member*)
- Mr. Madhav Bhatta - PQPMC, US (*Member*)
- Ms. Rachana Shaha - NTNC (*Member*)
- Dr. Bharat Babu Shrestha - Professor, CDB, TU (*Expert*)
- Dr. Rajesh Rai - Professor, IOF, TU (*Expert*)
- Dr. Lila Nath Sharma - Forest action (*Member*)
- Ms. Sunita Ulak - FRTC, US (*Member-Secretary*)

#### C. Conference Secretariat

The conference secretariat was established at the Forest Research and Training Centre and was headed by the Under Secretary of the Centre. The secretariat was responsible for the overall coordination and day-to-day management of the conference. It played a crucial role in ensuring effective communication among committees, stakeholders, and participants; managing administrative and logistical arrangements; coordinating registrations and documentation; and supporting the smooth implementation of conference activities. The establishment of the secretariat was essential to ensure timely decision-making, efficient execution of planned activities, and the successful and orderly conduct of the conference.

- Sunita Ulak - FRTC, US (Coordinator)
- Manju Ghimire - FRTC, Officer (Member)
- Pratik Pandeya - FRTC, Officer (Member)
- Sidhartha Aryal - DOFSC, Officer (Member)

### 2.3 Facilitation and Rapporteurs

The Sessions of the conference were facilitated by Ms. Sunita Ulak, who served as the main facilitator. Rapporteurs were designated to systematically document and report on the proceedings of each session. The appointed rapporteurs included Mr. Rajkumar Giri (Under Secretary, FRTC), Mr. Millan Dhungana (Under Secretary, FRTC), Mr. Alankar Dhungana (Under Secretary, FRTC), Ms. Manju Ghimire (Officer, FRTC), Mr. Bishnu Dhakal, (Officer, FRTC), Mr. Ananda Khadka (Officer, FRTC), Ms. Apsara Poudel (Officer, FRTC), Mr. Amul Acharya (Officer, FRTC), Ms. Reeti Acharya (Officer, FRTC), Ms. Bimala Lama (Officer, FRTC), Mr. Pratik Pandeya

(Officer, FRTC), Mr. Bishal Humagain (Officer, FRTC) and Mr. Madav Neupane (Officer, FRTC).

To ensure the effective and smooth management of the conference, the Forest Research and Training Centre (FRTC) constituted several functional support units with clearly defined responsibilities. These included the Accommodation Support Unit, Registration Support Unit, Grievances Support Unit, Hospitality Unit, Digital Handling Unit, Poster Handling Unit, Rapid Response Unit, Dias Support Unit, and Travel and Logistics Support Unit. Each unit was staffed with designated members responsible for planning, coordination, and execution of their respective tasks. The details of the units and their assigned members are presented in annex IV to acknowledge their roles and contributions to the successful organization of the conference.



*Ms. Sunita Ulak as Master of Ceremonies during the opening ceremony, with distinguished guests on the dais.*

## 3. Inauguration Session

The opening ceremony of the First National Conference on Invasive Alien Species Management in Nepal commenced with the National Anthem, followed by a moment of silence in remembrance of the martyrs. The ceremony was formally inaugurated through the symbolic watering of native plant species and the uprooting of an invasive alien species by the Chief Guest and other distinguished guests. A short video highlighting the threats and impacts of invasive alien species in Nepal was also screened.

The program was hosted by Ms. Sunita Ulak, Senior Research Officer at FRTC. The opening ceremony was chaired by Dr. Rajendra Prasad Mishra, Secretary, Ministry of Forest and Environment. The Chief Guest of the program was Honorable Minister Dr. Madan Prasad Pariyar, Ministry of Agriculture and Livestock Development. Dr. Deepak Kumar Kharal, Secretary of the Ministry of Agriculture and Livestock Development, attended as the Special Guest. Dr. K. V Sankaran from the Kerala Forest Research Institute, India, a renowned expert in IAS management and forest health, and a Lead Coordinating Author of the IPBES Global Assessment on Invasive Alien Species attended as the keynote speaker and guest. Other notable guests included Dr. Sangita Rajbhandari, Head of the Central Department of Botany, Tribhuvan University, and Mr. Rakesh Karn, President of the Nepal Forests' Association.

### 3.1 Welcome Speech

The welcome speech was delivered by Dr. Rajendra K.C., Director General of FRTC. In his speech, he emphasized that invasive alien species have emerged as a national-level disaster, affecting ecological, economic, and social systems across the country. He highlighted that urban areas are increasingly becoming hotspots for IAS invasion. According

to him, major drivers of IAS spread include road expansion, infrastructure development, trade and transportation, and climate change.

Dr. K.C. noted that species once confined to eastern Nepal and the Terai region have now spread to the far western parts of the country and have even reached mountainous and high Himalayan regions. He explained that IAS have significantly reduced agricultural productivity while simultaneously increasing production costs, thereby threatening farmers' livelihoods. He stressed the need for integrated IAS management involving collaboration among all relevant sectors.

He further stated that the primary objective of the conference was to foster coordination and collaboration among government agencies, researchers, community forest user groups (CFUGs), private sector stakeholders, and farmers for effective IAS reduction and management. He emphasized that awareness and understanding of IAS should not be limited to technicians alone but should also include CFUG members, private sector actors, and farmers. The conference agenda included technical presentations, panel discussions, experience sharing by farmers and consumers, and the formulation of the Kathmandu Declaration on Invasive Alien Species.

### 3.2 Congratulatory Address by Nepal Forests' Association

Mr. Rakesh Karn, President of the Nepal Forests' Association (NFA), delivered a goodwill address praising MoFE and FRTC for convening the conference on an important and urgent issue. He noted that IAS are degrading native species and ecosystems, emphasizing the need for timely action. He underscored the importance of continued scientific research and affirmed NFA's commitment to support IAS management.

He concluded by expressing hope that the conference outcomes would lead to concrete implementation rather than remaining as declarations.

### 3.3 Congratulatory Address by Dr. Sangeeta Rajbhandari

Dr. Sangeeta Rajbhandari, Head of the Central Department of Botany at Tribhuvan University, also delivered a congratulatory address. She remarked that such a conference should have been organized earlier, as her department had been working on invasive alien species for nearly a decade. She shared that the department had completed around 30 MSc theses and 3 PhD dissertations related to IAS, with 3 additional PhD studies currently ongoing.

Dr. Rajbhandari highlighted that faculty members of the department have been providing technical support for research as well as contributing to government and non-government policy formulation. She noted that IAS have adversely affected both flora and fauna, including impacts observed in protected areas such as Chitwan National Park. She stressed that implementation of conference declarations is more important than discussion alone and emphasized the role of research in informing effective policy-making.

### 3.4 Book and Document Inauguration

During the ceremony, a field guide titled *A Field Guide to Invasive Alien Plant Species in Nepal* was officially inaugurated by the Chief Guest, distinguished guests, and the Director General of FRTC. A group photograph was taken with the authors and reviewers of the field guide.

Additionally, the registration book of Invasive Alien Species of Nepal was formally inaugurated by the Chief Guest and other dignitaries, marking FRTC's official initiative to systematically document IAS in Nepal.

### 3.5 Address by Special Guest

Dr. Deepak Kumar Kharal, Secretary of the Ministry of Agriculture and Livestock Development, delivered a special address expressing his satisfaction with the initiation

of the IAS Management Strategy and the organization of the conference. He described the event as a "COP of IAS management," emphasizing its national importance. He stated that the conference would provide valuable insights into the control, prevention, eradication, and potential utilization of invasive alien species.

Dr. Kharal highlighted that IAS pose a serious threat to the agricultural sector, particularly in a country where only about 24 percent of land is available for agriculture. He pointed out that invasive species have rendered nearly one-fourth of agricultural land less productive. He emphasized the importance of the IAS strategy, which comprehensively addresses various aspects of management, and stressed the need to clearly define the roles and responsibilities of individuals and institutions. He further emphasized that IAS management activities must be integrated into government budgets and programs at all three levels of government. He encouraged the preparation of proposals for IAS eradication and management through climate change funding agencies. He also stressed the need to identify IAS that negatively affect agriculture and officially declare them as harmful agricultural species. He concluded by motivating participants to actively engage in future IAS management efforts and suggested integrating IAS impacts into Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) processes. He also called for large-scale public campaigns involving schools and colleges.

### 3.6 Scenario of IAS in Nepal

Dr. Bharat Babu Shrestha, Professor at Central Department of Botany, Tribhuvan University delivered a technical presentation focusing on trends, impacts, and future outlooks of invasive alien species in Nepal. He highlighted that while in 2005, around 21 IAS were reported in Nepal, the number had increased to approximately 30 species by 2025. He identified several of the world's worst IAS present in Nepal, including *Chromolaena odorata*, *Lantana camara*, *Mikania micrantha*, *Pontederia crassipes*, and *Sphagneticola trilobata*. He specifically highlighted *Sphagneticola trilobata* (Singapore

daisy), a globally notorious invasive weed, recently recorded in Gauriganga (Kailali) and Panchkhal (Kavre). He also mentioned *Leucaena leucocephala* as a conflict species and discussed invasive fauna such as the Giant African Snail (*Achatina fulica*), noting community-led control efforts.

Dr. Shrestha explained that IAS cause severe biological impacts, habitat and wetland degradation, economic losses in agriculture, health risks to humans and animals, and cultural impacts. He emphasized that early detection and rapid response are critical, as management becomes extremely difficult once IAS are well established. He described Nepal's situation as a "Nepal paradox," where preparedness remains low despite increasing IAS threats, largely driven by climate change. He stressed the urgent need to strengthen proactive capacities and mainstream biological invasion issues into relevant sectors.

### 3.7 Keynote Address

The keynote address was delivered by Dr. K. V Sankaran from the Kerala Forest Research Institute, India. He began by addressing the question of whether successful management of biological invasions is achievable and confidently stated that effective IAS management is indeed possible. He explained that IAS are among the five major drivers of global biodiversity loss and have the ability to invade all types of ecosystems.

Dr. Sankaran elaborated on the harmful effects of IAS, including alterations to ecosystem processes such as hydrology, primary productivity, decomposition, nutrient cycling, and fire regimes. He discussed their impacts on indigenous species through competition and hybridization, changes in soil structure and profile, and adverse effects on human health, including allergies and disease transmission. He explained the stages of IAS invasion transport, introduction, establishment, and spread and shared key findings from the IPBES assessment. According to IPBES, approximately 37,000 alien species have been introduced globally through human activities, with about 200 new species added each year. Of these, around 3,500 invasive

alien species have significant negative impacts on nature and people. He noted that IAS have contributed to 60 percent of global species extinctions, with 16 percent caused solely by IAS. He emphasized that biological invasions are increasing across all regions and are expected to intensify in the future.

Dr. Sankaran highlighted that 75 percent of documented IAS impacts occur in terrestrial ecosystems, followed by freshwater (14 percent) and marine systems (10 percent). He stressed that stakeholder engagement, integrated governance, and coordinated institutional arrangements are essential for successful IAS management. He explained that IAS impacts can be prevented and mitigated through pathway management, surveillance and preparedness, early detection and rapid response, eradication, and site or ecosystem-based management.

He discussed prevention measures such as phytosanitary treatments, biosecurity regulations, and risk analysis. He also introduced emerging and conventional control methods, including robotics technology, lethal and fertility control for invasive alien vertebrates, biological control, and RNA interference. He emphasized that classical biological control remains the most cost-effective IAS management strategy. He acknowledged the many challenges associated with managing biological invasions and emphasized the need for sustained, coordinated efforts to overcome them.

As a gesture of appreciation, the Chief Guest presented Dr. Sankaran with a token of love. Ms. Nira Joshi Pradhan was also recognized and awarded a certificate for her contribution to the preparation of botanical illustrations of invasive alien plant species found in Nepal.

### 3.8 Address by the Chief Guest

Honorable Minister Dr. Madan Prasad Pariyar, Chief Guest of the program, delivered his address by expressing gratitude to all individuals and institutions involved in organizing the First National Conference on Invasive Alien Species Management in Nepal. He shared his serious concern regarding the negative impacts of IAS on ecosystems, agriculture, and livelihoods.

He highlighted that invasive species such as *Lantana camara* have degraded wildlife habitats within protected areas, thereby increasing human wildlife conflict. He also pointed out that dry invasive biomass has become a major contributor to forest fires. Referring to aquatic ecosystems, he mentioned that exotic fish species such as tilapia threaten native fish populations in Begnas Lake. Dr. Pariyar expressed confidence that the conference would generate meaningful discussions on effective management of invasive species. He emphasized that appropriate policies, directives, and guidelines would significantly contribute to reducing, eradicating, and managing IAS. He assured that the Government of Nepal would utilize the information and outcomes generated from the conference and stressed the necessity of integrated efforts among all relevant stakeholders. He concluded by extending his best wishes for the success of the conference.

### 3.9 Closing Remarks

At the conclusion of the opening ceremony, the chair of the ceremony presented a token of love to the Chief Guest. The closing speech was delivered by Dr. Rajendra Prasad Mishra, Secretary of the Ministry of Forest and Environment. He expressed his sincere gratitude to all participants, with special appreciation to FRTC for successfully organizing the event. Dr. Mishra stated that the presentations delivered by Dr. K.V Sankaran and Dr. Bharat

Babu Shrestha would be seriously considered for implementation, subject to feasibility and coordination. He shared his personal experiences related to invasive alien species from his student life and expressed deep concern over the growing IAS problem in Nepal. He urged all stakeholders to work cohesively from policy formulation to program development and from programs to on-ground activities. He concluded by emphasizing the need to balance innovative thinking with appropriate technology in addressing IAS challenges.

The opening ceremony concluded with a group photo session involving the Chief Guest, distinguished guests, and all participants present at the session.

### 3.10 Signing of Commitment Pledge

To formally express the participants' commitment to managing invasive alien species, a flex print was prepared with the statement: *"I pledge to actively prevent the introduction and spread of invasive alien species in Nepal and to engage in their management and control through my mind, words, and actions."* Throughout the event, around 300 participants including the Chief guest and other distinguished guests signed the flex print to demonstrate their solidarity and collective responsibility in preventing and controlling invasive alien species. This act reflects the strong dedication of all participants to supporting conservation and management efforts in the country.



Commitment signed by the participants to actively work towards prevention and control of IAS in Nepal



Chief guest Honorable Dr Madan Prasad Pariyar, Minister for Ministry of Agriculture and Livestock Development with his remarks



Prof. Dr. Bharat Babu Shrestha, CDB, presenting the scenario of IAS in Nepal



Dr Deepak Kumar Kharal, Secretary, Ministry of Agriculture and Livestock Development, delivering his remarks



Dr KV Sankaran, Kerela Forest Research Institute, delivering his keynote address



Group photo of participants with distinguished guests at the end of the opening session of the program

## 4. Technical Session I

Session Chair: Dr. Deepak Kumar Kharal

Moderator: Dr. Rajesh Malla

### 4.1. Background and Objective of the Session

The aim of Technical Session I was to enhance understanding on the management of Invasive Alien Species (IAS) in Nepal focusing on policy integration, cross-border biosecurity and risk prevention strategies relevant for priority sectors including environment, agriculture, forestry and biodiversity. The session focused on sharing information on challenges in preventing the introduction and spread of IAS, including plant pests, animal disease, and parasites by introducing IAS, taking into consideration issues related to intentional introductions in forestry, agroforestry and horticulture. It also sought to promote inter-sectoral and regional cooperation for efficient and early national reaction to the management of invasive alien species. This session included four technical talks.

### 4.2. Summary of Presentations

#### 4.2.1. Mainstreaming Invasive Alien Species Management in Environment, Biodiversity and Agriculture Sectors of Nepal.

- Presenter: Dr. Rajendra K.C.
- Affiliation: Director General, Forest Research and Training Centre, Babarmahal, Kathmandu

Dr. Rajendra K.C.'s presentation provided an in-depth analysis of the critical importance of invasive alien species (IAS) management in Nepal, emphasizing that this issue extends across all sectors, including the environment, biodiversity, agriculture, and forestry. He underscored that IAS is pervasive throughout the country and represents a significant challenge, impacting ecosystems, undermining economic stability, disrupting livelihoods, and posing

risks to public health. Dr. K.C. identified IAS as a matter of national significance. Beyond outlining the challenges, Dr. K.C. reviewed both international and national policy frameworks for IAS management, highlighting specific gaps such as insufficient coordination, weak enforcement, limited data sharing, and inadequate rapid response mechanisms. He repeatedly stressed the importance of prevention, early detection, and the necessity for collaborative approaches among stakeholders. These themes are central to Nepal's recently developed National IAS Management Strategy and Implementation Plan (2081 BS). The presentation concluded by stressing that effective integration of IAS management into broader environmental and agricultural policies, supported by strong institutions, adequate resources, and enhanced awareness, is essential for reducing IAS risks and ensuring long-term ecosystem resilience in Nepal.

#### 4.2.2 Cross-Border Biosecurity Measures to Prevent the Incursion of Invasive Alien Species of Plant Insects, Diseases and Weeds: Challenges and Prospects

- Presenter: Madhav Bhatta
- Affiliation: Senior Plant Protection Officer, Plant Quarantine and Pesticide Management Centre, Hariharbhawan, Lalitpur

Mr. Madhav Bhatta delivered a comprehensive presentation on Nepal's strategies for managing biosecurity at its borders, with a particular emphasis on the prevention of invasive alien species that threaten the nation's crops, forests, and natural ecosystems. He noted that Nepal faces significant challenges in this regard, due largely to its open and porous borders, which facilitate the entry of pests. This issue is compounded by increasing agricultural imports, substantial informal cross-border movement, and the effects of climate change, all of which enhance

the likelihood of invasive species establishing themselves within the country. Mr. Bhatta detailed the various pathways through which pests and diseases are introduced, including planting materials, shipments of agricultural products, vehicles, human movement across borders, and natural dispersal from neighboring regions. He supported his analysis with concrete examples, citing recent incursions of fall armyworm, tomato leaf miner, chilli thrips, and new races of wheat rust, all of which have caused significant challenges for Nepalese agriculture. He further outlined Nepal's current management framework, led by the Plant Quarantine and Pesticide Management Centre (PQPMC), which works in coordination with quarantine offices at key border points and airports. However, Mr. Bhatta underscored the growing reliance on food imports, highlighting the associated risk when such imports are not subject to rigorous pest inspection and quarantine procedures. The consequences, he stressed, are tangible and severe, including substantial losses to staple crops and damage to protected areas and wildlife. In conclusion, Mr. Bhatta called for the reinforcement of border controls, the enhancement of surveillance and diagnostic capacities, more rapid detection and response mechanisms for pest outbreaks, and stronger collaboration with neighboring countries, all in accordance with international standards. He emphasized that these measures are not merely desirable, but essential for safeguarding Nepal's food security, biodiversity, and trade integrity.

#### **4.2.3 Role of Infrastructure Development on Dispersal and Establishment of Invasive Alien Species**

- Presenter: Dr. Ramesh Prasad Sapkota
- Affiliation: Associate Professor, Central Department of Environmental Science, Tribhuvan University

Dr. Ramesh Prasad Sapkota's presentation addressed the significant role that new infrastructure development, such as roads, hydropower facilities, urban projects, and tourist destinations, plays in facilitating the introduction and establishment of invasive alien species (IAS) in Nepal. He specifically highlighted the

consequences of land clearing, soil excavation, the transport of construction materials, and even minor alterations to local climates, all of which create conditions conducive to the spread of IAS at the expense of native biodiversity. Dr. Sapkota supported his points with concrete examples, noting the increased prevalence of invasive species along roadsides, around urban infrastructure, and in the vicinity of hydropower projects. These infrastructure corridors and their adjoining areas effectively serve as conduits for the movement and proliferation of invasive species. Furthermore, Dr. Sapkota emphasized that the impacts of IAS extend beyond ecological disruption, posing direct challenges to the infrastructure itself. These include habitat degradation, blockages in drainage and irrigation systems, diminished effectiveness of bioengineering interventions, increased maintenance requirements, and reduced longevity of infrastructure investments. His review of Nepal's legal and policy frameworks revealed that, although IAS are occasionally referenced, they are insufficiently incorporated into environmental impact assessments and are not adequately enforced within project planning processes. In conclusion, Dr. Sapkota called for a comprehensive and proactive approach to IAS management in the context of infrastructure development. He advocated for the integration of IAS risk assessments, quarantine protocols, pathway management, rapid response measures, and ecosystem restoration into all stages of infrastructure planning and implementation. He underscored the necessity of ensuring adequate financial resources, enhanced inter-agency coordination, and expanded research and monitoring efforts to effectively address the growing threat posed by invasive alien species.

#### **4.2.4 Assessing the Invasion Debt in Forestry, Agroforestry and Ornamental Sectors in Nepal**

- Presenter: Dharendra Kumar Pradhan
- Affiliation: Director General, Department of Forests and Soil Conservation, Babarmahal, Kathmandu

Mr. Dharendra Pradhan's presentation provided an in-depth analysis of the role that intentional

introductions, such as the planting of new trees for forestry, agroforestry, or ornamental purposes, play in the increasing spread of invasive alien species within Nepal. He highlighted the concept of “invasion debt,” which refers to the delayed impact of introduced species; although these species may not pose immediate threats, they have the potential to become invasive and cause significant ecological and economic challenges in the future. Mr. Pradhan offered a candid assessment of the current situation in Nepal, underscoring the country’s high vulnerability to biological invasions. Factors exacerbating this risk include the accelerating effects of climate change, open borders, already disturbed landscapes, and inadequate regulatory frameworks and monitoring systems. Presently, over 550 exotic plant species are cultivated in Nepal, with many having become naturalized, especially those initially introduced through forestry plantations and the ornamental plant trade. He identified certain species as particularly problematic, notably *Eucalyptus camaldulensis*, *Leucaena leucocephala*, and *Pinus Patula*. Evidence indicates that these species are proliferating independently, escaping from plantations and adversely affecting both the environment and local livelihoods by depleting soil moisture, reducing crop yields, and threatening protected areas. The spread of invasive species through ornamental gardening also emerged as a significant concern, one that is often overlooked. Urban gardens and botanical collections have effectively become focal points for the establishment and dissemination of invasive species. Upon examining the existing legal and policy framework, Mr. Pradhan observed several critical gaps. These include a lack of comprehensive risk assessments prior to species introduction, insufficient post-introduction monitoring, weak enforcement mechanisms, and limited coordination among relevant sectors. He concluded by emphasizing the urgent need for Nepal to take proactive measures to prevent biological invasions. Key recommendations include rigorous screening of species prior to introduction, prioritization of native species, systematic monitoring of introduced species, and increased public engagement. Failure to address these issues

will result in an escalating invasion debt, with long-term consequences for both Nepal’s environment and its economy.

### 4.3 Interactive Discussion (Q&A and Comments)

A total of eleven participants engaged in the interactive discussion of this session, representing a diverse cross-section of stakeholders, including academics, government officials, researchers, and students. From the outset, discussion centered on the multifaceted challenges associated with managing Alien Invasive Species (IAS) in Nepal. Key areas of focus included existing policy gaps, issues related to specific species, management strategies, and the practical realities of monitoring efforts at the field level.

Several participants raised questions regarding the existence and effectiveness of IAS policies at the provincial and local government levels, expressing interest in understanding what measures are currently in place and which have yielded positive outcomes. Concerns were voiced that the Alien Invasive Species Management National Strategy and Implementation Plan (2081 B.S.) may not be sufficiently robust, particularly in terms of resource allocation and actionable measures on a nationwide scale. There was a consensus among many attendees that the conference itself could serve as an important platform to advocate for policy enhancements and to strengthen the strategy further. The discussion became particularly animated when the focus shifted to individual species. *Eucalyptus* was highlighted as an example, with participants noting that it is not currently classified as invasive in either Nepal or India, underscoring the importance of distinguishing between “introduced” and “invasive” species. The classification of rainbow trout and tilapia also prompted debate, with inquiries about the criteria for naturalization and implications of government promotion of these species. The participants emphasized the need for innovative approaches, suggesting that alternative uses for IAS could contribute to their management. Recommendations included the establishment of a dedicated

coordinating body to streamline IAS management efforts and a clearer delineation of roles and responsibilities among federal, provincial, and local governments to ensure cohesive action. Participants advocated for the integration of IAS monitoring requirements into Ramsar site management plans and the development of targeted roadside IAS management strategies. In conclusion, the session highlighted the necessity for greater clarity and contextual understanding in IAS management. It was noted that the perception of certain plants varies, some may be considered weeds, ornamentals, or medicinal species, depending on context, and that urban areas should not be indiscriminately identified as primary sources of IAS spread. Overall, the discussion underscored a collective desire for evidence-based decision-making, enhanced inter-agency collaboration, and the implementation of practical, context-specific measures to advance IAS management in Nepal.

#### 4.4 Responses from the Presenters

The session commenced with the presenters swiftly addressing prevalent queries and offering insightful perspectives on both individual species and the broader context of invasive alien species (IAS) management. They highlighted that *Eucalyptus*, while problematic in certain African regions, has not yet exhibited invasive tendencies in Nepal or India. Nonetheless, its natural regeneration in parts of India raises concerns, as specific environmental conditions could facilitate its invasiveness. Similarly, *Leucaena leucocephala* has naturalized far beyond its initial areas of introduction, frequently outcompeting native flora. The speakers emphasized that responsible introduction and management of new species can substantially reduce the risk of biological invasions. However, once these species establish and proliferate beyond their intended locations, they pose significant threats to local biodiversity. It was also noted that some invasive species provide benefits, which must be considered in the development of management strategies. The discussion on infrastructure and urban development was particularly candid. Large-scale projects, such as hydropower installations, have the potential to

alter riverine ecosystems, thereby facilitating the spread of invasive species. Conversely, in certain circumstances, new infrastructure may serve as a barrier to their movement. Urban centers, though seldom the initial sites of invasion, frequently act as dispersal hubs, underlining the importance of integrating IAS risk assessment and mitigation into urban planning. While a standardized manual for managing invasives along transportation corridors does not yet exist, the Manual for Roadside Bioengineering offers practical guidance on risk assessment and management during road construction.

Regarding regulatory frameworks, the presenters clarified that plant imports are subject to rigorous pest risk analysis, particularly commodities like grains that may harbor invasive propagules. The Plant Quarantine Directive 2025 delineates the specific conditions under which imports are permitted, ensuring compliance with sanitary and phytosanitary standards to prevent the introduction of new invasive species. These procedures are not merely theoretical but are actively implemented and enforced. In terms of policy and institutional arrangements, there is currently no dedicated IAS policy at the provincial or local levels. Nonetheless, several local levels and organizations in Nepal have already adopted effective management practices. The national IAS Strategy and Implementation Plan, though limited in funding, represents a meaningful advancement. The presenters proposed that the establishment of a dedicated organization could unify and enhance IAS management efforts, with the Forest Research and Training Centre (FRTC) identified as a key institution capable of leading these initiatives within Nepal's forest sector.

In conclusion, the principal message underscored the necessity for comprehensive species data, systematic monitoring, strategic integration of IAS considerations into urban and infrastructure planning, and robust collaboration across all tiers of government to achieve effective invasive species management in Nepal.

#### 4.5 Session Wrap-up (Sum-up by the Chair)

Dr. Deepak Kumar Kharal concluded the session by highlighting the profound and often gradual

impacts that alien invasive species (IAS) have on Nepal's ecosystems. Drawing a parallel to how viruses and bacteria affect human health, Dr. Kharal emphasized that the detrimental effects of IAS may not be immediately apparent but tend to accumulate over time, ultimately disrupting ecological balance. He referenced the Theory of Immigration, noting that when new species are introduced into unfamiliar environments, they often become more aggressive and adaptive as a survival mechanism. In the absence of natural predators, these invasive species can proliferate rapidly.

Dr. Kharal underscored the critical importance of preventing the entry of IAS at national borders, identifying cross-border security and quarantine measures as essential first lines of defense.

Furthermore, he stressed that the management of IAS extends beyond biological considerations, necessitating an integrated approach that accounts for impacts on livelihoods, agriculture, income, and food security. Such a comprehensive perspective, he argued, is vital for developing effective and sustainable solutions. Dr. Kharal expressed his appreciation to all four presenters for their insightful contributions and thanked the audience members for their engaging questions and thoughtful input. He remarked that the session provided a comprehensive overview of the challenges posed by IAS. Looking ahead, Dr. Kharal advocated collaborative efforts, evidence-based management, and the involvement of multiple sectors as essential strategies for addressing the issue of invasive species.



*Presenters and session chair during question and answer session.*



Presenters delivering their thematic papers during technical session I: (a) Dharendra K Pradhan, (b) Madhav Bhatta, (c) Dr. Rajendra K.C., (d) Dr. Ramesh Prasad Sapkota



Participant's engagement during interactive discussion session

## 5. Technical Session II

**Chair:** Dr. Krishna Prasad Acharya, Secretary General, South Asia Wildlife Enforcement Network (SAWEN); Former Secretary (GoN)

**Moderator:** Dr. Rajendra K.C., Director General, Forest Research and Training Centre (FRTC)

### 5.1 Background and Objective of the Session

The objective of this session was to examine the introduction pathways, risks, impacts, and management challenges of invasive alien species in Nepal and cross-border biosecurity measures adopted and challenges prevalent, with particular focus on faunal species, and to highlight the ecological, socio-cultural, and economic impacts IAS pose on ecosystems and local communities. There were a total of 4 technical presentations in this session.

### 5.2 Summary of Paper Presentations

#### 5.2.1 Invasion Risk and Management of Non-native fish species in aquaculture for food and aquarium trade in Nepal

- Presenter: Dr. Tek Bdr. Gurung
- Affiliation: Director (Retired), Nepal Agriculture Research Council (NARC)

This presentation discussed the ecological, economic, and management aspects of non-native fish species that are introduced and used in aquaculture for food security and in the ornamental (aquarium) trade in Nepal. These species play an important role in meeting the growing demand for fish protein and income generation; however, they also pose significant ecological risks when they escape into natural water bodies. The study recorded a total of 19 alien (exotic) fish species currently present in Nepal. The study area covered the entire country, including the warmer Terai region, the lower mid-hills, and the higher mid-hills, reflecting the wide range of climatic

and ecological conditions in Nepal. The main objective of the study was to assess the invasion risk posed by non-native fish species introduced through aquaculture and aquarium trade, and to evaluate existing management practices used to control or prevent their spread. The presentation focused on assessing the invasion risk of non-native fish species, identifying major challenges associated with their management, and exploring preventive measures to reduce their negative impacts on native fish diversity and aquatic ecosystems.

The findings of the presentation highlight the importance of integrating conservation goals with development needs, particularly in the fisheries and aquaculture sectors. The study emphasizes the need to strengthen cross-border and border-level biosecurity strategies, adopt a shift in management perspective toward preventive approaches, and recognize non-native fish species as one of the primary threats to native fish diversity in Nepal.

#### 5.2.2 Cross-border biosecurity measures for the prevention of animal diseases and alien animals: challenges and prospects

- Presenter: Dr. Sujana Rana
- Affiliation: Deputy Director General, Department of Livestock Services (DLS)

Dr. Rana discussed the various cross-border biosecurity measures being implemented to prevent the introduction and spread of animal diseases and alien animal species in Nepal. These measures include the provision of import permits, quarantine inspection, regulation of animal movement, border inspections, and other regulatory controls. He discussed the historical occurrence of major animal disease outbreaks around the world to demonstrate how transboundary movement of animals and animal products can contribute to the rapid

spread of diseases across countries. He also highlighted several key challenges that limit the effectiveness of cross-border biosecurity in Nepal including the presence of porous and open borders, limited human and financial resources, increasing cross-border trade in livestock and animal products, and low levels of awareness among traders, farmers, and other stakeholders regarding biosecurity risks.

Furthermore, Dr. Rana reviewed existing cross-border biosecurity measures in Nepal from relevant policies, acts, and institutional arrangements. He also presented the current status of transboundary animal diseases in the country, emphasizing the risks they pose to livestock health, public health, and the national economy. In addition, he suggested a few possible mitigation measures to address cross-border biosecurity issues, such as strengthening legal frameworks and quarantine systems, improving disease surveillance and laboratory capacity, and enhancing information sharing and coordination among concerned agencies. He concluded by emphasizing the importance of increasing awareness among traders and stakeholders and promoting collaboration across sectors through a One Health approach, which integrates animal health, human health, and environmental health, for the effective prevention and control of animal diseases and invasive alien animal species.

### 5.2.3 Impacts of Invasive Alien Species in Various Ecosystems

- Presenter: Prof. Dr. Rajesh Rai
- Affiliation: Institute of Forestry, Tribhuvan University

Dr. Rai discussed invasibility and impact potential, referring to the severity of ecological, economic, or social damage an invasive species can cause once it becomes established. He focused on the factors influencing invasibility. He explained that a species native to one country may be considered an invasive alien species in another country. He further described how the introduction of invasive alien species can displace native vegetation, introduce new ecological traits, alter biotic components, and disrupt ecosystem structure and functioning.

Dr. Rai also focused on how invasive alien species have invaded forests worldwide and highlighted the number of local extinctions caused by invasive alien species across different taxonomic groups and realms. In addition, he provided some examples including *Mikania* infested soils having lower nitrate-nitrogen levels. He also addressed the socio-economic impacts of invasive alien species, including their effects on rural livelihoods.

### 5.2.4 Socio cultural and economic impacts of IAS (Invasive Alien species) to Indigenous peoples and local communities in Nepal.

**Presenter:** Dr. Sandesh Bhattarai

**Affiliation:** Senior Scientific Officer, Nepal Academy of Science and Technologies (NAST)

Dr. Bhattarai presented the socio-cultural context of Nepal, and highlighted invasive alien species (IAS) as a global challenge, and their relevance to indigenous peoples. He focused on the invasion of different regions, habitats, and ecosystems, including Nepal's physiographic regions and various ecosystems such as natural ecosystems and agroecosystems. He further discussed the impacts of IAS on traditional and cultural practices and highlighted the issues of social injustice arising from IAS invasion. He also explained the effects of IAS on the livelihoods of Indigenous Peoples and Local Communities (IPLC), including the reduction of natural resources, decreased agricultural productivity, and increased health hazards.

Furthermore, Dr. Bhattarai elaborated on how IPLC are responding to the growing problems posed by IAS through local and traditional management practices. These responses include both collective and individual actions, such as acting as active frontline managers, physically removing invasive species, and utilizing or managing invasive biomass for local use.

### 5.3 Interactive Discussion (Q&A and Comments)

In this session, a total of seven (7) participants, including government officials and researchers, raised questions and provided comments. Some

queries were raised regarding the dual nature of invasive alien species (IAS), with participants questioning why discussions often focus only on their negative impacts despite some species having potentially positive aspects. Another query addressed the widespread loss of aquatic biodiversity in Nepal, emphasizing the need for practical management approaches and effective institutional solutions.

One comment highlighted that even if an invasive species contributes to the national economy or GDP, it should not be excluded from being classified as an invasive alien species. Another interesting perspective raised was that, from the viewpoint of other plant and animal communities, humans (*Homo sapiens*) could also be considered an invasive species.

Participants debated whether priority should be given to conservation-based approaches or livelihood-focused utilization. Another query referred to Koshi Tappu Wildlife Reserve, where *Mikania* is reportedly used as a fodder species not by preference but as an adaptive response raising questions about practical management under local conditions. Similarly, participants also raised concerns regarding commercial farming of non-native faunal species such as Ostrich and Kalij and regarding the response from the concerned department and the impact they might pose on indigenous species.

#### 5.4 Responses from the Presenters

The presenter responded that practical management approaches for invasive species should include implementing One Health strategies, which integrate human, animal, and environmental health, as well as actively engaging local communities in management efforts. Regarding the use of *Mikania* as a fodder species, the presenter agreed with the comment raised during the discussion. He explained that if cattle naturally preferred this species, it

could serve as an effective management tool to control its spread. However, since it is not a preferred fodder, local livestock must adapt to it, highlighting the challenges of using certain invasive species for practical management purposes.

Concerning the introduction of ostriches and kalij pheasants into Nepal, the presenter clarified that the import of ostriches was carried out with the collaborative permission of the Department of National Parks and Wildlife Conservation (DNPWC) and the Department of Livestock Services (DLS). This explanation emphasized the importance of clear regulatory oversight and documentation in managing the introduction of non-native species.

#### 5.5 Session Wrap-up (Sum-up by the Chair)

The session chair expressed his appreciation to everyone for organizing the conference, especially the FRTC. He explained that Nepal is highly dependent on the import of various products, and through this process, invasive species may also be unintentionally introduced, posing significant risks. He pointed out that Nepal currently lacks a specific and clear list of flora and fauna indicating which species are permitted for import and which are restricted. He further stated that quarantine systems in Nepal are not very effective and emphasized the urgent need to strengthen them. Additionally, he noted that One Health related strategies in the forestry sector are not adequately implemented or discussed. He highlighted that a species that is non-invasive in one area can become invasive in another, as invasiveness largely depends on local environmental conditions. In conclusion, he summarized that all the presentations were informative and beneficial, as they enhanced knowledge and understanding of invasive alien species, and he formally concluded the session.



## 6. Community Sharing Session

**Chair:** Dr. Kedar Baral, Secretary, Ministry of Forests and Environment, Bagmati province

**Moderator:** Mr. Raj Kumar Giri, Under Secretary, Forest Research and Training Centre.

### 6.1 Background and Objective of the Session

This session was organized to facilitate community-based experience sharing on invasive and alien species management, with particular emphasis on ecosystem restoration, sustainable livelihoods, and locally driven innovations. The session aimed to document practical field-level experiences, identify challenges faced by communities, and highlight successful management approaches that could inform policy, research, and future interventions. A total of three experiences were shared, including two community forest-based experiences and one agriculture-focused practitioner perspective.

### 6.2 Summary of Presentations

#### 6.2.1 Community Experience on Managing *Mikania micrantha* and *Mimosa diplotricha*

- Presenter: Mr. Chiranjeevi Poudel
- Affiliation: Pathivara Kalika Community Forest User Group

Mr. Poudel focused on the origin, spread dynamics, ecological impacts, and community-level management of *Mikania micrantha* and *Mimosa diplotricha* in eastern Terai districts, particularly Ilam and Jhapa. He highlighted the behavior of *Mikania micrantha* posing rapid seasonal growth during the monsoon, spreading aggressively along forest openings, roadsides, and disturbed areas, where it suppresses regeneration and, in some cases, causes tree mortality. He shared that communities initially lacked technical guidance and institutional support, relying on repetitive cutting without knowledge of the plant phenology, which

proved to be ineffective. Improved management practices now include removal before flowering and fruiting and utilization of biomass for compost production, contributing to partial control of spread. Similarly, he shared his experience about *Mimosa diplotricha*, likely introduced for bioengineering and fencing purposes in the mid-1990s, which has emerged as a serious threat since around 2019 posing significant risks to livestock and human health due to its thorny structure and toxic leaves. He concluded his presentation highlighting the urgent need for technical and financial support mechanisms to help prevent and manage the spread and impacts of such species.

#### 6.2.2 Impact of Invasive and Alien Species on Agriculture in Nepal – Field-Level Experiences

- Presenter: Mr. Chandra Prasad Adhikari
- Affiliation: Farmer, Chitwan

Mr. Adhikari provided a farmer's perspective on the impacts of invasive alien species on agricultural productivity, biodiversity, and farm management costs. He raised his concerns regarding differences in behavior and impacts of IAS, requiring species-specific management strategies. He shared his experience on species such as *Ageratum houstonianum* rapidly dominating agricultural fields, reducing crop yields and soil productivity. He pointed out that compost preparation from invasive alien plant species prior to flowering could be an effective management option, particularly for species such as *Ageratum houstonianum*. The preparation of bio-fertilizer and bio-pesticides from invasive alien plant species such as parthenium was highlighted as a low-cost alternative.

Mr. Adhikari stressed that excessive reliance on chemical fertilizers and insecticides aggravates invasive species problems. Transitioning toward organic manure and ecological farming practices is critical for long-term agricultural sustainability,

ecosystem restoration, biodiversity conservation and human well-being.

### 6.2.3 Compost Manure from Invasive Species – The Ajambari Community Forest Experience

- Presenter: Mr. Pawan Sharma Rijal
- Affiliation: Chairperson, Ajambari Community Forest User Group, Lamahi, Dang

Mr. Rijal presented a community forest's journey from unsuccessful invasive species control to a successful, income-generating compost enterprise. Ajambari Community Forest, which covers approximately 744 hectares, was previously heavily invaded by *Lantana camara*. He stated that the initial pit-based composting efforts failed due to waterlogging and other operational difficulties but with technical training and machinery support from the Community Forest Study Centre, the community adopted shed-based composting systems. He shared that the initiative resulted in effective invasive species management, reduced forest fire risk, local employment generation, and income through branded compost sales. He demonstrated the potential of community led green enterprises as a tool for ecosystem restoration and livelihood enhancement.

### 6.3 Interactive Discussion

The session featured active interaction, with two to three participants raising questions and providing comments. Participants primarily represented community members, practitioners, and development stakeholders.

Key issues rose during the discussion included:

- Long-term sustainability of community-based invasive species management initiatives

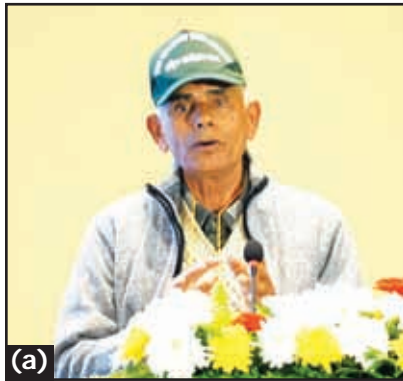
- Financial and technical limitations at the community level
- The need for institutional ownership and scaling-up of successful practices
- Integration of community innovations into national biodiversity and restoration programs

### 6.4 Responses from the Presenters

In response to the queries and comments, the presenters collectively noted that current community-led practices are delivering encouraging results at the local level. However, long-term sustainability requires government leadership, enabling policies, and coordinated support from relevant stakeholders. Similarly, they stressed that the successful community models should be systematically documented and replicated through technical backstopping and financial mechanisms. Additional insights from other participants reinforced the importance of bridging community knowledge with scientific research and policy frameworks.

### 6.5 Session Wrap-up

In concluding the session, the Chair emphasized that community-driven approaches offer practical, cost-effective, and scalable solutions for managing invasive and alien species in Nepal. The experiences presented illustrated strong linkages between ecosystem restoration, livelihood enhancement, and environmental resilience. He underscored the need for enhanced policy support, technical assistance, and investment to scale up such initiatives and integrate them into national conservation and restoration strategies.



Presenters sharing their experience during community sharing session: (a) Chandra Prasad Adhikari, (b) Chiranjeevi Poudel, (c) Pawan Sharma Rijal



Mr. Raj Kumar Giri Moderating the session.



Session chair Dr. Kedar Baral concluding the session.



Group photo of presenters with session chair at the end of the session.

## 7. Technical Session IV

Session Chair: Dr. Udayraj Sharma  
Moderator: Dr. Ram Chandra Kandel

### 7.1 Background and Objective of the Session

The session aimed to share and critically reflect on the current efforts, experiences, and practices related to the management of IAS across diverse ecosystems in Nepal, including forests, wetlands and agroecosystems. It highlighted management interventions undertaken under different management regimes such as participatory forest management systems, protected areas, and Ramsar sites. In addition, the session examined the threats posed by IAS, emphasizing their impacts on agriculture production and food security. The session provided insights into the practical challenges encountered in the field, lessons learned from ongoing initiatives, and the prospects for strengthening IAS management through adaptive and collaborative approaches and highlighted the need for integrating IAS management into local development planning and policy processes to ensure coordinated, sustainable and effective control of IAS in Nepal. The session featured a total of five technical presentations followed by an interactive question-and-answer session.

### 7.2 Summary of Presentations

#### 7.2.1 Current efforts to control invasive alien species in natural habitats and agroecosystems (outside protected areas)

- Presenter: Dr. Lilanath Sharma
- Affiliation: Forest Action Nepal

Dr. Sharma in his presentation reviewed the current efforts and challenges in controlling invasive alien species (IAS) in natural habitats and agro-ecosystems outside protected areas in Nepal. He highlighted that control activities currently target 17 invasive plant species and five invasive faunal (invertebrate) species

across forests, wetlands, open ecosystems, and agricultural lands. He presented the common management approaches being applied, which include integrated pest management, cultural and agroecological practices, mechanical removal, biological control, and awareness-based interventions involving governments, NGOs/INGOs, community forest user groups, farmers, academia, and civil society. Despite these efforts, he highlighted that IAS control remains largely ineffective due to rapid regrowth, persistent soil seed banks, inappropriate control methods, lack of ecological consideration, and weak coordination among stakeholders. He added the case examples such as the repeated reinvasion of *Pontederia crassipes* (water hyacinth) and the landscape-level spread of *Mimosa diplotricha* illustrated the limitations of short-term and isolated interventions. The presentation emphasized that agriculture is the most affected sector, yet current control measures lack long-term planning, spatial integration, and policy coherence. He concluded that science-based policies, adaptive long-term programs, coordinated stakeholder actions, landscape-level management, strengthened capacity, and sustained funding are essential for effective and sustainable management of invasive alien species in Nepal.

#### 7.2.2 Control of Invasive alien species in participatory forest management: policy and practices

- Presenter: Dr. Rajesh Malla
- Affiliation: Deputy Director General, Forest Research and Training Centre, Kathmandu

Dr. Malla's presentation focused on the management of invasive alien plant species (IAPS) in Nepal's community-managed forests, which account for over 45% of the country's forest area and are managed by more than 30,000 community-based groups across 2.8

million hectares. He showcased the presence of approximately 29 IAPS, notably *Ageratina adenophora*, *Lantana camara*, *Chromolaena odorata*, and *Mikania micrantha*, distributed from the lowlands up to 3500 m altitude and that these species primarily colonize disturbed habitats such as forest edges and open areas, driven by human activities including grazing, felling, fire, and infrastructure development, resulting in reduced forest regeneration, biodiversity loss, and degraded livelihoods.

He addressed that the current IAPS management in community-managed forests relies mainly on manual removal, bush clearing, occasional burning, and limited biomass use, often incorporated into general operational plans without species-specific control strategies. He further emphasized that, although the issues related to IAS are provisioned in various national policies, significant gaps persist in their management. These include inadequate preventive measures, limited community awareness of long-term impacts, weak multi-stakeholder coordination, and poor enforcement. As a result, IAS continue to expand, increasing ecosystem vulnerability, as seen during the 2025 forest fires fueled partly by invasive dry biomass.

Dr. Malla recommended developing species-specific removal manuals, integrating IAS management into environmental impact assessments for infrastructure projects, strengthening community awareness and mobilization, and promoting small-scale industries based on IAPS biomass utilization as practical approaches to improve participatory management and curb further invasions in Nepal's community forests.

### 7.2.3 Threats of Invasive Alien Species to Agriculture Production and Food Security

- Presenter: Dr. Rama Poudel
- Affiliation: IAAS, T.U.

Dr. Poudel addressed the growing threats posed by invasive alien species (IAS) to agricultural production and food security in Nepal. She highlighted that IAS, particularly invasive alien plant species (IAPS) and insect pests, significantly reduce crop yields, degrade grazing lands, poison

livestock, and increase production costs, thereby undermining farmers' livelihoods. Major invasive weeds such as *Parthenium hysterophorus*, *Ageratum conyzoides*, *Pistia stratiotes*, and *Mimosa diplotricha*, along with invasive insect pests like fall armyworm (*Spodoptera frugiperda*) and tomato leaf miner (*Tuta absoluta*), were discussed as key threats to staple crops and agroecosystems. She also focused on the complex impacts of IAS on soil fertility and ecosystem services, noting both negative effects and limited local uses of some invasive species. She emphasized gaps in data, weak management capacity, limited policy implementation, and low awareness among stakeholders. She concluded by stressing the need for strengthened research and policy integration, early detection, institutional coordination, and community-based management to ensure sustainable agriculture and food security in Nepal.

### 7.2.4 Management of invasive alien species in protected areas and Ramsar sites of Nepal: Challenges and prospects

- Presenter: Prof. Dr. Bharat Babu Shrestha
- Affiliation: Tribhuvan University, Central Department of Botany

Dr. Shrestha addressed the management challenges and future prospects of invasive alien species (IAS) in Nepal's Protected Areas (PAs) and Ramsar Sites, emphasizing that biological invasions are widespread and increasing even within legally protected ecosystems. He highlighted that nearly 90% of Nepal's Protected Areas are affected by IAS, with invasion hotspots concentrated in the Tarai, Siwalik and Middle Mountain regions, while Ramsar sites are severely impacted by invasive fishes such as "Tilapia" and "African catfish", leading to significant declines in native aquatic biodiversity. He mentioned that human activities and climate change as the major drivers accelerating IAS spread.

Dr. Shrestha presented climate model projections indicating that invasion hotspots in protected landscapes could expand highly in the coming decades. He further noted that, although management efforts such as mechanical removal,

community participation, and integration of IAS control into conservation programs exist, their effectiveness remains limited due to inadequate funding, lack of species-specific guidelines, weak institutional coordination, and insufficient long-term planning. He concluded by emphasizing the importance of strengthened surveillance, early detection and rapid response mechanisms, enhanced stakeholder engagement, targeted resource mobilization, and explicit integration of IAS management into Protected Area and Ramsar site management plans to safeguard Nepal's biodiversity under changing environmental conditions.

### 7.2.5 Integration of Invasive Alien Species Management in Local Development Policy Processes in Nepal

- Presenter: Ek Raj Sigdel

Mr. Sigdel analyzed the extent to which invasive alien species (IAS) management has been integrated into Nepal's local development policy processes within the context of global biodiversity frameworks. He suggested IAS as a major global environmental and economic threat and examined Nepal's policy responses across federal, provincial, and local governance levels through a review of policy and planning documents and key informant interviews. He suggested that while IAS is widely recognized as a significant issue across governance tiers, substantial gaps persist in program formulation and budget allocation, particularly at provincial and local levels. While national policies show progressive improvement, evolving from basic problem recognition to target-driven strategies with measurable outcomes, as reflected in recent biodiversity action plans, provincial and local level plans often lack financial commitment and implementation mechanisms despite strong strategic intent. He highlighted weak policy coherence, limited institutional capacity, and insufficient intergovernmental coordination as major barriers to effective IAS management. Mr. Sigdel concluded that strengthening local government capacity, ensuring dedicated budget allocation, harmonizing policies across sectors and administrative levels, and aligning development planning with global biodiversity

targets are critical for translating policy recognition into effective IAS control in Nepal.

### 7.3 Interactive Discussion (Q&A and Comments)

A total of five participants engaged in the interactive discussion of this session, representing academics, government officials and researchers. The conversation began with a focus on chemical methods for controlling Invasive Alien Plant Species (IAPS) and their potential impacts in soil conservation in hilly region and ecological processes, especially in agro-ecosystems. Participants highlighted both the effectiveness of chemical control measures and the associated risks to soil health, non-target organisms, and long-term ecosystem sustainability.

The discussion then moved to Tilapia fish, often referred to as the "poor man's chicken," emphasizing its role as a low-cost protein source while raising concerns about its invasive behavior and ecological effects on native aquatic species. Participants debated the balance between promoting livelihoods and preserving aquatic biodiversity.

Dr. Shankaran, provided additional insight into the concept of alien species succession, citing the example of Kerala, India, where *Chromolaena* was initially problematic but was later replaced by *Mimosa*, which then became the dominant invasive species. Dr. Shankaran emphasized that such successions create particularly challenging management situations, as it is often unclear how to effectively control the species once one invasive is replaced by another. Attention was also given to the practice of using IAPS as ornamental plants and promoting them for tourism by giving the example of Batuli pokhari, chitwan with participants examining whether this represents a positive opportunity or a potential ecological threat. The session underscored how such practices can inadvertently facilitate the spread of IAPS, through avenues such as intentional planting, horticultural trade, and natural dispersal mechanisms.

Throughout the session, participants highlighted the complex interplay between management practices, ecological sustainability, and socio-

economic considerations. Recommendations included adopting evidence-based approaches, increasing community awareness, and integrating ecological perspectives into policies and practices to manage IAPS effectively.

#### 7.4 Responses from the Presenters

The presenters highlighted that the use of chemical methods for controlling IAPS, such as herbicides and weedicides, is increasing due to cost-effectiveness. However, they noted that the impacts of these chemicals have not been thoroughly documented scientifically, and some invasive plants are even showing resistance to such treatments, raising concerns about their long-term efficiency.

Regarding Tilapia fish, it was emphasized that farming should be conducted in confined areas with proper authorization, and these fish should not be introduced into natural aquatic ecosystems, to prevent ecological disruption.

In response to the keynote speaker Shankaran, Dr. Shrestha noted that patterns of alien species succession are also observed in Nepal. For instance, species like *Parthenium* are declining while *Lantana* is expanding, likewise *Mikania* is seen being replaced by *Chromolaena*, illustrating the complex dynamics of invasive species management in local contexts.

The presenters also addressed that no invasive species should be used for ornamental purposes, as IAPs has a negative impact and the potential to rapidly degrade ecosystems. They identified key pathways of spread, including transportation, ornamental use, and the increasing trend of cultivating alien species, underscoring the importance of awareness and careful management.

The session highlighted the complex challenges of managing invasive species, including chemical resistance, ecological impacts, and alien species succession. It emphasized the importance of regulated practices, evidence-

based management, and preventing the use of invasives for ornamental purposes. Participants agreed that careful monitoring, awareness, and policy support are essential to mitigate the spread and impact of IAPS in Nepal.

#### 7.5 Session Wrap-up (Summary by the Chair)

In his remarks, he noted that the conference had reached a clear conclusion that the problem of IAS requires active and sustained management. He emphasized that such management demands adequate and reliable resources, and that reliance on fragmented, satellite or disaggregated budgets from different government entities would not be sufficient. Instead, a sustained financing mechanism is needed along with the identification and engagement of relevant stakeholders. He suggested that existing mechanisms such as the Forest Development Fund could be mobilized to support IAS management activities.

He further highlighted the critical role of local communities and local governments, stressing the need to actively mobilize and engage them in management efforts. In addition, he underscored the importance of motivating the industrial sector to participate, noting that sustainable IAS management would not be possible unless it is effectively linked with industry and market mechanisms. He also called for the conceptualization of a dedicated focal agency that could coordinate efforts between the forest, agriculture and other relevant sectors to ensure a more coherent and effective response to IAS.

However, he expressed concern over the limited attention given to invasive faunal species during the conference and stressed that invasive animal species should receive equal priority in discussions and interventions. Finally, he underscored the importance of context-specific research to inform management strategies and support evidence-based policy decisions.



Presenters delivering their thematic papers during technical session IV: (a) Prof. Dr. Bharat Babu Shrestha, (b) Ekraj Sigdel, (c) Dr. Rajesh Malla, (d) Dr. Rama Poudel, (e) Dr. Lila Nath Sharma



Group photo of presenters with session chair and moderator at the end of the session

## 8. Technical Session V

Session Chair: Dr. Swayambhuman Amatya

Moderator: Mr. Nabaraj Pudasaini

### 8.1 Background and Objective of the Session

The session featured four technical presentations by different researchers and experts selected through the open call for papers. The session highlighted the issue of growing ecological and societal challenges posed by invasive species under accelerating climate change and shifting disturbance regimes. Experimental and applied studies further assessed the adaptive responses of invasive species, particularly the effects of warming on the functional traits of *Ageratina adenophora* and evaluated the potential utilization of invasive plants for beneficial purposes, including their mosquitocidal properties. The session also featured a study exploring the status, distribution and impacts of IAPS in Karnali Province of Nepal.

### 8.2 Summary of Presentations

#### 8.2.1 Tripartite crisis: Synergistic impacts of climate change, invasive species, and fire regimes on ecosystems and society

- Presenter: Dr. Uttam Babu Shrestha
- Affiliation: Global Institute for Interdisciplinary Studies (GIIS)

Dr. Shrestha introduced a tripartite crisis framework highlighting the synergistic interactions among climate change, invasive alien plant species (IAPS), and intensifying fire regimes, which collectively threaten ecosystems and human societies. The framework synthesized global evidence, including the annual introduction of approximately 200 alien species, whose associated costs have quadrupled since 1970, the record warmth of 2024 (1.55°C above pre-industrial levels), and the increasing frequency and impact of extreme wildfires contributing significantly to tree cover loss.

He highlighted that, IAPS richness in Nepal has expanded to roughly 30 species with altitudinal range shifts, and models predict that 75% of these species will gain suitable niches under future climate scenarios. Accelerated warming in the region drives drought-fire feedback, exemplified by severe 2025 fire outbreaks that devastated forests and elevated pollution levels.

Dr. Shrestha noted that while the framework effectively underscores compounded vulnerabilities in mountain regions, its correlative nature necessitates experimental studies to clarify underlying mechanisms. He concluded with recommendations for integrated research, IAPS-informed fire management, unified policy frameworks, and locally led nature-based solutions, providing a strong foundation for adaptive responses to ongoing global change pressures.

#### 8.2.2 Analyzing the Status, Distribution, and Impact of Invasive Plant Species in Karnali Province, Nepal.

- Presenter: Ms. Renuka Neupane
- Affiliation: Karnali Province

Ms. Neupane presented the study on the status, distribution, and impacts of invasive alien plant species (IAPS) in Karnali Province, which employed roadside distribution surveys, vegetation sampling across different elevation gradients, key informant interviews, and species distribution modeling to assess IAPS presence and effects. She added that a total of eighteen IAPS was recorded, with higher occurrences observed along roadsides, barren lands, and lower elevation zones. She noted that the invasion was found to substantially affect native biodiversity and ecosystem services, particularly fodder availability, soil quality, and water resources.

Ms. Neupane emphasized that these findings

highlight the urgent need for integrated and sustainable management strategies, including awareness programs, utilization-based control measures, and enhanced institutional coordination, to ensure effective long-term management of IAPS in Karnali Province.

### 8.2.3 Mosquitocidal potential of leaf extract from *Ageratina adenophora* (Spreng.) R.King & H.Rob, *Pontederia crassipes* (Mart.) Solms, *Lantana camara* L. and *Pistia stratiotes* L.

- Presenter: Til Kumari Chhetri
- Affiliation: Assistant professor T.U.

Ms. Chhetri discussed her study regarding the mosquitocidal potential of leaf extracts from selected invasive alien plant species (IAPS) of Nepal, including *Ageratina adenophora*, *Pontederia crassipes*, *Lantana camara*, and *Pistia stratiotes*. Leaf extracts were prepared using methanol, aqueous, and petroleum ether solvents and tested for larvicidal and adulticidal activities following World Health Organization guidelines. She highlighted that the results indicated methanolic extracts generally exhibiting the highest efficacy, with *Ageratina adenophora* showing strong larvicidal and adulticidal activity across all extract types. She suggested that *Lantana camara* and *Pontederia crassipes* demonstrated selective effectiveness, while methanolic and aqueous extracts of *Pistia stratiotes* exhibited pronounced larvicidal and adulticidal effects. Ms. Chhetri emphasized that these findings highlight the potential of invasive alien plants for the development of cost-effective, environmentally friendly bio-insecticides and suggest opportunities for their sustainable utilization in managing invasive species in Nepal.

### 8.2.4 Effects of experimental warming on plant functional traits of Invasive weed *Ageratina adenophora*

- Presenter: Tulasa Chaudhary
- Affiliation: Global Institute for Interdisciplinary Studies (GIIS)

Ms. Chaudhary discussed her study on the effects of experimental warming on the plant functional traits of the invasive weed *Ageratina*

*adenophora*. The study involved seeds collected from nine different regions and elevational gradients of Nepal, which were raised as seedlings and transplanted into controlled experimental plots to simulate warming conditions. She assessed key traits related to growth, biomass allocation, leaf economics, and reproduction over two growing seasons. The results demonstrated that experimental warming significantly increased plant height and stem mass fraction, while reducing leaf mass fraction, root mass fraction, and root–shoot ratio. Leaf traits showed decreased specific leaf area, alongside increased leaf nitrogen content per mass and per area. She noted that the warming also negatively affected flowering probability and delayed flowering phenology, with variation observed across regions and elevations. She suggested that climate warming enhances vegetative growth and trait plasticity in *Ageratina adenophora* while suppressing reproductive output, underscoring the species' adaptive potential and implications for its future invasion dynamics under changing environmental conditions.

### 8.3 Interactive Discussion (Q& A and Comments)

A total of four participants took part in the interactive discussion, representing a diverse group. The discussion primarily focused on the interlinkages among climate change, forest fires, and invasive species, with particular emphasis on how climate change may exacerbate invasive species impacts and increase fire risk. Participants highlighted concerns regarding the spread of *Tithonia diversifolia* (“Jangali suryamukhi”) in Salyan and emphasized the need for greater attention from concerned authorities. Questions were also raised on the methodology for extracting mosquitocidal compounds and on experimental observations of *Ageratina* growth under warmer climate conditions.

### 8.4 Responses from the Presenters

Attention was drawn to Karnali Province, where complex topography and limitations in sampling methods may have resulted in certain IAPS like *Tithonia diversifolia* “Jangali Suryamukhi”

being overlooked in current records. Presenters highlighted significant research gaps related to invasive alien plant species (IAPS), particularly with respect to limited geographic coverage of existing studies. They emphasized that further research is necessary to strengthen documentation and to explore whether the controlled utilization of IAPS could contribute to effective management.

Regarding climate change, the presenters noted that although climate-related research is increasing, there remains a lack of focused studies examining its direct influence on the distribution, growth, and invasiveness of alien plant species in Nepal. While international research provides strong evidence of climate-driven changes in invasive species dynamics, Nepal-specific studies remain insufficient to support robust prediction and planning.

In relation to forest fire, the presenters explained that international studies, particularly from countries such as Australia, demonstrate a clear positive relationship among climate change, invasive alien plant species, and forest fire frequency and intensity. However, comparable integrated research in the Nepalese context is still lacking. The presenters emphasized the need for interdisciplinary, country-specific studies to

better understand these linkages and to inform evidence-based strategies for fire and invasive species management.

### 8.5 Session Wrap-up (Summary by the Chair)

In his concluding remarks, the Session Chair highlighted the inadequacy of existing research to support evidence-based decision-making and expressed appreciation to the presenters for their research-driven presentations. He noted that although invasive species are widely recognized as expanding and covering vast areas, there is limited research-backed evidence to accurately quantify their current status and spatial coverage. Without such data, it becomes difficult to design effective management strategies. He emphasized that a clearer and quantified understanding of the extent and distribution of these species could open up opportunities for their utilization as a management approach, thereby underscoring the importance of strengthening research and development efforts. Furthermore, he pointed out that linking invasive species management with local livelihoods could enhance both the effectiveness and sustainability of management interventions.



*Session chair Dr. Swayambhu Man Amatya wrapping up the session.*



Presenters delivering their papers during technical session V: (a) Renuka Neupane, (b) Dr. Uttam Babu Shrestha, (c) Til Kumari Chhetri, (d) Tulasa Chaudhary



Group photo of presenters with session chair and moderator at the end of the session

## 9. Technical Session VI

Session Chair: Dr. Arun GC, Assistant Representative, FAO Nepal

Moderator: Milan Dhungana, Senior Research Officer, FRTC, Kathmandu

### 9.1 Background and Objective of the Session

This technical session focused on understanding the drivers, distribution, and ecological impacts of invasive alien species (IAS) in Nepal, with particular emphasis on ecosystem susceptibility, biodiversity impacts, and management implications. The objective of the session was to explore scientific evidence on invasion pathways, spatial risk assessment, and ecosystem-level consequences of invasive species, and to generate insights for early warning, monitoring, and management strategies. There were two paper presentations in this session, which addressed invasion risk modeling at the landscape level and the impacts of invasive species on ecosystem health and flagship wildlife species.

### 9.2 Summary of Paper Presentations

#### 9.2.1 Integrated Drivers of Plant Species Invasion: Bioclimatic, Topographic and Anthropogenic Factors in Shaping Ecosystem Susceptibility and Hotspot Delineation

- Presenter: Mohan Dev Joshi
- Affiliation: Deputy Director General, Department of Plant Resources

Mr. Joshi presented a study on integrated bioclimatic, topographic, and anthropogenic predictors to model invasion risk across Nepal which aimed to identify ecosystem susceptibility, delineate invasion hotspots, quantify the association between human infrastructure and invasion patterns, and assess the vulnerability of protected areas compared to human-dominated landscapes. He noted that approximately one third of Nepal's land area falls under

medium to high invasion suitability zones and that the invasion hotspots are concentrated in lowlands, the Terai, Siwalik foothills, and mid-hills. He highlighted the presence of the majority of invasive species habitats outside protected areas and a greater prevalence of IAS in human-dominated landscapes, particularly near settlements. He also suggested that roads act as major corridors as many of the invasive species occur along major road networks and that the invasion patterns are driven by favorable climate, accessible terrain, and high human settlement density. He emphasized the need for early warning systems, continuous monitoring, protection strategies, and further research.

#### 9.2.2 Invasive Species and Ecosystem Health

- Presenter: Dr. Naresh Subedi
- Affiliation: Member Secretary, National Trust for Nature Conservation (NTNC)

Dr. Subedi focused on the effects of invasive species on ecosystem health, particularly impacts on the Greater One-Horned Rhinoceros habitat. He discussed that *Mikania micrantha* was identified as a severe invasive species in Chitwan National Park (CNP) where areas with high rhino density also showed high infestation of *M. micrantha*. As the species' cover increases, native plant species and rhino forage decline, severely inhibiting the native plant growth beyond. He discussed fire and human disturbance as major drivers of invasion, and the practice of fire was found to be ineffective for invasive species management in CNP. He pointed out that efforts have been made to remove the invasive species from the significant rhino habitat, though plant phenology has been often overlooked. He also suggested that preliminary findings indicate potential exposure of wildlife to toxicity from invasive species, and long-term research is required.

### 9.3 Interactive Discussion (Q&A and Comments)

This session included active engagement between presenters and participants. A total of four participants raised queries and shared comments. The participants included researchers, government officials, and technical experts. Clarification was sought on whether invasive alien species were traced during rhinoceros specimen analysis and how such species contribute to biomass deterioration while favoring open species. Questions were also raised regarding whether the identified probable invasion areas are sufficient to support future research initiatives, particularly those led by FRTC. Participants emphasized the need for species-wise distribution modeling, noting that different invasive species possess distinct traits and that individual species modeling could generate more accurate results. Concerns were expressed about the limitations of the MaxEnt model, especially its inability to account for false absence data. Additionally, comments highlighted the emergence of cyanobacteria under conditions of nutrient enrichment and its association with fish mortality. The discussion also underscored the positive socio-economic impacts of invasive species management through fisheries and community engagement, particularly among the Pode community, stressing the importance of involving local communities in the control and sustainable utilization of IAS.

### 9.4 Responses from the Presenters

The presenters collectively responded that MaxEnt modeling is currently one of the best available tools for invasion risk assessment, despite its limitations regarding false absence data. The study analyzed around 50 individual invasive species. However, relationships between fire, invasive species spread, edaphic factors, and lack of reliable false absence data remains a limitation in modeling efforts.

Regarding ecosystem health issues such as eutrophication and cyanobacteria proliferation,

the presenters emphasized the need for a systems-based research approach. It was clarified that the presented findings were preliminary and intended to sensitize stakeholders so that emerging issues related to invasive species do not escalate beyond control.

### 9.5 Session Wrap-up (Summary by the Chair)

The session chair concluded that two highly relevant and technically strong papers were presented, followed by insightful questions and discussions. Key observations included the importance of understanding invasion pathways and how hotspots are accelerating, as well as the practical case of rhinoceros' habitat degradation due to invasive species.

#### Thematic Synthesis:

- Technical and scientific assessment of invasion drivers and impacts
- Ecosystem and wildlife management implications
- Policy relevance and community-based management approaches

#### Concluding Remarks:

The chair highlighted that invasive species such as *Lantana camara*, introduced during the Rana regime, have long-term ecological consequences. This conference marked an important milestone in bringing invasive alien species issues from a purely technical and academic discourse to a broader policy and public awareness level. While invasive species pose serious threats, the chair emphasized the need to also recognize potential positive aspects, such as utilization opportunities for micro-entrepreneurship. The way forward includes prevention of new invasions, sustainable utilization of already established invasive species, and active community engagement to create livelihood and employment opportunities. The session formally concluded with a call for integrated, multi-sectoral approaches to invasive species management in Nepal.



Presenters delivering their papers during technical session VI: (a) Mohan Dev Joshi, (b) Dr. Naresh Subedi



Mr. Milan Dhungana moderating the session



Session chair presenting certificate and token of love to the presenter



Participant's engagement during interactive discussion session

# 10. Panel Discussion I: Strengthening biosecurity for biodiversity conservation and food security

## Moderator

- Prof. Dr. Rajesh Rai, Institute of Forestry, TU

## Panelists

- Mr. Bhoj Raj Sapkota, Chief, Plant Quarantine and Pesticide Management center (PQPMC)
- Mr. Dharendra K. Pradhan, Director General, Department of Forests and Soil Conservation (DoFSC)
- Dr. Tek B. Gurung, Former Director, Nepal Agricultural Research Council (NARC)
- Dr. Rama Paudel, Institute of Agriculture & Animal Science (IAAS), TU

### 10.1 Background and Objective of the Session

This session was focused on Strengthening biosecurity for biodiversity conservation and food security. The objective of this session was to discuss strengthening biosecurity for biodiversity conservation and food security. There were four panelists in this discussion, who addressed topics such as the pathways of IAS introduction, national regulatory frameworks, the role of the Plant Quarantine and Pesticide Management Centre (PQPMC) in monitoring and enforcement, the need for evidence-based and interdisciplinary research, and strategies for enhancing coordination, capacity, and awareness.

### 10.2 Key Discussion Themes and Panelist Contributions

#### 10.2.1 Address by the moderator

Dr. Rai started the discussion by commenting that the COVID-19 pandemic highlighted the consequences of unsustainable human activities,

including unregulated resource exploitation and ecological disruption. Pollution, biodiversity loss, and climate change now pose major challenges, affecting both ecosystems and human well-being. Promoting sustainable development and conserving natural resources is therefore essential for ecological integrity and the welfare of future generations.

The discussion was then advanced by the moderator, who posed targeted questions to the panelists. The panelists provided detailed responses, drawing on their expertise in biosecurity, invasive alien species management, and related research.

#### 10.2.2 Biosecurity Regulation and Pathways of IAS Introduction

Responding to questions on strengthening Nepal's national biosecurity framework, Mr. Bhoj Raj Sapkota emphasized that while biosecurity encompasses a broad range of actions, effective regulation and management must remain the highest national priority. He stressed that evidence-based regulatory systems, supported by scientific research and risk assessment, are critical for preventing, detecting, and responding to biosecurity threats. Strengthening such systems is essential to minimize biological risks and safeguard environmental, agricultural, and public health security.

On the major pathways of invasive alien species (IAS) introduction in Nepal, he noted that following Nepal's accession to the WTO, the influx of invasive alien plant species has increased significantly. Key pathways include:

- Seeds and planting materials
- Traded agricultural commodities such as food grains, fruits, and vegetables

- Wood and wood-based materials

He highlighted that the Plant Quarantine and Pesticide Management Centre (PQPMC) addresses these risks through strict compliance with national and international phytosanitary standards, pre-border, border, and post-border inspections and systematic surveillance and monitoring of high-risk commodities.

Regarding institutional needs, Mr. Sapkota underscored the importance of a strong inter-agency coordination across sectors and establishment of a dedicated national biosecurity mechanism. He also stressed the need to enhance the institutional capacity through adequate staffing and training of the human resource involved and highlighted the importance of improved compliance, awareness, and enforcement of regulatory standards.

### **10.2.3 Forest Biosecurity and Institutional Capacity Gaps**

Addressing forest biosecurity and the growing threat of invasive alien plant species, Mr. Dharendra K. Pradhan commented that although Nepal has formulated a sufficient number of policies related to IAS management, implementation remains weak. This gap is largely due to inadequate regulatory enforcement, shortages of trained and technically competent manpower and limited institutional capacity for monitoring and long-term management.

He emphasized that effective IAS management in forest landscapes requires sustained investment in skilled human resources, strengthening regulatory mechanisms and improving technical capacity for monitoring, control, and mitigation.

On institutional arrangements, he highlighted that Nepal is currently formulating its National Biodiversity Strategy, within which IAS management has been identified as a priority area with defined targets. Beyond policy and regulation, he stressed that awareness among stakeholders and the general public is critical, which supports early detection and responsible practices and that community participation is vital for achieving national biodiversity and biosecurity goals.

### **10.2.4 Agricultural Impacts of IAS and Research Policy Disconnect**

Focusing on the agricultural sector, Dr. Rama Paudel noted that Nepal lacks reliable, research based economic estimates to quantify the impacts of invasive alien plant species. Despite the availability of considerable technical and human resources, these capacities remain underutilized in applied research and field-based assessments. She highlighted that at least 10 of the total invasive alien plant species recorded in Nepal are causing severe damage to barren lands and agricultural fields and these invasions are contributing to significant reductions in crop productivity. She emphasized the urgent need for systematic economic valuation and impact assessment of the IAS and evidence-based data to inform management strategies and policy interventions.

Dr. Paudel recommended adoption of an interdisciplinary approach integrating science, technology, and policy as well as clear and coordinated work plans across all three tiers of government. Furthermore, she also pointed out that targeted capacity-building initiatives to strengthen technical, institutional, and human resource competencies are also vital.

### **10.2.5 Research Gaps, Innovation, and Knowledge Translation**

Dr. Tek B. Gurung highlighted critical research gaps that constrain evidence-based policy formulation in Nepal. While progress has been made in plant science and agricultural research, he noted persistent deficiencies in the fisheries and livestock sector. The absence of adequate baseline data in these sectors limits informed decision-making.

In the context of invasive alien species, he stressed the need to strengthen invasion science, including research on naturalized species and the ecological and economical impacts IAS have. Similarly, he also stressed an urgent need for seed technology research and development to support national self-sufficiency in quality seed production.

He further identified systemic challenges, including lack of comprehensive taxonomic studies, limited mission-oriented and applied research and weak inter-institutional collaboration.

To improve research–policy linkages and on-ground implementation, Mr. Gurung suggested development of a mobile-based application for real-time reporting and documentation of IAS sightings. Similarly, he suggested prioritizing action-oriented and applied research that directly informs management interventions and policy decisions.

### 10.3 Interactive Discussion (Q&A and Comments)

Participants representing diverse backgrounds, including students, government officials, and government researchers actively engaged in the discussion session. The key queries and comments focused on the consideration of classifying tilapia as an invasive alien species, given its observed spread across river systems from eastern to western Nepal and the management implications of such classification. Participants also discussed the preparedness lessons Nepal has learned from evidence and experiences in neighboring India and how these lessons are being integrated into national biosecurity and invasive species management strategies. Concerns were raised about the limited implementation and enforcement of existing regulations and how this has contributed to the spread of invasive alien species in Nepal. Further discussion addressed the specific measures being undertaken by relevant national agencies to mitigate invasion risks associated with the open border with India. Additionally, participants inquired about the status of studies examining the potential impacts of genetically modified or improved planting materials on native species and ecosystems, and how such considerations are being incorporated into policy frameworks.

### 10.4 Panel Responses and Reflections

Although regulatory frameworks exist, Nepal has faced challenges in asserting a strong position

at the international level, which has contributed to the continued entry of invasive alien species into the country. While some plant species with allelopathic potential have been identified, there is a lack of tangible, research-based estimates to support their large-scale application; therefore, agronomic practices such as crop rotation are currently considered practical interim measures for managing invasive species impacts.

In the case of tilapia management, the adoption of controlled systems such as Recirculating Aquaculture Systems (RAS) has been suggested to minimize ecological risks. Genetically modified organisms are not permitted in Nepal, thereby limiting associated risks to native biodiversity.

The limited implementation of existing policies is largely attributed to ambiguities and inconsistencies in policy interpretation, as well as insufficient budgetary allocation for effective enforcement. With respect to border management, efforts are being undertaken to enhance public awareness, regulate the disposal of contaminated products at border points, and enforce legal actions where necessary, particularly by the Plant Quarantine and Pesticide Management Centre. Additionally, the Government of Nepal has been urged to further strengthen border security and surveillance, which are being conducted to the maximum extent possible under current institutional capacities.

### 10.5 Session Wrap-up (Sum-up by the moderator)

The moderator also highlighted biosecurity as a critically important issue in Nepal, particularly in the context of invasive alien species management. One of the major pathways for invasive alien species introduction is the intentional or unintentional import of new plant and animal species. Addressing this challenge requires strengthened inter-agency coordination and stricter regulation and monitoring of nurseries and breeding facilities. Furthermore, he suggested that invasive alien species management should not be viewed solely as a biological or ecological issue; it must also be examined through social, economic, and political perspectives to ensure comprehensive, sustainable, and policy-relevant solutions.



Panelists of panel discussion I: (a) Bhoj Raj Sapkota, (b) Dharendra K Pradhan, (c) Dr. Rama Poudel, (d) Dr. Tek B Gurung



Question from participant during floor discussion



Prof. Dr. Rajesh Kumar Rai moderating the discussion



Group photo of panelists with moderator at end of the session

# 11. Panel Discussion II: Policy Harmonization and Implementation for Effective Management of Invasive Alien Species

## Moderator:

Dr. Naya Sharma Poudel, Forest Action Nepal

## Panelists:

- Dr. Bishwo Nath Oli, Former Secretary, Government of Nepal & Vice-President, IPBES
- Dr. Rabindra Dhakal, Secretary, Nepal Academy of Science and Technology (NAST)
- Dr. Buddi Sagar Poudel, Director General, Department of National Parks and Wildlife Conservation (DNPWC)
- Dr. Ram Kumar Shrestha, Joint Secretary, Ministry of Agriculture and Livestock Development (MoALD)
- Dr. Ghanashyam Gurung, Country Representative, WWF Nepal

### 11.1 Background and Objective of the Session

Following the technical sessions that addressed the science of Invasive Alien Species (IAS)—including pathways of introduction, spread dynamics, ecological impacts, management experiences, and existing gaps—this panel discussion focused on policy harmonization and implementation for effective IAS management in Nepal.

The primary objective was to examine existing national and sub-national policies, identify institutional and coordination challenges, and explore future opportunities for integrated, multi-sectoral action in the context of limited resources and federal governance.

### 11.2 Key Discussion Themes and Panelist Contributions

#### 11.2.1 Global Policy Perspectives and National Relevance

Responding to the moderator’s question on lessons from the IPBES assessment on IAS, Dr.

Bishwo Nath Oli highlighted key messages from the IPBES IAS Assessment Report, endorsed at the 10th IPBES Plenary in 2023 by 143 countries. The report reviewed approximately 13,000 scientific documents contributed by authors from 47 countries.

Key messages emphasized that IAS constitute one of the five major global drivers of biodiversity loss, and the annual global economic cost of biological invasions was estimated at USD 423 billion (2019). He also pointed out that the IAS impacts are disproportionately higher in developing countries with limited technical and financial capacity. Only 17% of countries globally have dedicated IAS legislation, with even weaker coverage in developing nations. He highlighted the message of the report that effective IAS management requires a whole-of-society and whole-of-government approach.

He noted that Nepal’s National IAS Strategy and Implementation Plan, endorsed by the Government of Nepal, has incorporated several recommendations of the IPBES report, though implementation remains a challenge.

#### 11.2.2 Science–Policy Interface and Alternative Perspectives on IAS

On moderator’s query regarding alternative perspective on IAS and role of NAST as apex science body to ensure effective integration of science to policy, Dr. Rabindra Dhakal acknowledged differing schools of thought on IAS and suggested that, alongside control measures, regulated utilization of certain invasive plant species could be explored. Examples included application of biochar technology, developed and promoted by NAST, for household and community-level use. He further highlighted NAST’s advocacy

for increased national investment in science and technology to support evidence-based policymaking.

### 11.2.3 IAS, Wildlife, and Financing Challenges

Dr. Ghanashyam Gurung linked IAS directly to wildlife conservation, noting that invasive plants such as *Lantana camara*, *Parthenium hysterophorus*, and water hyacinth significantly degrade habitats, particularly in grasslands, rangelands, and aquatic ecosystems, with cascading impacts on wildlife. He observed that impacts tend to be more severe in lowland and mid-hill ecosystems than at higher elevations.

He emphasized the need for a dedicated institutional mechanism or secretariat to coordinate IAS actions and a stronger cross-sectoral integration to avoid duplication and optimize limited resources. Similarly, he suggested expanding research on micro-level ecological impacts, including effects on microorganisms, food chains, and ecosystem functions and strategic positioning of IAS issues to attract international financing, supported by clear governance structures.

### 11.2.4 Institutional Coordination under Federal Governance

The moderator drew attention to recurring concerns raised during the conference regarding weak coordination between the forestry and agriculture sectors in addressing IAS. While landscapes and ecosystems are inherently integrated and overlapping, institutional arrangements and sectoral mandates remain fragmented. The moderator questioned how such coordination gaps could be improved in practice.

Responding from the agriculture sector perspective, Dr. Ram Kumar Shrestha emphasized that farmers and community members are the ultimate managers of agricultural and forested landscapes, yet policy outreach and programmatic engagement with these actors remain limited. He explained that coordination challenges largely arise from sector-specific policy and legal frameworks, under which each sector operates independently. For instance,

rangeland management primarily falls under forestry institutions and DNPWC, while grazing management is governed by the Department of Livestock Services. Similarly, pastureland management, although constitutionally assigned as an exclusive right of local governments, operates within complex and overlapping management systems. He further noted that where the transition to a federal governance structure should have made coordination easier, it has become rather challenging.

The moderator further highlighted jurisdictional overlaps within the forestry sector itself, particularly between DNPWC, the Department of Forests and Soil Conservation (DoFSC), and divisional forest offices. It was noted that although the Ministry of Forests and Environment (MoFE) serves as the focal ministry for IAS, the Ministry of Agriculture and Livestock Development (MoALD) is equally connected to the issue, yet its role in IAS management has not been clearly defined.

Responding to these observations, Dr. Buddi Sagar Poudel reiterated that scientific evidence clearly identifies IAS as a major threat to biodiversity, ecosystems, wildlife, and human health, and that this threat is recognized in national policies. However, he emphasized that significant gaps persist in shared understanding and implementation across institutions. IAS poses a substantial challenge not only to wildlife conservation but also to other ecosystems, yet dedicated institutions, targeted funding, and sustained resources remain extremely limited. As a result, IAS management efforts have largely been resource-driven, site-specific, and fragmented, rather than need-based and strategically integrated. Dr. Poudel stressed that addressing IAS effectively requires consistent and coordinated action across sectors and governance levels. He suggested prioritizing invasive species at early stages of invasion and concentrating resources in selected priority areas for intensive management, rather than dispersing limited resources thinly across large landscapes. While coordination mechanisms do exist—such as the multi-stakeholder committee envisioned under the National IAS

Strategy—he noted that coordination to date has been insufficient. He further emphasized the importance of engaging local communities and other non-government stakeholders, who are among the most affected by IAS and have long been involved in management efforts, though their contributions are often under-recognized.

### 11.3 Interactive Discussion (Q&A and Comments)

During the interactive discussion, participants highlighted several key concerns. They emphasized the lack of quantified economic impact assessments of IAS, particularly in the agriculture sector, noting that clearer economic data would support more informed policy and investment decisions. Questions were also raised regarding the feasibility, economic viability, scalability, and return on investment of pilot-tested technologies such as biochar and fertilizers, as well as IAS-based enterprises. In addition, participants pointed out the underutilization of local governments in IAS management within the federal system, stressing the need to strengthen their roles and capacities. The discussion further underscored the importance of enabling international collaboration, particularly in contexts where national research infrastructure remains limited.

### 11.4 Panel Responses and Reflections

Responding to the concerns, Dr. Buddi Sagar Poudel emphasized that forthcoming national policy instruments, particularly the National Biodiversity Strategy and Action Plan (NBSAP), could serve as a key tool for strengthening IAS management by setting clear and measurable targets. He further highlighted the importance of integrating IAS considerations into Environmental Impact Assessment (EIA) processes, especially as infrastructure development represents a major pathway for IAS introduction and spread. He noted that IAS management provisions could also be incorporated into management plans of protected areas, district forests management plans, community forest operational plans etc. He cautioned that while discussing the utilization aspect of IAS for management, it should be

considered only as a last resort, after prioritizing prevention and control.

From the agriculture sector perspective, Dr. Ram Krishna Shrestha acknowledged that IAS issues have not been adequately mainstreamed into agricultural policies and that proper study of their impacts remains limited. He affirmed the concern raised from the floor regarding the absence of robust economic studies on IAS impacts in agriculture and emphasized the urgent need for policy-level sensitization within the sector itself. He also highlighted the importance of capacity building and awareness among local governments, noting that without some kind of legal framework enabling joint planning, budgeting, and implementation across sectors and tiers of government, coordinated and integrated IAS management efforts are likely to remain weak.

Dr. Bishwo Nath Oli reiterated that, as highlighted by the IPBES assessment, IAS should not be viewed solely as an ecological issue but also as a development, social, and equity issue, particularly in agriculture- and natural resource-dependent countries. He cautioned that inaction could result in significantly higher long-term costs. He emphasized the need to communicate IAS impacts in ways that resonate with human and livelihood concerns to elevate political and public prioritization.

Addressing questions on technology, utilization, and enterprise development, Dr. Rabindra Dhakal highlighted the importance of an interdisciplinary approach that brings together ecological, economic, and market perspectives to develop practical solutions. He agreed that while technologies such as biochar and biomass utilization show potential, their scalability and long-term economic viability must be carefully assessed. He emphasized that the government can play a catalytic role through an innovation–incubation–startup–industry pathway, provided there is adequate assessment of material recovery, market demand, and alternative resource options to ensure sustainability.

Dr. Ghanashyam Gurung noted that, institutionally, coordination between MoALD

and MoFE should be feasible, as both ministries operate within the same administrative cluster with shared senior leadership. He emphasized that effective implementation depends not only on coordination mechanisms but also on governance arrangements, including the establishment of dedicated teams or units such as wildlife-focused teams led by DNPWC to drive action. He further stressed the importance of engaging the private sector and encouraging investment to complement public-sector efforts in IAS management.

predominantly focused on ecological dimensions. Moving forward, interdisciplinary studies incorporating economic and social impacts are essential to increase public and political awareness, strengthen stakeholder ownership and support prioritization and resource mobilization. The moderator suggested that government agencies, particularly MoALD and MoFE, could proactively commission economic impact studies on IAS and to strengthen the policy-to-practice linkage and foster coordinated national action.

### 11.5 Session Wrap-up by the Moderator

In summarizing the session, the moderator highlighted that IAS research in Nepal has



*Dr. Poudel moderating the discussion*



Panelists of panel discussion II: (a) Dr. Bishwo Nath Oli, (b) Dr. Buddi Sagar Poudel, (c) Dr. Ghanashyam Gurung, (d) Dr. Rabindra Dhakal, (e) Ram Kumar Shrestha



Group photo of panelists with moderator at the end of the panel discussion

## 12. Closing Ceremony

The closing session of the Invasive Alien Species Conference was held on the second day and was chaired by Dr. Rajendra Prasad Mishra, Secretary of the Ministry of Forest and Environment. The session was graced by the Chief Guest, Madhav Prasad Chaulagain, Honorable Minister, Ministry of Forests and Environment and the Special Guest, Dr. Deepak Kumar Kharal, Secretary, Ministry of Agriculture and Livestock Development. Other distinguished guests included Dr. Rabindra Prasad Dhakal, Secretary, National Academy of Science and Technology (NAST); Dr. Thakur Silwal, Dean, Institute of Forestry; Ken Shimizu, FAO Representative for Bhutan and Nepal; Renuka Neupane, Director, FRTC Karnali; Sita Belbase, Secretary, Gaide Community Forest User Group; and Dr. Rajendra KC, Director General, FRTC.

### 12.1 Declaration recitation

Mr. Bishal Ghimire, Divisional Head, Ministry of Forests and Environment, recited the 18-point declaration prepared as the synthesis of the two-day national conference. The signed copy of the declaration is presented in the Annex II. The unofficial translation of the 18 points declaration is presented below:

#### **Declaration of the First National Conference on Invasive Species Management – 2082**

Recognizing the fact that invasive alien species of flora, fauna, insects and microorganisms are increasingly emerging as a global environmental problem, and that such species have serious adverse impacts on ecosystems, biodiversity and livelihoods;

Taking into consideration the commitments and specified targets articulated in international conventions on biological diversity, environment and food security to which Nepal is a party, national policies and documents;

Reviewing the negative impacts of invasive alien species on forests, flora, wetlands, agriculture, livestock, public health, community livelihoods and the local as well as national economy;

Acknowledging the risk of increased spread and impacts of invasive species in the future due to inadequate prioritization of effective management and control programs;

Appreciating the efforts made to date by all three tiers of government, academic and research institutions, farmers, forest user groups, and non-governmental as well as private sectors in the control and management of invasive alien species, while accepting the reality that sufficient success has yet to be achieved;

Realizing the need for coordinated initiatives among various concerned agencies and institutions involved in research, regulation and management for result-oriented management of invasive alien species;

Considering that, in the context of the inevitable impacts of climate change, effective management of invasive alien species is necessary to minimize potential adverse impacts on forest, environment, agricultural biodiversity, wildlife habitats, and forest and agricultural systems in the future;

With the objective of developing a common understanding on the long-term management of invasive alien species among institutions working across various dimensions of their management, and building consensus among all stakeholders at the "**First National Conference on Invasive Alien Species Management**" organized on 12-13 December, 2025 in Kathmandu under the leadership of the Forest Research and Training Centre, in collaboration with various stakeholder organizations;

The following 18-point declaration has been hereby issued in pursuit of the common goal of

safeguarding the overall environment and public life from the spread of invasive alien species in the days ahead,

1. To mainstream invasive alien species management into sectoral and cross-sectoral policies and ensure policy coherence in order to fulfill national needs, aspirations and commitments related to invasive alien species management,
2. To identify the various pathways through which invasive alien species enter Nepal, and, through inter-agency coordination, further strengthen quarantine inspections at international border points and airports to reduce the risk of introduction.
3. To undertake comprehensive documentation of alien and invasive species that have already entered Nepal for various reasons, conduct risk assessments, and publish updated records periodically.
4. To ensure proper documentation, monitoring, and regulation of alien species used in businesses such as horticulture, floriculture, aquaculture, agroforestry, and poultry farming, thereby maintaining an effective balance between economic development and environmental conservation.
5. To integrate invasive alien species control programs as an integral component of the long-term management and restoration of ecosystems such as forests, agricultural lands, grasslands, and wetlands, and to implement and expand such programs at appropriate landscape levels.
6. To effectively incorporate provisions for the prevention and control of invasive species in environmental studies conducted prior to infrastructure and development projects, as well as in environmental management plans related to infrastructure construction.
7. To prioritize the participation of Indigenous Peoples, local communities, women, youth, and communities directly affected by invasive alien species in invasive species control programs.
8. To assess the impacts of invasive species on the environment, biodiversity, ecosystems (including forests, agriculture, wetlands, and grasslands), and the socio-economic conditions of Indigenous Peoples and local communities, and to implement mitigation programs accordingly.
9. To enhance public awareness and capacity among stakeholders—including community forest user groups, Indigenous Peoples and local communities, farmers, and forestry and agriculture technicians—on invasive species, their impacts, and management measures, while progressively promoting the use of appropriate knowledge, skills, and technologies.
10. To collect data on invasive alien species through agricultural and forest surveys conducted from local to national levels, and to formulate and implement mitigation programs based on the findings.
11. To mandatorily incorporate invasive alien species management into sector-specific and species-focused management plans for forests, wetlands, and grasslands prepared by various agencies, and to ensure their effective implementation.
12. To enhance the exchange of knowledge, technology, and information among regulatory bodies, implementing agencies, academic and research institutions, media, affected communities, and other stakeholders, and to strengthen collaboration in management efforts.
13. To engage in international networks and cooperation to achieve effective outcomes in the prevention and control of invasive alien species, and to entrust the Forest Research and Training Centre with responsibility for the registration, documentation, and official authentication of all types of alien invasive plant species.
14. To observe Invasive Alien Species Awareness and Control Week nationwide every year during the last week of Mangsir (second week of December), in order to promote

awareness, inter-agency coordination, and effective implementation for the prevention, control, and management of invasive alien species.

15. To establish and operationalize an Invasive and Alien Species Technical Action Team, comprising representatives from all three tiers of government, non-governmental organizations, academic and research institutions, experts, farmers, forest user groups, youth and students, women, Indigenous Peoples, and local communities (IPLCs), to guide studies, research, technology development, and implementation related to invasive alien species.
16. To prepare an effective implementation plan for this Declaration and, through coordination and cooperation among all three tiers of government, incorporate it into budgets and programs starting from the upcoming fiscal year.
17. To implement the National Strategy and Action Plan for Invasive Alien Species Management, 2081, through coordination and cooperation among all three tiers of government, concerned agencies, organizations, experts, farmers, and communities.
18. Sincere gratitude is hereby expressed to all participants, including representatives of all three tiers of government, non-governmental organizations, academic and research institutions, experts, implementers, media professionals, and all contributors from various sectors, for their support in organizing the First National Conference on Invasive Alien Species Management, and all stakeholders are earnestly called upon to continue cooperation in the prevention, control, and management of invasive alien species in the days ahead.

**Date:** 13 December 2025

Budhanilkantha, Kathmandu

## 12.2 Closing remarks by distinguished guests

### **Ms. Sita Belbase (Secretary of Gaide Community Forest user group)**

Ms. Belbase expressed her appreciation for the opportunity to learn about the types and impacts of invasive alien species (IAS). She emphasized the urgent need to integrate IAS management plans into the operational plans of community forests, as well as into provincial and local-level frameworks. She highlighted the importance of strengthening local capacity by increasing community awareness and familiarizing people with modern tools and technologies through workshops, training, and capacity-building activities.

### **Mr. Anirudh Shah (DFO, Division Forest Office, Tribeni)**

Mr. Shah expressed his appreciation to the organizing committee for sensitizing District Forest Offices (DFOs) on invasive alien species (IAS). He emphasized the need to identify the most threatening IAS and to develop targeted work plans accordingly. He pointed out that while government restrictions on seedling imports exist, these have unintentionally increased illegal imports, facilitating the entry of IAS into the country. He stressed that the government should prioritize formulating clear policies to allow the import of healthy, pathogen-free seeds and seedlings. Finally, he highlighted the importance of effectively utilizing the Forest Development Fund to support IAS control measures in community and leasehold forests that face financial constraints.

### **Dr. Ganesh Panta (Senior Conservation Officer, Chitwan National Park)**

Dr. Panta emphasized the need to critically assess the existing challenges related to invasive alien species (IAS) and highlighted the importance of coordination across all levels for their effective management. He noted the gradual shift in the status of certain plant species, which, although initially introduced for ornamental or medicinal purposes, have become invasive over time. He also discussed the linkage between

global perspectives, national capacity, and local practices in IAS management, and emphasized the crucial role of comprehensive plans and policies for the prevention and control of IAS.

**Dr. Kedar Baral (Secretary, Ministry of Forests and Environment, Bagmati Province)**

Dr. Baral emphasized the need to incorporate the 18-point declaration into existing acts, rules, regulations, ongoing activities, and upcoming projects, ensuring its effective implementation. He stressed the importance of allocating dedicated budgets for invasive alien species (IAS) management at the provincial level and highlighted the potential use of *Mikania micrantha* for incense stick production as a utilization approach. He further underscored the need to assign a leading role to local governments in IAS management, along with sensitizing local communities about IAS, their impacts, and appropriate control and management measures. Additionally, he advocated for the organization of IAS-focused workshops at the provincial level to strengthen awareness and capacity.

**Mr. Ken Shimizu (FAO Representative for Bhutan and Nepal)**

Mr. Shimizu identified invasive alien species (IAS) as a major driver of biodiversity loss and a significant cause of declining agricultural yield and productivity. He emphasized the importance of cross-boundary collaboration, alongside national-level coordination, for the effective control and management of IAS. He prioritized the need to strengthen national biosecurity systems and institutional capacity, highlighting early detection, rapid response, and continuous surveillance as key measures for IAS prevention. He further stressed the need to increase focus and resource allocation on plant health, in addition to animal health, and underscored the importance of international attention, financing, or the establishment of a dedicated fund to support effective IAS control and management efforts.

**Dr. Thakur Silwal (Dean, IOF)**

Dr. Silwal emphasized the need to strengthen research activities within universities, noting

that research outcomes play a crucial role in informing evidence-based policies for the management of invasive alien species (IAS). He highlighted proper forest management as a central strategy for IAS control, stating that well-managed forests can naturally limit the spread of IAS. He also pointed out the lack of adequate government funding for research and stressed the need for enabling policies and timely policy interventions based on emerging needs. Furthermore, he underscored the importance of incorporating more research-oriented components into university curricula and requested the ministry to designate specific areas at the policy level for conducting research activities.

**Dr. Rabindra Prasad Dhakal (Secretariat, NAST)**

Dr. Dhakal emphasized the need for strong collaboration across all levels, from federal to local, for the effective management of invasive alien species (IAS). He highlighted the importance of directly engaging researchers in research activities, rather than relying primarily on consultancies, to achieve more effective outcomes in less time and at lower cost. He stressed the need to address root causes, such as human migration, that contribute to the spread of IAS. He also underscored the importance of properly managing industrial agricultural businesses by creating an enabling environment for sustainable operations. Additionally, he encouraged adopting innovative perspectives on IAS management, including exploring their potential utilization as agricultural fertilizer, charcoal, and other value-added products.

**Dr. Deepak K. Kharal (Secretary, Ministry of Agriculture and Livestock Development)**

Dr. Kharal emphasized that active and intensive forest management is essential for the prevention of invasive alien species (IAS). He highlighted the need to modernize the utilization of IAS, including converting them into fertilizers, and stressed the importance of improving farming practices. He also encouraged landowners to remove IAS from their private lands when such species are identified and underscored the need to prioritize IAS removal during tree plantation programs

and projects. Furthermore, he emphasized the importance of sharing IAS-related information through web-based platforms such as the National Forest Information System and making it accessible to all stakeholders. Finally, he encouraged the development of a Technical Cooperation Programme (TCP) in collaboration with FAO, FRTC, and the Ministry of Forest and Environment (MoFE).

**Dr. Rajendra K.C. (Director General, FRTC)**

Dr. K.C. expressed his sincere vote of thanks to the entire FRTC team, collaborating organizations, supporting organizations, media and all others involved in the successful completion of the program, and thanked the participants for attending despite their busy schedules. He also committed to organizing similar programs regularly in the future.

**Hon'ble Madhav Prasad Chaulagain (Minister for Ministry of Forests and Environment)**

Hon'ble Minister expressed his commitment to collaborate and coordinate with international organizations in the coming days to secure international funding for various projects. He assured the facilitation of intersectoral and cross-ministerial coordination for programs and projects that have been stalled due to

political instability. He also emphasized the importance of mobilizing restricted budgets for developmental works. He highlighted the need to document the findings of such programs to assist future authorities in preparing informed plans and policies. Additionally, he pledged to support everyone, including Community Forest User Groups (CFUGs) and local levels, and encouraged research organizations to involve local communities in research activities, thereby creating employment opportunities. He also stressed the importance of including youth in research initiatives to foster future innovation and development.

**Dr. Rajendra Prasad Mishra (Secretary, Ministry of Forests and Environment)**

Dr. Mishra emphasized the importance of taking precautionary measures at every step to control the spread of invasive alien species (IAS). He stressed the need for effective management and proper utilization of IAS. He acknowledged that if all other measures fail, adapting to the presence of IAS may become necessary. Additionally, he highlighted the need for increased investment in IAS management and emphasized the importance of coordination between various agencies to ensure effective use of these investments.



*Honorable Minister Madhav Prasad Chaulagain presenting token of love to the members of conference secretariat*



Mr Bishal Ghimire, Joint Secretary, Ministry of Forests and Environment, reciting the declaration



Dr. Thakur Silwal, Dean, Institute of Forestry, with his closing remarks



Mr. Ken Shimizu, FAO Representative for Bhutan and Nepal, delivering his closing remarks



Dr. Rajendra K.C., Director General, Forest Research and Training Center, giving vote of thanks



Dr. Rajendra Prasad Mishra, Secretary, Ministry of Forests and Environment, with his closing remarks



Chief guest, Honorable Madhav Prasad Chaulagain, Minister for Ministry of Forests and Environment, delivering closing remarks



Group photo of poster presenters with certificate and token of love

## ANNEXES

## Annex I

## Program Schedule

## Day 1 (2082.08.26, Friday)

MC: Sunita Ulak, Senior Research Officer

Time	Activity	Presenter	Chair/Moderator
07:30-08:30	Registration & Breakfast		
08:30-10:00	Opening Ceremony		
10:00-11:00	Keynote Address	Dr. K.V. Sankaran	
<b>Technical Session I</b>			
11:00-11:20	Mainstreaming invasive alien species management in environment, biodiversity and agriculture sectors of Nepal.	Dr. Rajendra K.C	Chair - Dr. Dipak Kumar Kharal
11:20-11:40	Cross-border biosecurity measures for the prevention of alien weeds, plant pests and pathogens: challenges and prospects.	Mr. Madhav Bhatta	Moderator – Dr. Rajesh Malla
11:40-12:00	Roles of Infrastructure Development on dispersal and establishment of Invasive Alien Species	Mr. Ramesh Sapkota	
12:00-12:20	Risks of intentional introduction of invasive alien plant species: forestry and agroforestry plantations and ornamental horticulture.	Mr. Dharendra Kumar Pradhan	
12:20-12:50	Discussion / Q&A	30 min	
12:50-13:50	Lunch Break	-	-
<b>Technical Session II</b>			
13:50-14:10	Invasion Risk and Management of Non native fish species in aquaculture for food and aquarium trade in Nepal	Dr. Tek Bdr. Gurung	Chair- Dr. K.P. Acharya
14:10-14:30	Cross-border biosecurity measures for the prevention of animal diseases and alien animals: challenges and prospects.	Dr. Sujan Rana	Moderator- Dr. Rajendra K.C.

14:30-14:50	Impacts of Invasive Alien Species in Various Ecosystems.	Dr. Rajesh Rai	
14:50-15:10	Socio cultural and economic impacts of IAS to Indigenous peoples and local communities in Nepal.	Dr. Sandesh Bhattarai	
15:10-15:40	Discussion / Q&A	30 min	
<b>Community Sharing</b>			
17:00-17:10	Chiranjeevi Poudel	Sharing 1-3 (10 min each)	Chair - Dr. Kedar Baral  Moderator - Mr. Raj Kumar Giri
17:10-17:20	Chandra Prasad Adhikari		
17:20-17:30	Pawan Sharma Rijal		
<b>Day 2 (2082.08.27, Saturday)</b>			
07:30-08:30	Registration & Breakfast		
08:30-10:00	Panel Discussion – I <b>Strengthening biosecurity for biodiversity conservation and food security</b>	Panelist: Dhirendra Kumar Pradhan Bhoj Raj Sapkota Rama Poudel Bhattarai Tek Bhadur Gurung	Moderator - Dr. Rajesh K. Rai
<b>Technical Session IV</b>			
10:00-10:20	Current efforts for the control of invasive alien species in natural habitats and agroecosystems.	Dr. Lila Nath Sharma	Chair - Udhaya Raj Sharma  Moderator – Ramchandra Kandel
10:20-10:40	Control of invasive alien species in participatory forest management: policy and practices	Dr. Rajesh Malla	
10:40-11:00	Threats of invasive alien species to agriculture production and food security.	Dr. Rama Paudel	
11:00-11:20	Management of IAS in PAs and Ramsar sites of Nepal: Challenges and Prospects.	Dr. Bharat Babu Shrestha	
11:20-11:40	Integration of Invasive Alien Species Management into Local Development Policy Process in Nepal.	Mr. Ek Raj Sigdel	
11:40-12:10	Discussion / Q&A		
<b>Technical Session V</b>			

12:10-01:10	<b>Panel Discussion: II Policy harmonization and implementation for effective management of invasive alien species.</b>	Panelists: Bishwo Nath Oli Ghanshyam Gurung Ram Kumar Shrestha Budhi Sagar Poudel Rabindra Dhakal	Moderator - Dr. Naya Sharma Paudel
01:00-01:30	<b>Lunch</b>		
01:30-01:45	Tripartite Crisis: Synergistic Impacts of Climate Change, Invasive Species and Forest Regimes on Ecosystem and Society	Dr. Uttam Babu Shrestha	Chair - Swoyambhuman Amatya  Moderator - Nabaraj Pudasaini
1:45-02:00	Analyzing the status, distribution, and impact of Invasive Plant Species in Karnali Province, Nepal.	Ms. Renuka Neupane	
02:00-02:15	Mosquitocidal Potential of Leaf Extract from <i>Ageratina adenophora</i> (Spreng.) R. King & H. Rob, <i>Pontederia crassipes</i> (Mart.) Solms, <i>Lantana camara</i> L. and <i>Pistia stratiotes</i> L.	Ms. Til Kumari Chhetri	
02:15-02:30	Effects of warming on plant functional traits of invasive weed <i>Ageratina Adenophora</i>	Ms. Tulasa Chaudhari	
02:30-02:50	Discussion / Q&A		
<b>Poster presentation session</b>			
02:50-03:10	Poster presentation session		
<b>Technical session: VI</b>			
03:10-03:25	Integrated drivers of plant species invasion: Bioclimatic, edaphic, and anthropogenic factors in shaping ecosystem susceptibility and hotspot delineation	Mr. Mohan Dev Joshi	Chair - Dr. Arun G.C., FAO  Moderator – Mr. Milan Dhungana
03:25-03:40	Impact of the invasive <i>Mikania micrantha</i> on greater one-horned rhinoceros in Nepal	Dr. Naresh Subedi	

Annex II

Declaration

प्रथम बाह्य मिचाहा प्रजाति व्यवस्थापन राष्ट्रिय सम्मेलनको

घोषणापत्र-२०८२

बाह्य मिचाहा प्रजातिका वनस्पति, जीवजन्तु, कीटपतङ्ग र सुक्ष्मजीवहरू विश्वव्यापी वातावरणीय समस्याको रूपमा बढ्दै गएको र यस्ता प्रजातिले पारिस्थिकीय प्रणाली, जैविक विविधता र जीविकोपार्जनमा गम्भीर प्रतिकूल असर पारेको तथ्यलाई मनन गर्दै,

जैविक विविधता वातावरण तथा खाद्य सुरक्षासँग सम्बन्धित नेपाल पक्षराष्ट्र भएका अन्तर्राष्ट्रिय महासन्धि, राष्ट्रिय नीति तथा दस्तावेजहरूमा प्रकट गरिएका प्रतिवद्धता र निर्दिष्ट लक्ष्यहरूलाई मध्यनजर गर्दै,

बाह्य मिचाहा प्रजातिका कारण वन, वनस्पति, सिमसार, कृषि, पशुपालन, जनस्वास्थ्य, समुदायको जीविकोपार्जन एवं स्थानीय तथा राष्ट्रिय अर्थतन्त्रमा परेको नकारात्मक असरलाई समीक्षा गर्दै,

व्यवस्थापन र नियन्त्रणका प्रभावकारी कार्यक्रमको अपर्याप्त प्राथमिकताका कारण भविष्यमा मिचाहा प्रजातिहरूको फैलावट र प्रभाव बढ्ने जोखिमलाई दृष्टिगत गर्दै,

बाह्य मिचाहा प्रजाति नियन्त्रण र व्यवस्थापनका लागि तीनै तहका सरकारहरू, शिक्षण तथा अनुसन्धान संस्थाहरू, कृषक, वन उपभोक्ता समूहहरू र गैरसरकारी एवं निजिक्षेत्रबाट हालसम्म भएका प्रयासहरूको सराहना गरी तिनबाट पर्याप्त सफलता हासिल गर्न नसकिएको यथार्थतालाई स्वीकार गर्दै,

बाह्य मिचाहा प्रजातिको नतिजामुखी व्यवस्थापनको लागि अनुसन्धान, नियमन र व्यवस्थापन गर्ने विभिन्न सरोकारवाला निकाय एवं संस्थाहरू विच समन्वयात्मक पहलको आवश्यकता महसुस गर्दै,

जलवायु परिवर्तनको अवश्यम्भावी प्रभावसँगै मिचाहा प्रजातिका कारण भविष्यमा वन, वातावरण तथा कृषि जैविक विविधता, वन्यजन्तुका वासस्थान, वन र कृषि प्रणालीहरूमा पर्न सक्ने प्रतिकूल असर न्यूनीकरण गर्न बाह्य मिचाहा प्रजातिको प्रभावकारी व्यवस्थापन गर्नु आवश्यक देखिएकोले,

वाह्य मिचाहा प्रजाति व्यवस्थापनका विभिन्न आयामहरूमा कार्यरत निकायहरूविच यसको दीर्घकालीन व्यवस्थापनको बारेमा साझा धारणा बनाउने उद्देश्यले वन अनुसन्धान तथा प्रशिक्षण केन्द्रको नेतृत्व तथा विभिन्न सरोकारवाला संघसंस्थाहरूसँगको सहकार्यमा मिति २०८२ मङ्सिर २६ र २७ गते काठमाण्डौमा आयोजित “प्रथम बाह्य मिचाहा प्रजाति व्यवस्थापन राष्ट्रिय सम्मेलन” मा सबै सरोकारवालाहरूविच मतैक्यता कायम गर्दै आगामी दिनमा बाह्य मिचाहा प्रजातिको फैलावटबाट समग्र वातावरण र जनजीवनलाई सुरक्षित राख्ने साझा उद्देश्य प्राप्तिका लागि देहाय वमोजिम १८ बुँदे घोषणापत्र जारी गरिएको छ ।

१. बाह्य मिचाहा प्रजाति व्यवस्थापनको राष्ट्रिय आवश्यकता, आकांक्षा र प्रतिबद्धताहरू पुरा गर्नको लागि मिचाहा प्रजाति व्यवस्थापनलाई क्षेत्रगत र अन्तरक्षेत्रगत नीतिहरूमा मूलप्रवाहीकरण गरी सामञ्जस्यता कायम गर्ने,
२. बाह्य मिचाहा प्रजातिहरू नेपाल प्रवेश गर्ने विभिन्न माध्यमहरूको पहिचान गरी अन्तरनिकाय समन्वय मार्फत अन्तर्राष्ट्रिय सीमानाका र विमानस्थलहरूमा गरिने क्वारेन्टाइन परीक्षणलाई थप प्रभावकारी तुल्याई मिचाहा प्रजाति आगमनको जोखिम न्यूनीकरण गर्ने,
३. विभिन्न कारणले नेपालमा प्रवेश गरिसकेका बाह्य एवम् मिचाहा प्रजातिहरूको विस्तृत अभिलेखीकरण तथा तिनको जोखिम मूल्याङ्कन गरी आवधिक रूपमा प्रकाशन गर्ने,
४. ब्रागवानी, पुष्पखेती, मत्स्यपालन, कृषि वन, पंक्षीपालन जस्ता व्यवसायमा उपयोग गरिएका बाह्य प्रजातिहरूको यथोचित अभिलेखीकरण, अनुगमन र नियमन गरी आर्थिक विकास र वातावरण संरक्षण बीच प्रभावकारी सन्तुलन कायम गर्ने,
५. बाह्य मिचाहा प्रजातिको नियन्त्रणका विभिन्न कार्यक्रमहरूलाई वन, कृषि क्षेत्र, घाँसे मैदान, सिमसार जस्ता पारिस्थितिक प्रणालीको दीर्घकालीन व्यवस्थापन र पुनर्स्थापनाको अङ्ग बनाई यस्ता कार्यक्रमहरूलाई आवश्यकतानुसार भू-परिधिस्तरमा सञ्चालन तथा विस्तार गर्ने,

Handwritten signatures and initials, including names like 'Dhivendra', 'Rajendra', and 'Ramesh', along with dates like '20/12/19/13' and '21.12.01'.

६. पूर्वाधार र विकास निर्माण आयोजना सञ्चालन पूर्व गरिने वातावरणीय अध्ययन र पूर्वाधार निर्माणसँग सम्बन्धित वातावरण व्यवस्थापन योजनामा मिचाहा प्रजातिको रोकथाम र नियन्त्रणको व्यवस्था प्रभावकारी बनाउने,
७. मिचाहा प्रजाति नियन्त्रणका कार्यक्रमहरूमा आदिवासी जनजाती, स्थानीय समुदाय, महिला, युवाहरू एवम् मिचाहा प्रजातिबाट प्रत्यक्ष प्रभावित समुदायको सहभागितालाई प्राथमिकता दिने,
८. मिचाहा प्रजातिले वातावरण, जैविक विविधता, पारिस्थिकीय प्रणालीहरू (वन, कृषि, सिमसार, घाँसे मैदान आदि) र आदिवासी, जनजाति र स्थानीय समुदायको समाजिक आर्थिक अवस्थामा पार्ने प्रभाव मूल्याङ्कन गरी न्यूनीकरणका कार्यक्रम सञ्चालन गर्ने,
९. मिचाहा प्रजातिको रोकथाम र नियन्त्रणका लागि स्थानीय वन उपभोक्ता समूह, आदिवासी जनजाति तथा स्थानीय समुदाय, कृषक, वन/कृषि प्राविधिक लगायतका सरोकारवालाहरू विच मिचाहा प्रजाति, तिनका असर र व्यवस्थापनका उपायहरूवारेमा जनचेतना तथा क्षमता अभिवृद्धि गर्ने तथा उपयुक्त ज्ञान, सीप एवं प्रविधिको उपयोग वढाउदै लैजाने,
१०. स्थानीयदेखि राष्ट्रियस्तरसम्मका कृषि तथा वन सर्वेक्षणहरूमा मिचाहा प्रजातिको तथ्याङ्क सङ्कलन गर्ने र नतिजाको आधारमा कार्यक्रम तर्जुमा गरी न्यूनीकरण गर्दै लैजाने,
११. विभिन्न निकायहरूबाट तर्जुमा गरिने वन, सिमसार, घाँसे मैदानहरूको क्षेत्रगत तथा विशेष प्रजाति लक्षित व्यवस्थापन योजनाहरूमा मिचाहा प्रजाति व्यवस्थापनलाई अनिवार्य समावेश गरी कार्यान्वयन गर्दै लैजाने,
१२. मिचाहा प्रजातिको नियन्त्रणका लागि नियामक निकाय, कार्यक्रम कार्यान्वयनकर्ता निकाय, शिक्षण एवम् अनुसन्धान संस्थाहरू, सञ्चार क्षेत्र, प्रभावित समुदाय र सरोकारवालाहरूको विचमा ज्ञान, प्रविधि र सूचनाहरूको आदान-प्रदान अभिवृद्धि गर्ने तथा व्यवस्थापनका कार्यहरूमा सहकार्य वढाउने,
१३. बाह्य मिचाहा प्रजातिको रोकथाम तथा नियन्त्रणका लागि अन्तर्राष्ट्रिय सञ्जालमा जोडिँदै सहकार्य मार्फत प्रभावकारी नतिजा प्राप्त गर्न एवं सबैखाले बाह्य मिचाहा वनस्पति प्रजातिको दर्ता, अभिलेख तथा आधिकारिकताका लागि वन अनुसन्धान तथा प्रशिक्षण केन्द्रले काम गर्ने,

१४. वाह्य मिचाहा प्रजातिको रोकथाम, नियन्त्रण र व्यवस्थापनका लागि सचेतना जागरण, अन्तरनिकाय समन्वय र प्रभावकारी कार्यान्वयनका लागि हरेक वर्ष मंसिर महिनाको अन्तिम सप्ताह देशव्यापी रूपमा मिचाहा प्रजाति सचेतना तथा नियन्त्रण सप्ताह मनाउने,
१५. वाह्य मिचाहा प्रजाति सम्बन्धी अध्ययन, अनुसन्धान, प्रविधि विकास तथा कार्यान्वयनमा मार्गदर्शन गर्न तीनै तहका सरकार, गैरसरकारी निकाय, शिक्षण तथा अनुसन्धान संस्थाहरू, विज्ञ, कृषक तथा वन उपभोक्ताहरू, युवा विद्यार्थी, महिला, आदिवासी जनजाति तथा स्थानीय समुदाय (IPLC) सम्मिलित एक मिचाहा प्रजाति प्राविधिक कार्यसमूह (Invasive and Alien Species Technical Action Team) गठन गरी कार्यान्वयनमा लैजाने,
१६. यस घोषणापत्रको प्रभावकारी कार्यान्वयन योजना तयार गरी तिनै तहका सरकारहरू विच आपसी समन्वय र सहकार्य गरी आगामी आर्थिक वर्षदेखि नै बजेट तथा कार्यक्रममा समावेश गरी कार्यान्वयन गर्ने,
१७. वाह्य मिचाहा प्रजाति व्यवस्थापन राष्ट्रिय रणनीति तथा कार्यान्वयन योजना २०८१ तिनै तहका सरकार, सबै सरोकारवाला निकाय, संघ संस्था, विज्ञ, कृषक, समुदायको सहयोग र समन्वयमा कार्यान्वयन गर्ने,
१८. प्रथम वाह्य मिचाहा प्रजाति व्यवस्थापन राष्ट्रिय सम्मेलन आयोजना गर्न विभिन्न क्षेत्रबाट योगदान गर्नुहुने तीनै तहका सरकार, गैरसरकारी निकाय, शिक्षण तथा अनुसन्धान संस्थाहरू, विज्ञ तथा कार्यान्वयनकर्ता, सञ्चारकर्मी लगायत सम्पूर्ण सहभागी महानुभावहरूप्रति कृतज्ञता ज्ञापन गर्दै आगामी दिनमा वाह्य मिचाहा प्रजाति नियन्त्रण र व्यवस्थापनमा सहकार्यका लागि हार्दिक अपिल गर्दछौं।

मिति: २०८२/०८/२७

बुढानीलकण्ठ, काठमाण्डौं

## Annex III

## List of titles and corresponding authors of the posters presented during the conference

SN	Title	Corresponding Author
1	An Experience in Controlling Water Hyacinth in Jakhour Lake, Kailali	G. D. Bhatt
2	Experience of CASFOM Project in Gandaki Province	Hiroshi Yamauchi
3	Status of Non-native Fish Species Nile Tilapia ( <i>Oreochromis niloticus</i> ) in Begnas Lake	Aastha Bajracharya
4	Ecological Impacts of Invasive Alien Plant Species on Wetland Vegetation: A Case Study of Jagdishpur Reservoir (Ramsar Site), Kapilvastu, Nepal	Nabin Pandey
5	Restoring Native Ecosystem: Managing Invasive Alien Species through Assisted Natural Regeneration (ANR) in the Eastern Chure Landscape	Chhote Lal Chowdhary
6	Experience Sharing on Initiation of a Community-based Campaign for Controlling Invasive Plant Species in Salyan District, Karnali Province, Nepal	Mitra Lal Pathak
7	An Assessment of Invasive Alien Flora of Ghodaghodi Lake Complex, Kailali District, Nepal	Purnima Joshi
8	Invasive Alien Species: Impact and Response in Community Forests of Nepal	Arjun Chapagain
9	Building Biodiversity – Responsible Infrastructure: Lessons from Upper Trishuli-1 Hydropower Project's Invasive Species Management Initiative	Reeta Khulal
10	Despite High Local Knowledge, Limited Stakeholders' Participation and Resource Mobilization Constrain the Effective Management of Invasive Plants in Nepal's Protected Areas	Junusha Poudel
11	Community-based Ecological Restoration and Biomass Utilization for Mitigating Mikania Invasion: Lessons Learnt from Jalthal Forest, Eastern Nepal	Kiran Timalisina
12	Plants Exhibit Species-specific Sensitivity to Allelochemicals, Regardless of Their Native Range	Jyoti Khatri Chhetri
13	Environmental and Anthropogenic Factors Influencing Invasive Plant Species: A Case Study in Community Forest of Banke	Jharana Karki
14	Impact of Invasive Weed Mikania micrantha on Native Vegetation and Soil Biochemical Properties in Two Protected Areas of Nepal	Santosh Kumar Rana
15	Management of Invasive Weed Alternanthera philoxeroides through Utilization for Vermicomposting	Saraswoti Paudel

Annex IV

**Details of different support units in the organization and management of the conference**

Chief guest, Special Guest welcoming unit

- Rajendra K.C
- Rabindra Maharjan
- Rajendra Kumar Basukala
- Rajesh Malla

Accommodation Support unit

- Sunita Ulak, Under Secretary, FRTC
- Manju Ghimire, Officer, FRTC
- Pratik Pandeya, Officer, FRTC

Registration support unit

- Bimal Kumar Acharya, Under Secretary, FRTC
- Ananda Khadka, Officer, FRTC
- Reeti Acharya, Officer, FRTC
- Mamta Giri, Officer, FRTC
- Bishnu Sapkota, Nayab Subba, FRTC
- Samikshya Sharma, Nayab Subba, FRTC

Grievances Support unit

- Rajendra Kumar Basukala, DDG, FRTC
- Bimal Kumar Acharya, Under Secretary, FRTC
- Thakur Subedi, Under Secretary, FRTC
- Dharmaraj Acharya, Officer, FRTC

Hospitality unit

- Kanchan Kumar Nayak, Under Secretary, FRTC
- Raju Gurung, Officer, FRTC
- Bishnu Sapkota, Nayab Subba, FRTC

Digital handling unit

- Millan Dhungana, Under Secretary, FRTC
- Amul Kumar Acharya, Officer, FRTC
- Bishal Humagain, Officer, FRTC

Poster handling unit

- Alankar Dhungana, Under Secretary, FRTC
- Madhav Neupane, Officer, FRTC

Rapid response unit

- Sushil Bhandari, Under Secretary, FRTC
- Raj Kumar Giri, Under Secretary, FRTC
- Manju Ghimire, Officer, FRTC
- Pratik Pandeya, Officer, FRTC

Dias Support unit

- Sunita Ulak, Under Secretary, FRTC
- Apsara Poudel, Officer, FRTC

Travel and logistic support unit

- Milan Dhungana, Under Secretary, FRTC
- Bishnu Dhakal, Officer, FRTC
- Manju Ghimire, Officer, FRTC

Declaration Signature Campaign unit

- Bimala Lama, Officer, FRTC
- Tikaram Parajuli, Officer, FRTC
- Netra Aryal, Nayab Subba, FRTC

## Annex V

## List of Participants

SN	Name	Designation	Affiliation
1	Aananda Khadka	Officer	FRTC, Kathmandu
2	Aashika Thapa	Audio Visual Technical Team	Vision Three Sixty
3	Aastha Bhajhacharya	Student	Tribhuvan University
4	Abarta Pandey	SPDS	ZSL Nepal
5	Abhilash Budhathoki		Chure
6	Abishek Jhosi	Intern	FRTC, Kathmandu
7	Abiyan	Audio Visual Technical Team	Vision Three Sixty
8	Ajit Kumar Karna	Secretary	MoITFE, Karnali Province
9	Alankar Dhungana	Under-Secretary	FRTC, Kathmandu
10	Amar Shah	DFO	DFO, Dailekh
11	Amrit K. C.	Reseach Officer	
12	Amul Kumar Acharya	Officer	FRTC, Kathmandu
13	Anil Kumar Raut	Intern	FRTC, Kathmandu
14	Anirudh Kumar Sah	DFO	DFO, Udayapur
15	Anirudra Mandal	Driver	Saptari
16	Apsara Paudel	Officer	FRTC, Kathmandu
17	Arun G. C.	Asst. FAO Representative	FAO
18	Ashok Paudel		Agriculture business
19	Aviral Bhudhathoki	Driver	Chure
20	Badal Chaudhari	Driver	Sarlahi
21	Barna Guru	Driver	DWPWC
22	Basanta Babu Shrestha	DFO	DFO, Rukum West
23	Bed Kumar Dhakal	DDG	DNPWC
24	Bhanu Bhakta Sharma	Ranger	Forest Seed Laboratory and Storage Center, Biratnagar
25	Bharat Bahadur Shrestha	Professor	CDB TU
26	Bharat Bhuda Thapa	DFO	DFO, Jumla
27	Bhatta Ranabhat	Driver	REDD IC
28	Bhoj Raj Pantha	Officer	KCA
29	Bhoj Raj Sapkota	Officer	PQPMC
30	Bhojendra Basnet	Journalist	Ujayalo Radio
31	Bhupendra Yadav	Officer	KTWR
32	Bidya Nath Jha	Director	PFD, Bagmati
33	Bikram K. Jha	Conservation Officer	
34	Bimal Kumar Acharya	Under-Secretary	FRTC, Kathmandu
35	Bimala Lama	Officer	FRTC, Kathmandu
36	Bimala Thapa Magar	Office Assistant	FRTC, Kathmandu
37	Binay Kumar Jha		
38	Binod Ghimire	Journalist	Online Khabar
39	Binod Maharjhan	Driver	
40	Birendra Karki	Driver	ZSL
41	Bishal Ghimire	Joint Secretary	MoFE
42	Bishal Humagain	Officer	FRTC, Kathmandu
43	Bishnu Hari Paudel	Forestry Expert	
44	Bishnu Prasad Dhakal	Officer	FRTC, Kathmandu
45	Bishnu Prashad Acharya	DFO	DFO, Chitwan
46	Bishnu Prashad Adhikari	DFO	DFO, Nawalpur

SN	Name	Designation	Affiliation
47	Bishnu Sapkota	Nayab Subba	FRTC, Kathmandu
48	Bishnu Shrestha	Under secretary	DNPWC
49	Bishow Nath Oli	Former Secretary	Government of Nepal
50	Buddhi Sagar Poudel	Director General	DNPWC
51	Chandan Gautam	Audio Visual Technical Team	Vision Three Sixty
52	Chandra Adhikari		Fulbari Chitwan
53	Chandra Kumar Bohara		NEFIN
54	Chandra Paudel		DFO, Rolpa
55	Chandu Paneru	Student	CDB TU
56	Chiranjeevi Paudel		CF representative Jhapa
57	Chiranjeevi Pd. Pokhrel	Director	NTNC
58	Dayanidhi Dawadi		MOALD
59	Deepa Oli	Under secretary	MoFE
60	Deepa Paudel	Intern	FRTC, Kathmandu
61	Deepak Kumar Kharal	Secretary	MoALD
62	Deepak Lamichhane	Under secretary	DPR
63	Deepak Prasad Pandit		DFO, Lamjung
64	Deepjyoti Rawat	ESS Expert	IUCN Nepal
65	Dhan maya Sunuwar	Forest Officer	DFO, Kavre
66	Dhananjaya Lamichhane	DDG	DoFSC
67	Dharma Raj Acharya	Officer	FRTC, Kathmandu
68	Dharmaraj Dangol	Professor	Tribhuvan University
69	Dhirendra Kumar Pradhan	Director General	DoFSC
70	Dil Bahadur Purja Pun	Sr. Conservation Officer	Shivapuri Nagarjun National Park
71	Dinanath Acharya	Chairperson	Rudrapur Community Forest
72	Dinesh Aryal		MOALD
73	Ek prem Paudel	Student	
74	Ek Raj Sigdel		Institute of Forestry
75	Ganesh Panta	Sr. Conservation Officer	Chitwan National Park
76	Ganesh Poudel	Member Secretary	PCTMCDB
77	Ganesh Tripathi	DFO	PFD, Karnali
78	Ganga Dhatt Bhatta		
79	Gaurav Parmar	Officer	Godawari
80	Ghanshyam Sunuwar	Forest Officer	DFO, Karve
81	Ghansyam Gurung	Country Representative	WWF Nepal
82	Ghyan Raj Subedi	Director General	Department of Environment
83	Govinda Pandey		NEFTA
84	Govinda Paudel		SIAS
85	Govinda Pd Pokhrel		NTNC
86	Guru Pd. Lamichhane		MoALD
87	Hari Bhadra Acharya	Under secretary	DoFSC
88	Hari Prasad Sharma		Tribhuvan University
89	Hemant Shah	DFO	DFO, Rautahat
90	Hemanta Parajulli	Director	FRTC, Koshi
91	Hemanta Thapa		
92	Hemlal Neupane	DFO	DFO, Parbat
93	Hira Devi	Sr. program manager	Lutheran World Relief
94	Hirani Yamachi		JICA
95	Indra Prasad Sapkota	Secretary	MoTFE, Koshi Province
96	Ishwori Poudel	DFO	DFO, Kapilvastu
97	Jaganath Pd. Jaishwal	Director	PFD, Madesh

SN	Name	Designation	Affiliation
98	Janak Acharya	Officer	FRTC, Kathmandu
99	Januka Pandit	Under secretary	MoALD
100	Javed		FAO
101	Jaya Prakash Pandey		
102	Jaya Prakash Rana		Fecofun
103	Jaya Prakash Tharu		Parsa
104	Jeevnath Poudel	Secretary	MoFE, Madesh Province
105	Jhalak Prasad Paudel	Coordniator	RECOFTC
106	Jharana Karki		GGIC
107	Jhyam Narayan Sapkota	Director	PFD, Gandaki
108	Jhyam Narayan Sapkota	Director	PFD, Gandaki
109	Junusha Paudel	Researcher	CDB TU
110	Jyoti KC	PhD Student	CDB TU
111	Kalpana Dhakal	Officer	DPR
112	Kamal Regmi	PA	ZSL Nepal
113	Kanchan Kumar Nayak	Under-Secretary	FRTC, Kathmandu
114	Kedar Baral	Secretary	MoFE, Bagmati Province
115	Ken Shimizu	FAO Representative	FAO
116	Khagendra	Audio Visual Technical Team	Vision Three Sixty
117	Khim Bahadur Bhandari		Lutheran World Relief
118	Kiran Kumar Pokhrel	Officer	MoFE
119	Kishwor Aryal	Officer	Soil and Watershed Mgmt Office, Kailali
120	Krishna Bahadur Thapa	DFO	DFO, Kavre
121	Krishna Prasad Acharya	Former Secretary	Government of Nepal
122	Krishna Tamang	Driver	FRTC, Kathmandu
123	Kshiring Sherpa	Driver	Sindhuli
124	KV Sankaran	RFD Director	Kerela Forest Research Institute
125	Lal Babu Jha	Forest Officer	Hattisar
126	Lal bahadur Rawat		Lutheran World Relief
127	Lal Bahadur Thapa		Tribhuvan University
128	Lilanath Sharma		Forest Action Nepal
129	Lob Guragai	Ranger	DNPWC
130	Lokesh Chandra Regmi	Audio Visual Technical Team	Vision Three Sixty
131	Madan Prasad Pariyar	Honorable Minister	Ministry of Agriculture and Livestock Development
132	Madhav Bhatta	Under secretary	PQPMC
133	Madhav Kumar Dangol	Driver	Department of Agriculture
134	Madhav Narayan Sapkota		
135	Madhav Prasad Neupane	Officer	FRTC, Kathmandu
136	Maheshowr Dhakal	Joint Secretary	MoFE
137	Mamata Giri	Officer	FRTC, Kathmandu
138	Manchita Aryal	Sr. Officer	NAST
139	Mandip Pangeni	Officer	Banke NP
140	Manish Kamat	Audio Visual Technical Team	Vision Three Sixty
141	Manisha Ojha	Accountant	FRTC, Kathmandu
142	Manju Ghimire	Officer	FRTC, Kathmandu
143	Manoj Aryal		
144	Manoj Dulal	Intern	FRTC, Kathmandu
145	Manoj Ranabhat	DFO	DFO, Tanahu
146	Mausam Shah	Journalist	The Himalayan Times

SN	Name	Designation	Affiliation
147	Maya Chaudhary	Office Assistant	FRTC, Kathmandu
148	Megraj Paudel	Under secretary	Department of Agriculture
149	Milan Dhungana	Under-Secretary	FRTC, Kathmandu
150	Mimangsa Adhikari	Joint Secretary	MoFE
151	Mitra Lal Pathak		PRC Salyan
152	Mohan Dev Joshi	DDG	DPR
153	Mohan Kafle	Secretary	MoFE, Gandaki provnce
154	Mohan Pd. Shrestha	DFO	DFO, Arghakhachi
155	Moon Bdr Raut	DFO	DFO, Bheri
156	Muna Neupane	Officer	FRTC, Kathmandu
157	Nabaraj Pudasaini	Chief	REDD IC
158	Nabin Pandey	Forest Officer	Bangana Municipality
159	Narayan Bajarcharya	Audio Visual Technical Team	Vision Three Sixty
160	Narayan Gyawali	Program Director	Lutheran World Relief
161	Narendra Man Babu Pradhan	Country Representative	IUCN, Nepal
162	Naresh Subedi	Member Secretary	NTNC
163	Naya Sharma Poudel		Forest Action Nepal
164	Netra Aryal	Nayab Subba	FRTC, Kathmandu
165	Neera Jhosi Pradhan	Botanical Illustrator	
166	Niranjan Paneru		
167	Niranjan Shrestha	Director	PFD, Bagmati
168	Om Baral		NAST
169	Om Bhandari		NAST
170	Om Timilsina	Office Assistant	FRTC, Kathmandu
171	Pal Bahadur	Audio Visual Technical Team	Vision Three Sixty
172	Pashupati Dahal	DFO	DFO, Panchthar
173	Pawan Rijal	Chairperson	Ajammari CF, Dang
174	PK Jha	Professor	CDB TU
175	Prabhat Sapkota	Director	PFD, Lumbini Province
176	Prakash Lamiachanne	Officer	MoFE
177	Prakash Singh Thapa	Under secretary	MoFE
178	Pramod Bhattarai	Secretary	MoFE, Lumbini Province
179	Prashant Adhikari	Intern	FRTC, Kathmandu
180	Pratik Pandeya	Officer	FRTC, Kathmandu
181	Prerana Sedai Bhattarai	DDG	Departmnet of Livestock Services
182	Prusatam Thapa		
183	Puran Chaudhary	Driver	DFO, Tanahu
184	Purnima Jhosi	Student	
185	Puspa Raj Bartaula	DFO	DFO, Kathmandu
186	Puspa Sunar	Intern	FRTC, Kathmandu
187	Rabin Rajtika	Journalist	
188	Rabina Bhattarai	Intern	FRTC, Kathmandu
189	Rabindra Maharjan	DDG	FRTC, Kathmandu
190	Rabindra Pun Magar	Forest Officer	DFO, Dolpa
191	Rachana Shah		NTNC
192	Rahul Karki		Forest Action Nepal
193	Rajendra K. Bhattrari	Scientist	NARC
194	Rajendra K.C.	Director General	FRTC, Kathmandu
195	Rajendra Kathayat		
196	Rajendra Koirala	DDG	Department of Agriculture

SN	Name	Designation	Affiliation
197	Rajendra Kumar Basukala	DDG	FRTC, Kathmandu
198	Rajendra Prasad Mishra	Secretary	MoFE
199	Rajesh Bhakta Shrestha		Floriculture Association Nepal
200	Rajesh Katawal		FAN
201	Rajesh Kumar Rai	Professor	Institute of Forestry
202	Rajesh Malla	DDG	FRTC, Kathmandu
203	Rajesh Sada		WWF
204	Rajiv Kumar Jha	DFO	DFO, Bara
205	Rajkumar Giri	Under-Secretary	FRTC, Kathmandu
206	Raju Gurung	Officer	FRTC, Kathmandu
207	Raju Gyawali		NEA
208	Rakesh Karna	President	NFA
209	Ram Chandra Kandel	Joint Secretary	MoFE
210	Ram Chandra Khatiwada	Officer	Parsa NP
211	Ram Das	Office Assistant	FRTC, Kathmandu
212	Ram Ekbal Shah		Bara
213	Ram Kumar Bhandari	DFO	DFO, Sindhuli
214	Ram Lama		FAO
215	Ram Lama Tamang	Driver	Shivapuri Nagarjun National Park
216	Ram Prasad Bhusal		Lutheran World Relief
217	Ram Thapa	Office Assistant	NAST
218	Rama Paudel	Assistant Professor	IAAS TU
219	Ramala Bhandari	Nayab Subba	
220	Ramesh Prasad Sapkota		CDES TU
221	Ramesh Subba	Driver	Makwanpur
222	Ramyaklal Shah		Bara
223	RC Lamichhane	Principal	Nirvana College
224	Reeta Khulal	Environment officer	NWEDC
225	Reeti Acharya	Officer	FRTC, Kathmandu
226	Rekha Kumari Thapa	Office Assistant	FRTC, Kathmandu
227	Renuka Neupane	Director	FRTC, surkhet
228	Resham Paudel	DFO	DFO, Bhaktapur
229	Riiya Sapkota		FECOFUN
230	Ritesh Bhusan Basnet	DFO	DFO, Sunsari
231	Riya Pandit	Intern	FRTC, Kathmandu
232	Rojan Sapkota		
233	Roshan Pariyar		MoALD
234	Roshna Khadka	Audio Visual Technical Team	Vision Three Sixty
235	Rup Narayan Dhakal		Local Level Association
236	Sachin Shrestha	Driver	
237	Sadikshya Ghimire		Agriculture business
238	Salina Kadel		FRTC, Bagmati
239	Samikhsya Parajuli	Intern	FRTC, Kathmandu
240	Samikshya Sharma	Nayab Subba	FRTC, Kathmandu
241	Samundra Lal Joshi		
242	Samyog Basnet	DFO	DFO, Lalitpur
243	Sandesh Aryal		MOALD
244	Sandesh Bhattarai	Senior Officer	NAST
245	Sangita Rajbhandari	Professor	Tribhuvan University
246	Santosh Kumar Jha	DFO	DFO, Sarlahi
247	Santosh Kumar Rai	Student	CDB TU

SN	Name	Designation	Affiliation
248	Saraswati Aryal	CC Specialist	FAO Nepal
249	Saraswati Paudel	Student	CDB TU
250	Sarita Tharu	Journalist	Capital Magazine
251	Saroj Puri	Driver	Department of Agriculture
252	Shankar Paudel		Lutheran World Relief
253	Shankar Prasad Gupta	DFO	DFO, Banke
254	Shashank Paudel		WWF Nepal
255	Shayam Kumar Shah	Sr. Conservation Officer	LNP, Rasuwa
256	Shiva Khanal	Under secretary	MoFE
257	Shiva Kumar Paudel	Driver	
258	Shiva Prasad Paudel		Chitwan National park
259	Shova Subedi	Under secretary	Community Forest Study Center
260	Shyam Krishna Lamichhane	Driver	FRTC, Kathmandu
261	Shyam Kumar Thapa		ZSL Nepal
262	Siddhartha Aryal	Forest Officer	DoFSC
263	Sita Belbase		Lutheran World Relief
264	Srijan Paudel	Intern	FRTC, Kathmandu
265	Srijana Shrestha	Under secretary	DOFSC
266	Subash C. Das	DFO	DFO, Saptari
267	Subash Budhathkoki	Project Officer	GGN
268	Subash Kumar	Audio Visual Technical Team	Vision Three Sixty
269	Sudan Pariyar	Audio Visual Technical Team	Vision Three Sixty
270	Sudip Chhathkuli	Under secretary	MoFE
271	Sujan Rana	DDG	Department of Livestock Services
272	Sumitra KC	Officer	FRTC, Kathmandu
273	Sumitra Lamichhane	Intern	FRTC, Kathmandu
274	Summit Rana	Audio Visual Technical Team	Vision Three Sixty
275	Sundar Tiwari		Agriculture and Forestry University
276	Sunil Basnet	Driver	Tribhuvan University
277	Sunil Chaudhary	Officer	FRTC, Kathmandu
278	Sunil Dangal	Forest Officer	FRTC, Bagmati
279	Sunil Kumar Karna	Director	FRTC, Madhesh
280	Sunita Ulak	Under-Secretary	FRTC, Kathmandu
281	Sushant Acharya		SIAS
282	Sushil Bhandari	Under-Secretary	FRTC, Kathmandu
283	Swayambhu Amatya	Former Secretary	Government of Nepal
284	Tek Bahadur Gurung		Lutheran World Relief
285	Thakur Silwal	Dean	Institute of Forestry
286	Thakur Subedi	Under-Secretary	FRTC, Kathmandu
287	Tikaram Parajuli	Officer	FRTC, Kathmandu
288	Til Kumari Chhetri	Assistant Professor	Tribhuvan University
289	Tirtha Maharaji	Office Assistant	FRTC, Kathmandu
290	Tulasa Chaudhary	Researcher	GIIS
291	Udaya Raj Sharma		
292	Uddhav Ghimire	DDG	DoFSC
293	Utsab Thapa	DFO	DFO, Morang
294	Uttam Babu Shrestha	Director	GIIS
295	Uttam Mainali	Driver	NTNC
296	Yagyamurthi Khanal	DFO	DFO, Rolpa
297	Yam Kumari Shrestha	Under secretary	Department of Agriculture
298	Yubaraj Thapa	Office Assistant	FRTC, Kathmandu



**Government of Nepal**  
**Ministry of Forests and Environment**  
**Forest Research and Training Centre**  
**Babarmahal, Kathmandu**

