Government of Pakistan

Ministry of Climate Change & Environmental Coordination



Year Book

(2023-24)




Contents:

MESSAGE

Climate change is no longer a distant threat, it is a reality affecting every facet of our lives, from ecosystems and agriculture to water resources, health, and livelihoods. The year 2023 - 24 has again underscored the urgency of our response as Pakistan continues to face the cascading impacts of rising temperatures, erratic weather patterns, and an increase in the frequency and intensity of extreme climate events.

In response, the Ministry of Climate Change and Environmental Coordination has deepened its resolve and accelerated its actions to foster climate resilience and environmental sustainability. Guided by the principles of equity, coordination, and science-based policymaking, we have advanced policies, strengthened institutional frameworks, and worked closely with stakeholders at all levels to implement climate actions that are inclusive, transparent, and impactful.

This Yearbook 2023 - 24 captures the Ministry's wide-ranging efforts, policy advancements, programmatic interventions, and the invaluable contributions of our attached departments and autonomous organizations. It reflects not just what we have accomplished, but also the scale of our ambition to build a greener, safer, and more sustainable Pakistan.

I commend the dedication and hard work of all our officers, technical experts, and partners who have contributed to these efforts. At the same time, I am mindful that the road ahead requires continued commitment, innovation, and collaboration to turn our vision into reality.

I trust that the insights shared in this yearbook will be of value to policymakers, development partners, civil society, and citizens alike. We welcome your feedback and look forward to working together to ensure a climate-resilient and environmentally secure future for all.

(Musadik Masood Malik)
Federal Minister
Ministry of Climate Change
& Environmental Coordination

FOREWORD

The Year Book 2023 - 24 of the Ministry of Climate Change & Environmental Coordination presents a detailed account of our persistent efforts to build a climate-resilient, environmentally secure, and sustainable Pakistan. Climate change remains the defining challenge of our time, and Pakistan continues to bear its disproportionate impacts, manifesting in recurring floods, heatwaves, air pollution, glacial melt, and growing water scarcity.

This year, the Ministry intensified its work on the development and implementation of policy measures aligned with Pakistan's Nationally Determined Contributions (NDCs) under the Paris Agreement. Our efforts span across key priority areas such as climate change adaptation, clean energy transition, forest restoration, sustainable cities, and biodiversity conservation. These actions are aimed at safeguarding both our environment and the socio-economic well-being of our people.

The Year Book offers a comprehensive overview of the Ministry's key initiatives, strategic interventions, and sectoral contributions. It also highlights the critical role played by our attached departments and autonomous organizations, whose collective efforts continue to advance our national environmental and climate agenda.

I would like to acknowledge the dedication and commitment of our officers, technical teams, development partners, and stakeholders who have contributed to the achievements documented in this publication. Their unwavering support has been instrumental in moving our vision forward.

As we look ahead, the challenges remain substantial, but so do the opportunities. With sustained collaboration at the national and international levels, and a shared sense of purpose, we can accelerate our journey toward a more resilient, inclusive, and sustainable future.

I invite readers to explore this Year Book for valuable insights into our work and welcome suggestions that can help us strengthen our mission further.

(Aisha Humera Moriani)
Secretary
Ministry of Climate Change
& Environmental Coordination

1. FUNCTIONS OF THE MINISTRY (UNDER RULES OF BUSINESS, 1973)

Under the Rules of Business, 1973, the Ministry of Climate Change and Environmental Coordination (MoCC & EC) is assigned the following functions:

- National policy, plans, strategies and programs with regard to disaster management including environmental protection, preservation, pollution, ecology, forestry, wildlife, biodiversity, climate change, and desertification. Coordination, monitoring and implementation of environmental agreements with other countries, international agencies, and forums.
- Policy formulation, coordination and reporting of human settlements including urban water supply, sewerage, and drainage.
- Pakistan Climate Change Council.
- Pakistan Environmental Protection Agency.
- Global Environmental Impact Study Centre, Islamabad.
- Islamabad Wildlife Management Board.
- Zoological Survey of Pakistan.

2. ORGANIZATIONAL SETUP

The Ministry of Climate Change & Environmental Coordination has structured its functions across the following Wings to facilitate seamless execution of its policies and initiatives:

- Administration Wing
- Development Wing
- Environment and Climate Change Wing
- Forestry Wing
- International Cooperation Wing
- Climate Finance Wing

Section Officer Ishaq Khan Friday, 29 August, 2025, 3:0:34 PM
Assistant Director CDC Council

2.1. Administration Wing

The Administration Wing of the Ministry of Climate Change & Environmental Coordination (MoCC&EC) ensures efficient management of human resources, finances, and institutional governance to support climate-resilient development.

Led by the Joint Secretary (Administration & Development) and supported by Deputy Secretaries for Administration, Budget & Coordination, and Development, the wing oversees the Ministry's operations, including a workforce of 197 employees (56 officers and 141 staff members) in 2023-24. It plays a vital role in integrating climate policies into key sectors while ensuring smooth administrative and financial operations to advance the Ministry's environmental objectives:

- Administration Section-I
- Administration Section-II
- Autonomous Organizations Section
- Law Section
- General Section
- Council and Coordination Section
- Development Section
- F&A Section
- Budget and Cash Section
- Media Section

Responsibilities:

Responsible for the Ministry's administrative operations, the Administration Wing plays a crucial role in maintaining efficiency and coordination. Its core duties include:

- Personnel administration of the officers/officials of the Ministry.
- Personnel administration of officers of the attached departments/organizations.
- Coordination between wings/attached departments/organizations of this Ministry and with other Ministries/Divisions.
- Matters pertaining to hiring of residential accommodation of officers/officials.
- Re-imbursement of medical charges to the serving/retired officers/officials.
- Maintenance of Performance Evaluation Reports (PERs) record of all employees, and maintenance of annual declaration of assets held by the officers/officials of this Ministry.
- Processing promotion, pay and pension cases of the officers/officials of the Ministry.
- Nominations of officers/officials for the foreign and local trainings.
- Preparation of Budgets, Technical Supplementary Grants (TSG) and re-appropriation of funds of the main Ministry and its attached departments/autonomous organizations.
- Preparation of pay bills, contingent bills advance bills etc. on daily basis.

- Preparation of pension bills.
- Appropriation of Accounts Reconciliation of Expenditure of each month with AGPR.
- Contribution to International Agencies.
- Internal Audit/External Audit.
- Procurement of Stationery/Petty Items through Tender.
- Repair/Maintenance of official vehicles of the Ministry.
- Repair/Cleanliness of the building/bathrooms/Stairs/Reception of the Ministry.
- Maintaining security of the building of the Ministry.
- Media Coverage of Minister, MOS and different wings of the Ministry, publication of advertisements relating to MoCC/Attached Departments/Development Projects etc.
- Social Media Coverage/uploads of Ministry attached departments/organizations and Development Projects on social media, i.e. Facebook, Twitter and Instagram, in coordination with Prime Minister's Office.
- Arranging the Press Conferences of the Federal Minister, Media Coverage of Seminars/Capacity building events in coordination with Press Information Department (PID).
- Legal matters/cases of Climate Change Division/Attached Departments, including service matters pending in different Courts/ Federal Service Tribunal (FST).

Achievements:

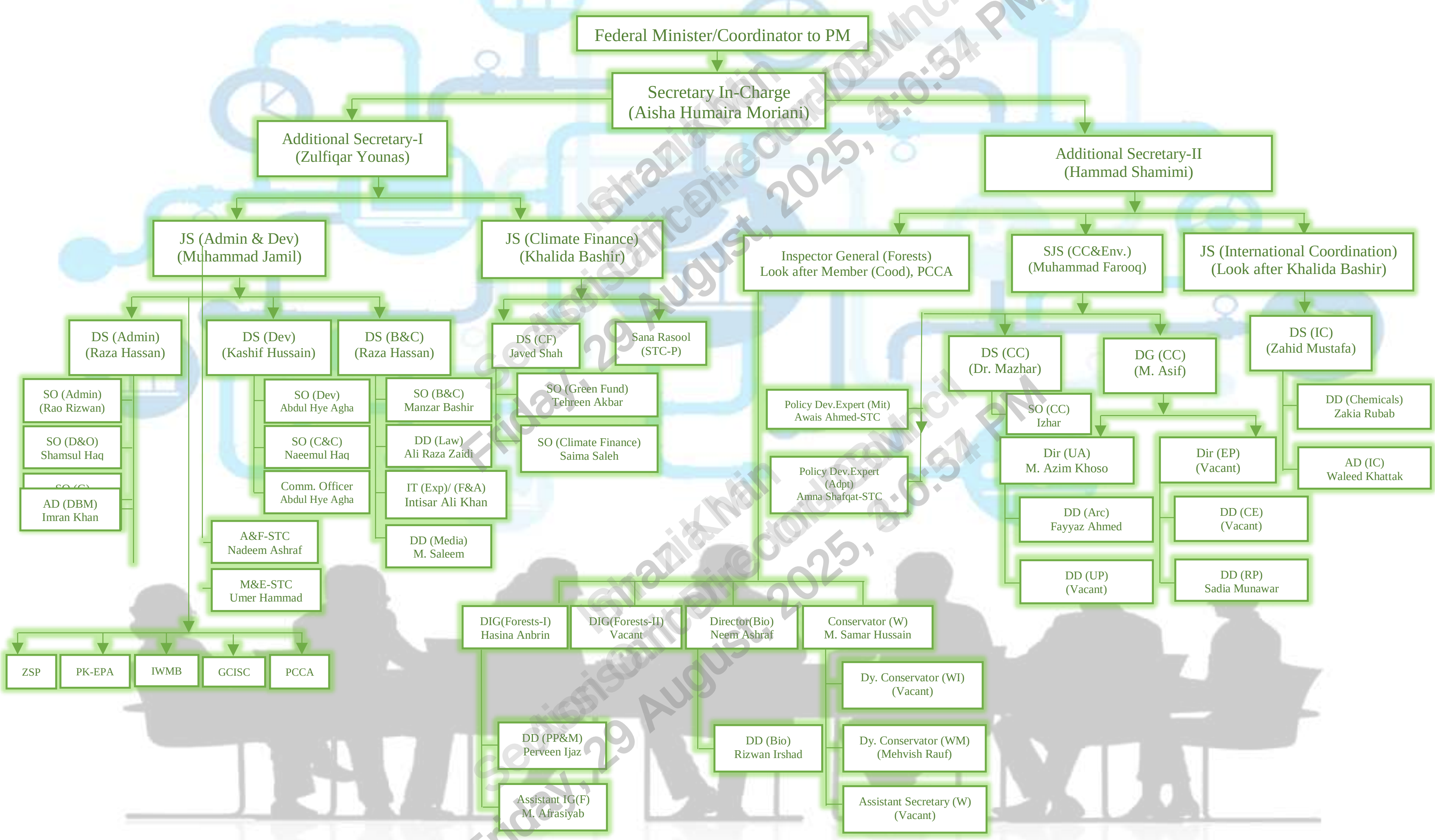
The achievements of the Administration Wing of the Ministry are outlined below:

- Efficient implementation of the E-Office application in the Ministry, in collaboration with the Ministry of Information and Technology (MoIT), to enhance digital governance and operational efficiency.
- Networking infrastructure has been deployed and all wings of the Ministry are using E-Office in order to bring efficiency, effectiveness and transparency.
- Three additional positions i.e. Additional Secretary (BS-21), Joint Secretary (BS-20) and Deputy Secretary (BS-19) have been created in the Ministry.
- A new 'Climate Finance Wing' has been established within the Ministry to oversee matters related to climate finance and carbon markets.
- The "Strengthening Technical Capacities (STC-MoCC & EC)" project has been launched with a 36-month duration under a hybrid model. Funded by the World Bank in the first year and PSDP thereafter, the project aims to enhance the technical capacities of MoCC&EC officers.
- Several officers were nominated, based on Foreign Visit Committee recommendations, for local and international training programs, conferences, seminars, and study visits to strengthen their expertise in climate change.
- Media and Communication Section of the MoCC&EC carried out public awareness-raising, sensitization and advocacy-related activities during year 2024 for highlighting Pakistan climate vulnerabilities and government's resilience-building, and coping measures as proposed in the National Climate Change Policy (NCCP). The events as a part of the activities include national and local-level seminars, workshops, dialogues, consultative events with different stakeholders including media, academia, students, relevant policymakers, experts, members of non-governmental organizations in different parts of the country.
- Launch of the National Climate Change Authority (NCCA) and its first meeting held in October 2024 was also projected in the national media as a part of the government's

commitment to climate resilience of the people, their livelihoods, ecosystems and various socio-economic sectors.

- The climate change awareness, sensitization and advocacy-related activities conducted during the year 2024 thematic focused on sectoral climate change issues, environmental degradation, water conservation, floods risk, clean and environmental-friendly brick kilns, renewable energy, climate-resilient urbanization, clean air, hazardous solid waste management, plastic pollution, the ban on single-use plastics in Federal Capital, wildlife and biodiversity conservation. The events and different activities for public awareness, sensitization and advocacy were also conducted under the National Adaptation Plan, Green Building Code, Climate-Resilience Urbanization Project, Glacial Lake Outburst Floods Project, Recharge Pakistan Initiative, Carbon Credit Report (draft), Blue Carbon were also highlighted in the national media for wider public awareness and climate advocacy.
- Various activities of MoCC&EC including events, meetings of the Coordinator to Prime Minister's Coordinator on Climate Change with national and international delegations, country representatives of various local NGOs and INGOs, and ambassadors were also publicized in national and international media through press release issued by the Ministry's Media and Communication Section
- The news about such events and meetings were published in the media included International Day of Clean Energy (Jan 26), International Day of Zero Waste (March 30), International Mother Earth Day (April 22), International Day for Biological Diversity (May 22), World Environment Day (June 5) and International Day for the Preservation of the Ozone Layer (September 16).
- Simulation conferences on the paradigm of the UN-led Conference of Parties (COP) meeting were also organized in Quetta on October 8, 2024 and in Karachi on October 11, 2024 in collaboration with various local and international partners to raise awareness of the youth about the importance of climate change negotiations and prepare them as future climate leaders and climate negotiators.
- Journalists from Print and Electronic Media organizations were also engaged to cover and report on various activities including raids in various parts of the ICT to discourage use of the Single-Use plastic bags. On-site awareness campaigns in this regard were also carried out in support with officials of the MoCC&EC, Pak-EPA Islamabad and ICT Administration.
- Print and electronic media journalists were engaged to interview the PM's Coordinator on Climate Change regarding key programs and initiatives, including forestry, climate change, environmental protection, smog, air pollution, climate-resilient urbanization, climate-smart agriculture, natural disasters, and glacial melting. These interviews effectively highlighted the Ministry's initiatives in mainstream national media.
- Besides, different advertisements of Job Vacancies, Tender Notices and Public Notices of this Ministry and its attached departments were published in various newspapers during year 2023-24 through the Press Information Department (PID), Government of Pakistan.

ORGANOGRAM OF THE MINISTRY OF CLIMATE CHANGE & ENVIRONMENTAL COORDINATION



2.2.Development Wing

The Development of the Ministry is mandated to perform the following functions:

All policy, administrative, and budgetary matters of PSDP projects
Senate and National Assembly business
All policy, administrative, and budgetary matters of PSDP projects
Coordination with all wings and departments of the Ministry, Implementation of the Cabinet Decisions

The following PSDP Projects are currently under execution:

I. Capacity Building on Water Quality Monitoring SDG 6 (6.1) Reporting

Introduction:

Capacity Building on Water Quality Monitoring and SDG 6 (6.1) Reporting" is a project under Ministry of Climate Change &

1. Environmental Coordination to develop and establish a national/provincial drinking water quality monitoring, surveillance management system and strengthen the capacity of WASH cell and PHEDs to track progress of SDG-6.1
2. The safely managed water under SDGs comprises of; water accessible at premises, available when needed, and free from contamination. About 89% population in Pakistan has access to improved water sources. This largely comprises of motorized pumps, hand pumps, piped water and closed wells. Only 1/4th of population in Pakistan has access to piped water (26%). High reliance of drinking water in the form of hand pumps or motor pumps shows that ground water extraction is unregulated, so self-provision is leading primarily in Punjab and Sindh provinces as compared to Baluchistan and KPK province where high reliance is on piped or surface water.
3. Joint Monitoring Program report of 2017 estimated that around 36% population in Pakistan has access to water that was free from any bacterial contamination, and further break up is 32 % in the rural areas and 41% in the urban areas which is based on the reports of Pakistan Council of Research on Water Resources (PCRWR).
4. Based on the national WASH data diagnostic study conducted by Ministry of Climate Change & Environmental Coordination (MoCC&EC), literature review, deliberations were held at national and provincial levels through SDG localization and technical collaboration with JMP team. The improved water/accessible is 89%, available when needed 77.5 %, basic service 53% and free from contamination is 36%. The lowest figure of all three is free from contamination i.e. 36% which is the baseline figure of safely managed water in Pakistan in 2018. The provincial and regional break-up reflects that almost 53% of the population in KPK has access to safely managed water and 35% in Punjab has access to safely managed water.

Goals and Targets:

1. To develop and establish a national/provincial drinking water quality monitoring and surveillance management system.
2. To strengthen the capacity of WASH Cell and PHEDs to track progress of SDG 6 (6.1) by providing lab equipment and Mobile water testing vehicles.

3. To build capacity of human resources on water quality testing, monitoring and provision of necessary equipment by providing international and national trainings.

Activities:

1. Baseline for water quality laboratories under, KP, Punjab and Federal EPA's.
2. International trainings of High, Mid-level official and Master trainers on Capacity Building of Water Quality Monitoring in Pakistan and SDG 6 Reporting.
3. Management Information System (MIS) for water quality reporting and tracking of operational activities of water quality in KPK.
4. Laboratories equipment deliverability and Mobile water quality testing labs.
5. Local trainings of Laboratories staff for the equipment (Punjab & KPK).
6. Conduct a research survey study and development of statistic report on Water quality of Islamabad to increase public awareness and to prioritize policy interventions according to findings
7. Conduct a research study and compile Suggestions for Improving Pakistan's Legal and Administrative Systems related to SDG 6 and water management system.
8. Monitoring and Evaluation of project at implementation and operation period by Korean Team of KOICA and PMU of Pakistan.

Achievements:

1. Baseline established for water quality labs under KPK, Punjab, and Federal EPAs.
2. International training completed for officials and trainers on water quality monitoring and SDG 6 reporting
3. Management Information System developed for water quality tracking in KPK PHEDs.
4. Equipment (water testing Apparatus/devices) delivery for 44 labs (36 labs in Punjab and 8 divisional labs in KPK).
5. 9 (8 –KPK and 1 PCRWR) mobile water testing labs delivered.
6. Local training component in progress in batches for lab staff in Punjab and KPK & development of SOPs for labs in process.

Handover Ceremony of Mobile Water Testing Laboratories

Enhancing Water Quality Monitoring System to Achieve SDG6 in Pakistan

Local Training in NCBI, PCRWR in Batch 1 and 2 from August 15th -25th, 2023 and September 4th-15th, 2023.

MIS System Implementation Activities of MIS in KPK in 2023.

3rd Invitational Training Program: 8th July – 14th July, 2013.

II. Climate Resilient Urban Human Settlements Unit

Introduction:

Pakistan has the highest rate of urbanization in South Asia at 3% per annum with aggregated 36.4% of the population residing in urban areas. Moreover, projections show that the urban population will surge up to 50% by 2025 indicating a significant and hostile transformation of Pakistan's urban landscape (UN-Habitat). Pakistan's urbanization is majorly driven by rural-urban migration and fueled by other factors like population growth, industrialization, and various job opportunities. The uncontrolled urbanization costly impacts on cities' basic services, infrastructure, housing, human livelihoods, and health. Furthermore, urbanization increases the usage of energy and transportation, causing air pollution and GHG emissions. United Nations Environmental Program (UNEP) suggests that cities are liable for 75% of global CO2 emissions, with transport and buildings among the largest contributors.

The Federal and Provincial Governments of Pakistan are facing major challenges in controlling the unplanned and haphazard growth of urban settlements coupled with the occurrences of climate change-induced disasters. These challenges include a lack of coordinated approach in urban Planning and Development (P&D) and weak control of the growth of human settlements, limited implementation and management capacity of municipal administration, absence of an efficient institutional mechanism to manage urban development, and priority conflicts among development authorities.

A coordinated approach and action at the national, provincial, and local levels is required to make cities an integral part of the solution in fighting climate change. To address this burgeoning issue, the Ministry of Climate Change and Environmental Coordination (MoCC&EC) established 'Climate Resilient Urban Human Settlements Unit (CRUHS–Unit)' in 2019 to execute the policy measure of National Climate Change Policy (2012–2021) which intends to introduce changes in urban planning and building systems to adapt to the impacts of climate change, conduct in-depth policy and planning research to identify the urbanization challenges and propose timely measures for making the cities climate resilient, coordinate the Government of Pakistan's endeavors regarding environmentally sustainable urban development and human settlements at the Federal level and to establish the ministerial level mechanism to regularly report the sectoral progress and facilitate the provincial action plans related to urbanization.

Goals and Targets:

1. The 'Climate Resilient Urban Human Settlements Unit (CRUHS–Unit)' is established to implement harmonized action plans for climate resilient safe and sustainable cities, launch community-based urbanization initiatives and facilitate their access to external funding, and strengthen the capacity of city administration to meet urban development challenges and following targets.

2. To plan and implement the harmonized Action Plans for developing "Climate Resilient Safe & Sustainable Cities", in collaboration with the Pakistan Urban Planning & Policy Centre at the Ministry of PD&SI (Planning, Development& Special Initiatives); along with the UN-Habitat (Pakistan); all Provincial Urban Units; and the Line Departments of P&D; Local Governments; Housing & Urban Development of the Governments of Gilgit Baltistan and the AJK.

3. To facilitate Provincial Urban Units in launching community-motivated urbanization initiatives and in implementing urban projects; to facilitate their access to external funding with development partners and set aside international funds for adopting actions in developing Climate Resilient Cities, like the Adaptation Fund; Global Environment Facility and Green Climate Fund in addition to the increased Government's budgetary allocation.

4. To assist Pakistan Urban P&P Centre in the Ministry of PD&R; in implementing Pakistan Vision 2025 strategic initiatives for transforming all urban human settlements into economic growth hubs and eco-friendly sustainable cities through improved governance, effective urban planning, efficient mobility infrastructure, better security and community participation in collaboration with city governments.

5. To develop and strengthen the capacity of city administrations to assess the emission targets and adopt low-carbon energy-efficient comprehensive Action Plans to convert their urban-heat islands into "Climate Resilient Cities", towards fulfilling international commitments of the federal government through the focal Ministry of Climate Change & Environmental Coordination.

6. To strengthen the city governments' capacity in engaging the line departments and agencies and also the non-state actors to effectively meet the urban development challenges throughout Pakistan, as per the international obligations of the Federal Government to meet the UNEP; UNFCCC & UN-Habitat targets under Rio+20 Declaration; New Urban Agenda; and SDGs.

7. To strengthen the institutional capacity of Provincial Urban Units; GB & AJK by augmenting their technical knowledge and integrating their working mechanism to streamline future urbanization throughout Pakistan; thus enabling them to develop people-centered "Cities for Life", through efficient service-delivery based on information from an integrated Web-Net Databank of all human settlements scenario including the SDGs (i.e. rural-urban migration and demographics; urban poverty & land-use, GHG emissions& temperatures; informal slums, etc.)

8. To hold policy dialogues, media roundtables, and conferences/workshops on urban development; besides promoting think tank(s)of scholars and civil society for short- and long-term measures, both at provincial and local levels, for developing productive cities, equipped to effectively control the future of urban growth.

Activities:

1. Approval of the Draft ‘Pakistan Resilient Urban Policy Framework from competent Forum.
2. Coordination with the provinces to mainstream Pakistan Resilient Urban Policy Framework and its inclusion in the master planning, land use planning etc.at city level.
3. One-day national seminar on ‘Rainwater/floodwater harvesting in Lahore, Peshawar, Quetta, Gilgit, and Muzaffarabad.
4. Training on enhancing of district administration on assessing GHG emissions in GB, Muzaffarabad in Quetta and Peshawar with Global Change Impact Studies Centre.
5. Development of database and web pages to present the data of main cities of Khyber Pakhtunkhwa, Punjab, Peshawar, Baluchistan against variable-3 of the PC-I (indicators included Urban Population Growth, Conditions of Shelter, Water Crises, Waste Proposal, congestions, Pollution, growth).
6. Assessment of spatio-temporal changes of land use land cover and associated impacts on the urban heat islands in metropolitan cities of Sindh, Baluchistan, Khyber Pakhtunkhwa and Punjab.

Achievements:

1. The project formulated draft "Pakistan’s Urban Resilience Policy Framework" has undergone thorough review and feedback. Moreover, summary has been submitted to Prime Minister’s office, to be included in the next cabinet meeting.
2. The web portal has been successfully designed, developed, and established at the Center. In the second phase, the portal will be integrated with the Urban Units of all the Provincial Capitals as per the planned implementation strategy.




3. Three seminars and workshops/trainings were organized on Rainwater Harvesting and Gases House Emission, and Air Quality Monitoring in Lahore and Islamabad.

4. The research study is carried out on investigating Urban Heat Island Effects and Land Use Land Cover Changes (LULC) across 14 Pakistani cities. The report for four cities is approved, six more cities are completed and is in approval stage.
5. To fulfill the government of Pakistan international commitments, the Adaptation fund project "Enhanced community local and national level urban climate change resilience to scarcity, caused by floods and droughts in Rawalpindi and Nowshera" is secured with a total cost of 383,000 US$. The next step is to approve the project from relevant forum of Ministry of Planning Development and Special Initiatives.

III. Up-Scaling Green Pakistan Programme (Revised) Phase-I

Introduction:

Upscaling of Green Pakistan Program, Phase-I (July 2019-June 2023) is an umbrella project of Government of Pakistan and is being implemented across the country with the overall objectives to revive forestry and wildlife resources in the Pakistan. The total cost of the Programme is Rs. 125.1843 billion. All provinces except AJK and GB are sharing 50% cost in the field interventions. The Programme has eight components:

1. Enhance natural capital, through forest restoration on state, guzara, protected, reserve, communal, private, farm, community forests and range lands.
2. Conserve and manage biodiversity on sustainable basis and the fair and equitable sharing of the benefits arising from the use of genetic resources such as conservation of wildlife, promoting non-timber forest products (collection, processing and marketing) and other nature-based enterprises.
3. Promote Carbon Financing Mechanism at the national levels for sustainable forest management.
4. Standardized resource assessment and data collection through application of GIS and remote sensing technology for informed decisions and scientific management of forestry resources.
5. Meet the Pakistan's committed national and international obligations under various international agreements and treaties.
6. Knowledge Management, Linkages, Capacity Building and National/International Exchange Programmes for cross fertilization.
7. Strengthen institutional framework aiming at reforms in policy, legal and financial management system.
8. Monitoring, Evaluation and Learning

To complete the first phase, the project was granted one year no cost extension July 2023-June 2024.

Goals and Targets:

The main objectives of the Programme are to facilitate transition towards enhancing natural capital and environmentally resilient Pakistan through main streaming notions of adaptation and mitigation, ecological restoration as well as carbon sequestration and earning Carbon Credits. The current phase (July 2019-June 2023) was designed to enhance national forest cover with the total target of 3.29625 billion plants altogether from afforestation, reforestation, forest regeneration and strengthening the protected areas network focusing the wildlife Watch and Ward.

Activities:

The forestry component of the program aims at enhance the forest cover by adding plants through afforestation, reforestation and regeneration to curb the impacts of climate change. The priority areas for the purpose are:

1. Conserve and develop forests and other renewable natural resources so as to meet the needs of local communities for timber, firewood and fodder production.
2. Increase the incomes of local people from the sale of forest products, services and provide gainful employment opportunities to the local people close to their places of residence.
3. Improve the quality of local human environment.
4. Increase forest lands productivity, produce timber, firewood and other multipurpose tree species.
5. Increase the rangeland/pastures productivity & other related services and functions
6. Enhance the protective functions of watersheds for regulating their water regimes, retarding soil erosion, siltation of reservoirs, protecting downstream agriculture and infrastructure from flood damages
7. Assist the Government of Pakistan in meeting the obligations of relevant International Treaties and Conventions, such as Convention on Biodiversity, the Climate Change Convention, and the Desertification Convention etc.
8. Promote the dwindling local flora /tree species.
9. Provide and conserve habitat of fauna and to manage national wildlife parks, sanctuaries and national biosphere reserves.

Wildlife protection and conservation is an important component of Up scaling of Green Pakistan Program which can be achieved through effective implementation of conservation interventions, wildlife legislation and institutional strengthening. The following are the main focused thematic areas addressed under the wildlife component:

1. Enhanced management of Protected Areas (Biosphere Reserve/ National Parks) with special focus on Eco-tourism.
2. Establishment or Up-gradation of existing Zoo on international standards (at least one in each province/territory).
3. Revival of Critically Endangered Habitats (at least one habitat in each province/territory).
4. Improvements of Wildlife related legislations and its implementation.
5. Curbing of illegal wildlife trafficking through establishment of control desks in international/national airports.
6. Rehabilitation/ Rescue Centers for Confiscated Wildlife in each province/ territory.
7. Zero plastic in protected areas.
8. Liaison between Wildlife Departments and Universities.
9. Rehabilitation of forest cover in the Biosphere (MAB) reserves and intervention for declaration of more MAB reserves, which are in pipeline.
10. Development of Botanical Garden, Islamabad.

Zoological Survey of Pakistan (ZSP) is the pioneer research organization for multi-disciplinary zoological and wildlife related matters in the country. Therefore, to enhance its capacity following are the specific objectives.

- Development of Red Data Book for Mammals and Birds.
- Inventory of Endangered Wildlife Species and Habitat across Pakistan.

Achievements:

Out of the total target of planting 3,296 million in the current phase of the project from afforestation, reforestation, plant distribution and regeneration, the provinces and federal territories reported 125.6 million plants during 2023-24. This makes the total accumulative achievement of 2,213 million plants. In addition, the program also provided 149,635 man-months green jobs opportunities to the local communities during the reporting year. The independent third-party consortium of IUCN, WWF and FAO revealed an overall 81% survival rate of the plantation.

On the other hand, the program has helped notified two Man and Biosphere Reserves (MAB), established two information desks at the airport and check post to arrest illegal wildlife traffic, developed several management plans, extended watch and ward support for wildlife activities across the country. Collectively, the program has been able to help the provincial governments notify 109 PAs of various categories in the country. To improve livelihood of local communities 23 small scale development projects have been provided. The program also engaged local communities in wildlife conservation through establishing 165 village conservation committees. Also, six community-controlled hunting areas (CCHA's) has been established in Gilgit Baltistan.

Prime Minister Kicks-Off Monsson Tree Plantation (Monsoon Period, Late March – May, 2024)

IV. Pakistan Bio-Safety Clearing House for GMOs Regulation

Introduction:

The Pakistan Biosafety Clearing House for GMOs Regulation (Pak-BCH) is an initiative under the Pakistan Environmental Protection Agency (Pak-EPA), Ministry of Climate Change and Environmental Coordination. The project aligns with Pakistan's obligations under the Cartagena Protocol on Biosafety (CPB), aimed at regulating genetically modified organisms (GMOs) and their products. The primary goal of Pak-BCH is to facilitate informed decision-making, ensuring the safe use of GMOs while safeguarding human health and the environment. This project plays a critical role in disseminating national and international biosafety information and promoting capacity building among key stakeholders, including researchers, regulatory bodies, and the general public.

Roles and Functions:

Pak-BCH serves as the national platform for fulfilling Pakistan's biosafety commitments under CPB and the Pakistan Biosafety Rules of 2005. Key roles and functions include:

1. **Regulatory Support:** Pak-BCH provides technical assistance to the National Biosafety Committee (NBC) and Technical Advisory Committee (TAC) to ensure that all GMOs and their products are properly evaluated for risks to health, environment, and biodiversity.
2. **Information Sharing:** The Clearing House facilitates the exchange of scientific, legal, and environmental information regarding GMOs among national and international stakeholders, ensuring compliance with CPB's Article 23.
3. **Capacity Building:** Pak-BCH is responsible for organizing capacity-building initiatives, including training workshops, to enhance the capabilities of institutional biosafety committees (IBCs), academia, and research institutions in GMO regulation and biosafety management
4. **Monitoring and Reporting:** The Clearing House monitors field trials and lab research involving GMOs, ensuring compliance with national and international biosafety standards, and assists in preparing national biosafety reports.
5. **Public Awareness:** It aims to raise public awareness of GMOs and biosafety through outreach programs, ensuring that society is informed about the potential risks and benefits of GMOs.

Goals and Targets:

The primary goal of the Pak-BCH project is to ensure the safe management of GMOs in Pakistan by establishing a robust biosafety framework. Key targets include:

1. **Strengthening Biosafety Regulation:** Ensure the effective implementation of the Pakistan Biosafety Rules (2005) and National Biosafety Guidelines by 2025
2. **Establishment of Data Centre:** Create a national biosafety data center that serves as a repository for all information regarding GMO research, field trials, and regulatory approvals
3. **Capacity Building:** Organize at least two training workshops annually at the provincial level to enhance the biosafety capabilities of researchers, regulators, and other stakeholders.
4. **Public Engagement:** Increase public awareness by conducting educational campaigns and ensuring easy access to biosafety information

5. **International Compliance:** Achieve full compliance with the Cartagena Protocol on Biosafety by improving reporting and monitoring mechanisms and ensuring timely submission of national reports to the global BCH.

Activities:

Throughout the project duration, the Pak-Biosafety Clearing House (Pak-BCH) undertook a series of critical activities to ensure the implementation of biosafety regulations and the safe management of GMOs within Pakistan. Key activities included extensive field visits to monitor GMO field trials, ensuring compliance with established biosafety protocols and identifying potential environmental impacts. Additionally, laboratory visits were conducted to assess the adherence of research facilities to biosafety standards, focusing on the containment and proper handling of genetically modified organisms. As part of the project's oversight responsibilities, a thorough review of laboratory, field, and commercialization cases involving GMOs was carried out.

To ensure the proper implementation of the Pakistan Biosafety Rules, 2005 (amended 2024), comprehensive field monitoring of GMO crops was conducted under real-world agricultural conditions. In March 2024, field inspections were carried out at TARA Crop Sciences, the University of Agriculture Faisalabad (UAF), and the Central Cotton Research Institute (CCRI). This was followed by additional monitoring in August 2024 at the facilities of Lucky Core Industries (LCI) Multan, Patron Group Multan, Four Brothers Group Multan, Sun Crop Group Multan, and Atta Seeds Vehari. In addition to field monitoring, laboratory visits were conducted at several research institutions, including the National Institute for Biotechnology and Genetic Engineering (NIBGE), the Centre of Excellence in Molecular Biology (CEMB), Four Brothers Group, and the University of Veterinary and Animal Sciences (UVAS). These visits focused on assessing the biosafety measures, containment procedures, and overall. These evaluations were crucial for verifying adherence to biosafety regulations and assessing compliance with national guidelines for genetically modified organisms (GMOs) across these entities.

Achievements:

The BCH of Pakistan, in its early stages, has made significant advances in regulating GMOs:

1. **Data Management:** All data from GMO variety submissions for NBC approval from 2006-2024, containing 28 NBC meetings and related cases, have been digitized, making information readily accessible.
2. **Institutional Biosafety Committees (IBCs):** BCH facilitated the constitution of 56 IBCs by engaging with organizations involved in GMO/LMO research, ensuring compliance with the Pakistan Biosafety Rules 2005 (amended 2024).
3. **Meeting Organization and Licensing:** The BCH has accelerated the GMO approval process by conducting NBC and TAC meetings regularly. In six months, two NBC and three TAC meetings were held, and licenses for approved cases are now issued within a day of fee submission.
4. **Inspection and Compliance:** Regular inspections of approved GMO projects have led to improved compliance with the Biosafety Guidelines, with organizations upgrading their facilities accordingly.
5. **Stakeholder Engagement:** BCH has actively participated in biosafety meetings with major research institutes and private seed companies, enhancing biosafety compliance in Pakistan.
6. **Approvals of Cases for NBC License (2023-2024):**
    i. Laboratory Genetic Manipulation: 52 cases approved

ii. Field Trials: 43 cases approved
iii. Commercialization: 15 cases approved

7. **Importing GMOs for FFP (Food, Feed and Processing).** The Pakistan Biosafety Clearing House (Pak-BCH), overseen by the Pakistan Environmental Protection Agency (Pak-EPA), manages the importation of Genetically Modified Organisms (GMOs) intended for food, feed, or processing (FFP) in Pakistan. Pak-BCH is responsible for ensuring compliance with the Pakistan Biosafety Rules 2005, which were recently amended in 2024. The process for importing GMOs involves multiple steps, including application submission, evaluation by Institutional Biosafety Committees (IBCs), review by the Technical Advisory Committee (TAC), and final decision regarding approval by the National Biosafety Committee (NBC) within 120 days.

The import process of GMOs for FFP in Pakistan involves several structured steps:

a) **Application Submission:** Applicants must submit their applications to public/private sector Institutional Biosafety Committees (IBCs).
b) **IBC Evaluation:** The IBC evaluates the applications and submit its recommendations to the Technical Advisory Committee (TAC).
c) **TAC Review and Pak-EPA Evaluation:** Following a detailed critical review by Pak-EPA team and further scrutiny by the TAC, the application is forwarded to the National Biosafety Committee (NBC).
d) **NBC Decision:** The NBC conducts a comprehensive evaluation, focusing on potential risks and socio-economic impacts before granting approval. The final decision is made by NBC and communicated to the applicant within 120 days after the submission of application.

Status of GMO Import Cases:

In the year 2024, biosafety licenses were granted for forty-seven (47) genetically modified (GM) soybean events, authorizing sixty-four (64) importers to bring in GM soybean grains for food, feed, or processing (FFP), in accordance with Article 15(3) of the Cartagena Protocol. This regulatory framework ensures that the transboundary movement of GMOs remains controlled, safe, and aligned with international biosafety standards. Consequently, a total of fifty-two (52) import permits were issued, facilitating the import of 1,173,934 metric tons (MT) of GM soybean grains for FFP.

Summary of licenses issued by the National Biosafety Committee (NBC) during 2024.

IMPORTERS OF GM SOYBEAN FOR FFP

Sr. No.	Applicants	No. of Events
01	S.S Oil Mills limited	47
02	Sabir's Vegetable Oils PVT. Ltd	47
03	Asia Poultry Feed (Pvt.) Ltd	47
04	Jadeed Oil Extraction (Pvt.) Ltd	47
05	M.A Oils (Pvt.) Ltd	47
06	Shujabad Agro Industries (Pvt.) Ltd	47
07	Salva Feeds (Pvt.) Ltd	47
08	A & Z Oils (Pvt.) Ltd, Multan	47

09	**HM Extraction Ghee & Oil Industries (Pvt.) Ltd, Islamabad**	**47**
10	**Karachi Grains (Pvt.) Ltd.**	**47**
11	**Al-Karam Industries (Pvt.) Ltd, Multan**	**47**
12	**Muddasir Oil Mills (Pvt.) Ltd, Multan**	**47**
13	**Kausar Ghee Mills (Pvt.) Ltd, Lahore**	**47**
14	**Pak Agro Oil Mills (Pvt.) Ltd, Karachi**	**47**
15	**AR Solvent & Ghee Industries (Pvt.) Ltd, Haripur**	**47**
16	**Mumtaz Agro Industries (Pvt.) Ltd, Multan**	**47**
17	**Oil Trade (Pvt.) Ltd, Faisalabad**	**47**
18	**Sharif Solvent Plant (Pvt.) Ltd, Multan**	**47**
19	**Ali Danyal Industries (Pvt.) Ltd, Karachi**	**47**
20	**Mapak Edible Oils (Pvt.) Ltd, Karachi**	**47**
21	**Hajveri Oil Extraction (Pvt.) Ltd, Karachi**	**47**
22	**Olympia Oils (Pvt.) Ltd, Lahore**	**47**
23	**Ittefaq Agro Industries (Pvt.) Ltd, Karachi**	**47**
24	**Faisal Seed (Pvt.) Ltd. Lahore**	**47**
25	**A & Z Agro Industries (Pvt.) Ltd, Karachi**	**47**
26	**IFFCO Pakistan (Pvt.) Ltd, Karachi**	**47**
27	**Al Noor Oil Extraction Plant (Pvt.) Ltd, Hyderabad**	**47**
28	**Asia Ghee Mills (Pvt.) Ltd, Bahawalpur**	**47**
29	**Mian Edible Oil Industries (Pvt.) Ltd, Bahawalpur**	**47**
30	**A & Y Oil Mills (Pvt.) Ltd, Multan**	**47**
31	**Mumtaz Oil Industries (Pvt.) Ltd, Multan**	**47**
32	**M. M Oil Mills (Pvt.) Ltd, Karachi**	**47**
33	**Mehmooda Maqbool Mills (Pvt.) Ltd, Multan**	**47**
34	**Crescent Feed and Allied Products, Lahore**	**47**

35	Allied Solvent Plant (Pvt.) Ltd, Bahawalpur	47
36	Hitech Edible Oil (Pvt.) Ltd, Lahore	47
37	Qadir Oil Industries (Pvt.) Ltd, Multan	47
38	Bilal Oil Industries (Pvt.) Ltd, Multan	47
39	Pioneer Foods (Pvt.) Ltd, Karachi	47
40	Shams Bin Ikram Industries (Pvt.) Ltd.	47
41	M. Nazam Edible Oil Industries (Pvt.) Ltd.	47
42	Sufi Oil Extraction (Pvt.) Ltd.	47
43	Mubarak Agro Industries (Pvt.) Ltd.	47
44	Unity Foods Ltd.	47
45	Ghousia Agro Product (Pvt.) Ltd.	47
46	Qadir Agro Industries (Pvt.) Ltd.	47
47	Roomi Industries (Pvt.) Ltd.	47
48	Faisalabad Oil Refinery (Pvt.) Ltd.	47
49	S. S. Feed Mills (Pvt.) Ltd.	47
50	Pakistan Oil Mills (Pvt.) Ltd.	47
51	Jadeed Feeds Industries (Pvt.) Ltd.	47
52	Madina (Pvt.) Limited	47
53	Madina Oil Refinery (Pvt.) Ltd.	47
54	Seasons Edible Oil Ltd.	47
55	Waqas Edible Oil Product (Pvt.) Ltd.	47
56	Sharif Oil Industries (Pvt.) Ltd.	47
57	Ahbab Oil Industries (Pvt.) Ltd.	47
58	Aziz Oil Solvent Extraction (Pvt.) Ltd.	47
59	Al-Hamad Oil Extraction (Pvt.) Ltd.	47
60	Wasim Sharif Industries (Pvt) Ltd.	47
61	Al Fatah Oil Industries (Pvt) Ltd.	47
62	Oil Divine Limited	47
63	Razzaque Basit Oil Industries (Pvt) Ltd.	47
64	Haji Oil Extraction (Pvt) Ltd.	47

2.3. Environment & Climate Change Section

The Climate Change and Environment Wing of the Ministry is mandated to perform the following functions:

Implementation of National Climate Change Policy and its implementation framework;

United Nations Framework Convention on Climate Change (UNFCCC), Inter-Governmental Panel on Climate Change (IPCC), Economic Cooperation Organization (SCO), United Nations Environment Programme, Natural Capital Accounting, CAREC Vision 2030

Pakistan is considered one of the low global greenhouse gases (GHG) emitter. Presently, Pakistan's GHG emission accounts for less than one percent however, the country is considered extremely vulnerable to the impacts of climate change. Being a responsible member of the global community, Pakistan has responded with a well-articulated climate change agenda, consisting of the following initiatives:

International Cooperation

The Environment and Climate Change wing of this Ministry is in process of signing of Memorandum on Cooperation in the field of environmental protection with the Ministry of Natural Resources & Environmental Protection of the Republic of Belarus. The main objective of this MOU is to create favorable conditions for long-term cooperation in the field of environmental protection for the mutual benefits of the two countries in accordance with this Memorandum.

This initiative aims to reduce the negative anthropogenic impact on the environment, ensuring favorable living conditions and improving the natural environment by promoting principles of the green, circular, and low-carbon economy. It focuses on mitigating and adapting to climate change across various economic sectors while protecting air quality, fauna, flora (particularly endangered species), and managing protected areas like nature reserves and national parks. Additionally, it encourages ecological tourism, industrial waste management, urban greening, and education on environmental protection and sustainable resource use, alongside any other areas of cooperation deemed relevant.

The draft memorandum is planned to be signed during the visit of the President of the Republic of Belarus to Pakistan, which is scheduled for the end of 2024.

Shanghai Cooperation Organization (SCO)

The Shanghai Cooperation Organization (SCO) is a Nine-member inter-governmental trans-regional organization comprising of Pakistan, Russia, China, India, Iran, Tajikistan, Uzbekistan, Kazakhstan and Kyrgyzstan. It was established in Shanghai on 15 June 2001. SCO has 3 Observers - Mongolia, Belarus and Afghanistan; and 14 Dialogue Partners -Azerbaijan, Armenia, Cambodia, Nepal, Turkey, Sri Lanka, Egypt, Qatar, Saudi Arabia, Kuwait, Bahrain, Maldives, Myanmar and UAE.

During 2023-24, MoCC&EC was involved in the following SCO-related activities:

1. The fifth meeting of heads of Ministries and departments of the SCO member states, responsible for environmental protection issues, was held on May 22, 2024 in Astana, Kazakhstan. The main objective of this meeting was to discuss current issues on the environmental agenda and create enabling conditions for preserving environment among the member states. This High-Level segment discussed practical cooperation in the field of environment within the SCO member states. Key outcomes included:

i. **Joint Environmental Action Plans:** SCO member states agreed on collaborative strategies for environmental sustainability, focusing on pollution control, air and water quality improvements, and the adoption of renewable energy solutions.
ii. **Regional Climate Adaptation and Mitigation Strategies:** The meeting emphasized unified responses to climate change, including integrated plans to bolster adaptation and resilience in SCO countries, considering the varying climate vulnerabilities of member states.
iii. **Sustainable Development Goals (SDGs) Alignment:** The participants committed to aligning their environmental efforts with the UN Sustainable Development Goals, particularly those related to clean energy, climate action, and sustainable cities.
iv. **Green Technology Exchange and Innovation:** An agreement was reached to facilitate the exchange of green technologies and innovations, aiming to enhance environmental protection capacities and promote sustainable industrial practices across the region.
v. **Biodiversity Conservation and Natural Resource Management:** The SCO states underscored the importance of conserving biodiversity and improving the management of natural resources, with plans for a coordinated approach to protect ecosystems and combat deforestation.

2. SCO Year of Ecology

i. The SCO Year of Ecology Forum was held in Qingdao, Shandong Province, on 8 July 2024 as part of the Green Development Forum of the Shanghai Cooperation Organization (SCO). The forum is a vital element of the efforts to implement the decision on declaring 2024 the year of ecology, which the SCO leaders adopted in New Delhi last year.
ii. The forum was organized by the SCO Secretariat, the Ministry of Ecology and Environment of China, the Chinese Committee for Good Neighborliness, Friendship and Cooperation of the SCO, and the People's Government of Shandong Province. It was attended by about 200 delegates from Belarus, Iran, Kazakhstan, China, Kyrgyzstan, Pakistan, Russia, Tajikistan, Uzbekistan, Myanmar, Nepal and Sri Lanka, as well as from dialogue partners, including the heads of ministries and agencies in charge of environmental protection, diplomats, experts, scientists and representatives of the UN Environment Programme (UNEP) and other international organizations.
iii. Speakers at the Qingdao forum pointed out that the issues of environmental security were well beyond the scope of individual countries and had a global significance. The world, including the SCO countries, is facing major challenges such as climate change, the depletion of natural resources, the loss of biological and landscape diversity, the deterioration of ecosystems, and the build-up of waste, including plastic.

3. The Council of Heads of State (CHS) meeting of the Shanghai Cooperation Organization (SCO)

i. The Council of Heads of State (CHS) meeting of the Shanghai Cooperation Organization (SCO) in Astana was held on July 3-4, 2024, saw significant outcomes aimed at enhancing cooperation across multiple fields, including regional security, economic integration, and environmental protection.
ii. A notable development was the signing of an agreement between SCO member states to enhance collaboration on environmental protection. This agreement emphasized joint efforts to address climate change, protect biodiversity, and manage natural resources sustainably across the region. Key areas climate resilience, which align with SCO's broader agenda for sustainable development and cooperative security.

iii. Additionally, the CHS reaffirmed its commitment to sustainable economic cooperation and counter-terrorism, addressing concerns over regional security and economic challenges. Leaders emphasized collective approaches to infrastructure development, energy cooperation, and trade facilitation, along with an enhanced focus on food and water security to support long-term regional stability. The meeting concluded with a renewed vision of a more integrated, resilient SCO focused on shared growth and sustainable development.

Global Green Growth Institute (GGGI) & Country Programme Framework 2024-28

The Global Green Growth Institute (GGGI) is a treaty-based organization promoting green growth by balancing economic development with environmental sustainability. It supports poverty reduction, job creation, social inclusion, and environmental sustainability, focusing on energy, water, land use, and green cities. Pakistan has been a member since 2021 and become the 41st Member of GGGI.

Since 2021, GGGI has held scoping consultations with MoCC&EC to align its Country Program with Pakistan's priorities for a green growth transition and climate resilience. In May 2024, the first CPF consultation workshop was held in Islamabad, led by the Prime Minister's Coordinator on Climate Change and attended by 41 government sector, 17 private sector, and 14 development sector representatives. Key focus areas include energy, water, land-use, and green cities. Pakistan has been a GGGI member since 2021.

In parallel with these discussions, GGGI has been overseeing the implementation of two projects in Pakistan:

1. **Supporting Preparedness for Article 6 Cooperation (SPAR6C) Program (2022-2027):** An EUR 20M multi-country project funded by the German Federal Ministry for Economic Affairs and Climate Action (BMWK). The Program is managed by GGGI and implemented in Pakistan by the United Nations Environmental Programme (UNEP)
2. **NDC Technology Roadmap for the Water and Waste Sectors (2023-2024):** A USD 248,975 project funded by UNEP through the Climate Technology Centre and Network (CTCN)–the technology mechanisms of the United Nations Framework Convention on Climate Change (UNFCCC). To support improved outcomes through this project by bringing produced concept notes closer to bankability, GGGI has leveraged a further USD 158,006 through the Korea Green New Deal Fund (KGNDF), demonstrating an avenue through which GGGI can support Pakistan to access expanded sources of climate finance.

The GGGI Pakistan CPF for the period 2024-2028 was prepared with the following objectives:

1. Ensure strategic alignment between country-level interventions and GGGI GOPs and PS's.
2. Deliver transformational and impactful projects with measurable strategic attributed and contributed outcomes.
3. Focus on national and sub-national development priorities and ensure government ownership, commitment, and support to the GGGI interventions in Pakistan.
4. Develop strong partnerships and facilitate resource mobilization to accelerate green growth adoption; (v) promote internal integration and knowledge sharing by bringing together a cross-selection of GGGI experts to deliver a "One GGGI" country approach.
5. Strengthen linkages with key global development agendas and GGGI Strategy 2030.

The signing of this CPF 2024-2028 will be held during the GGGI Ministerial Session of 13TH Assembly & 17TH Council Joint Session of GGGI, scheduled to be held on October 16-17, 2024 in GGGI Headquarter, Seoul, Republic of Korea.

Pakistan's Commitment Towards NDCs Under Paris Agreement

Government of Pakistan (GoP) as a Party to the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC) has performed its role to support the global efforts in combating climate change. GoP had submitted an inclusive updated Nationally Determined Contributions (NDC) which represents national consensus to accelerating the transition towards a climate-resilient economy. The current submission showcases GoP's progress in climate action that ranges from policy and programs on Nature-Based Solutions (NBS) to technology-based interventions. Pakistan, recognizing the role of nature in climate adaptation and mitigation, has developed robust natural capital restoration efforts including the Upscaling Green Pakistan Program, Protected Areas Initiative (PAI) etc. These programs have also served as a way to enhance livelihood opportunities for the most vulnerable, including women and youth. In addition, Pakistan has introduced several policy actions focused on mitigating greenhouse gas (GHG) emissions from high-emission sectors like energy and industry. The focus of GoP's climate actions during the decade ahead is decided by the current climate-induced vulnerabilities, aimed at achieving reduced poverty and ensuring a stable economy.

The updated NDC is informed by recent policy developments in the country in the NDC sectors, and some ambitious decisions taken by the pro-climate leadership to enhance Pakistan's resilience and decarbonize the economy. In addition, for enhanced contributions, new sectors, and new gases have also been added to the updated document. Hence, Pakistan intends to set a cumulative ambitious conditional target of an overall 50% reduction of its projected emissions by 2030, with 15% from the country's resources and 35% subject to the provision of international grant finance that would require USD 101 billion just for the energy transition. To reach the target, Pakistan aims to shift to 60% renewable energy, and 30% electric vehicles by 2030 and completely ban imported coal. Moreover, Pakistan seeks to expand nature-based solutions by implementing of Upscaling Green Pakistan Program, Recharge Pakistan, and PAI.

28th Session of United Nations Climate Change Conference (COP-28)

The 28th Session of United Nations Climate Change Conference (COP-28) of the United Nations Framework Convention on Climate Change was held in November 2023 in Dubai, United Arab Emirates (UAE).

A summary of the key activities undertaken at COP-28 is outlined below.

i. At COP-28, Pakistan through the dynamic "Build Resilience Together" Pavilion, engaged diverse stakeholders, including government bodies, civil society, and academia. Hosting 29 events, it showcased Pakistan's commitment to inclusivity and highlighting the nation's resilience-building efforts.
ii. Pakistan played a crucial role in the operationalization of the L&D Fund under the UN Framework Convention on Climate Change (UNFCCC), amassing pledges exceeding USD 792 million.
iii. Pakistan was elected to the L&D Fund Board, showcasing its commitment to addressing climate-induced loss and damage.
iv. Pakistan achieved significant recognition by being elected to key bodies within UNFCCC, including a Board Member position on the Loss and Damage Fund, membership in Technology Executive Committee (TEC), Paris Committee on Capacity Building (PCCB), the Advisory Board of the Santiago network, and Standing Committee on Climate Finance (SCF). This highlights Pakistan's proactive role in global climate governance.

v. At COP28, Pakistan actively engaged in multiple transformative initiatives, notably CHAMP (Coalition for High Ambition Multilevel Partnerships), AMI (Ambition on Melting Ice), and various declarations addressing climate, health, and agriculture.

Islamabad, June 25: Ministry of Climate Change and Environmental Coordination and Bill & Melinda Gates Foundation have agreed to work jointly for building Pakistan's climate resilience.

National Climate Change Policy (NCCP) 2021

Mitigating and adaption actions are considered to be the two key ways of combating climate change. The more immediate and pressing task for the country is to prepare itself for adaptation to climate change. This National Climate Change Policy addresses issues in various sectors such as water, agriculture, forestry, coastal areas, biodiversity, and other vulnerable ecosystems. Even though Pakistan's contribution to global greenhouse gas (GHG) emissions is small, its role as a responsible member of the global community in combating climate change is dedicated by giving due importance to mitigation efforts in sectors such as energy, transport, forestry, and agriculture.

The implementation of the National Climate Change Policy has been assessed, which shows landmark achievements gained by the Ministry of Climate Change & Environmental Coordination, and Provincial Line Departments in various development sectors i.e., agriculture, transport, energy, industries, forestry and biodiversity through adaptation and mitigation measures. In this connection, the meetings of the National Climate Change Policy Implementation Committee are convened to oversee the implementation status of NCCP.

Carbon Pricing Instrument in Pakistan

To strengthen the institutional capacity for developing "Carbon Trading" and for participating in the international carbon market, the Ministry of Climate Change & Environmental Coordination worked on the formulation of carbon policy framework guidelines. Carbon markets are becoming an indispensable tool in the global climate fight, with carbon pricing instruments now covering over 20 percent of global greenhouse gas emissions, generating $53 billion in revenue at the end of 2021, according to the Carbon Pricing Leadership Coalition, a 17 percent increase in revenue from the previous year. Setting up a carbon market is part of efforts by Pakistan, one of the country's worst hit

by climate change, to reduce 15 percent greenhouse gasses with the country's resources and 35 percent with the support of international grants by 2030.

Central Asia Regional Economic Cooperation Program

Climate change affects weather and climate conditions regionally and therefore requires strengthening national data collection, analysis, creating regional centers of weather, climate observations, prediction, regionally coordinated risk management, planning, and action. CAREC is an important regional convener as it offers great opportunities to operationalize the climate agenda in its five operational clusters and promote DMCs' and DPs' active and sustained participation at policy and project levels, including supporting cross-cutting priorities. Given the regional interconnectedness of CAREC countries in many climate issues, the strong commitment of the countries to work together and use the CAREC platform to identify linkages and possible regional solutions for climate change issues are needed in the operational clusters providing overall cross-cluster guidance, coordination, and monitoring.

Mitigation and Adaptation Projects

Pakistan's pioneering efforts in climate action underscore MoCC&EC's dedication to fostering a sustainable and resilient future. The Upscaling of Green Pakistan Programme (UGPP) Phase-I is a cornerstone of our climate strategy, making it the 4th largest afforestation program in the world. By allocating PKR 71.29 billion (USD 400 million) to forestry and PKR 10.54 billion (USD 60 million) to wildlife resources, we aim to sequester 148.76 MtCO2 emissions over the next decade. Additionally, the Living Indus Initiative focuses on restoring the health of the Indus River basin through 25 nature-based measures, requiring an estimated investment of USD 11 billion to USD 17 billion over 5 to 15 years.

Pakistan leads globally in mangrove restoration through the Delta Blue Carbon Project, protecting and restoring 350,000 hectares in Sindh. Successful efforts have rejuvenated 75,000 hectares of degraded mangroves, sequestered significant CO_2 and supporting local livelihoods. Our commitment to snow leopard conservation is demonstrated through stringent anti-poaching measures, awareness programs, and the GEF-funded project under the Global Snow Leopard and Ecosystem Protection Program. This initiative has resulted in increased sightings and improved ecosystem health.

Engagement with UN-Habitat

UN-Habitat is the United Nations Programme working towards a better urban future. Its mission is to promote socially and environmentally sustainable human settlements development and the achievement of adequate shelter for all. Pakistan is founding member of UN-Habitat and contributes US$ 6,000 yearly to the Core Budget of UN-Habitat.

The Government of Pakistan is keen on taking measures to formulate the first Pakistan Resilient Urban Policy Framework. The Government of Pakistan is taking a participatory approach where the projects on urbanization are being revitalized to guide government in shaping the guiding principle for proper implementation Urban Policy Framework. Meeting challenges in the 'New Urban Agenda' requires a paradigm shift in the approaches to development not only in Pakistan but in the world at large. The dialogue will also be part an urban campaign which would reinforce efforts to ground the consultations among people and arrive at solutions to new evolving ideas of resilient urban development.

Ministry of Climate Change is the focal of UN-Habitat in Pakistan. With collaboration of this UN agency number of activities have been undertaken in the country. Following initiative are under taken with the assistance of the UN-Habitat:

- **Green Building Guidelines:** Ministry of Climate Change & Environmental Coordination has developed Green Building Guidelines with collaboration of UN-Habitat, Switch-Asia and UNEP. These Guidelines are advisory in nature and aims to incorporate the lessons learnt in the process of making Pakistan Green Building Code, the green eco-friendly practices of building's design, construction & operation stages; besides, ensuring the sustainable utilization of construction materials to save energy, conserve water, improve indoor environmental quality and lower GHG emissions.
- **Pakistan Green Building Code:** MoCC&EC in collaboration with UN-Habitat, Ministry of Science & Technology, Pakistan Engineering Council and other relevant stakeholders has formulated Pakistan Green Building Code. This policy documents addresses and provides a thorough roadmap and guidelines for the design and construction of environment friendly and energy efficient buildings in the country.
- **Adaptation Fund Project:** UN-Habitat is implementing another project of adaptation fund project in Nowshehra and Rawalpindi titled "Enhance community, local and national-level urban climate change resilience to water scarcity, caused by floods and droughts".

World Environment Day

World Environment Day (WED) is observed globally on June 5th each year and serves as a platform for raising awareness and promoting action on pressing environmental issues. The day is coordinated by the United Nations Environment Programme (UNEP) and is celebrated by various organizations, communities, and individuals around the world. The overarching objectives of World Environment Day includes Environmental Awareness, Encouraging Action, Global Participation, Advocacy and Policy Influence WED provides a platform for advocacy and influencing policies related to environmental protection. It encourages dialogue between governments, NGOs, businesses, and citizens to shape policies that promote sustainability.

MoCC&EC celebrated this day along with their other related agencies including Pakistan Environmental Protection Agency and Provincial EPS's. WED is the United Nations' principal vehicle for encouraging worldwide awareness and action for the environment. This year's observance of WED was on the theme of 'Our land. Our future. We are #Generation Restoration'.

<u>Projects of Environment/Climate Change Wing</u>

Climate Change and Environment Wing of MoCC&EC is engaged in 02 PSDP projects titled:

1. Climate Resilient Urban Human Settlements Unit
2. Capacity Building on Water Quality Monitoring and SDG 6 (6.1) Reporting

Further details about the above-listed PSDP projects are listed under the Chapter on Development Wing.

2.4.Forestry Wing

Introduction:

The Wing is headed by Inspector General Forests (BS-21) who is assisted by two Deputy Inspector General Forests (BS-19), Conservator Wildlife (BS-19), Director Biodiversity (BS-19), Assistant Inspector General Forests (BS-18), two Deputy Conservator Wildlife (BS-18), Deputy Director Biodiversity (BS-18) and Assistant Secretary-Wildlife (BS-17). In accordance with Rules of Business (Amended), 2012.

Roles and Functions:

Forestry Wing is mandated to perform following functions as in the capacity of technical wing of the Ministry of Climate Change:

National policy, plans, strategies and programmes regarding ecology, forestry, wildlife, biodiversity and desertification, and;

Coordination, monitoring and implementation of environmental agreements with other countries, international agencies and forums

Responsibilities of the Forestry Wing at National Wing:

1. Policy formulation and execution at national level.
2. Pakistan Trade Control of fauna and flora Act, 2012 (CITES Law).
3. Focal Point for Nagoya Protocol and Cartagena Protocol.
4. Green Pakistan Programme (Revival of Forestry and Wildlife Resources in Pakistan).
5. Coordination of inter-provincial/inter-ministerial tree planting campaigns.
6. National Biodiversity Strategy & Action Plan.
7. Community Managed Trophy Hunting Programme.
8. Administering conservation Funds namely “Mountain Areas Conservation Fund (MACF)” and Fund for Protected Areas (FPA), which are run through Board of Directors.
9. Assembly Business-Implementation of Cabinet Decisions, Presidential directives, PM Directives, National Assembly & Senate Standing Committees.
10. National Taskforce on coral-reef.

Activities and Achievements (2023-24):

1. Forest Landscape Restoration: Pakistan has prepared a National Action Plan for Forest Landscape Restoration. The plan prioritizes strategic actions for FLR through domestic and donor funding to mitigate climate change-related disasters, as seen in recent flood damages, which totaled up to USD 46 billion of loss.
2. Amendments in Biosafety Rules and Guidelines (2005): Through consultations with stakeholders, academia, and research institutions, Pakistan revised its Biosafety Rules 2005 and Guidelines 2005 to streamline approval processes for Genetically Modified Organisms for Food, Feed, and Processing (GMOs FFP). Consequent upon approval of the Summary by the Cabinet, the amendment in biosafety rules has been notified (SRO 45).
3. Bio Diversity Guideline: The Biosafety Guidelines are amended by adding a chapter (Chapter 14 of the Guidelines) to cater the needs of import of GMOs FFP. Further, a guiding document (SOPs) are developed for facilitation of importers soliciting license for GMOs FFP.

4. National Drought Plan Pakistan**:** National Drought Plan is prepared and final approval and adoption is in process.
5. Assessment and Value Chain Development of Bamboo Resources: As a member of the International Network on Bamboo and Rattan (INBAR), Pakistan has assessed its bamboo resources with INBAR's financial support to develop a strategy for promoting bamboo cultivation and value chain development.
6. The Middle East Green Initiative (MGI): The Middle East Green Initiative (MGI) aims to combat land degradation and enhance regional cooperation by planting 50 billion trees, including 10 billion under Saudi Arabia's SGI. In October-November 2023, a Saudi delegation visited Pakistan to learn from its Green Pakistan Programme (GPP), aligning efforts with Pakistan's National Forest Policy and SDG 15. Pakistan has already provided skilled officers for SGI implementation and is ready to offer further technical support, strengthening regional collaboration on environmental sustainability.

Biodiversity Conservation Planning: The NBSAP is a policy document to supporting biodiversity conservation and sustainable use. According to new global targets, there is a need align the NBSAP with Global Biodiversity framework). The alignment process of NBSAP is underway. An interim response is submitted to the Secretariat of the Convention on Biological Diversity.

Projects, Programs and Implementation:

Pakistan also notified two new UNESCO Biosphere Reserves, with additional sites for UNESCO's Man and Biosphere Programmes.

- **National Tree Planting Campaigns:** National tree planting campaigns are regularly organized during Spring and Monsoon seasons. these campaigns are inaugurated by the Prime Minister of Pakistan
- **Upscaling Green Pakistan Program (GPP):** MoCC & EC is implementing the-Upscaling Pakistan Program, Phase-I, nationwide. It has successfully achieved the target of sowing, re-growing, and distributing 2.2 billion plants across Pakistan monitoring revealed a success rate of 75% to 95%
- **Reversing Deforestation and Degradation in High Chilgoza Pine Forests:** Implemented in collaboration with FAO, this project focus on conserving Chilgoza pine forests in Baluchistan, Khyber Pakhtunkhwa, and Gilgit-Baltistan, directly benefiting 8,443 households. The project has established four Chilgoza processing units for communities, provided 600 sets of tools for cone collection and storage, facilitated natural regeneration over 2,153 hectares, and planted forest and fruit seedlings on 653 hectares. Additionally, it introduced 2,100 fuel-efficient stoves and gasifiers to alleviate community pressure on forest resources

During 2018-2023, the Pakistan Snow Leopard and Ecosystem Protection Program (PSLEP) project was being implemented through SLF. However, the project was suspended in 2021 due to audit observations. In June 2024, after thorough consultation, UNDP has requested GEF's approval through this ministry for project resumption, which is currently under consideration.

Regulation of Wildlife Trade: During this FY, the CITES Management Authority, held three meetings for wildlife trade regulation. Consequently, an amount of Rs. 6,258,500 was collected in wildlife import/export fees and deposited into the government exchequer.

Mitigating Forest Fires: During the severe fire incidents of 2023-2024, active coordination efforts helped mitigate impacts. An Interdepartmental Committee on Forest Fires was constituted to manage forest fires in Margalla Hills National Park, playing a crucial role in efficient monitoring and reporting resulting in early control of fires with less damage comparatively.

2.5.International Cooperation Wing

The International Cooperation Wing of the Ministry of Climate Change & Environmental Coordination (MoCC&EC) consists of three sections and a COP Cell which are mandated and responsible for performing functions as follows:

1. The International Cooperation Section is responsible for coordination with international donor agencies on environmental issues, signing & implementation of MOUs, and handling of matters related to GSP+. Moreover, it also represents Pakistan at international forums regarding the signed Conventions and Protocols.
2. Considering COP as an obligatory meeting, a COP Cell has been established under the IC Wing to facilitate the reporting to UNFCCC and streamline the COP process. The major work includes following on COP negotiation streams on Finance, adaptation, mitigation, transparency etc.
3. The Chemical Section is mandated to set the ground for the implementation of various chemical and waste-related Conventions namely Basel, Stockholm, Minamata, and Rotterdam Conventions, etc.
4. The National Ozone Unit (NOU) was established in 1996 after the signing and ratification of the Vienna Convention and Montreal Protocol on substances that deplete the Ozone Layer in Pakistan. The NOU is responsible for enactment of policies/regularity measures to regulate the import of ODS and extend assistance to the ODS based industry to convert into ozone friendly technology. Technical assistance is provided by the implementing agencies (UNDP, UNEP & UNIDO) with the limited financial assistance and technical support from the Multilateral Fund (MLF). The main targets of the project are to:
    i. Control import of Ozone Depleting Substances (ODS) under the provisions of Montreal Protocol.
    ii. Phase out the Ozone Depleting Substances from Pakistan as per agreed schedule of Montreal Protocol. Currently Pakistan is heading towards 67.5% reduction target of HCFCs by January 01, 2025.
    iii. Monitor and prevent the illegal import.
    iv. Assist the local industry for phasing out the use of ODS through the implementing agencies (UNDP, UNIDO and UNEP) with the financial and technical support of the Multilateral Fund Secretariat (MLFS).
    v. Provide training to Refrigeration and Air Conditioning servicing technician on Good Servicing Practices enabling to efficiently handle the servicing operations and minimize the Refrigerant Gas venting in the air.
    vi. Train Customs officers on managing the imports of Ozone Depleting Substances and to curb the illegal trade of ODS.
    vii. Disseminate information on ODSs free technologies and phase out activities.

Activities and Achievements:

Details of the activities and achievements of the IC Wing during the year 2023-24 are as below:

1. A Memorandum on Cooperation has been finalized between the Ministry of Natural Resources and Environmental Protection of the Republic of Belarus and the Ministry of Climate Change & Environmental Coordination of the Islamic Republic of Pakistan in the field of environmental protection. The Memorandum is planned to be signed during the visit of the President of the Republic of Belarus to Pakistan in November 2024. The signing of the memorandum will serve to expand the comprehensive cooperation between the two countries in the environmental sector

2. The 29th Conference of the Parties (COP29) to the United Nations Framework Convention on Climate Change (UNFCCC) is scheduled to take place from 11th November to 22nd November 2024. As one of the most critical global platforms for addressing climate change, COP29 will bring together nations to negotiate and implement strategies to mitigate and adapt to the effects of climate change. For Pakistan, COP29 represents a crucial opportunity to reaffirm its commitment to international climate goals, particularly in the areas of climate finance, adaptation, and mitigation, and to ensure that national priorities are adequately represented and negotiated. Given the growing impacts of climate change on the country, particularly in terms of floods, extreme weather events, and socio-economic vulnerability, the Government of Pakistan aims to play a proactive role in advancing its climate agenda, especially in securing necessary funding and international collaboration. In recognition of the importance of this event, the Prime Minister of Pakistan has constituted a dedicated Committee on COP29 under the MoCC&EC. This committee includes representatives from multiple government departments (Finance, Foreign Affairs, Planning & Development, and others), international organizations (e.g., WWF), and private sector stakeholders, ensuring a comprehensive approach to COP29 preparation. The committee has held several meetings to discuss the preparations, focusing on logistical arrangements, negotiation strategies, and Pakistan's thematic priorities. As part of Pakistan's preparation for the COP29, the Prime Minister's Committee on COP29 has convened four meetings to date, each focused on different aspects of the country's participation in the event. The first meeting on 29th July 2024 emphasized the need for robust preparation, the establishment of a COP Cell, and early coordination with stakeholders. The second meeting on 16th August 2024 focused on refining strategies for Pakistan's pavilion and engaging key partners like WWF, UNDP, and the private sector. The third meeting on 26th August 2024 addressed logistical challenges, with emphasis on securing hotel arrangements, finalizing negotiation streams, and organizing investment events to attract climate finance. The fourth meeting, held on 6th September 2024, reviewed Pakistan's stance on critical issues such as climate finance and adaptation, and introduced sub-committees to streamline the preparation process. Throughout these meetings, the committee has worked to ensure that Pakistan is well-prepared for COP29, with a clear focus on advancing the country's climate agenda and securing international partnerships. Further, five sub-committees have been established to streamline various aspects of COP29 preparation, including pavilion events, negotiation streams, NGO engagement, logistics, and administrative arrangements. These sub-committees meet on regular basis to report progress
3. Pakistan is campaigning to reduce the use of Plastics, through regulations, enforcement by EPAs, and the WB-funded Plastic Free Rivers and Seas for South Asia (PLEASE) Project; accordingly, the UN is working on a legal international binding on the use of Plastics. The PLEASE project was launched by the Ministry in 2024 and a kickoff workshop was conducted on 6th June 2024. The project development objective is to catalyze actions that reduce the flow of plastic pollution into the South Asian Seas as South Asia's rivers are highways for plastic pollution, flowing from mountains to the oceans. The PLEASE project will help to develop a National Plastic Waste Management Plan (NPWMP) & establish an IT-based Monitoring and Reporting Mechanism for Pakistan
4. The PLEASE project aims to strengthen innovation and coordination of circular economy solutions, and a High-Level Roundtable Discussion on Plastic Waste Management: Challenges and Solutions in Pakistan was held on the 22nd of July 2024.
5. Single-use plastic items prohibition and polyethylene bags ban regulations were implemented in ICT, and in June 2024 the Ministry and Pak EPA established eight (08) joint enforcement team(s) in coordination with the concerned Assistant Commissioner of the various areas of ICT for inspections

6. In 2023-24, approx. 3,300 Kg of polyethylene bags and single-use plastic items were confiscated a total of 281 challans were issued to shopkeepers/manufacturers/wholesaler/users under the SRO No. 93q (1)/2023 Violations, and Rs. 3,100,000/- fine imposed
7. The Ministry in collaboration with the World Economic Forum's (WEF) Global Plastic Action Partnership (GPAP) established Pakistan's National Plastics Action Partnership (NPAP). On Earth Day 22nd April 2024, the Ministry and NPAP launched an event to reduce plastic pollution and waste into concrete action. NPAP unites all entities from the government, the private sector, civil society, and the plastic waste management ecosystem
8. In April 2024, the National Plastic Action Plan (NPAP) in collaboration with MoCC&EC has chalked out a Plastic Action Roadmap
9. First-generation level Hazardous waste inventory was developed in October 2023, under a special program project of UNEP, and an adoption plan for the Global Harmonized System for classification and leveling of chemicals (GHS) was drafted under the project.
10. The NOU's achievements/activities for the enforcement of policy/regulatory measures are as under:
    i. Effective compliance of ODS phase out ensured and reduction targets of the HCFC phase out on 1st January 2024 met and accordingly indicated in HCFC quota 2024.
    ii. NOU remained vigilant in controlling illegal imports and trading of HCFCs in close coordination of Pakistan Customs
    iii. Initiated the process of introducing ban of pre-mixed polyol with HCFC-141b as per the decision of 90th Ex. Com meeting from January 01, 2024. Coordinated the ban with Ministry of Commerce and its final version is under review at MoCC&EC.
    iv. HCFC import quota issued to 19 eligible importers in May, 2024 and successfully achieved 50% reduction target from baseline of 248.11 ODP tons set under Montreal Protocol. Pakistan is now moving towards 67.5% reduction target to be achieved on January 01, 2025
    v. NOU completed 02 HCFC 141-b conversion projects in PU Foam Sector in February, 2024. The completion enabled Pakistan to phase out HCFC-141b from the manufacturing of PU Foam at M/s Pakistan Insulations, Karachi and M/s PAECO, Lahore
    vi. Trained more than 800 technicians on the good servicing practices of flammable refrigerants in February-March 2024. Training programs were organized in collaboration with UNIDO being the lead implementing agency of HPMP. Finalized agenda, local experts, coordination with Dawlance and technical alignment of trainings with our local needs
    vii. NOU completed 02 HCFC technology destruction activities at M/s. Pakistan Insulations, Karachi and M/s. PAECO, Lahore in the months of February and March, 2024
    viii. Organized 02 days training of Customs officers from 5-6 June, 2024 in Islamabad on required Montreal Protocol implementation and HCFCs controls. Trained 33 Customs and Enforcement officers
    ix. Worked with Pakistan Single Window team on linking the import related NOCs being issued by NOU, MoCC&EC
    x. NOU initiated the process of introducing dedicated HS code for pre-mixed polyol with HCFC-141b in collaboration with FBR. The dedicated HS code (3907.2910) got notified under Finance Act 2024 in June, 2024
    xi. Draft Policy Order/Legal Document for implementation of Montreal Protocol in Pakistan has been prepared and put into finalization process before formal notification/approval

xii. In order to phase out the ODSs from the thermosware, PU sandwich panel, spray foam and air conditioning industries; NOU along with relevant implementing agencies is implementing HPMP Stage-II & III

xiii. Collected, analyzed and submitted Data for Article 7 Report and Country Programme Reports for 2023 well on time to ensure compliance status of Pakistan. To Check the compliance, data was collected from both available sources i.e. FBR and importers. Data provided by the FBR and importers was examined in detail for the illegal/excess status clearance and accordingly the details were submitted to the NPD/Additional Secretary, MoCC&EC

xiv. Various online meetings were held with UNIDO and UNEP offices on the following issues regarding policy and phasing out of the ODSs: -Implementation of HPMP stage-II; Implementation of HPMP stage-III; Implementation of HPMP-II remaining projects and corresponding challenges

11. Moreover, the following activities were performed under the Implementation of the ODS Phase Out Projects:

i. Collected HCFCs import data on the monthly basis from FBR and importers to monitor the import of HCFCs in the country and correlating with the allowed quota quantities

ii. Attended 45th Open Ended Working Group (OEWG) meeting from 03-07th July, 2023 OEWG is the 2nd highest meeting forum of the Montreal Protocol

iii. Organized a visit of the UNIDO mission along with international experts from 31st July–09th August 2023. Ms. Natasha Kochova, International Project Coordinator, UNIDO, Mr. Krzysztof Grzegorczyk, International RRR expert and Mr. Bernd Kalten Brunner, International RAC expert were part of the mission. The mission discussed the feasibility of setting RRR centers in Pakistan and feasibility of adopting R-32 technology for AC sector of Pakistan. Moreover, the mission also discussed the float the project of Energy Efficiency window for Pakistan

iv. Organized awareness raising event with NED University, Karachi on September 05, 2023 at Avari Hotel, Karachi

v. Organized awareness raising event with BUITEMS University, Baluchistan on September 08, 2023 at Serena Hotel, Quetta

vi. HCFCs import quota review meetings were held at Karachi, Multan and Lahore during September, 2023. NOU improved its presence in field by visiting warehousing facilities/operational offices of quota holders which resulted in significant improvements with regards to handling of HCFCs and awareness of dealing with flammable refrigerants

vii. Celebrated World Ozone Day on September 18, 2023 at Islamabad. The event was widely attended by representatives from relevant sectors, academia, government organizations, and NGOs. Awarded 05 industries with the awards on World Ozone Day-2023. The initiative was to encourage the industry for their HCFCs phasing out efforts being made in collaboration with Government and implementing agencies. The industries awarded with the award were 1). M/s Pakistan. Insulation, Karachi, **2)**. M/s. Foster Refrigeration, Lahore, 3). M/s. Koldkraft Refrigeration, Lahore, M/s. Symbol Industries, Lahore and M/s. Dawlance Karachi

viii. Organized awareness raising event with Fatima Jinnah Women University (FJWU), Rawalpindi on September 26, 2023 at Rawalpindi

ix. Attended donor round table conference of the Pakistan Cooling Action Plan on October 26, 2023 at Islamabad. The objectives of the donor round table conference were to 1st PCAP Working Group meeting was to assimilate the directions of cooling

need assessment and to bring synergies among the working group members on overall objectives of the PCAP with the intention to accelerated PCAP development

x. Organized thermoware sector and spray foam manufacturing industries meetings with the UNIDO's International Foam Expert Mr. Risto Ojala from 20-30 November, 2023 at Karachi and Lahore. The meetings with thermoware sector remained focused on physical test and trials of the newly procured raw material. The technical specification for the upcoming HCFCs phase out project under stage-III were discussed and finalized with spray foam industries

xi. NOU collected the data of HCFCs and Methyl Bromide from the FBR for the period January-June, 2024. The data was compiled for HCFCs quota allocation and data reporting by NOU to the NPD

xii. MP Project extended support to MoCC&EC on Ratification of Kigali Amendment and provided inputs for various meetings of the Government such as "Fifth Biennial Review of EU GSP PLUS (Climate Change) in August 2024 and 27th meeting of Federal Treaty Implementation Cell (TIC) on May 13, 2024. The case of Ratification of Kigali Amendment is with Ministry of Foreign Affairs for completing the procedural requirements

xiii. NOU extended support to MoCC&EC on Pakistan Cooling Action Plan (PCAP) that was developed by the Ministry of Climate Change and Environmental Coordination in collaboration with SAMA VERTE and NOU

xiv. Organized celebrations of World Environment Day on June 05, 2024, Coordinator to Prime Minister on Climate Change attended the event as Chief Guest

2.6. Climate Finance Wing:

Introduction:

Climate Finance Wing at MoCC&EC is newly established as a dedicated office to coordinate with relevant stakeholders and facilitate the Ministry in looking after global climate finance opportunities and GEF (Global Environment Facility)/GCF (Green Climate Fund) related matters. It focuses on project development, accreditation of national entities, and Country readiness programme through taping global climate finance.

Roles and Functions:

The overall objective is to secure a larger-scale and a more sustained impact on the global environment through partnerships with Federal and Provincial Governments, multi/bilateral development partners, based on Pakistan's national priorities regarding climate finance.

Goals and Targets:

1. **National Climate Finance Strategy (NCFS):**

The strategy was soft launched at COP29. The NCFS is a time-bound, robust, and living document that will be periodically reviewed and updated. It will be revised every five years based on progress review and feedback from monitoring and evaluation (M&E) reports from the line ministries and the provinces. The key objectives include identifying key market and policy barriers to scale up finance for priority climate and development objectives and develop potential financing and other interventions to scale up climate finance, both domestic and private and international action.

NCFS pursues a three-pronged approach centered on three main strategic objectives:

i. Adopt a whole-of-government strategy to create synergy and cohesion across all tiers of the governance at both national and subnational levels, thereby accelerating the mainstreaming of climate change in all sectors and tiers of governance.
ii. Mobilize and diversify domestic revenue and investments in order to leverage them to attract international climate finance thereby increasing fiscal space for climate action and supporting climate-resilient, low-carbon development.
iii. Diversify finance sources through innovative mechanisms to facilitate partnerships with the private sector and access both domestic and international climate finance and investments.

2. **Pakistan's Carbon Market Policy Guidelines:**

Pakistan's first ever carbon market policy was also launched at COP29 and has been approved by the Federal Cabinet. Through this policy, Pakistan aims to accelerate clean technology deployment and attract investment in sectors and projects with significant emissions reduction potential, including energy, agriculture, waste management, and forestry. The guidelines will ensure that carbon markets drive real, verifiable reductions while generating substantial economic and social co-benefits across Pakistan. By launching this policy, Pakistan signals its readiness to engage in global carbon markets, inviting both domestic and international partners to join us in advancing a resilient, low-carbon economy with strong accountability and impact at its core. The Policy will enable Pakistan to advance its Nationally Determined Contributions (NDCs) and channel carbon finance into projects that yield substantial social, economic, and environmental co-benefits.

Pakistan's Carbon Market Policy is built on three core pillars:

i. **Environmental Integrity and Compliance:** Our Carbon Market Policy Guidelines prioritize robust environmental standards, aligning with Pakistan's climate commitments and international obligations under the Paris Agreement. We are committed to ensuring that every mitigation project authorized within our borders comply with the highest standards of environmental integrity, and transparency.

ii. **Economic Development and Investment Mobilization:** Pakistan's carbon markets are designed to attract substantial investment, both domestic and international, into low-emission development projects. By facilitating carbon credit issuance and trading, we are creating market incentives for more investment in emission reduction projects.

iii. **Equitable Benefit Sharing and Social Safeguards:** At the heart of Pakistan's Carbon Market Policy Guidelines is an unwavering commitment to social inclusion, equity, and benefit sharing. Our approach recognizes that the journey toward a sustainable, low-emission future must be both inclusive and just.

3. **Global Shield against Climate Risks:**

Pakistan has completed the in-country process and stock-take to identify the gap of financing to secure the crucial sectors against climate risks and vulnerabilities. It has been identified that interventions are required in sovereign finance, agri-finance, public assets, livelihood protection and risk analytics.

Activities:

A Climate Finance Portal has been established to centralize climate data for informed decision-making and transparency in climate finance tracking. This will help in improved data accessibility, enhanced policymaking and reporting leading to a strengthened climate governance, better accountability in climate actions and streamlining the investment tracking.

Achievements:

1. **Green Climate Fund:**

GCF accelerates transformative climate action in developing countries through a country-owned partnership approach and use of flexible financing solutions. The preceding year, the CF Wing was able to secure funding for the following 4 projects, amounting to GCF financing of approximately 82 M USD:

i. **Integrated Climate Risk Management for Strengthened Resilience to Climate Change in Buner and Shangla Districts of Khyber Pakhtunkhwa Province, Pakistan (WFP):** The project will enhance flood early warning and anticipatory action by strengthening the value chain and dissemination of climate information services and early-warning systems, benefitting 1.6 M people

ii. **Resilient Water Infrastructure Facility (RWI) (IFC):** The project will focus more on Public Private Partnership (PPP) structure facility; and Blended Finance facility in water resources sector

iii. **Harnessing the Domestic Private Sector Ecosystem for Climate Action in Pakistan (NRSP):** The initiative aims to create a climate action venture studio environment, offering space for climate discourse, a consortium of stakeholders, pre-seed grant financing, later-stage debt financing, mentorship for women, PWDs, and transgender entrepreneurs, and gender-responsive technical assistance

iv. **Acumen Climate Action Pakistan Fund (Acumen Fund):** The Project's goal is to improve the climate resilience of vulnerable farmers and their livelihoods by providing access to climate adaptation solutions for smallholder farmers, benefitting 13.1 M people

2. Global Environment Facility (GEF):

GEF being a multilateral family of funds is dedicated to confronting biodiversity loss, climate change, pollution, and supporting land and ocean health. The preceding year, the CF Wing was able to secure funding for the following 5 projects, amounting to GEF financing of approximately 22 M USD:

i. **De-Carbonization through Innovative Clean Hydrogen Technology in Pakistan-(Child project of the Global Clean Hydrogen Programme for Pakistan) (UNIDO):** The initiative will carry out the technical readiness on Green Hydrogen Industrial Cluster and Pilot Project (s).

ii. **Reduction of GHG emissions by Enhancing Transparency and Efficiency in Pakistani Leather Industry (UNIDO):** The initiative promotes the adoption of low carbon technologies and transparency in the leather value chain, aiming to reduce GHG emissions and promote sustainable practices.

iii. **Marine Biodiversity Conservation in Pakistan (Ministry of Maritime Affairs, FAO):** The project will enhance national seascape planning, governance, institutional capacity, and knowledge, implementing an ecosystem-based approach to fisheries, and strengthening data and management systems for sustainable fisheries.

iv. **Integrated Management of Land and Water Resources for Strengthening Climate Resilience in Flood Affected Areas of Baluchistan, Pakistan (UNDP):** The project will be delivering sustainable management of land resources for enhancing climate risks preparedness and improving local livelihoods. It will also carry out restoration of degraded landscape for strengthening climate change resilience.

v. **Sustainable Management of Common Hazardous Wastes in Ship-Breaking Industry to Protect Ecosystem and Reduce Environment, Health, Safety and Security Risks in the Coastal Zone of Pakistan (UNDP):** The project aims to ensure environmentally safe waste handling of ship wrecks, reduce carbon emissions, and minimize chemical hazards in hazardous waste. It includes the installation of a Common Hazardous Waste Treatment Facility, capacity building for workers and stakeholders, and the development of a regulatory system.

3. ATTACHED DEPARTMENTS AND AUTONOMOUS BODIES

Shazia Khan
Section Officer (Coordination)
Friday, 29 August, 2025, 4:06:34 PM

3.1.Pakistan Environmental Protection Agency (PAK-EPA)

Introduction:

Pakistan Environmental Protection Agency (Pak-EPA) is a statutory body that was created under the Pakistan Environmental Protection PEPA Act of 1997. In order to efficiently carry out its mandated duties, Pak-EPA is organized into the following:

- Directorate of Laboratory /National Environmental Quality Standards (Lab/NEQS)
- Directorate of Administration, and Legal /Enforcement (A, L/E)
- Directorate of Environmental Impact Assessment / Monitoring (EIA/Mont.)
- Biosafety Clearing House.

During 2023-24, the following major activities were undertaken by the different Directorates of Pak-EPA.

1. **Directorate of Laboratory/National Environmental Quality Standards (Lab/NEQS)**

Introduction:

The Lab/NEQS Directorate of Pak-EPA is responsible for the development, review, and compliance-monitoring of National Environmental Quality Standards (NEQS) that have been notified for ambient air, water, noise, and liquid/gaseous emissions. The Lab/NEQS Directorate also issues certifications to environmental labs and authorizations to manufacturers/distributors for exempted-use of Single-Use Plastics. Monitoring and field inspections are conducted for the compliance of environmental law and resolution of public complaints. It also provides technical support to Pak-EPA's Legal/Admin and EIA/Monitoring Directorates and manages public complaint resolution. Lastly, it provides technical input in public-sector policies, plans, and technical reports.

Activities & Achievements:

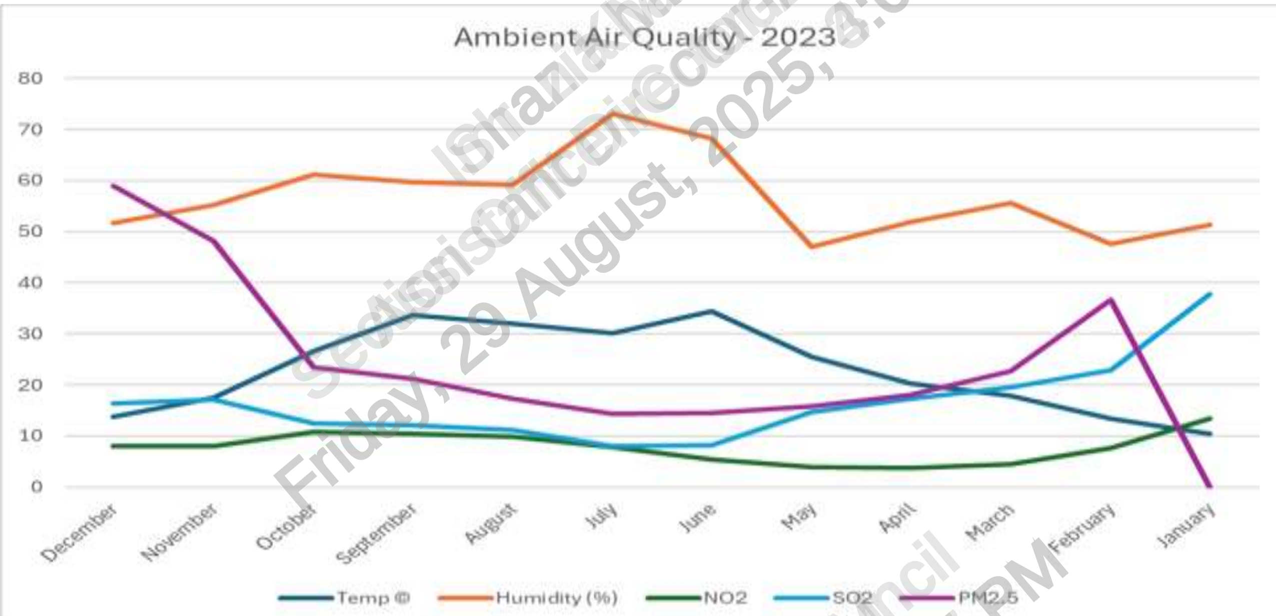
- **Air Quality:** Through its fixed air quality monitoring station located in H-8/2, Pak-EPA monitors ambient air quality of Islamabad, the results of which are shared via official website and social media. Pak-EPA has also established a data surveillance room for 24-hour monitoring of emissions by steel industries to ensure NEQS compliance. Additionally, the survey of 270 industries of four (04) different zones of Islamabad such as I-9, I-10, Kahuta triangle (Humak) and Sangjani which were categorized into A, B, C and D (proposed). While the major industries in Islamabad submit their monthly/quarterly stack emission reports to Pak-EPA, in compliance of NEQS.

Table 1: Monthly averages for Air Quality Parameters (January to December 2023)

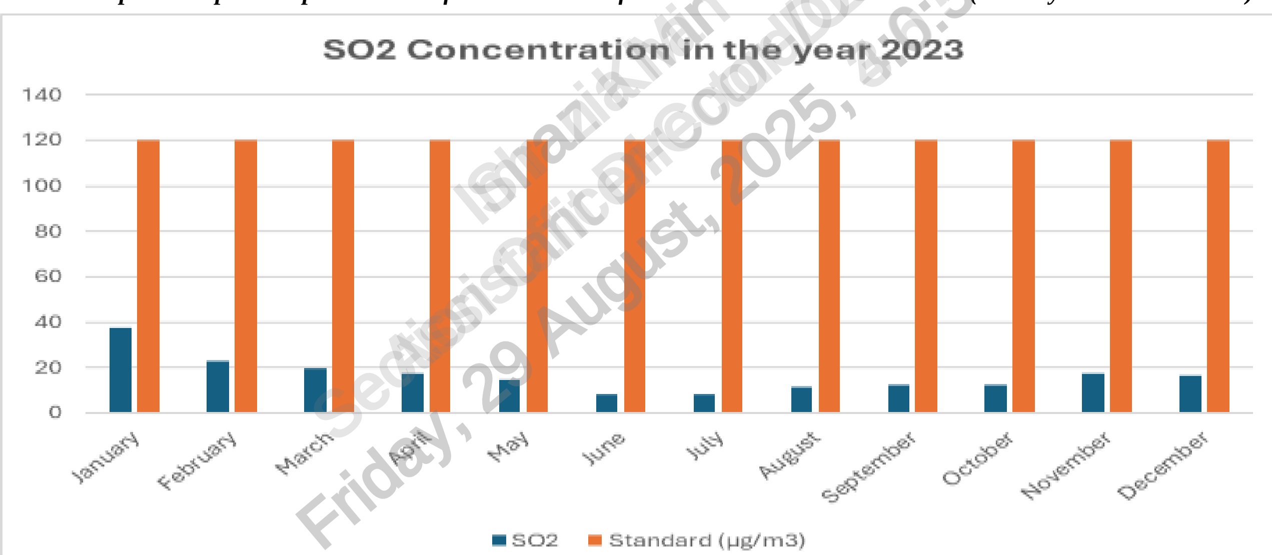
Month	Temperature	Humidity	No^2	SO^2	PM 2.5
	C	%	80 µg/m^3	120 µg/m^3	35µg/m^3
Year	**2023**	**2023**	**2023**	**2023**	**2023**
December	13.7	51.7	8.07	16.3	59.03
November	17.5	55.3	8	17.2	48.09
October	26.7	61.2	10.8	12.5	23.43

September	33.6	59.7	10.5	12.1	21.15
August	32	59.1	9.91	11.2	17.24
July	30.2	73.1	7.92	8.01	14.27
June	34.5	68.2	5.43	8.23	14.58
May	25.5	47.1	3.87	14.8	15.88
April	20.2	51.8	3.74	17.3	18.09
March	17.9	55.6	4.54	19.6	22.69
February	13.5	47.7	7.57	22.8	36.73
January	10.5	51.4	13.5	37.7	62.88

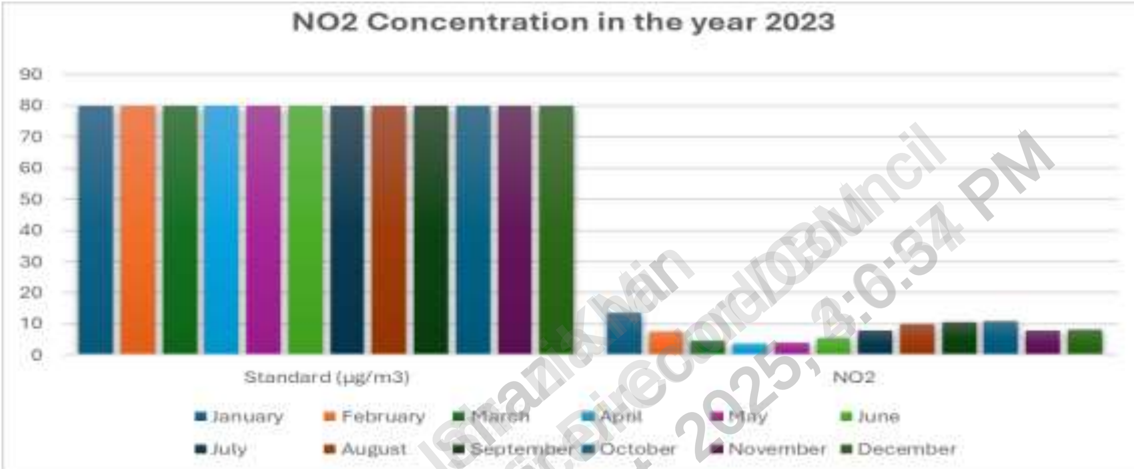
Graph 1: Graphical representation of Ambient Air Quality parameters in Islamabad (January 2023 to December 2023)



Graph 2: Graphical representation of Concentration of SO2 concentrations in Islamabad (January to December 2023)



Graph 3: Graphical representation of Concentration of NO_2 concentrations in Islamabad as compared to WHO NO_2 (January to December 2023)



Graph 4: Graphical representation of Concentration of PM2.5 concentrations in Islamabad

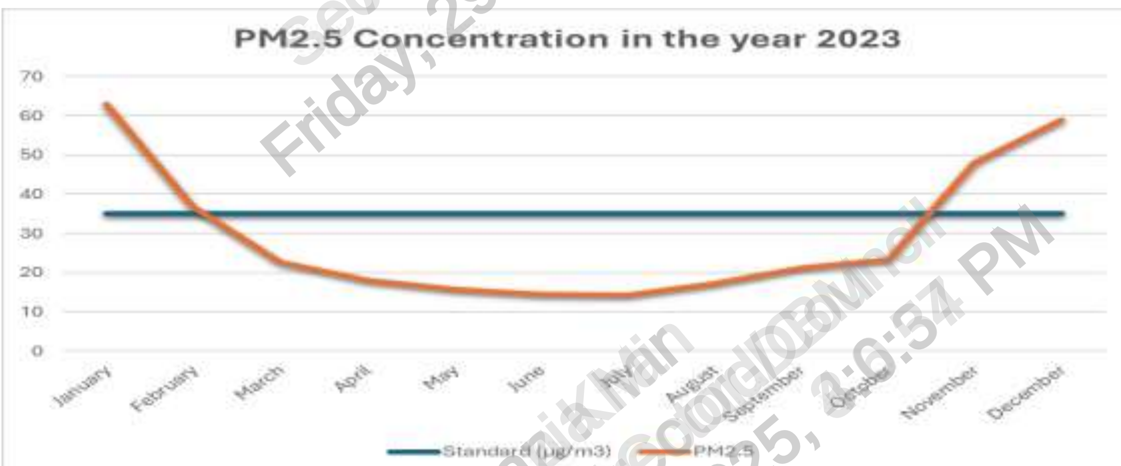
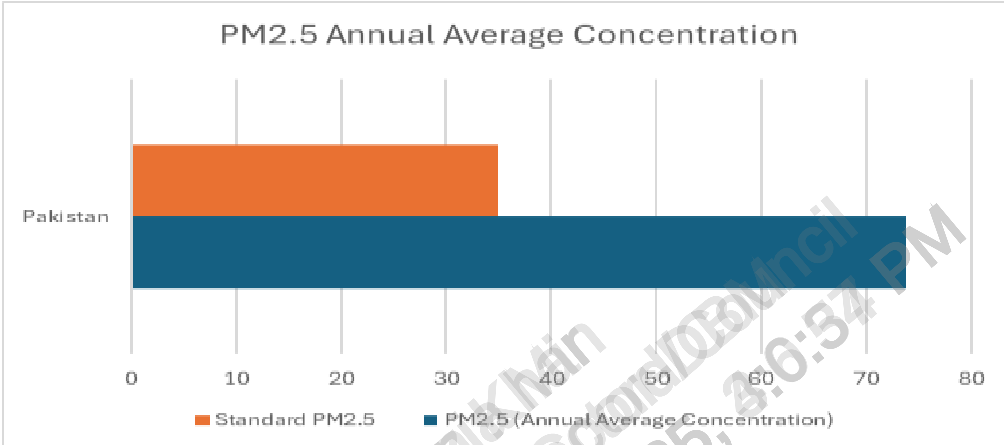


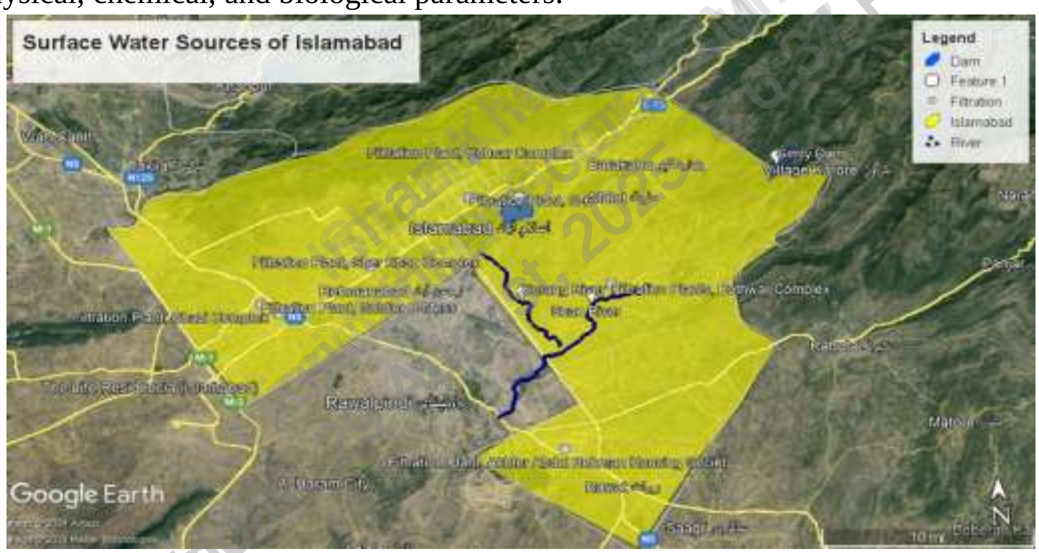
Table 2: Graphical presentation of Concentration of Particulate Matter in Islamabad 2023

Country	PM2.5 (Annual Average Concentration)	Standard PM2.5
Pakistan	73.7µg/m³	35µg/m³

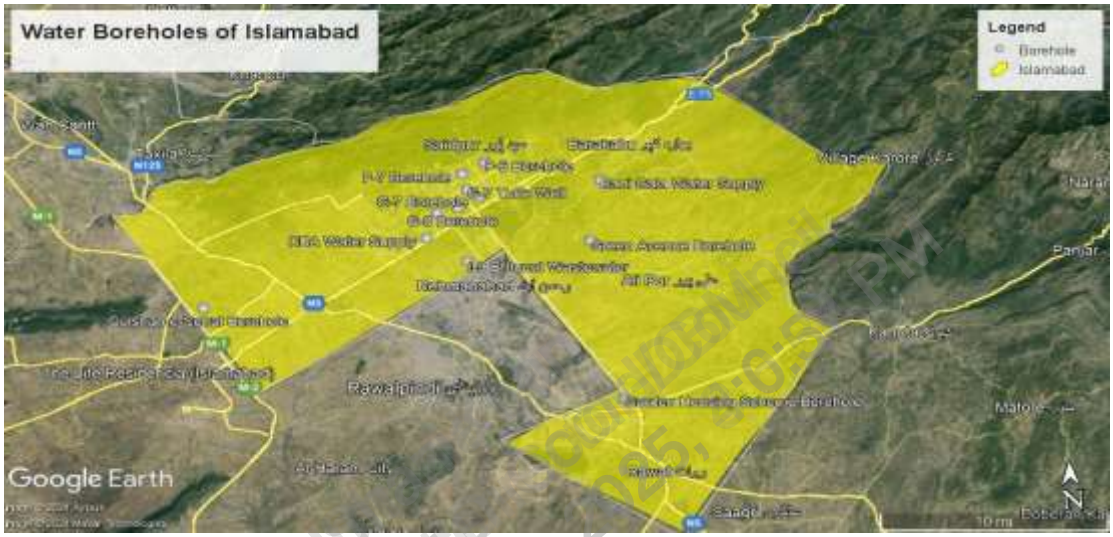
Graph 5: Graphical Representation of PM2.5 in Pakistan 2023



- **Water Quality: Response on water pollution from government and other institutions:** <u>Response on water pollution from government and other institutions:</u> For ensuring the providence of safe drinking water, Pak-EPA has attempted to conduct water quality testing all year. PAK-EPA's Lab/NEQS Directorate analyzed water samples in the EPA laboratory during January 2023 – December 2023. These samples were collected from different water sources such as filtration plants, boreholes, industrial wastewater, and Rawal Dam. Twelve water samples were collected from filtration plants located in different complex centers in various sectors. For instance, Sher Khan Complex, Kohisar Complex, Ghazi Complex, Akhter Abdul Rehman Complex, Soldier B-Mess, Shahid Hamid Lane G-6, Potohar Complex, and Jinnah Complex Twenty-three borehole water samples were collected from different regions. Four wastewater samples were collected, five samples from Rawal Dam reservoir and two samples from Haidri Beverages were collected. All the samples collected were tested for physical, chemical, and biological parameters.



Map 1: Location of Surface Water Sources of Islamabad

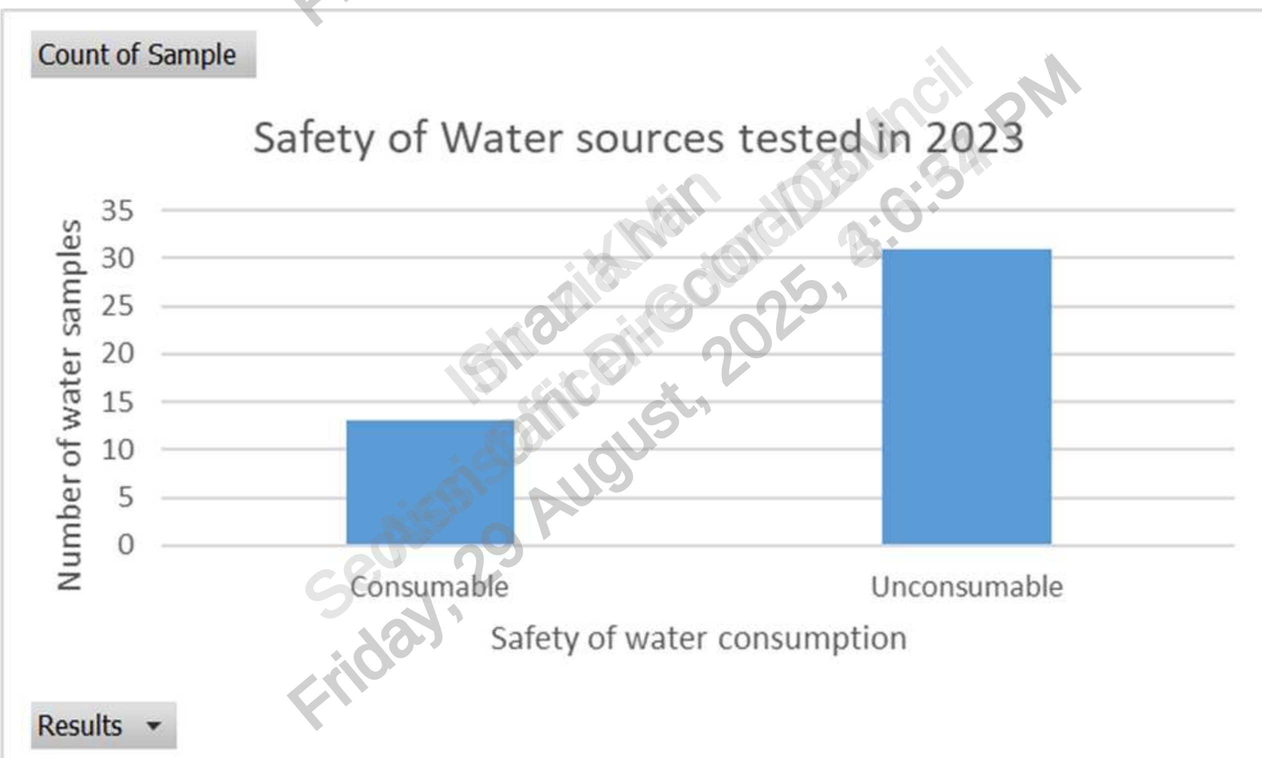


Map 2: Location of Water Boreholes of Islamabad

Table 3: Analysis of Water Sources Samples of Islamabad

S.No.	Sample	Results
1.	Boring water, G-7	Consumable
2.	Boring water, G-9/3,	Un-consumable
3.	Margala Food & beverage	Un-consumable
4.	I-9 Industrial Area	Un-consumable
5.	Boring Water, G-8	Un-consumable
6.	PAK-EPA Office	Un-consumable
7.	CDA water, F-7	Un-consumable
8.	Borehole water, F-7	Consumable
9.	Boil water of Boring source, F-7	Consumable
10.	Tube well G-7/1	Un-consumable
11.	CDA water, F-7	Un-consumable
12.	Bani Gala Water source, (collection: morning)	Un-consumable
13.	Bani Gala Water source, (collection: evening)	Un-consumable
14.	Boiled Bani Gala Water source	Consumable
15.	Green Avenue Boring Water, (collection: morning)	Un-consumable
16.	Green Avenue Boring Water, (collection: evening)	Un-consumable
17.	Green Avenue, Boiled boring water	Un-consumable
18.	Effluent wastewater, I-9	Un-consumable
19.	Effluent wastewater, I-9	Un-consumable
20.	Effluent wastewater, I-9	Un-consumable
21.	Filtration plant, Sher Khan Complex	Un-consumable
22.	Filtration plant, Kohsar Complex	Un-consumable
23.	Filtration plant, Ghazi Complex	Consumable
24.	Filtration plant, Akhter Abdul Rehman	Consumable

25.	Filtration plant, F-6	Consumable
26.	Boring, F-6	Consumable
27.	Boring, F-6/1	Un-consumable
28.	Soldier B-Mess Filtration plant	Un-consumable
29.	Filtration plant, G-6	Consumable
30.	Filtration plant, Potowhar Complex (FP-3)	Un-consumable
31.	Filtration plant, FP-2	Consumable
32.	Filtration plant, FP-1	Consumable
33.	Filtration plant, FP-1	Consumable
34.	Filtration plant, FP-2	Consumable
35.	Filtration plant, FP-3	Un-consumable
36.	Boring Well Water, A, B, C & CDA Line	Un-consumable
37.	Boring – Gulshan-e-sehat	Un-consumable
38.	Haideri beverages (inlet/outlet)	Un-consumable
39.	Rawal Dam-1	Un-consumable
40.	Rawal Dam-2	Un-consumable
41.	Rawal Dam-3	Un-consumable
42.	Rawal Dam-4	Un-consumable
43.	Rawal Dam-5	Un-consumable
44.	Sewerage Treatment Plant (Garden Housing Scheme)	Un-consumable



Graph 6: Graphical Representation of Water Sources of Islamabad

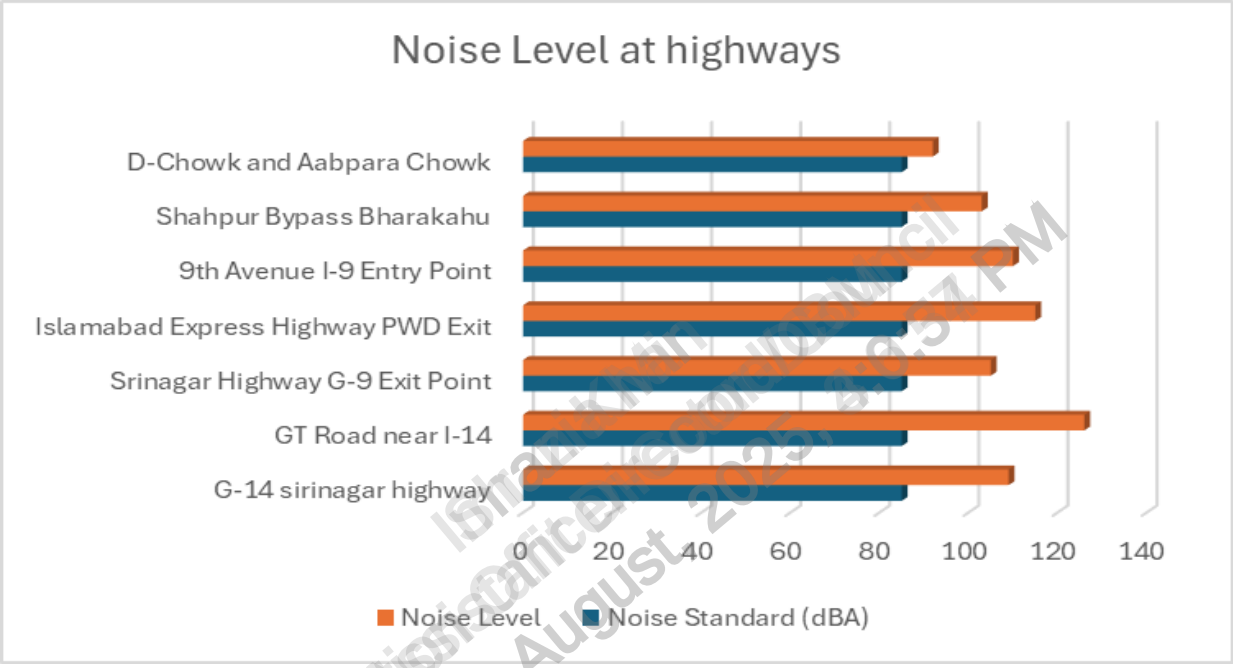
Figure 1: Collection of filtration plant Surface, Nullah and Natural Streams Water Samples by LAB/NEQS Team

- **Noise Quality:** Noise pollution in Islamabad is a pressing issue. Noise levels are considerably above the acceptable standards, particularly on highways, construction sites, and areas lacking sound barriers. Surveys conducted by the Pakistan Environmental Protection Agency (Pak-EPA) reported that both residential and industrial areas experience elevated noise levels, driven by factors such as generators during power outages and the absence of sound barriers. The lack of effective regulation and public awareness further worsen the problem. Despite the significant impact of noise pollution on health and well-being, including auditory damage, sleep disturbances, and increased stress, regulatory measures remain inadequate. Enhanced regulations regarding noise levels, installation of sound barriers and increasing public awareness are necessary to mitigate the adverse impacts of noise pollution.

Table 4: Noise Level Detection

Location	Date	Noise Standard	Noise Level
G-14 Sirinagar highway	9/1/23	85dBA	109
GT Road near I-14	10/1/23	85dBA	126
Srinagar Highway G-9 Exit Point	11/1/23	85dBA	105
Islamabad Express Highway PWD Exit	12/1/23	85dBA	115
9th Avenue I-9 Entry Point	15/1/23	85dBA	110
Shahpur Bypass Bharakahu	16/1/23	85dBA	103
D-Chowk and Aabpara Chowk	17/1/23	85dBA	92

Graph 7: Noise levels at Highways of Islamabad 2023



Graph 8: Graphical Representation Noise Level at Marble Factories

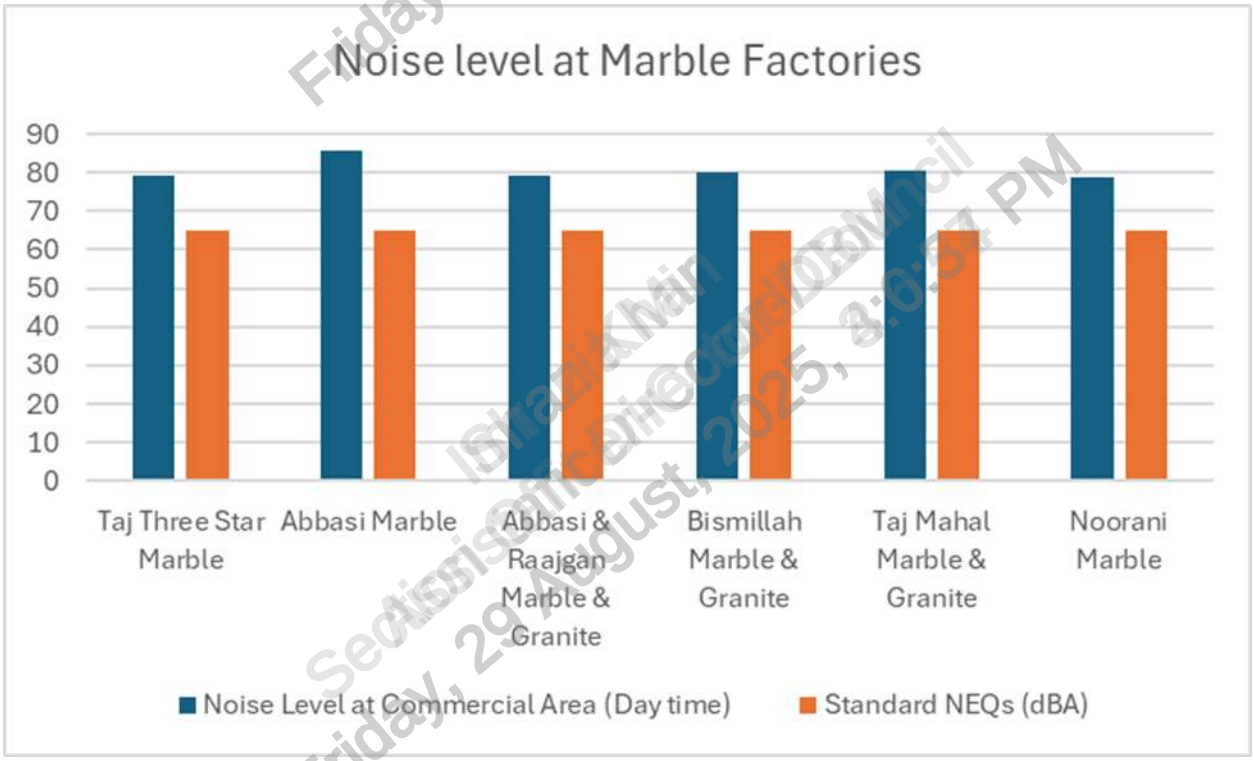


Table 5: Noise Levels Detections at Commercial Level

Name of Factory	Noise Level at Commercial Area (Day time)	Standard NEQs
Taj Three Star Marble	79	65dBA
Abbasi Marble	85.5	65dBA
Abbasi & Raajgan Marble & Granite	79.3	65dBA
Bismillah Marble & Granite	80.1	65dBA
Taj Mahal Marble & Granite	80.5	65dBA
Noorani Marble	78.9	65dBA

- **Technical training, research facilities, and internships:** LAB/NEQS Directorate has provided technical trainings, research facilities, and summer internships to 109 students of B.S, BE, M.S. and Ph.D. from UET, NUST, AIOU, QAU, IIU, FJWU, UAF, and University of Poonch Rawalakot etc. PMAS –AAUR, UAF, F.G Postgraduate College Wah Cantt and FMC students, and AHKNC trainees visited EPA Air and Water Quality Labs
- **World Environment Day 2023/Seminar:** On June 5, 2023, in celebration of World Environment Day, Pak-EPA, in collaboration with the Pakistan Academy of Environmental Sciences, organized a walk from China Chowk to D-Chowk with the aim of beating plastic pollution and introducing a zero-waste march. Students from IMCG/i-9, Quaid-e-Azam University, COMSATS University, and Arid University enthusiastically joined the walk, making it a resounding success. The Pakistan Boy Scouts Association, Pakistan Girls Guides, Rescue 1122 Management, organizations like Environmental Journalist Organizations, and several social and environmental activists were also present, contributing to success of the event and showcasing their dedication to a clean and green Islamabad and Pakistan
  Furthermore, in March 2023, Pak EPA organized one-day seminar on "Challenges, Opportunities and Trends in Biotechnology in Pakistan". The speakers at the seminar highlighted the potential of biotechnology to transform various sectors of the economy, including agriculture and environmental management. They also discussed the challenges faced by the biotechnology industry in Pakistan and the need for a supportive regulatory framework.
- **Environmental Laboratory Certification:** As per the Certification of Environmental Laboratories Regulations, 2000, five (05) environmental laboratories in ICT were certified.
- **Public Complaints and Field Monitoring:** Ninety (90) environmental complaints were received from public, and Prime Minister's Pakistan Citizen's Portal, environmental monitoring team inspected the housing societies, brick kilns, tyre burning units, asphalt plant, industries working in residential, industrial areas and checked pollution issues and improper waste disposal for resolution of complaints and compliance of environmental law.

2. **<u>Directorate of Administration / Legal /Enforcement (A, L/E):</u>**

Introduction:

Pakistan Environmental Protection Agency (PAK-EPA) is a statutory body established under Section 5 of the Pakistan Environmental Protection Act, 1997 for enforcement of Environmental Laws, Rules and Regulations made under the Act.

Activities, Roles, and Functions:

According to PEP Act, 1997 the activities/role & functions of legal/enforcement directorate of Pak-EPA are followings;

i. Draft, prepare reports and para-wise comments and defend the cases before Hon'ble Supreme Court of Pakistan;
ii. Prepare appeals, reports and para-wise comments and represent this Agency before Hon'ble High Courts.
iii. Prepare cases/complaints for Environmental Tribunal/Environmental Magistrate and appear, act and plead as prosecutor in Environmental cases before Environmental Tribunal and Environmental Magistrate.
iv. Appear and defend this Agency before Hon'ble Wafaqi Mohtasib.
v. Appear and represent this Agency before Human Rights Commission of Pakistan.
vi. Appear and plead the cases of this Agency before lower courts.

Moreover, the legal/enforcement directorate of Pakistan Environmental Protection Agency are defending, prosecuting and representing the cases of criminal as well civil nature before different Courts of law and forums.

Goals and Targets:

i. Prepared draft Regulation on "Review of Initial Environmental Examination and Environmental Impact Assessment) Regulations, 2023" and forwarded to Ministry of Climate Change for further process.
ii. Initiate draft Rules on "Ban on Handling, Storage, Sale, Purchase, Import, Export of Hazardous Substance Rules, 2023".
iii. Implementing the Single Use Plastics (Prohibition), Regulations, 2023.

Achievements:

- Approximately 50 field visits conducted by the Enforcement Team(s) of Pak-EPA for the implementation of the provisions of PEP Act, 1997, Rules & Regulations.
- Approximately Thirty Thousand Rupees (30,000/-) fine imposed upon accused persons on contravention of Single Use Plastics (Prohibition), Regulations, 2023.
- 77 notices of personal hearing/notices of compliance served upon Brick Kilns, Hospitals, Food/Steel/Pipe/Marble/Pharmaceutical Industries, Housing Societies, Asphalt Plants, Tyre Unites and against the complaints received on Pakistan Citizen Portal under Pakistan Environmental Protection Act, 1997.
- 40 Environmental Protection Orders issued including Brick Kilns, Hospitals, Food/Steel/Pipe/Marble/Pharmaceutical Industries, Housing Societies, Asphalt Plants and Tyre Unites.
- 06 Brick Kilns were sealed for non-compliance of PEP Act, 1997 NEQS & after giving them an opportunity of hearing.
- Fifteen 15 Cases/Complaints filed in Environmental Protection Tribunal on violation of Environmental Laws.
- Three Millions (3,000,000/-) Administrative Penalty imposed by Pak-EPA upon violators
- Penalty of approximately Two Hundred One Million Three Hundred Five Thousand (Rs. 201,305,000/-) was imposed by Environmental Protection Tribunal upon the complaints of Pak-EPA.
- Twenty (20) Reply, Para-wise Comments and reports filed before Hon'ble High Courts in different Writ Petitions/Appeals relating to Environmental issues.

3. <u>Directorate of Environmental Impact Assessment /Monitoring (EIA/Mont).:</u>

- During the financial year 2023-24, Eight (08) Initial Environmental Examination Repot (IEE) cases were filed at Pak-EPA. One (01) IEE case namely Icon Garden was rejected. The rest cases remained under process of review; they could not be decided on account of either non-

submission of responses or late submission of responses on part of the proponent thereby causing delay in cases decision.

- During the financial year 2023-24, Eighteen (18) Environmental Impact Assessment (EIA) cases were filed at Pak-EPA. No EIA case was rejected. Six (06) EIA cases were accorded environmental approval whereas the rest cases remained under process of review; they could not be decided on account of either non-submission of responses or late submission of responses on part of the proponent thereby causing delay in cases decision.
- During the financial year 2023-24, Eight (08) CNG/Petrol Pump cases were filed at Pak-EPA. No Petrol Pump case was rejected. Four (04) Petrol Pump cases were accorded environmental approval whereas the rest cases remained under process of review; they could not be decided on account of either non-submission of responses or late submission of responses on part of the proponent thereby causing delay in cases decision.
- During the financial year 2023-24, Public Hearings of thirteen (13) EIA cases were successfully conducted.

4. <u>Biosafety Clearing House</u>

Pakistan Environmental Protection Agency, Ministry of Climate Change and Environmental Coordination is executing one (01) PSDP Project titled 'Pakistan Bio-Safety Clearing House for GMOs Regulation'.

The details about the aforementioned PSDP project are listed under the Chapter of Development Wing.

3.2. Zoological Survey of Pakistan (ZSP)

Introduction:

The Zoological Survey of Pakistan (ZSP) is a key Federal Agency involved in policy-making for wildlife conservation in the country. The mandate of ZSP is to monitor the current status and distribution of wildlife in Pakistan. Besides these objectives, ZSP is also mandated to maintain standard zoological collections for reference from different parts of the country, impart education, and raise awareness among the masses for biodiversity conservation.

Roles and Functions:

The Zoological Survey of Pakistan (ZSP) is committed to wildlife research, conservation, and policy support. Its key objectives are:

- To assess the distribution, population dynamics, and conservation status of Pakistan's animal life
- To conduct scientific research on the ecology and biology of wildlife
- To establish and maintain standard zoological collections for reference and study
- To provide expert advice to the government on zoological matters, including conservation, management and sustainable wildlife trade
- To offer training programs and promote public awareness about wildlife conservation

Targets, Activities, and Achievements

The detail of targets, activities & achievements during the current FY 2023-24 are as below:

1. **Target 1: Baseline Faunal Studies**

Pakistan recognizes the significance of its rare and threatened wildlife species, designating their habitats as National Parks, Wildlife Sanctuaries, and Game Reserves. Conducting baseline surveys in these protected areas is essential for assessing and monitoring biodiversity.

1.1. Survey for Baseline Faunal Studies of Jhimpir Reserve Zone, Protected Area, Sindh Province:

During the FY 2023-24, a Survey of Jhimpir Reserve Zone, a Protected area, in Sindh Province was carried out for the status of the faunal diversity. The report presents baseline data on the wildlife of the Community Reserve Zone (CRZ), Jhampir, collected in September 2023. The area lies between Kirthar National Park and Ramsar sites (Haleji and Keenjhar Lakes) and is crucial for migratory birds.

Activities:

During the fieldwork, various survey methods such as transect lines and point observation were used to study the ecology and diversity of the area. Several vantage points were selected for observing bird activities and marking sensitive habitats with GPS coordinates. These observations included areas with dense vegetation, agricultural lands, and water bodies. The abandoned coal mines were also visited to assess bat populations and identify significant ecological habitats that provide shelter and

feeding grounds for wildlife. The field visits spanned multiple areas within the CRZ, focusing on the conservation value of the site and gathering comprehensive data for future wildlife protection initiatives.

Achievements:

A study assessed wildlife in Jhampir's Community Reserve Zone, identifying 36 mammals, 281 birds, 24 reptiles, and 3 amphibians. Key species like Indus fishing cat and IUCN Red-listed bird species were identified. The study supports the CRZ's potential designation as a protected bio-reserve zone and recommends a 3-year monitoring plan for sustainable conservation.

2. Target 2: Annual Mid-Winter Waterfowl Census

Mid-winter waterfowl census is an annual activity of the department since 1982 carried out in the second week of January. The basic and essential motive of conducting these surveys is to estimate and monitor migratory waterfowl population annually and also study the trends of their population at various wetlands during migratory season i.e., winter (non-breeding). Pakistan is also signatory to the three Rio conventions i.e. CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora), CMS (Convention of Migratory Species) and Ramsar Convention. All these conventions require member states to protect the both migratory and resident fauna and their habitat. In addition, these surveys are crucial for promoting waterfowl conservation by raising awareness and interest among local communities about migratory water birds and wetlands. The collected data also provide substantial insights on population declines, causes of decline in time as well as trigger adequate management actions both at site and at flyway level.

Activities:

Field surveys of globally protected Ramsar sites and important wetlands of country for the population estimates of water birds, especially migratory waterfowl. The point count method was applied at each wetland. The community meetings were also held for awareness among local people regarding the importance of migratory water birds and wetlands.

During the current FY (2023-24), limited wetlands of Khyber Pakhtunkhwa, Punjab and Sindh province were visited for waterfowl census.

- **Khyber Pakhtunkhwa (KPK): Tarbela and Khanpur Dams:** The Zoological Survey of Pakistan conducted a preliminary survey in October 2023 at the Tarbela and Khanpur dams to study migratory bird migration.
    - **Activities:**

The team visited various shores of both dams, focusing on observing waterfowl and waders. During the survey, they recorded 902 individual water birds at Tarbela Dam, with a notable presence of migratory species such as the Common Pochard (Aythya ferina) and Gadwall (Anas streptera). In contrast, Khanpur Dam saw only 26 birds, with no migratory observed, likely due to high levels of human activity. The survey aimed to unravel the role of these reservoirs as stopovers for migratory birds and shed light on the challenges faced by bird populations, particularly at Khanpur Dam.

    - **Achievements:**

The survey identified Tarbela Dam as a vital habitat for migratory waterfowl, with 902 birds observed, including Common Pochard and Gadwall. The study also highlighted the negative impact of human activities on bird populations at Khanpur Dam.

- **Punjab Province:**

The following wetlands were surveyed in midwinter 2023-2024; Kallarkahar Lake, Namal Lake, Chashma, Jinnah and Rasool Barrages, Ucchali Wetlands Complex (Jhaller, Khabbeki, Uchhali and Ahmadabad lakes), Head Maralla and Head Qadirabad.

Total of 46 Species of both migratory and resident water birds were recorded with 30,737in number. Among these 46 bird species, 15 belong to Family Anatidae (Ducks). The highest number of birds were recorded at Chashma Barrage (16863), 2nd highest number were recorded at Uchhali lake (4,945), 3rd highest number were recorded at Head Maralla (2,678) followed by Rasool Barrage (1,275) Kallar Kahar lake (1,168), Jhaller Lake (1,097), Namal lake (915), Khabbeki Lake (889), Ahmadabad Lake (531), Jinnah Barrage (248) and Head Qadirabad (128).

- **Sindh Province:**

Nurri Lake, Haleji Lake, keenjhar Lake, Hudero Lake, Manchar Lake, Hammal Lake, Lungh Lake, Drigh Lake, Phoosna, Charri Lakes, Ranpu Dam, Bodesar Dam, Kajrasar, Sakkara, Narysar Dams, Sangha Lake and Runn of Kuch.

During the current waterfowl census at the wetlands of Sindh province, total of 191,334 water birds belonging to 87 species of both migratory and resident birds were recorded. The Nurri Lake was observed most populated with water birds' number (41,693) birds followed by Manchar lake (26,372) birds. The Common Coot (Fulica atra) was observed most abundant migratory bird with total number of (49,629) individual birds followed by Common Teal (Anas crecca) with number of (26,666) birds.

During the annual 2024, survey some rare and globally threatened migratory water bird species were also recorded at different wetlands. The Lesser Flamingo (Phoenicopterus minor), was observed at Runn of Kuch. The Indian Dartar or Snake bird (Anhinga melanogaster) which is very rare bird species was observed at Langh Lake. According to Sindh Wildlife Department, the species has been observed at any wetland of Sindh after 25 years, lastly the bird was observed at Haleji Lake in 1999. The other species like, oriental Ibis (Threskiornis melanocephalus), Lesser Whistling Teal (Dendrocygna javanica), Green-backed Heron (Butirides striatus) and Stone Curlew (Burhinus oedicnemus) have been recorded by team of Zoological Survey of Pakistan at any wetland of country.

3. Target 3: Studies on Threatened Species of Wildlife

3.1. Survey of Punjab Urial (Ovis vignei punjabiensis) in the Salt Range, Punjab:

During the current financial year 2023-2024, the Survey of Punjab Urial (ovis vignei punjabiensis) along with team of Punjab Wildlife Department, WWF Pak, and Academia, was carried out in the Salt Range, Punjab comprising four Districts, i.e. Jhelum, Chakwal, Khushab and Mianwali.

Objective:

The current surveys were aimed to record the population estimates of Punjab Urial. To suggest measures for protection and conservation of Punjab Urial and its habitat. Further, to recommend the government for sustainable harvesting (Trophy hunting) of Punjab Urial.

Activities:

Field surveys for the population estimates of Punjab Urial were carried out using the line Transect method. Transects were randomly taken in different habitats. Binoculars (Olympus 8-16x40, DPS-I) were used to spot the Urial. GPS coordinates were marked at the start and finish point of each transect using Garmin map 64 GPS receiver. Group composition of Urial was noted on pre-described Performa. Digital camera was used for taking photographs of Urial and its habitat.

Achievements:

The surveys were carried out in the month of October 2023, in mentioned four districts of Salt Range Punjab. The current counts revealed the population estimates of 2,744 individuals of Punjab Urial in the Salt Range. The monitoring of species through modern communication tools, public awareness, and empowerment of the local community for the conservation and protection of Punjab Urial are recommended.

3.2. Survey of Hog Deer and Wild boar in Changa Manga Protected Area, Punjab Province:

During the current financial year 2023-2024, the Survey of Hog dear (Axis porcinus) and wild boar (Sus scrofa) were carried out in Changa Mnaga Forest, Punjab along with team of Punjab Wildlife Department.

Objectives:

The main objectives of the survey were to determine the population estimates and density of both species in the area.

Activities:

Field surveys for the population estimates of Hog dear (Axis porcinus) and wild boar (Sus scrofa) were carried out at dawn, dusk and late night time using the line Transect method. Both direct and indirect evidence were recorded.

Achievements:

The field surveys were conducted in the month of June (19-25) in the Changa Manga, Punjab. The results of current study revealed the population estimates of Hog Dear is 972 individuals with 0.081 density per acre. While the estimated population of wild boar is 1,788 individuals with population density of 0.149 individual per acre.

Publication:

ZSP annually publishes the results of surveys and research in its Journal "RECORDS" Zoological Survey of Pakistan, to create awareness regarding important groups of animals. During the current financial year research articles writing and formatting for the upcoming volume-25 of Records Zoological Survey of Pakistan is in the pipeline.

3.3. Global Change Impact Studies Centre (GCISC), A Body Corporate Established Under the GCISC Act 2013)

Introduction:

The Global Climate-Change Impact Studies Centre (GCISC) was initially established as a developmental initiative in April 2002, with the mission to conduct research on climate change, its impacts, and potential solutions. Later, GCISC's status was formalized with the enactment of the GCISC Act 2013 by the Parliament, officially recognized through the Gazette of Pakistan on March 26, 2013, as Act No. XVII of 2013, amended in 2023. According to the Act, GCISC is designated as a corporate entity governed by a Board of Governors (BoG), presided over by the Federal Minister responsible for the relevant Ministry overseeing climate change matters.

The Centre is mandated to undertake scientific investigations of the phenomenon of climate change at regional and sub-regional levels and study its impacts on various sectors of socio-economic development in order to prepare the country to meet threats to its water resources, agriculture, ecology, energy, health, bio-diversity etc.

Roles and Functions:

GCISC, under the Act, is tasked with three functions, namely research, capacity building, outreach and awareness:

1. **Research:** the research program is driven by national policy goals, namely protecting people against the impacts of climate change, promoting economic growth and sustainable development in a climate-constrained future, and honoring Pakistan's international commitments. To these ends, research is organized in three groups:
    a. Climatology and Environment: using climate system models to predict future climate behavior in Pakistan, including monsoons, temperature, precipitation, and climate extremes.
    b. Water Resources and Glaciology: using glacio-hydrological and water models to assess future behavior of glaciers, aggregate and seasonal flows in the Indus River System, and changes in the hydrological extremes across the country.
    c. Agriculture, Forestry & Land Use: use of crop simulation models to predict the impact of projected changes in temperature, precipitation, and water availability on agriculture and food security of the country and to assess the impacts on Forestry, Land Use.
2. **Capacity building:** imparting technical and communication skills to GCISC staff as well as students and climate scientists at other national research organizations and universities.
3. **Dissemination of research findings:** to the scientific community, planners, policymakers, and to the public at large, in order to raise awareness of climate change among policymakers as well as the citizenry.

Activities:

Research:

The key research activities of the Research Sections revolve around following themes:

I. **Climatology & Environment Section:** The Climatology & Environment Section research areas focus on key aspects of climate variability and change, which can be summarized as follows:

- To assess historical climate trends over Pakistan and its regions;
- Climate profiling of Pakistan based on IPCC future climate scenarios (RCPs, SSPs etc.;

- To generate up-to-date information on changes in near to long term climate extremes and to study associated impacts; Study variations in summer monsoon patterns for impact assessments; High resolution climate information for future urban climate issues
- Intra seasonal to inter decadal climate predictions;
- Integrated modeling of air pollution and greenhouse gas emissions;
- Development & updating of GHG inventory of Pakistan for energy & industrial processes sectors;

II. Water Resources & Glaciology Section:

- Application of Machine Learning and Artificial Intelligence (AI) techniques to model Indus River System (IRS) flows;
- Climate change analysis for the high-elevation Hindukush-Karakoram- Himalaya (HKH) region;
- Application of different hydrological and cryosphere models to assess the water availability and variability (quantitatively) in space and time in the Indus River System (IRS) under the latest socio-economic and climate projections.
- Analysis of climate impact on the frequency and intensity of hydrological extreme events at seasonal and sub-seasonal scales;
- Drought prediction in the Indus Basin as a climate adaptation strategy;
- Plausible Adaptation strategies in line with national climate change and water policies to ensure the country's water security;
- Research dissemination (International and national scientific journals and books, newspaper articles, policy briefs, etc.);
- Capacity building, awareness raising and collaboration among National and International institutions, researchers and academicians
- Identification of location and time-specific climate extremes (dry and warm) for related impacts on water availability and variability from different sources (surface water and groundwater)

III. Agriculture, Forestry and Land Use Section:

- Assess impacts of projected climate change on productivity of key agricultural crops in different climatic zones using crop models;
- Assess impacts on related areas, including productivity of forestry, grasslands, rangelands and fragile ecosystems (i.e., mountains, wetlands, coasts, and arid areas); livestock; and land degradation and deforestation, insect-pest infestation dynamics;
- Assess food security in the face of future climate change and especially under reduced availability of irrigation water;
- Devise adaptation measures, including smart agriculture;
- Studies on water, food, energy nexus;
- Updating GHG emissions from agriculture, forestry and land use and waste sectors.
- Research dissemination (International and national science journals and books, newspaper articles and policy briefs etc.)
- Capacity building and awareness raising

Goals and Targets:

Throughout the year, GCISC made notable advancements in the international scientific literature concerning climate change and its associated effects, while also offering substantial inputs to various research projects. Additionally, the organization conducted several workshops and seminars aimed at disseminating information and raising awareness on pertinent issues:

The following is a summary of the accomplishments in 2023-24:

- Publication of key research findings in scientific journals=17
- Contribution towards technical reports=10
- Organization of scientific activities/workshops/seminars for information dissemination and awareness=20
- Scientific contributions/presentations and effort on capacity building of GCISC young scientists through academic and specialized trainings and participation in online conferences, workshops etc. at International level (Nos)=25
- Effort on capacity building of GCISC young scientists through academic and specialized trainings and participation in conferences, workshops etc. at National Level (Nos)=85
- Scientific Contributions and Presentations in National Conferences and Workshops=48
- Provision of training to university students across Pakistan in the field of climate change through GCISC internship program=27
- Responses to NA/Senate starred questions and provided inputs (presentations/ briefs) for NA Standing Committee on Climate Change on the aspects of Climate Change=13
- Muhammad Arif Goheer, Principal Scientific Officer/ Head-Agriculture and Coordination contributed to UNFCCC's Consultative Group of Experts (CGE) activities
- Shahbaz Mehmood, Head Climatology & Environment delivered key note speech and participated as a panelist at a seminar titled "Current Affairs & Climate Change and its Impacts on Pakistan", organized by Karachi Council on Foreign Relations (KCFR)
- Contributions to Pakistan's 1st Biennial Update Report submitted to UNFCCC in 2022
- GCISC provided technical inputs in the preparation of National Adaptation Plan
- GCISC in collaboration with LUMS Energy Institute organized a one-day stakeholder workshop at the LUMS, Lahore under TNC Project. Two GCISC scientists delivered lectures, and participated as panelist in the event
- GCISC successfully conducted stakeholders' consultation across the country for data collection and reconciliation required for the preparation of National GHG Inventory to be reported in the Third National Communication of Pakistan to streamline the data providers, sectoral experts and reviewer in the GHG inventory process for future reporting to the UNFCCC
- Reports on Subnational Climate Risk Profiles for Punjab and KP provinces of Pakistan under GIZ's Strengthening Climate Adaptation and Resilience (SAR) Program
- GCISC has been awarded a contract by the Ministry of Climate Change & Environmental Coordination (MoCC&EC) to contribute in various chapters of Third National Communication (TNC)
- Development of MRV platform for GHG Inventories & MRE platform for Adaptation tracking in Agriculture (Pilot basis)
- GCISC co-organized a one-day capacity building seminar on Climate Change Impacts, Air Pollution, and Climatic Extremes for faculty members and students at the University of Sargodha. Three scientists from Climatology & Environment Section delivered talks and had focused meetings on climate change curriculum with faculty members of various departments.
- One Water Section Scientist is working as a Co-PI in "Flash Floods Harnessing for the Prosperity of Arid and Resource-stressed Neglected Agro-based Communities (ProNAC)" approved by Higher Education Commission (HEC) in National Research Program for Universities (NRPU) (Ongoing)
- Global Climate-Change Impact Studies Centre (GCISC) is leading a project on Climate Risk Assessments under GIZ's Strengthening Adaptation and Resilience (SAR) Programme. Water section taking the lead as Expert Working Group Coordinator to perform Climate Risk Assessment (CRA) related to the Water Sector

Achievements and Salient Research Findings:

I. Research:

a. The projections over the Upper Indus Basin at 1.5 °C and 2.0 °C temperature increase

This study investigates future water availability in the Upper Indus Basin (UIB) of Pakistan for the time horizons when the global and/or regional warming levels cross Paris Agreement (PA) targets. The GCMs data is obtained from the 5th Phase of Coupled Model Inter-Comparison Project under two Representative Concentration Pathways (RCP4.5 and RCP8.5). Based on the five best performing GCMs, we note that global 1.5°C and 2.0°C warming thresholds are projected in 2026 and 2047 under RCP4.5 and 2022 and 2036 under RCP8.5 respectively while these thresholds are reached much earlier over Pakistan i.e. 2016 and 2030 under RCP4.5 and 2012 and 2025 under RCP8.5 respectively. Interestingly, the GCMs with the earliest emergence at the global scale are not necessarily the ones with the earliest emergence over Pakistan, highlighting spatial non-linearity in GCMs response. The emergence of 2.0°C warming at global scale across 5 GCMs ranges from 2031 (CCSM4) to 2049 (NorESM) under RCP8.5. Precipitation generally exhibits a progressive increasing trend with stronger changes at higher warming or radiative forcing levels. Hydrological simulations representing the historical, 1.5°C and 2.0°C global and region warming time horizons indicate a robust but seasonally varying increase in the inflows. The highest inflows in the baseline and future are witnessed in July. However, the highest future increase in inflows is projected in October under RCP4.5 (37.99% and 65.11% at 1.5 °C and 2.0 °C) and in April under RCP8.5 (37% and 62.05% at 1.5 °C and 2.0 °C). These hydrological changes are driven by increases in the snow and glacial melt contribution, which are more pronounced at 2.0 °C warming level. These findings should help for effective water management in Pakistan over the coming decades.

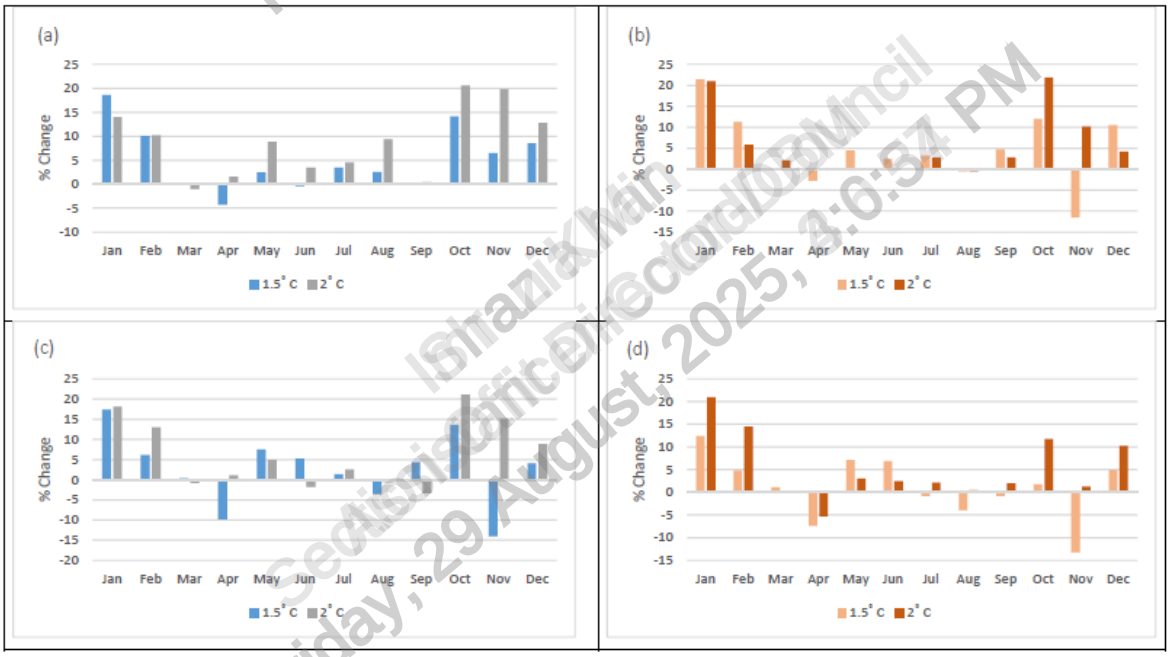


Figure 01: Emergence of 1.5 and 2.0 ℃ warming over Globe and Pakistan relative to pre-industrial period (1851-1880) projected by ensemble of 5GCMs (upper panel) and individual GCMs (lower panel) (a) emergence of 1.5 and 2.0 ℃ at global scale, (b) emergence of 1.5 and 2.0 ℃ at regional scale under RCP4.5 (solid line) and RCP8.5 (dotted lines).

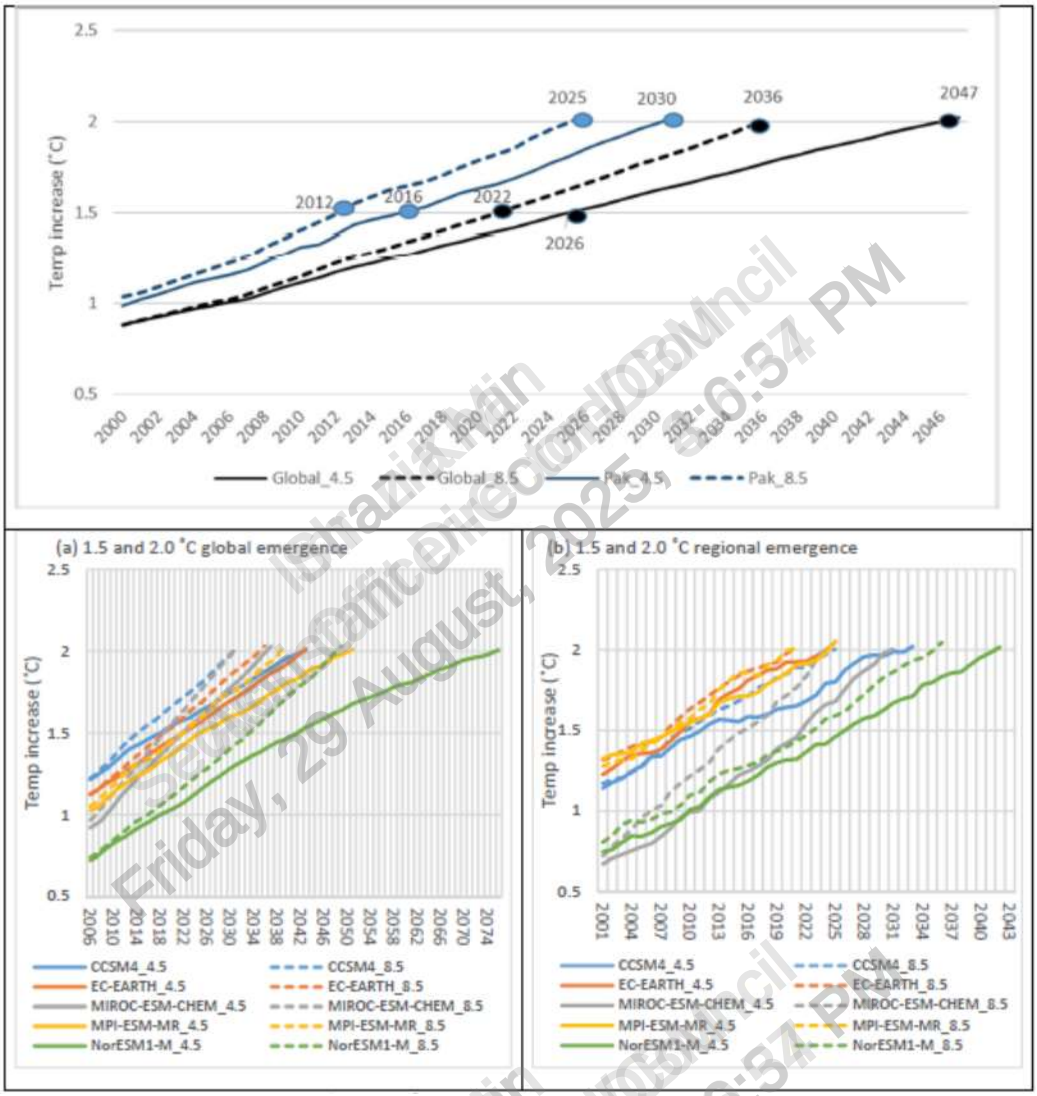


Figure 02: Percent change in precipitation compared to historical period (1976-2005) over UIB under 1.5 and 2.0 ℃ warming at Global level (a,b) and at Pakistan (c,d) relative to preindustrial period (1851-1880) under RCP4.5 (left) and RCP8.5 (right)

b. Black carbon emissions inventory and scenario analysis for Pakistan:

Black carbon (BC) emissions, resulting from the incomplete combustion of carbonaceous fuels, have been extensively linked to adverse impacts on air quality, climate change, and public health. This study aims to present a comprehensive evaluation of Pakistan's BC emissions inventory for the year 2021, along with projections until 2050, utilizing two distinct scenarios: the reference emission scenario (RES) and the accelerated reduction scenario (ARS). To derive these estimates, we employ the GAINS integrated assessment model, which accounts for technology-specific characteristics in sources and regions. Notably, this study goes beyond conventional approaches by addressing the often-overlooked sources of BC emissions, including kerosene lighting, bricks production, diesel generator sets, and natural gas flaring. Our analysis reveals that Pakistan's total BC emissions in 2021 amounted to 180.8 thousand tons (kt), with domestic-residential combustion being the predominant contributor, accounting for more than half (105.7 kt) of the total emissions. The transport, industry, waste, agriculture, power plants, and fuel conversion sectors contributed 26.1 kt, 20.1 kt, 10.7 kt, 8.9 kt, 6.0 kt, and 0.9 kt, respectively. Projecting ahead, we anticipate that the total BC emissions in

Pakistan will reach 200.9 kt by 2050 under the RES, while the ARS predicts a significant reduction to 40.6 kt. The ARS achieves more rapid and substantial BC reductions by emphasizing the adoption of cleaner fuels, improved biomass stoves, high-efficiency emission control technologies, and ban on open burning of uncollected waste and crop residue. This study underscores the considerable potential for reducing BC emissions across various sectors in Pakistan over the next three decades.

Table 01: Projected reductions in BC EFs for various source categories

Scenarios	Sector	Fuel activity	EF reduction compared to 2021	Year achieved
Reference Emission Scenario	Domestic	-	-	-
	Transport	-	-	-
	Industry (combustion)	-	-	-
	Industry (processes)	-	-	-
	Power	-	-	-
	Natural gas flaring	-	-	-
	Fuel conversion	-	-	-
	Agriculture	-	-	-
	Waste	-	-	-
Accelerated Reduction Scenario	Domestic	Fuelwood cooking	67%	2035
		Fuelwood heating	68%	2035
		Kerosene lighting	100%	2025
	Transport	Heavy-duty diesel buses & trucks	94%	2045
		Diesel rail	100%	2040
		Diesel agriculture machinery	98%	2040
		Gasoline non-road machinery	53%	2040
		Heavy-duty gas buses & trucks	65%	2035
		Motorcycles gas 2-stroke	51%	2050
		Motorcycles gas 4-stroke	64%	2050
	Industry (combustion)	Heavy fuel oil boilers & other combustion	100%	2025
	Industry (processes)	Cement production	100%	2025
		Glass production	100%	2025
		Lime production	100%	2025
		Bricks production	85%	2050
	Power	Furnace oil existing & new power plants	100%	2025
	Natural gas flaring		-	-
	Fuel conversion		-	-
	Agriculture	Agriculture waste burning	100%	2040
	Waste	MSW open burning	100%	2035

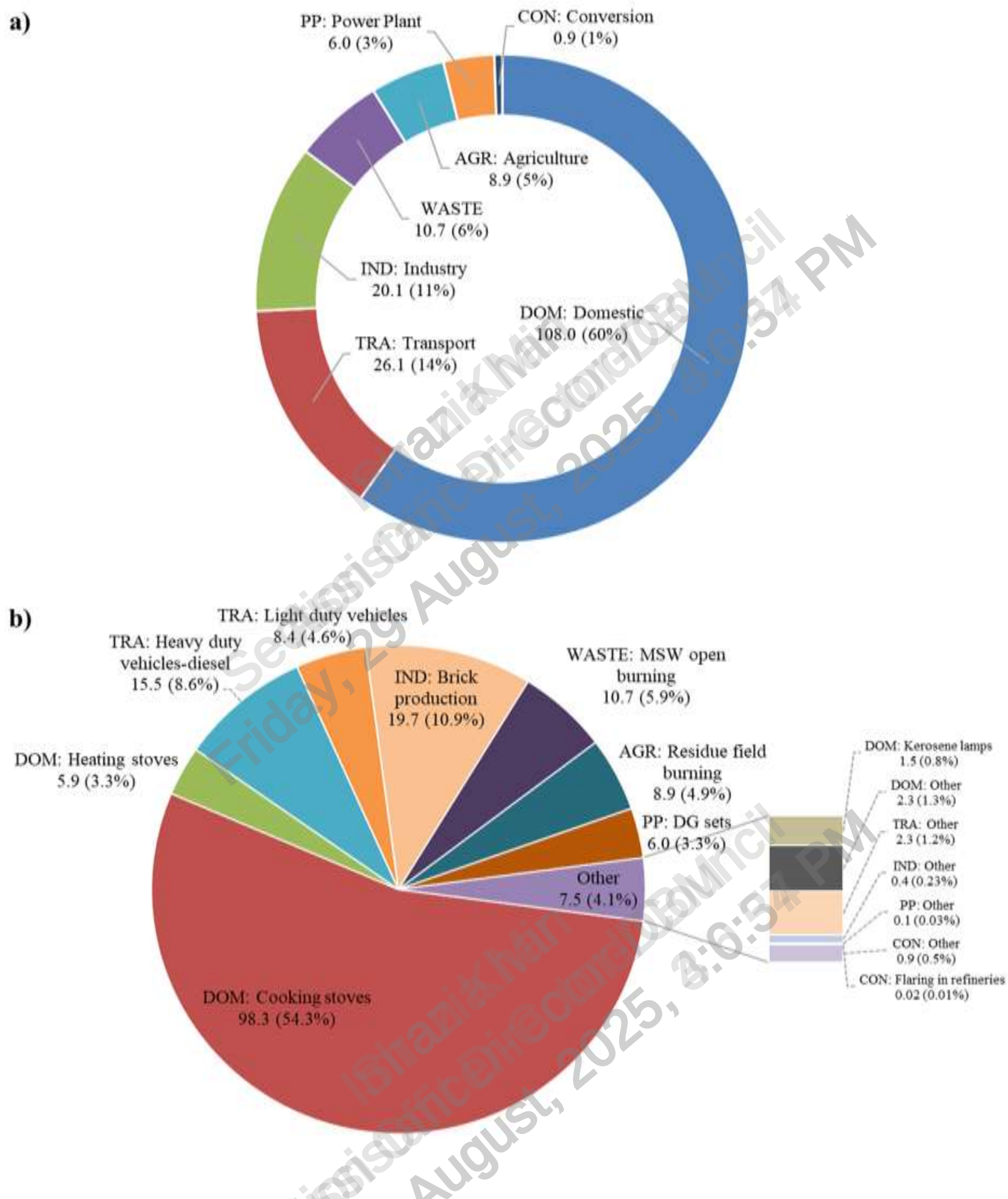


Figure 03: BC emissions in kilotons (kt) and the sectoral (a), sub-sectoral (b) contributions in percent (%) in Pakistan for the year 2021.

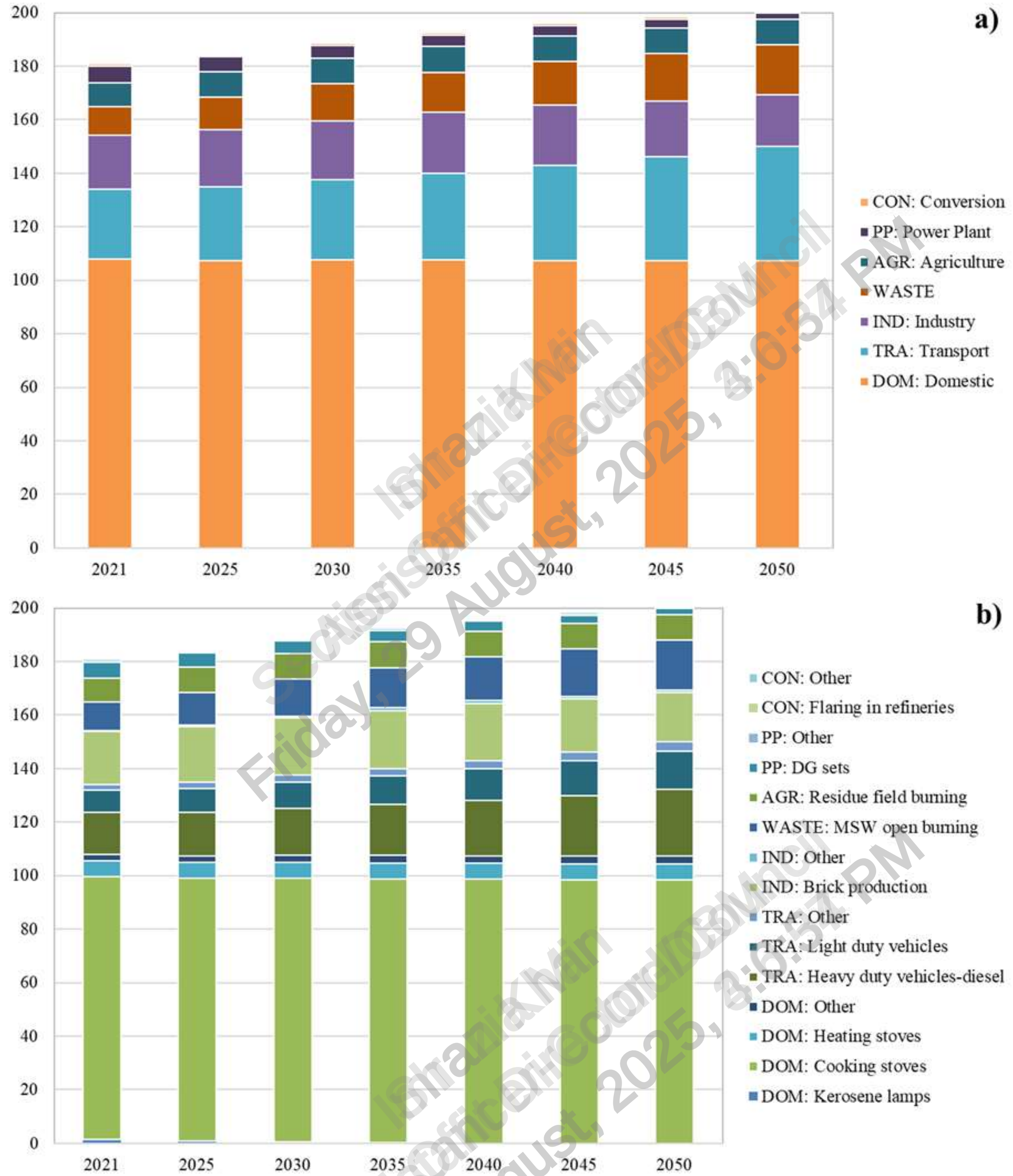


Figure 04: BC emissions in kilotons (kt) by key sectors (a) and sub-sectors (b) in Pakistan under the RES, from 2021 to 2050

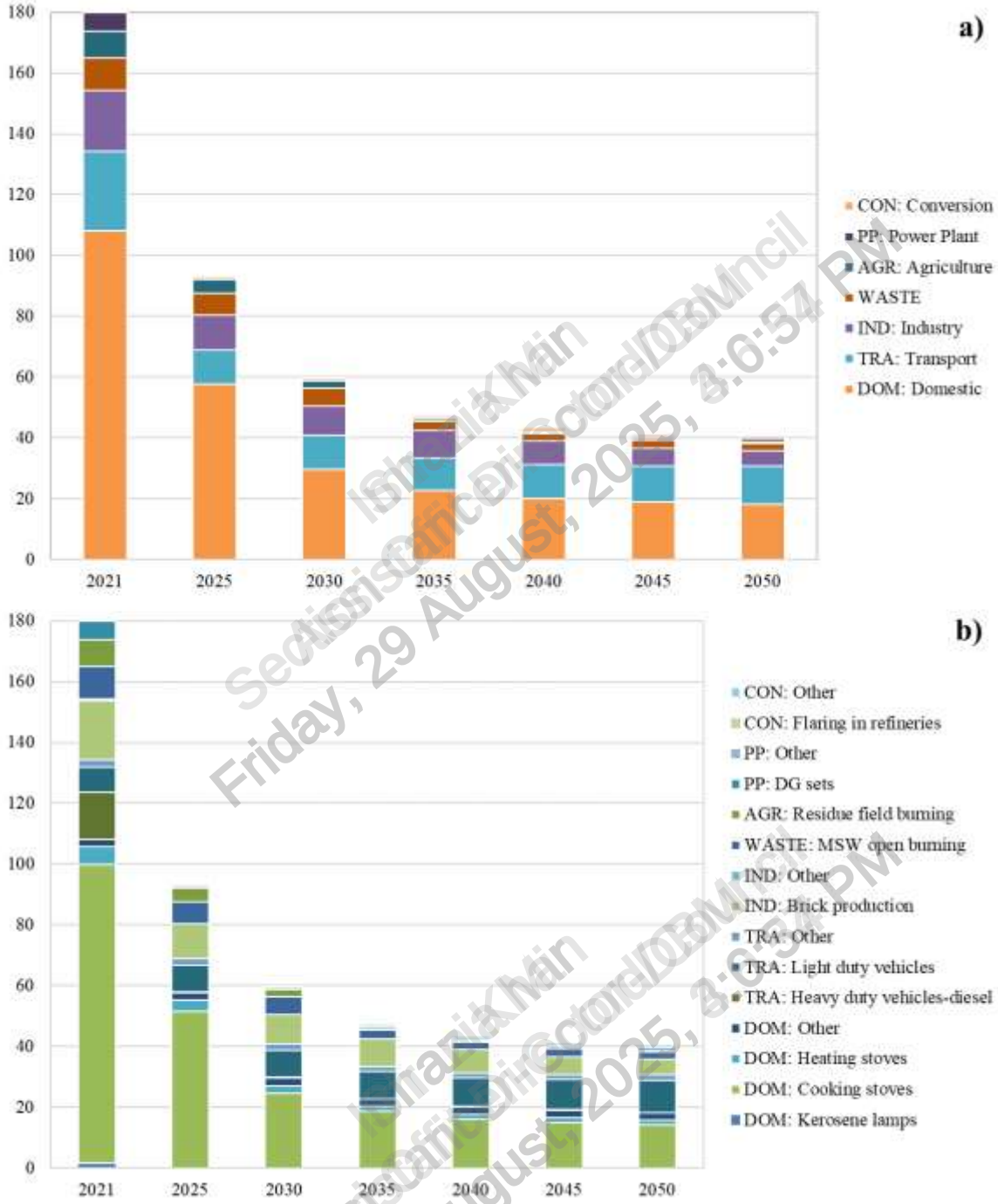


Figure 05: BC emissions in kilotons (kt) by key sectors (a) and sub-sectors (b) in Pakistan under the Reference scenario, from 2021 to 2050

Table 02: BC reduction in the ARS and contributions of changes in fuel consumption and reductions in EFs

Year	Sectors	Total reductions (kt)	Contribution of changes in fuel consumption (%)	Contribution of reductions in EFs (%)
2030	Domestic	78.1	7	93
	Transport	18.8	9	91
	Industry	12.3	21	79
	MSW open burning	7.8	0	100
	Agricultural waste burning	7.2	0	100
	Power plant	4.7	40	60
	Fuel conversion	0.0	5	95
	Total	128.9	12	88
2050	Domestic	89.1	14	86
	Transport	30.3	26	74
	Industry	14.34	33	67
	MSW open burning	16.08	0	100
	Agricultural waste burning	9.1	0	100
	Power plant	1.32	79	21
	Fuel conversion	0.0	6	94
	Total	160.24	32	68

c. A

5-km gridded product development of daily temperature and precipitation for Bangladesh, Nepal, and Pakistan from 1981 to 2016:

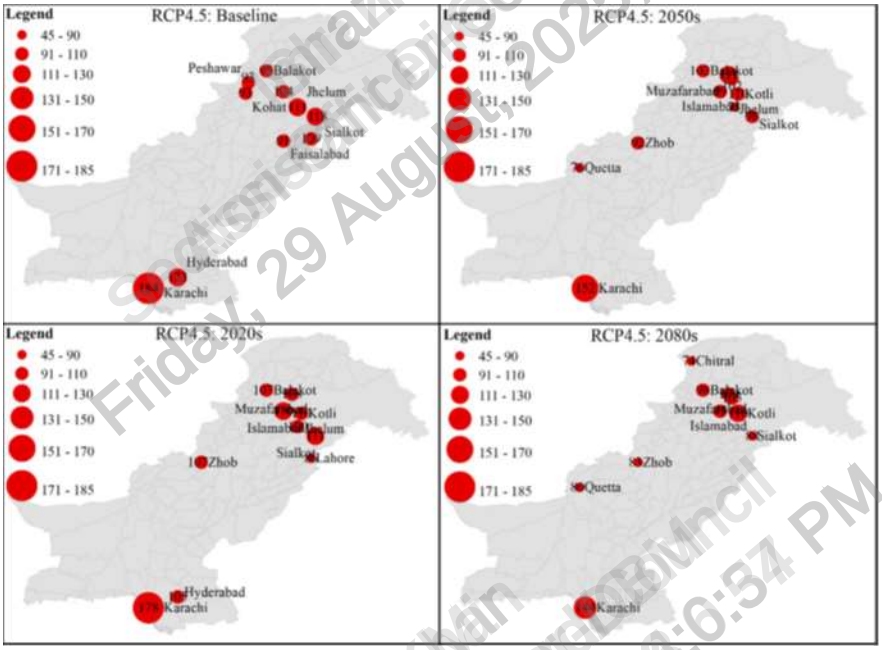
Many efforts have been made by the scientific community to produce gridded datasets with high spatial resolution because they are essential for climate change assessment, impact studies, decision-making, etc. This study fits into this context and describes the methods used to prepare a 5-km gridded product of precipitation and minimum and maximum temperatures by merging observed data from meteorological stations, from 1981 to 2016, of Bangladesh, Nepal, and Pakistan with ERA5 reanalysis. The step-by-step methods for station data quality control and the development of the 5-km gridded data are presented. Additionally, we use the 5-km dataset to show the main climate features of the three countries, which facilitate comparison with other data sources in the literature.

d. Modelling the impact of climate change on dengue outbreaks and future spatiotemporal shift in Pakistan:

Climate change has a significant impact on the intensity and spread of dengue outbreaks. The objective of this study is to assess the number of dengue transmission suitable days (DTSD) in Pakistan for the baseline (1976–2005) and future (2006–2035, 2041–2070, and 2071–2099) periods under Representative Concentration Pathway (RCP4.5 and RCP8.5) scenarios. Moreover, potential spatiotemporal shift and future hotspots of DTSD due to climate change were also identified. The analysis is based on fourteen CMIP5 models that have been downscaled and bias-corrected with quantile delta mapping technique, which addresses data stationarity constraints while preserving future climate signal. The results show a higher DTSD during the monsoon season in the baseline in

the study area except for Sindh (SN) and South Punjab (SP). In future periods, there is a temporal shift (extension) towards pre and post-monsoon. During the baseline period, the top ten hotspot cities with a higher frequency of DTSD are Karachi, Hyderabad, Sialkot, Jhelum, Lahore, Islamabad, Balakot, Peshawar, Kohat, and Faisalabad. However, as a result of climate change, there is an elevation-dependent shift in DTSD to high-altitude cities, e.g. in the 2020s, Kotli, Muzaffarabad, and Drosh; in the 2050s, Garhi Dopatta, Quetta, and Zhob; and in the 2080s, Chitral and Bunji. Karachi, Islamabad, and Balakot will remain highly vulnerable to dengue outbreaks for all the future periods of the twenty-first century. Our findings also indicate that DTSD would spread across Pakistan, particularly in areas where we have never seen dengue infections previously. The good news is that the DTSD in current hotspot cities is projected to decrease in the future due to climate change.

Figure 06: Hotspots cities of dengue transmission based on climate suitability of Pakistan for baseline (1976–2005) and future periods 2020s, 2050s, and 2080s under RCP4.5



e. Wavelet coherence of monsoon and large-scale climate variabilities with precipitation in Pakistan:

Monsoon and its teleconnection with earth system internal processes affect the spatiotemporal distribution of precipitation and water resources. In this paper, the wavelet coherence analysis has been utilized, a time and frequency domain methodology for comparing the spectral features of two independent time series superior to linear approaches. This technique is used to capture the significant modes of variabilities in the Indian Summer Monsoon Index (ISMI) and large-scale climate indices (CIs) between ocean-atmosphere oscillations, like Indian Ocean Dipole (IOD), El Nino Southern Oscillation (ENSO), Pacific Decadal Oscillation (PDO), Southern Oscillation Index (SOI), North Atlantic Oscillation (NAO), Atlantic Multidecadal Oscillation (AMO) and Arctic Oscillation (AO) over Pakistan. Precipitation time series during 1960–2016 revealed significant inter-annual coherences with ISMI, whereas, the remaining CIs (IOD, ENSO, PDO, SOI, NAO, AMO and AO) revealed inter-annual, decadal and inter-decadal coherences. However, AO revealed strongest coherences in R-II, III and VI at inter-decadal scales among all CIs. Overall, the inter-annual cysles on ISMI are 2.8 years, IOD 1–5.3 years, PDO 0–5.3 years, SOI 1–5.3 years, NAO 0–5 years, AO 0–5 years and AMO 0–8.3 years. Whereas, the remaining CIs shared inter-decadal coherences over particular regions. The ISMI displayed coherences (except in the UIB) with the large-scale CIs over

various homogenous regions on an inter-annual scale. The dominant influence of ISMI is observed in R-II and III; the significant coherences in R-II ranged from ~8–32 months (~0.8–2.8 years). The IOD and NAO have major coherences than the remaining large-scale CIs ranging from ~16–64 months (1.3–5.3 years). The AO has the most significant coherences observed in R-II, III, and VI on the decadal/ interdecadal scale from 128 months and above (almost 10–15 years). On a 1.0-year time scale, all homogenous regions demonstrated strong intermittent coherence with ISMI, IOD, ENSO, PDO, SOI, NAO, AMO and AO. These findings have substantial implications for decision-makers and scientists in Pakistan looking to enhance water resource planning and operations in the face of future climate uncertainties.

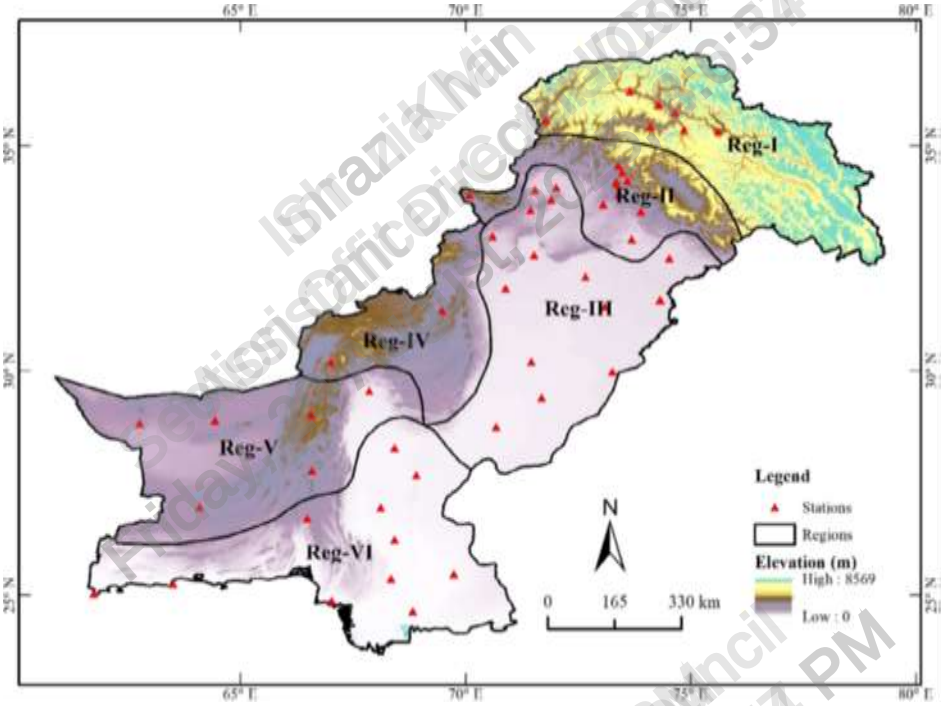


Figure 07: Distribution of meteorological stations in precipitation homogenous climatic regions of Pakistan

f. Comparative Analysis of Selected Glaciers of Hunza Basin, Pakistan since 1972–2018: Varied Responses to Climate Change

Snow and glaciers are very sensitive to changing climate. Glaciers in the central Karakoram, western Himalaya and eastern Hindukush mountain ranges are not responding to global warming in the same manner as their counterparts around the world. Glaciers in this region are behaving differently. Some are retreating, while others are stable or surging. It is important to monitor these changes to protect downstream communities from the negative consequences. This study is conducted to monitor the state of the selected glaciers of Hunza River Basin, such as Batura, Passu, Ghulkin, Gulmit, Baulter, Barpu, Samaiyar Bar, Muchu har, and Shishper glaciers were analysed using Digital Elevation Model and satellite images for 1972, 1979, 1990, 1998, 2008 and 2018. A semi-automatic approach was adopted to delineate the glacier boundary sup plemented by manual editing. These glaciers show different fluctuations over the last fifty years. The Batura glacier showed surge in the 1970s and then retreated followed by quiescence. There is no prominent change in Ghulkin, Barpu, and Samaiyar Bar glaciers while almost 40 m per year retreat was observed in Passu and Gulmit glaciers but Muchuhar retreated at a faster rate. The surge of Shishper results in the formation of glacier-dammed lake which has so far triggered four Glacial Lake Outburst Floods (GLOFs). Overall, area of nine glaciers decreased from 596.54 ± 31.02 km2 in 1972 to 568.52 ± 8.51 km2 in 2018, which accounts for 4.8%

decrease in area. This decrease will affect landscape development, regional hydrology and people living downstream.

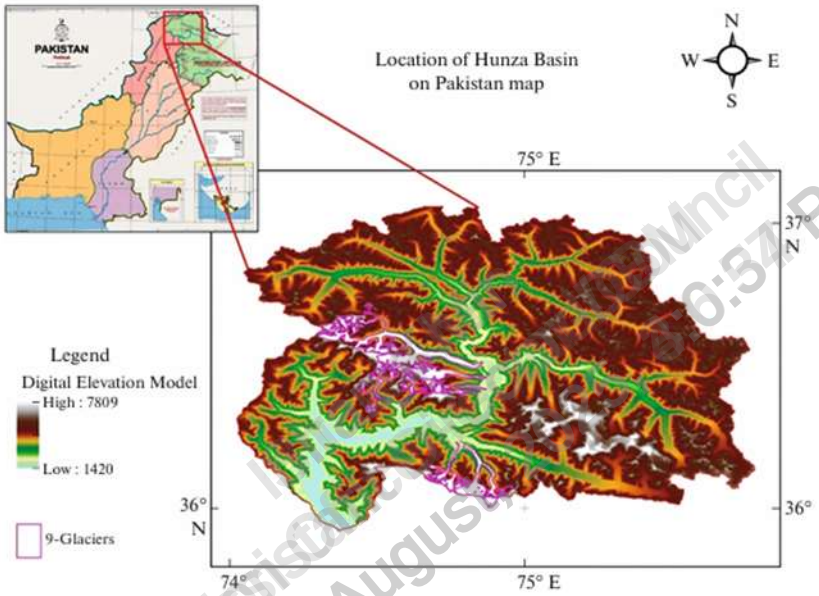


Figure 08: Location map of the Hunza Basin

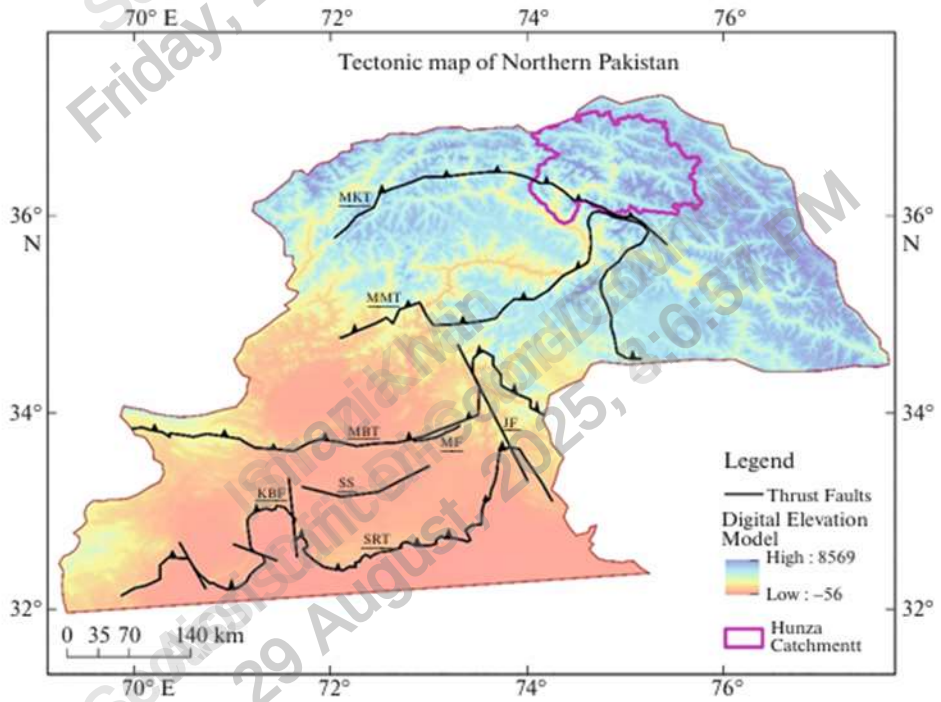


Figure 09: Tectonic map of Northern Pakistan.

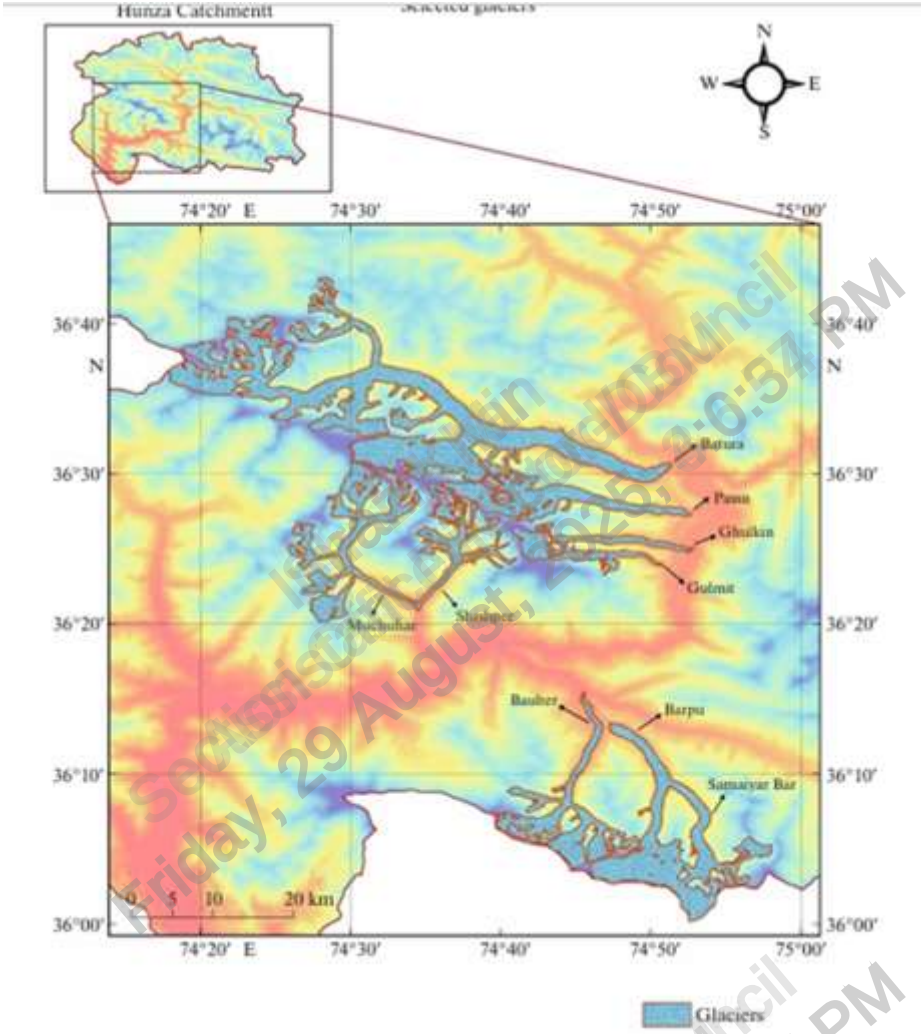


Figure 10: Digitization of glaciers.

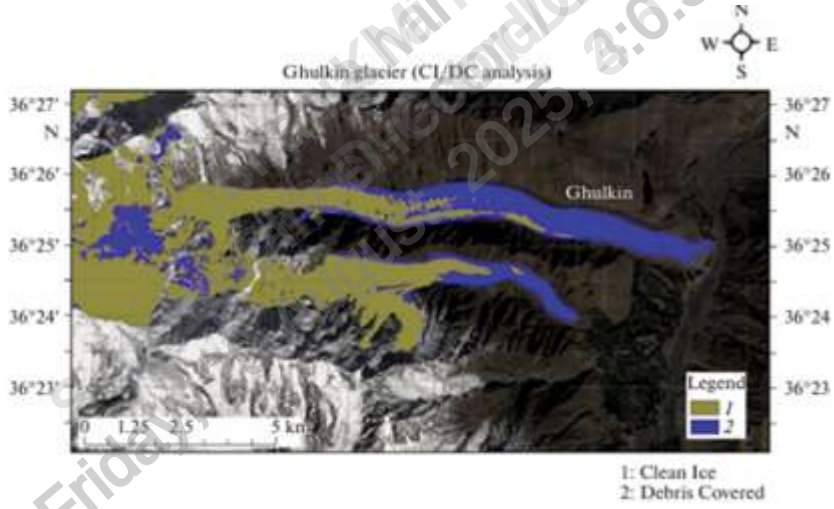


Figure 11: Ghulkin glacier (CI/DC analysis).

Increased climate variability and growing populations in the Indo-Gangetic Plain (IGP) of South Asia exacerbate pressures on existing natural resources. In the IGP, agriculture is the primary source of livelihood and is responsible for ~ 90% of total freshwater consumption. Water availability and demand in the region are highly variable within and between the years, posing threats to sustained water use for food production. To address this concern, we investigated supplemental irrigation as an adaptation strategy by determining the effects of optimal irrigation scheduling, including quantity and time, during critical crop growth stages of wheat using the Crop Kites concept. Crop kites investigate the relationship between water use and yield, showing that this can change substantially between locations and years. This study explores the potential of increasing water productivity in irrigated fields with supplemental irrigation. Specifically, we investigate the potential of maximally reducing irrigation while minimally reducing yield. This analysis assumes perfect information on the best irrigation schedule a priori, estimating an upper limit on the yield potential and water savings of investing in supplemental irrigation practices and infrastructure. Additionally, we focus on the added benefits of supplemental irrigation regarding irrigation water productivity. The hydrology and vegetation model, Lund Potsdam Jena managed Land (LPJmL), is used to simulate crop yields of 16 rain fed crops with 20,000 different irrigation schedules in India at 30 arcminute resolution (around 50 km at the equator) under two irrigation scenarios. Our modelling results show that the same total irrigation amount distributed differently can produce significantly different outcomes. For example, in our study, the Crop kite for a specific location but for a different year showed 60% of the previous maximum, with a slight increase in water use. Our results of crop water productivity under the prioritizing irrigation water productivity scenario show that by using 4% of the total irrigation water, we maintain 56% of the full irrigation harvest. Furthermore, our other statistical analysis results under maximizing irrigation water productivity show that by using 23% of the irrigation water, 84% of the full irrigation harvest is maintained. Our study outcomes suggest that an optimal distribution of supplemental irrigation is a promising adaptation measure to help increase water productivity and yields and buffer climatic variability with limited water availability.

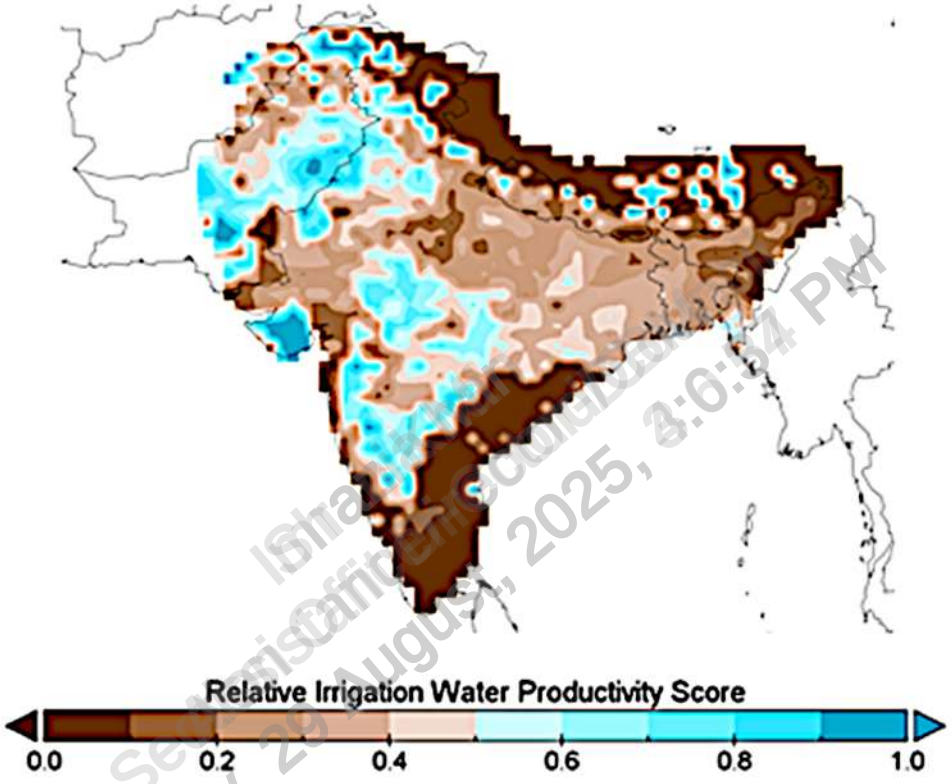


Figure 12: Irrigation water productivities for the same crop over the whole study domain for 2000 over most of south Asia.

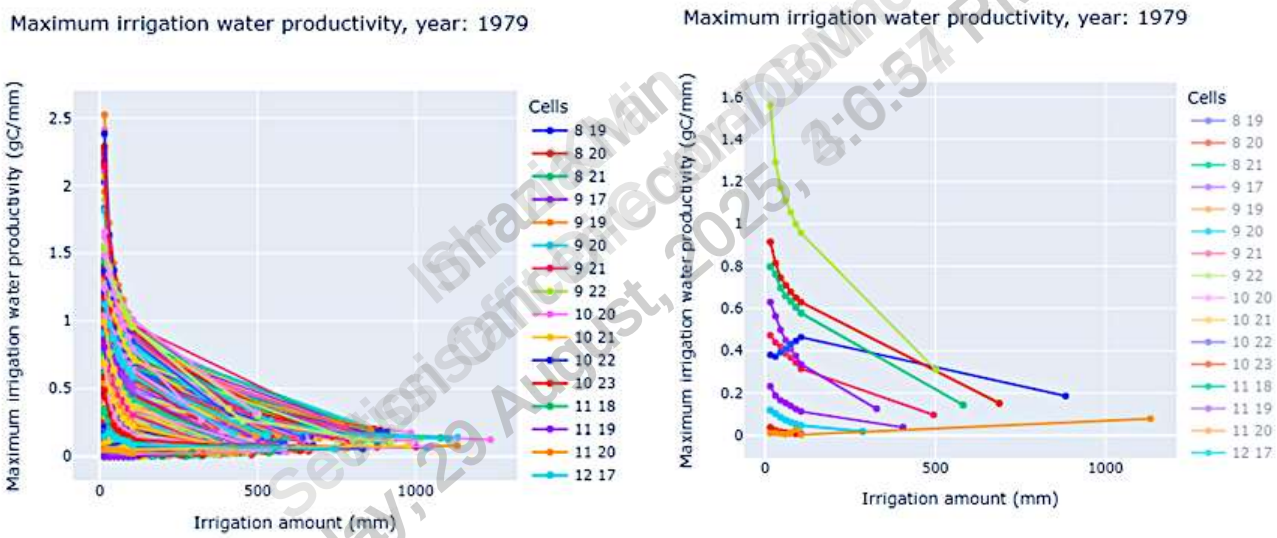


Figure 13: Maximum irrigation water productivity

The relationship between crop water use (evapotranspiration) and crop yield is complex and is influenced by climate, soil, and irrigation management. The space of water uses and crop yield relationships is referred to as a Crop kite. Crop kites show the relationship between water use and crop yield for a specific crop, location, and season. The lines in Fig. 13(a) and 13(b) represent the top line of the bonus yield irrigation Crop kites, illustrating the solution space between irrigation water

use and bonus yield. These top lines represent the highest bonus yield irrigation water productivity simulated for each total irrigation amount. Fig. 14 shows two different crop kites for two locations in the same year (2000).

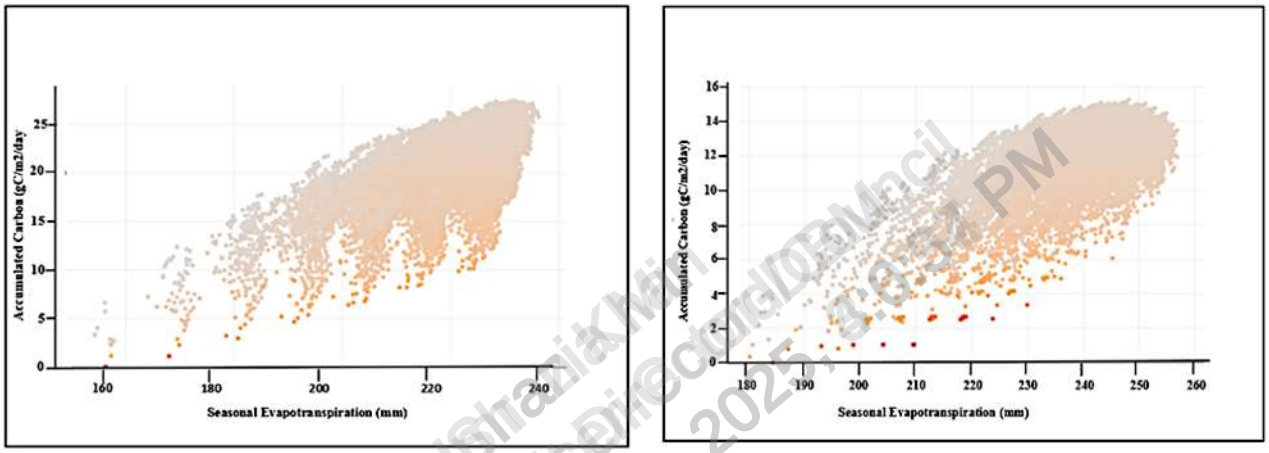


Figure 14: Crop kite. The x-axes represent seasonal evapotranspiration (mm), and the y-axis represents accumulated carbon (gC m-2 d-1). Each panel represents a Crop kite for a different location (grid cell). Each point results from at least one simulation of a different irrigation scheduling for a specific year, crop, and location. Notice that the left figure has much higher y-values (yield) than the figure on the right but with the same amount of evapotranspiration

It is also observed that the same amount of evapotranspiration can result in strikingly different yields. The crop kite for a specific location can change similarly in shape, with maximum yield and evapotranspiration levels. To understand the importance of location-specific irrigation application, we have overlapped the two Crop kites of wheat, representing the relationship between crop water use and yield for a different year (Fig. 15).

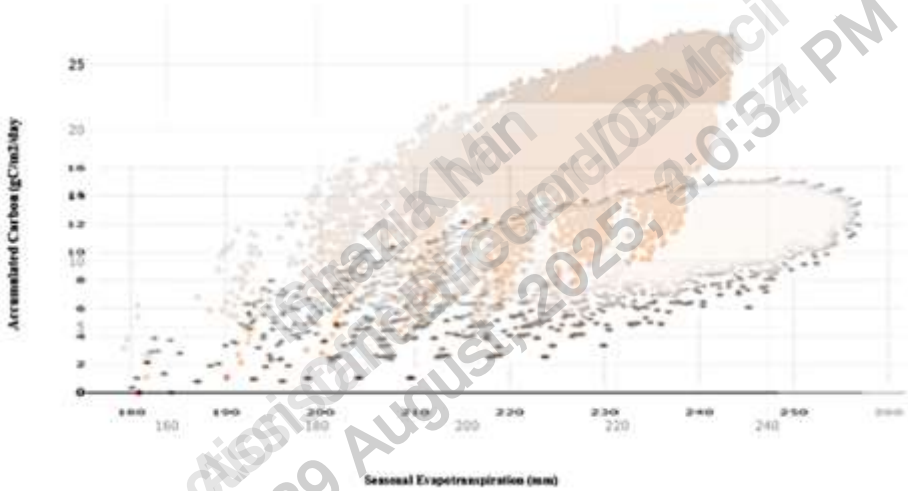


Figure 15: Crop kites for different years, at the exact location and both for wheat. The x-axes represent seasonal evapotranspiration (mm), and the y-axis represents accumulated carbon (gC m-2 d-1), a proxy for yield.

Table 04: Values used under Prioritizing irrigation water productivity Scenario

Variable	*Amount*	*variable estimated*
Rain fed harvest	6053	gC/m2* Irr_frac (H)
Optimized Irrigated harvest	7624	gC/m2* Irr_frac (H)
Optimized Irrigation bonus harvest	1571 = 7624 - 6053	gC/m2* Irr_frac (H)

Optimized Irrigation application	2303	mm/m2* Irr_frac (W)
Optimized Irrigation WP	0.68 = 1571/2303	gC/mm* Irr_frac (WP)
Irrigated harvest	13591	gC/m2* Irr_frac (H)
Irrigation bonus harvest	7538 = 13,591 - 6053	gC/m2* Irr_frac (H)
Irrigation application	53,674	mm/m2* Irr_frac (W)
Irrigation WP	0.14 = 7538/53,674	gC/mm* Irr_frac (WP)

Irrigation water application decreases 96% = (53,674 – 2303)/ 53,674 compared to the full irrigation application amount (drops to 4% = 2303/53,674 of the full irrigation amount), while irrigation bonus harvest decreases 79% = (7538-1571)/7538 from the harvest from full irrigation application amount (drops to 21% = 1571/7538 of the harvest from full irrigation).

g. Sub-National Climate Risk Profile:

Sub-national risk profiles for Punjab and KPK have been developed by the Global Climate-Change Impact Studies Centre (GCISC) with the assistance of BMZ, Germany through GIZ Pakistan.

CRP DATA Details:

CMIP6 RCP-SSP Scenario Framework

13 GCM Ensembles Downscaled and Bias Corrected GCM at 0.25 degree

Baseline (1974-2015), Future (F1: 2021-2060) & (F2: 2061-2100)

Provincial Climate Risk Profiling is performed on a seasonal (Summer and Winter) scale. This CRP is divided into the following three main sections:

Climate Projections/ Trends: (Spatial and Temporal):

Climate Extreme Indices (CEI):

- Seasonal temperature and Precipitation Extremes
- Frequency and Intensity of Warm, Dry, Wet and Cold Extremes
- Very hot days, Very Cold days
- Growing Degree days
- Impacts of Climate Change on the following Sectors:
- Agriculture, Water Resources, Infrastructure, Ecosystem, Health

Major Findings of CRA-CRP Project:

- The seasonal temperature changes show diverse patterns over different areas in Punjab. Summer temperatures show an increase of 3.5 °C in the North with the largest increase of 4 °C in the South. During winter, there is more warming expected with a higher increase above 4 °C across the whole Punjab under extreme climate scenarios
- Precipitation trends are uncertain and show distinct patterns in future across seasons in the province. Summer precipitation is projected to increase significantly (150 mm to 300 mm) in upper Punjab during the late century period under RCP-SSP 585. Future dry and wet periods are likely to become more extreme
- In the Punjab agricultural sector, the environmental indicators, including extreme precipitation and temperature, are no longer conducive to the current cropping patterns and intensities

across the province. This situation necessitates the redistribution of cropping zones based on altered climate variables and adaptation measures

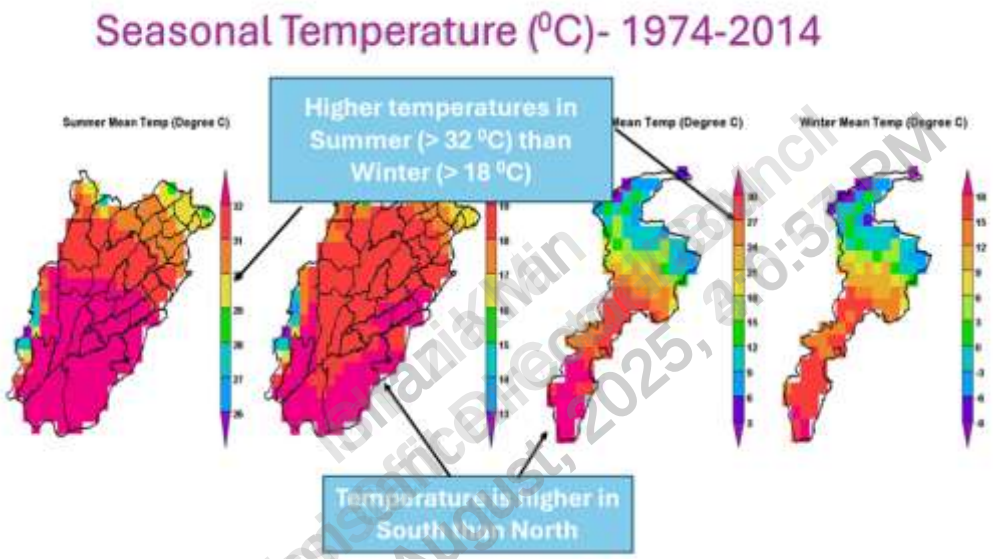


Figure 16: Seasonal Temperature (°C) – 1974-2014

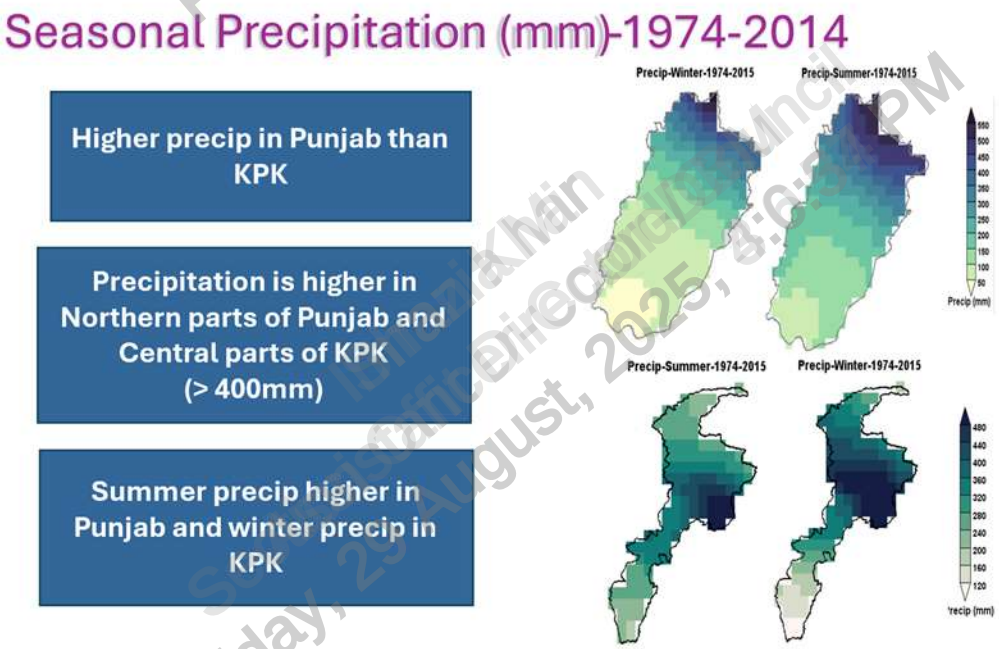


Figure 17: Seasonal Precipitation (mm) – 1974-2014

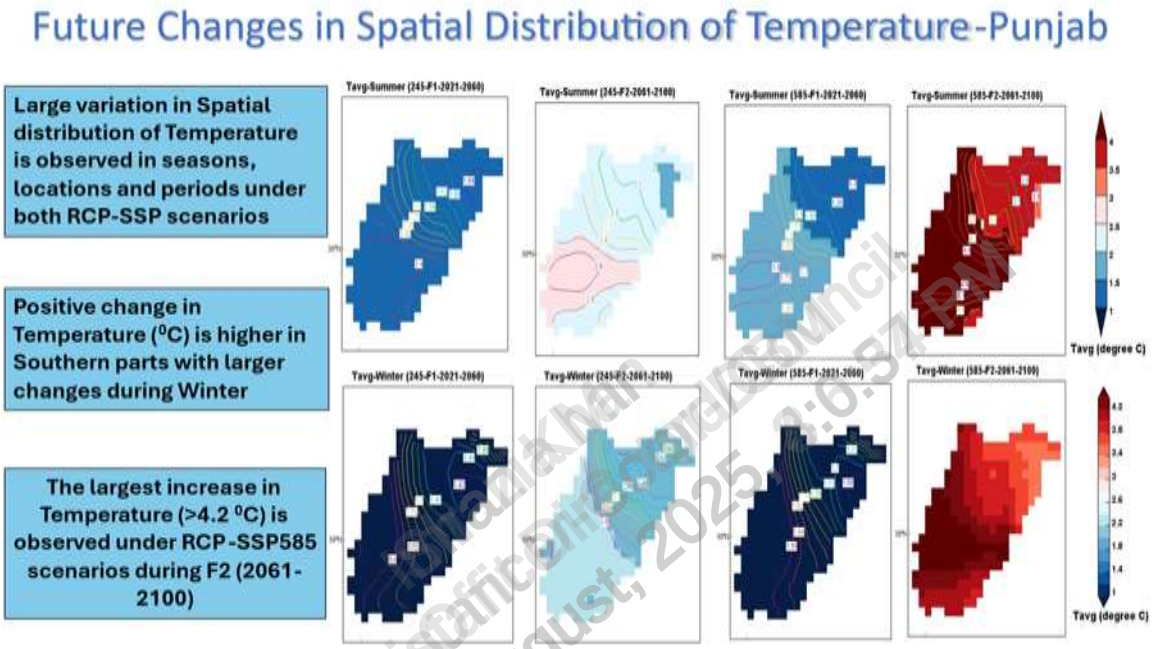


Figure 18: Future Changes in Spatial Distribution of Temperature-Punjab

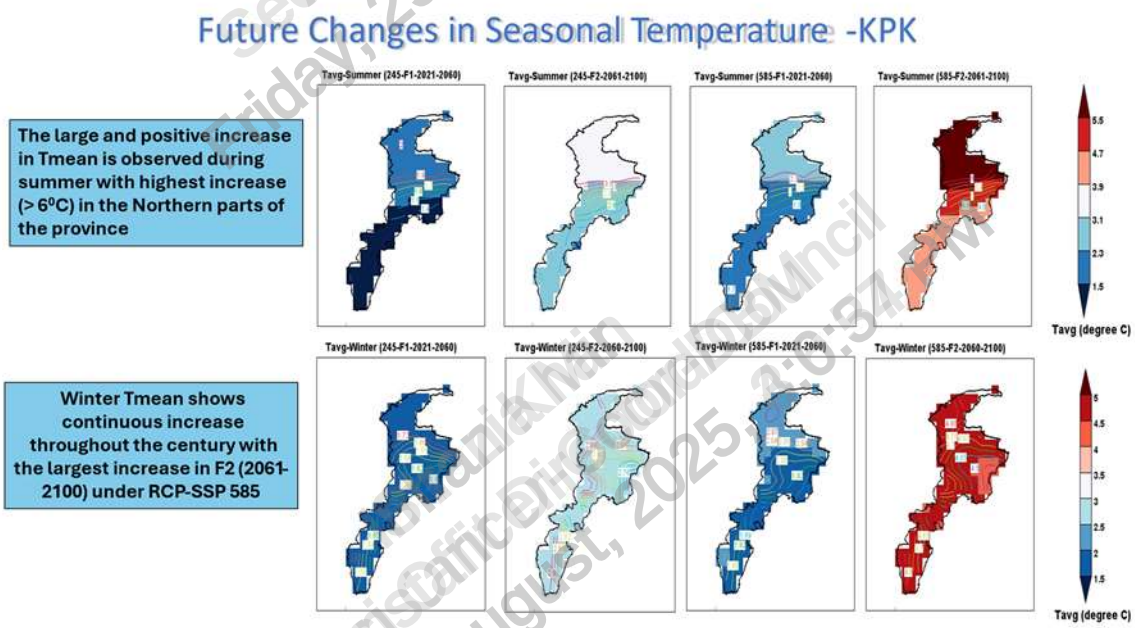


Figure 19: Future Changes in Seasonal Temperature - KPK

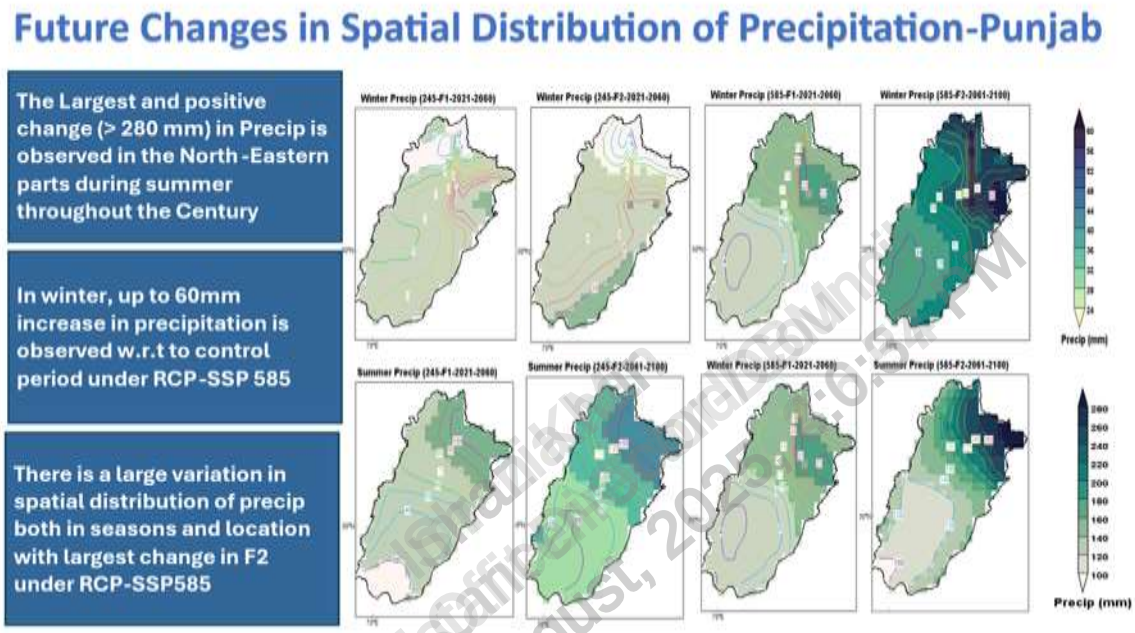


Figure 20: Future Changes in Spatial Distribution of Precipitation – Punjab

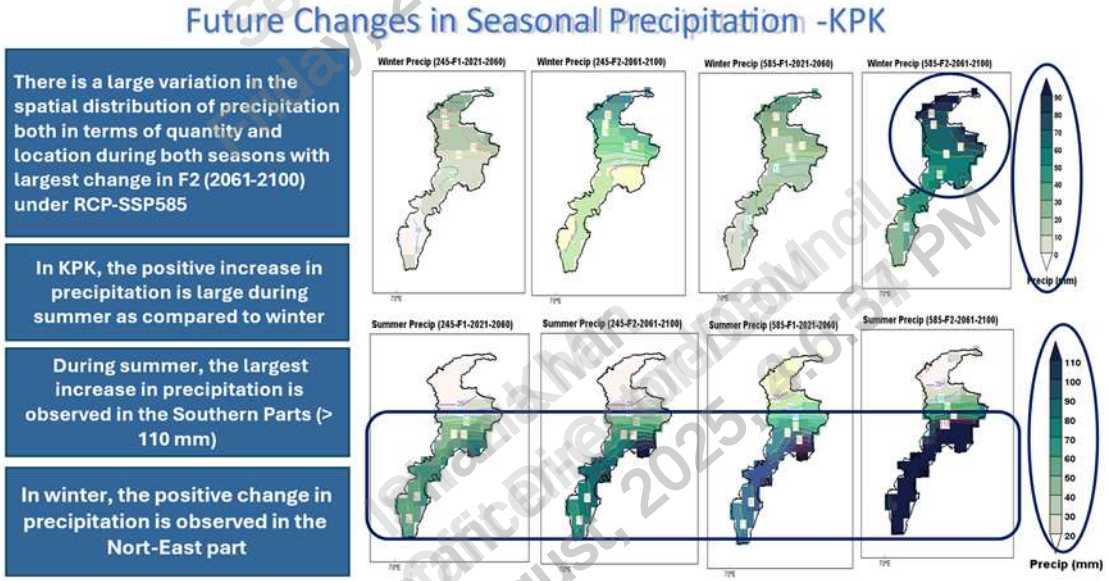


Figure 21: Future Changes in Seasonal Precipitation – KPK

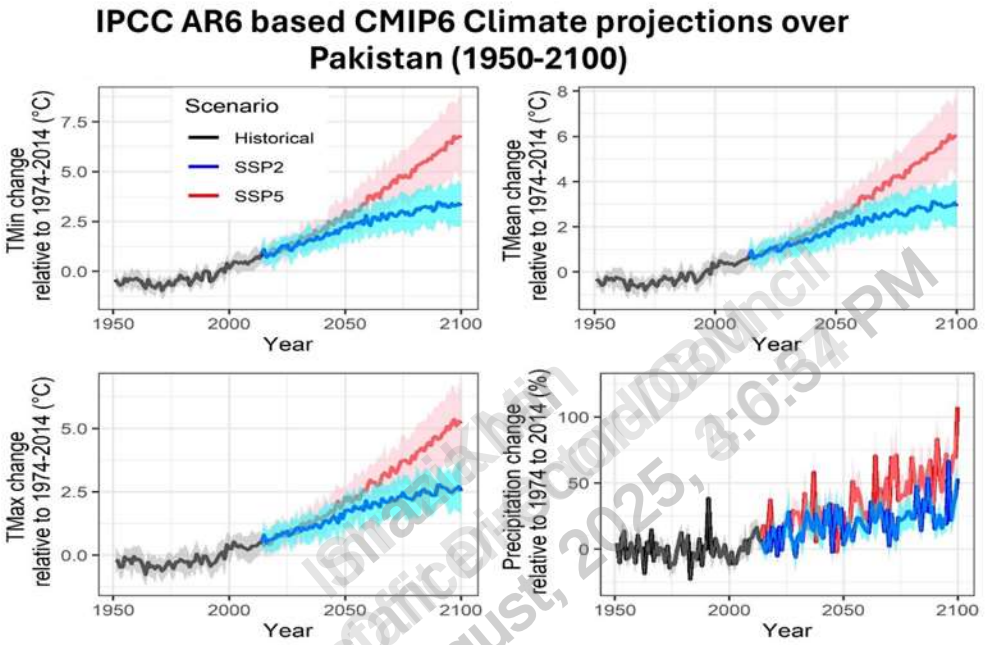


Figure 22: IPCC AR6 based CMIP6 Climate Projections over Pakistan (1950-2100)

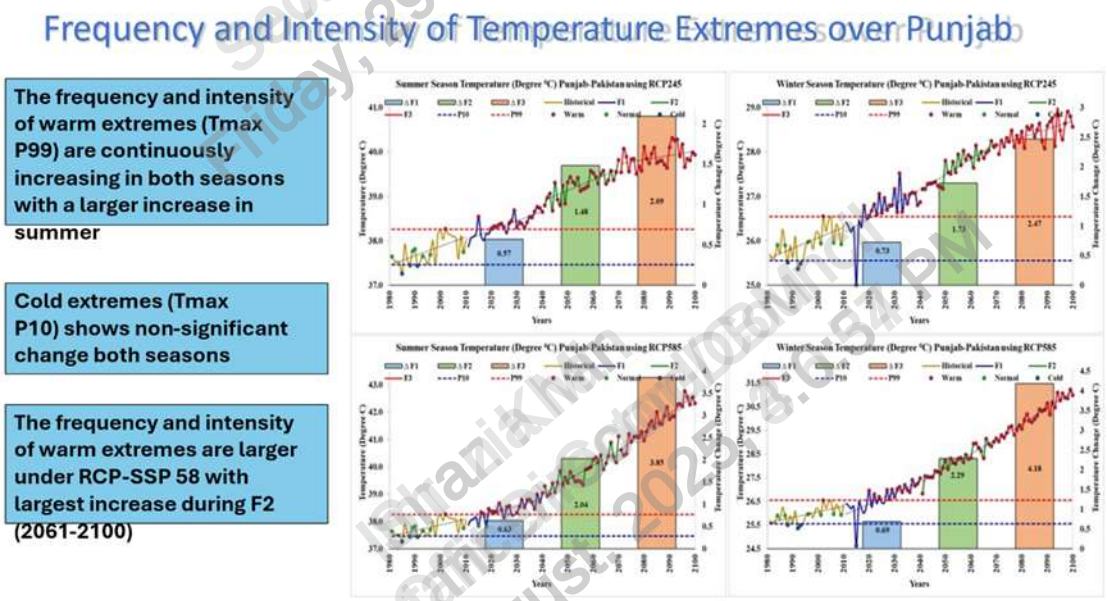


Figure 23: Frequency and Intensity of Temperature Extremes over Punjab

h. Emission profile of waste sector in Pakistan:

The substantial increase in greenhouse gas (GHG) emissions from waste sector by rapid population growth and urbanization, emphasizes on the need for mitigation actions to meet commitments of Paris Agreement (PA). The sector emitting high methane (CH^4) emissions has potential to meet emission reduction targets. Detailed segregated information of waste related activities responsible for emissions is highly needed for accurate estimation of emissions and placing mitigation actions thereafter. The present study aims to provide an in-depth analysis of all such source activities with associated emissions in one place, needed for tracking progress on the sector waste since country's nationally determined contributions (NDCs) submission and exploring opportunities for mitigation actions. In this study, emission estimations for 2019-20 were carried out in accordance Intergovernmental Panel

on Climate Change (IPCC) revised 1996 guidelines for national GHG inventories. The results showed that waste sector emitted 26.94 million tons (Mt) of carbon dioxide equivalent (CO2e) emissions in the inventory year, of which 23.88 Mt were methane (CH^4), 2.67 Mt were nitrous oxide (N^2O) and 0.39 Mt were CO^2 emissions. Solid waste disposal (SWD) with 14.30 (53.1) Mt of CO^2e emissions was the major emitting category, followed by wastewater handling & discharge (11.43 Mt; 42.4%) and waste incineration & open burning (1.21Mt; 4.5%). Given the highest share of solid waste to the total GHG emissions from waste sector, the results of this study suggest to focus on solid waste more seriously. The current scenario of waste generation, collection and disposal strengthens the case for improved data management and mitigation technologies in deciding waste management options.

Table 05: Emission profile of waste sector in Pakistan (Mt of CO2e)

Source Category	Emissions (CO_2e)			
	CO_2	CH_4	N_2O	Total
Waste	**0.39**	**23.88**	**2.67**	**26.94**
Solid Waste Disposal		14.30		14.30
Waste Incineration and Open Burning	0.39	0.64	0.18	1.21
Wastewater Handling and Discharge		8.94	2.49	11.43

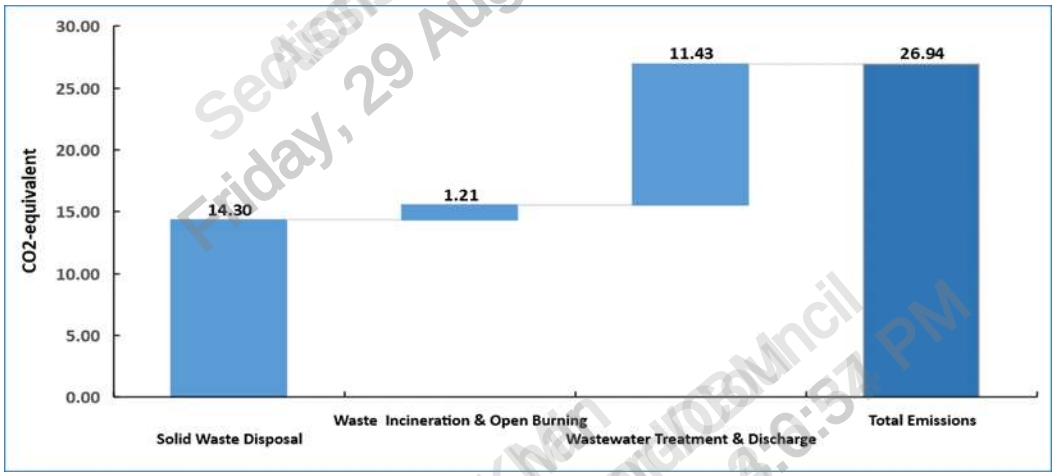


Figure 24: Emission profile of waste sector (Mt of CO2e)

II. Capacity Building:

Capacity building constitutes a crucial element of GCISC's endeavors, given the continuous evolution of climate science. Given the frequent emergence of novel concepts, tools, and methodologies for impact assessment, it is essential to equip the Center's researchers and other institutions with the latest technologies and skills to ensure high-quality research and effective action.

Throughout 2023-24, scientists at the Center actively participated in numerous national and international training workshops, acquiring expertise in a broad spectrum of areas, including climate science, climate modeling, seasonal forecasting, early warning systems, drought monitoring and assessment, hydrological modeling, crop simulation, water management, water surface runoff analysis, water-food-energy nexus, earth observation systems, space technology, and remote sensing/geographic information systems (RS/GIS) tools. These newly acquired skills are being effectively utilized in both ongoing and planned research endeavors at the Center. Additionally, GCISC's scientists contributed as resource persons in workshops and seminars organized by various entities.

Furthermore, twenty-seven students from prominent institutions such as the National University of Science and Technology (NUST), Islamabad, Bahria University, Islamabad, PMAS-Arid Agriculture University Rawalpindi, University of Agriculture, Faisalabad, and University of Engineering & Technology (UET) Peshawar participated in internships at GCISC for periods ranging from 2 to 3 months. During their tenure, the Center's researchers provided them with orientation lectures on climate science, modeling, and other analytical skills. These interns were supervised by GCISC researchers and assigned various studies by their university teachers and GCISC mentors, enabling them to gain practical experience and contribute to ongoing research initiatives.

III. Mass Awareness / Media Appearance:

The scientists at the Center disseminated numerous articles across prominent national newspapers, covering diverse facets of climate science and its implications for water resources, agriculture, and forestry. Additionally, these experts engaged in interviews and offered insights into pressing matters such as heatwaves, glacier retreat, monsoon disruptions, food insecurity, challenges in wheat production, efficient irrigation practices, and other related concerns linked to climate change.

IV. Inputs for parliamentary Business:

The GCISC, serving as the research division under the Ministry of Climate Change & Environmental Coordination (MoCC&EC), regularly offers expert insights on climate change, its effects, and potential mitigation measures to support parliamentary activities. This includes furnishing answers to inquiries from the National Assembly and Senate and actively participating in the discussions of standing committees addressing climate change issues.

V. Administrative Matters:

The Centre, serving as the research division under the MoCC&EC, providing technical comments on the most immediate letters of MoCC&EC and also on other Govt. Departments / Private / NGOs etc., on the following official business;

- Technical input on Pakistan foreign affairs matters with other countries on bilateral, inter-ministerial, joint commission, joint sessions, SDGs, MoUs, Technical Cooperation Agreements, Strategic Partnership, Globalization etc., and PM visits;
- Submission of responses on technical/non-technical inquiries on Material for Economic Survey of Pakistan, Annual Progress Reports, Year Books, Performance Monitoring, Principle of Policies, PMDU Portal inquires etc.,

3.4.Islamabad Wildlife Management Board (IWMB)

Introduction:

The Islamabad Wildlife Management Board (IWMB) was established under the Section 4 of Islamabad Wildlife (Protection, Preservation, Conservation, and Management) Ordinance of 1979. Its main objective is to enforce the Islamabad Wildlife Ordinance and its accompanying Rules of 1983, ensuring the protection of wildlife and the environment in the Islamabad Capital Territory (ICT). In 1980, the Margallah Hills National Park (MHNP) was officially designated as a National Park of Pakistan, covering an area of 67 square miles, while Rawal Lake and Shakarparian were also declared National Parks in Islamabad.

In 1981, the Federal Government set up a Wildlife Management Board, chaired by the Chairman of the Capital Development Authority (CDA) and including officials from both the CDA and the Federal Government. However, this Board was inactive, and the management of MHNP was instead handled by the Environment Directorate of the CDA, without the involvement of the designated Board.

In 2014, Professor Z. B. Mirza, a prominent zoologist, filed a petition with the Islamabad High Court (IHC), highlighting the severe degradation of MHNP due to neglect by the CDA. After a meeting with the petitioner, committee members, and CDA officials, the Cabinet Division forwarded its recommendations to the Federal Government. As a result, the IWMB was re-established on 7th July, 2015, with Dr. Anis-ur-Rahman appointed as Chairman, later succeeded by Rina Saeed Khan in November 2020. The Islamabad Nature Conservation and Wildlife Management Act, 2023, have been submitted for approval to the Ministry of Climate Change and Environmental Coordination, which will further empower the board.

Currently, the IWMB is focused on building its capacity to effectively manage wildlife and natural resources within the Islamabad Capital Territory.

Objectives:

The IWMB has the following objectives:

- To safeguard and manage the unique and exceptional natural beauty of Islamabad for future generations, adhering to international standards and actively involving local communities
- To conserve, protect, and enhance the indigenous flora and fauna (biodiversity) in Islamabad, creating open spaces that enrich the quality of life for both present and future generations within a safe and secure environment
- To manage and control the illegal trade of wildlife species in the Islamabad Capital Territory (ICT), Islamabad
- To develop and maintain physical infrastructure within the Margallah Hills National Park (MHNP), including roads and buildings. In accordance with legislation, all plans related to roads and buildings must be shared with and approved by the Islamabad Wildlife Management Board (IWMB) before implementation
- To undertake the rescue and rehabilitation of injured and orphaned wildlife species in the Islamabad Capital Territory (ICT), Islamabad

Margallah Hills National Park:

Margallah Hills National Park is situated adjacent to the capital city of Islamabad, with the emerging industrial center of Taxila to the northwest. Encroachments from these urban areas pose serious threats to the park's wilderness. However, the most significant and immediate threat comes from the growing populations of communities residing inside the park. Over the years, these local communities have

allowed their livestock to graze freely, causing destruction to the vegetation cover and trampling young seedlings. Additionally, residents cut trees for fuel, collect fodder for their animals, and divert natural water streams to cultivated plots near their homes. Some individuals even engage in hunting native wildlife for both sustenance and sport. Improper disposal of solid and liquid waste further exacerbates negative impacts on environmental and ecological resources.

Within the park, several rock mining quarries severely degrade the habitat. These quarries operate under lease arrangements made by the Planning Directorate of the Capital Development Authority (CDA). While some leases were granted after the park's establishment, public pressure, mainly from a citizens' group called "The Margallah Hills Society," led to the termination of such leases. The CDA ordered the closure of all mines on 31st July, 1991, with most discontinuing operations and others expected to close in the near future. Notably, the Fecto Cement Company's 30-year lease for mining limestone, granted in 1983, is exempt from this closure order.

Fires are a common occurrence in the Margallah Hills, requiring substantial expenditure and manpower for extinguishment. About 85% of these fires occur during the dry May-June period before the monsoon rains. The annual average number of fires ranged from 21-49 from 1986 to 2024, with many being manmade and concentrated on upper slope or ridge-top sites, particularly on southern aspects.

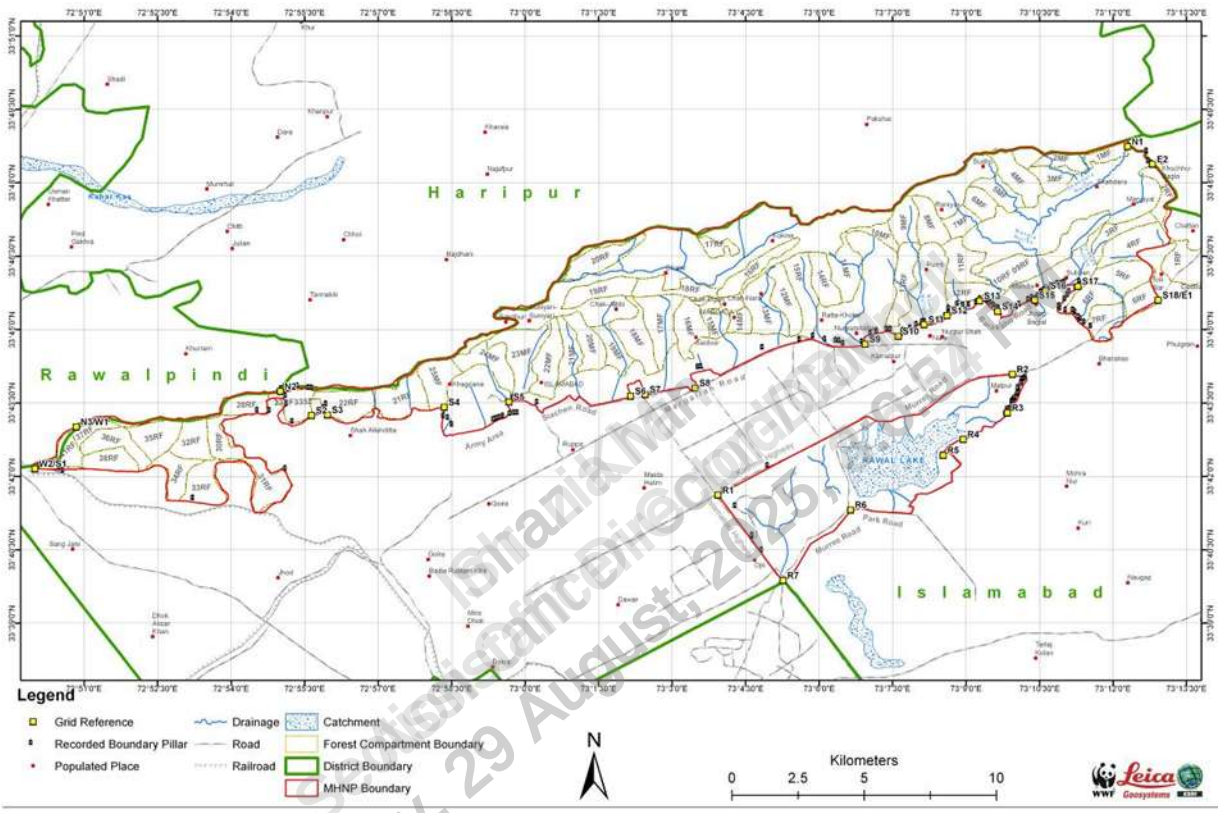
The park also faces the challenge of alien invasive vegetation species that are growing rapidly, competing with native species and disrupting the delicate balance of the ecosystem. The invasion of exotic vegetation, such as Paper Mulberry, Parthenium Spp., and Lantana Spp., not only impacts the vegetation balance but also contributes to an increase in the incidence of allergies.

Area:

The Margallah Hills range between 456m and 1,580m in altitude. The topography is rugged, with numerous valleys and steep slopes. Rocks have been observed to date back to the Jurassic and Triassic ages, limestone being characteristic of the region (though shale, clay, and sandstone are also present). Soils are dark, with a high mineral content, and are capable of supporting good tree growth despite being shallow. The hills are an extension of the Himalayan range and form the northern boundary of the Potohar plateau. The area is drained by the River Kurang and its tributaries, which flow into the Soan River.

The climate is subtropical semi-arid. The region lies in the monsoon belt and experiences two rainy seasons. Winter rains last from January until March, and summer rains from July to September. Temperatures range from 1-15 °C in winter and 20-40 °C during the summer. Annual average rainfall is 1,000 mm. There have been occasional incidents of light snowfall in severe winters.

There are at least 38 species of mammals, 350 species of birds reported from the Margallah Hills within the MHNP. There are 32 species of reptiles and 9 species of amphibians reported.



Map of Margallah Hills National Park

Governing Body:

In pursuance of approval of the Prime Minister, conveyed vide Prime Minister's Office F. No.6(9)/020-Admn-UU-IWMB dated 23.11.2020, Rina Saeed Khan, was appointed as the Chairperson of the Islamabad Wildlife Management Board and in exercise of the powers conferred by section 4 of the Islamabad Wildlife (Protection, Preservation, Conservation and Management) Ordinance, 1979 (LXX of1979) read with sub rule (a) of rule 2A of Islamabad Wildlife (Protection, Conservation and Management) Rules, 1983, Federal Government reconstituted a Board of Wildlife Management on October 23rd, 2020 consisting of the following members, namely;

1. **Ex. Official Members:**

01.	**Sr. Joint Secreatry or Joint Secretary, Ministry of Climate Change**	**Member**
02.	Inspector General of Forests, Ministry of Climate Change	Member
03.	Deputy Commissioner, ICT or nominee	Member
04.	Director (Environment) Metropolitan Corporation, Islamabad	Member
05.	Director (Regional Planning), Capital Development Authority	Member

2. **Non-Official Members:**

06.	**Mr. Zahid Baig Mirza, Biodiversity Expert**	**Member**
07.	Ms.Imrana Tiwana, Environmental and Natural Resource Expert	Member
08.	Ms. Rina Saeed Khan, Outreach and Visibility Expert	Member
09.	Mr. Vaqar Zakria, Member Civil Society	Member

Organizational Strength:

The IWMB has a team of 45 members that are working for the conservation and protection of wildlife species and National Park in Islamabad. The detail of strength is given below;

Sr.#	Designation & Scale	Sanctioned	Working	Vacant
01.	Director (Wildlife) (BPS-19)	01	0	01
02.	Secretary (Board) (BPS-18)	01	0	01
03.	Deputy Director (Research & Planning) (BPS-18)	01	01	0
04.	Deputy Director (Admin & Accounts) (BPS-18)	01	01	0
05.	Deputy Director (Wildlife) (BPS-18)	01	01	0
06.	Assistant Director (Wildlife) (BPS-17)	01	01	0
07.	Assistant Director (Research & Planning-Wildlife) (BPS-17)	01	01	0
08.	Assistant Director (Research & Planning-GIS) (BPS-17)	01	0	01
09.	Assistant Director (Information & Outreach) (BPS-17)	02	01	01
10.	Assistant Director (Community Relations) (BPS-17)	02	02	0
11.	Assistant Director (Accounts & Finance) (BPS-17)	01	01	0
12.	Assistant Director (Legal) (BPS-17)	01	01	0
13.	Admin Officer (BPS-16)	01	01	0
14.	Admin Assistant (BPS-15)	01	01	0
15.	Account Assistant (BPS-15)	01	0	01
16.	Wildlife Guard (BPS-07)	26	22	04
17.	Peon (BPS-02)	02	01	01
Total		**45**	**35**	**10**

Committees in IWMB:

The IWMB has **5 Committees**, Protection Committee, Scientific committee, Legal Committee, HR Committee, Accounts and Finance Committee. Each committee has a chairman and three members who look after their respective tasks.

- **Protection Committee:** Chaired by Dr. Anis-Ur-Rehman on a pro bono basis, the Protection Committee of IWMB is actively engaged in formulating policies and plans for the protection of wildlife and Margalla Hills National Park in Islamabad. The Protection Committee of IWMB has successfully curtailed illegal activities in the park. The field staff of IWMB is dedicated to routine patrolling from Margallah Road to the top of Monal, actively searching for encroachments, illegal hunting, trading, poaching, wildlife rescue, wildlife monitoring, and unauthorized wood cutting, among other activities.
- **Scientific Committee:** The Scientific Committee was chaired by Professor Zahid Baig Mirza (Biodiversity Specialist), who was involved in developing plans and policies for conducting research and scientific studies in the MHNP. Following the death of Prof. Z. B. Mirza, the board member position remains vacant.
- **Legal Committee:** Legal committee chaired by Mr. Vaqar Zakaria (Member Civil Society) looks after the legal issues of the board.
- **HR Committee:** HR committee of IWMB chaired by Mr. Vaqar Zakaria (Member Civil Society) looks after the recruitment, service of current employees and legal issue of the board.

- **Accounts and Finance Committee:** Chaired by Mr. Vaqar Zakaria (Member Civil Society) makes the budgets & accounts related tasks of the IWMB and look after the legal issue of the Board.

Roles and Functions:

1. The role of function of Islamabad Wildlife Management Board is given below;
2. The Islamabad Wildlife Management Board (IWMB) has been constituted by the Federal Government in terms of section 4 of The Islamabad Wildlife (Protection, Preservation, Conservation and Management) Ordinance, 1979 ("the Ordinance")
3. Exercising powers under section 21 of the Ordinance, the Federal Government has issued S.R.O 433(I)/80 dated 28th April, 1980 wherein certain areas have been declared to form the Margallah Hills National Park (MHNP)
4. The Ordinance envisages IWMB to be the custodian of MHNP since no other body has been tasked to look after or manage the affairs of MHNP in the Ordinance, nor has the Federal Government declared any other body as the custodian of MHNP
5. The Federal Government, exercising powers under 41 of the Ordinance, has framed The Islamabad Wildlife (Protection, Preservation, Conservation and Management) Rules, 1983 ("the Rules"), which lay down the functions and powers of IWMB in rules 3 and 4 respectively
6. One of the functions of IWMB as per rule 3 of the Rules is to "take all policy decisions, draw plans, programmes and execute them with regard to protection, preservation, conservation and management of wildlife, including the zoos in the Islamabad Capital Territory," which means that all matters pertaining to management and preservation of MHNP is the domain of IWMB.
7. The landmark judgment of the Honorable Islamabad High Court in the case titled, Islamabad Wildlife Management Board vs. MCI and others, reported as 2021 PLD Islamabad 6 ("the judgment") lays down in detail the mandate of IWMB with regards to protection of wildlife in Islamabad as well as management of MHNP. Relevant portions of the judgment are reproduced below:
    i. "The Wildlife Ordinance of 1979 is a special law which was explicitly promulgated with the object to provide for the protection, preservation, conservation and management of wildlife and setting up of a National Park in the Islamabad Capital Territory"
    ii. "It is declared, therefore, that the Zoo, its management and all other matters relating thereto fall within the jurisdiction and competence of the Board of management constituted under the Wildlife Ordinance of 1979"
8. The judgment further directs that "the Board will be assisted by the Chief Commissioner, Islamabad Capital Territory and the Inspector General Police in order to enforce the provisions of the Wildlife Ordinance 1979." Therefore, any hindrance caused to carrying out of the Board's mandate and functions may amount to contempt of court

Goals and Target:

1. Islamabad Wildlife Management Board is working for the conservation of wildlife in Margallah Hills National Park and ICT with following goals and targets;
2. To protect and manage Islamabad's unique and outstanding natural beauty for generations to come, through international standards while engaging local communities
3. To preserve, protect, and enhance the indigenous flora and fauna (biodiversity) in Islamabad and create open space to enrich the quality of life for present and future generations in a safe and secure environment
4. Management and Control of illegal trade of wildlife species in Islamabad Capital Territory (ICT), Islamabad

5. Development and maintenance of physical infrastructure inside the MHNP such as roads and buildings. Consistent with legislation, all plans related to roads and buildings need to be shared and approved by the IWMB before implementation
6. Rescue the wild animals in Islamabad Capital Territory that need treatment and further rehabilitation
7. Control the Illegal collection of natural resources from Margallah Hills National Park.
8. Create awareness and education among citizens to protect wildlife and their habitat for future generations
9. Community engagement programs developed to empower custodian communities to protect Margallah Hills National Park resources in a sustainable way.
10. Scientific research on the Margallah Hills National Park resources to protect these assets scientifically
11. Promotion of Eco-Tourism and responsible tourism, following the principle of "My Waste My Responsibility."
12. Establish and enforce sustainable waste management practices within Margallah Hills National Park
13. Implement measures to minimize the impact of climate change on the park's ecosystem.
14. Collaborate with educational institutions for environmental education programs targeting schools and colleges in the region
15. Regularly update and implement a comprehensive fire prevention and management strategy
16. Introduce and enforce guidelines for responsible pet ownership within the park
17. Implement measures to control invasive species and restore affected ecosystems
18. Establish a comprehensive monitoring system for wildlife population trends and habitat health
19. Facilitate and support research partnerships with local and international institutions to enhance knowledge about the Margallah Hills National Park ecology
20. Develop and implement a comprehensive eco-friendly waste disposal system for visitors within the Margallah Hills National Park

Activities:

Islamabad Wildlife Management Board activities related to following;

- Protection of Wildlife
- Community Relations
- Information and Outreach
- Research and Planning

1. **Protection of Wildlife:**
   - **i.** Enforcing measures to prevent illegal hunting, poaching, and trade of wildlife species in Islamabad
   - **ii.** Implementing wildlife rescue and rehabilitation programs
   - **iii.** Conducting regular patrolling and surveillance to prevent encroachments and protect the natural habitat
   - **iv.** Collaborating with law enforcement agencies to ensure the safety and well-being of wildlife within the jurisdiction
2. **Community Relations:**
   - i. Developing and implementing community engagement programs to raise awareness about wildlife conservation

ii. Empowering local communities to become custodians of the natural resources in a sustainable manner
iii. Facilitating educational programs and workshops to promote understanding and appreciation of wildlife
iv. Encouraging responsible and sustainable practices among local communities living in and around protected areas

3. **Information and Outreach:**
   i. Disseminating information about wildlife conservation through various channels, including social media, websites, and community events
   ii. Conducting awareness campaigns to educate the public about the importance of preserving biodiversity
   iii. Collaborating with media outlets to promote wildlife conservation messages
   iv. Providing accessible and accurate information about Islamabad's wildlife, and conservation efforts to the public
4. **Research and Planning:**
   i. Conducting scientific research on wildlife species, ecosystems, and their interactions within the Islamabad Capital Territory and Margallah Hills National Park.
   ii. Developing comprehensive conservation plans and strategies based on scientific findings in Margallah Hills National Park
   iii. Collaborating with research institutions and universities to enhance knowledge about the ecology of Margallah Hills National Park
   iv. Participating in regional and international forums to stay updated on the latest research and conservation trends

Achievements:

1. Protection of Wildlife:

Protection of MHNP and wildlife is core responsibility of IWMB. The staff deputed on different valleys of Margallah Hills National Park to protect the natural resources and wildlife. There are 38 species of mammals, 350 species of birds, 32 reptiles, 09 species of amphibians and 650 species of plants in Margallah Hills National Park. The protection staff control following during the year 2023-24;

1.1. <u>Control Wood Cutting in MHNP:</u>

The importance of plants to humans and just about all other life on Earth is staggering. Life as we know it would not be possible without plants. They are the main source of food for all animals, they are source of oxygen, medicine, fuel, furniture etc. for humans but the current percentage of plants on earth is decreasing due to deforestation and illegal wood cutting. It creates severe loss on young trees and also habitat of wildlife.

Nurpur Operation against Wood Cutters:

Nurpur Operation has been started on 11th November 2023 to control the illegal wood cutting in Nurpur zone of Margallah Hills National Park

Objectives

- Curb unauthorized deforestation
- Protect the natural habitat
- Enforce stringent measures against illegal activities

Key Achievements:

The following achievements were made during this operation:

Daytime Operation:

- Bikes: 14 (2 taken by police) in number
- Donkey-loaded Confiscation: 2 in number
- Persons carrying wood: 7 in number

Night time Operation:

- Bikes: 4 in number
- Vehicles: 2 in number

Wood Distribution Control:

- Daig houses directed to obtain wood from authorized toll
- 7 times increase in sale at Toll (150/mann per day)

Friday, 29 August, 2025, 3:6:54 PM

Various activities in MHNP were carried out to combat illegal woodcutting in 2023-24

1.2. Protection of Wildlife from Forest Fire:

The fire season starts every year from April to August in Margalla Hills National Park. The fires in the Margallah can erupt due to several reasons such as rising temperatures, burning of garbage or dried leaves or even due to the discarding of burnt cigarettes in the forest area.

Islamabad Wildlife Management Board (IWMB) was formulated a 'Fire Protection Plan', to protect the most valuable and visible forested part of the MHNP. Shortage of supervisory staff does not permit more area to be protected by IWMB staff. IWMB protect the wildlife species in its natural habitat through existing IWMB staff. However, forest fires from April to June in the MHNP every

year during dry season cause immense loss of forest, undergrowth cover, damage to wildlife habitat, impact on wildlife and greatly disturb the citizens of Islamabad. The major impact of forest fires is on ground nesting birds, reptiles, amphibians, soil biodiversity and seeds of flora in National Park.

IWMB protects the habitat of wildlife in MHNP; especially ground nesting birds, reptiles and amphibians by developing SOPs which define expectations and responsibilities of all team members. Additional fire staff was hired each fire season from local communities (end April to 30th June).

Equipment provided to staff control the forest fire are;

- Fire Beaters
- Leave scrappers
- Fire extinguishers (Fire ball)

Fire Beater

Fire Ball

Leave Scrapper

1.3. <u>Fire Control by IWMB Staff:</u>

A total 8 fire incidents were reported in Margallah Hills National Park (IWMB designated area) in the year 2024 till end of June. There was one major fire incident which affected forested landscape, natural ecosystem and their wildlife. Due to fires following losses occurred as per observation in the field:

- Loss of habitat
- Loss of nesting & breeding sites
- Loss of reptilian fauna
- Loss of young saplings
- Loss of regeneration process

Damage details of forest fires in Margallah Hills National Park, Islamabad in 2024 recorded by IWMB staff:

2024				
Sr. No.	Date	Area	GPS Coordinates	Damage Area in (Acre)
1.	17-05-2024	Mandra da dana	N 33.44591 E 73.02174	0.125

2.	21-05-2024	In front Khuwan da Dna Jabbi di Gali	N 33.7603635 E 73.0332530	0.75-01
3.	31-05-2024	Gandhian MHNP	N 33.7373191 E 73.0300173	85
4.	03-06-2024	Mochi Morr	N 33.7561879 E 73.0496896	1.25
5.	04-06-2024	Mochi Morr	N 33.7557789 E 73.0504896	0.5-0.75
6.	04-06-2024	Damn-e-Koh Road	N 33.740815 E 73.05171	0.1875
7.	10-06-2024	Mandra da dana/ Khuwan da dana	N 33.45407 E 73.02225	0.625
8.	11-06-2024	Khuwan da dana	N 33.7610580 E 73.033732	0.625
Total Damage area				**89.6875 Acres**

Fire Control Activities in Margallah Hills National Park

1.4. Control on illegal Trade & Hunting of Wildlife:

IWMB has moved against monkey "dancing" and the selling of birds in ICT by confiscating the wild animals found on streets and then releasing them back in the wild. Zero tolerance is being shown for those indulging in animal cruelty and wildlife trafficking in ICT.

Confiscated parakeets from different shops in ICT

Rescued Indian Pangolin from E-7

1.5. Controls on Encroachments in MHNP:

IWMB has made SOPs to report encroachments in MHNP. Encroachment is reported on regular basis by the field staff to the field supervisor. After confirmation supervisor report to protection in charge and then it is reported to the Assistant director, a report is compiled and sent to Deputy Commission Islamabad and Environment Directorate CDA with the sign of Director IWMB.

1.6. Habitat Improvement and Soil Establishment:

For conservation of natural habitat and preservation of national park it is of ultimate importance to remove alien invasive species and replace them with indigenous plants of MHNP. In MHNP the numbers of indigenous species of plants are under competition with the invasive plant species. These invasive plant species release hormones under soil that deteriorate the hyphae present in the roots of these indigenous plant species. These hormones also effect on the regeneration of new saplings that naturally grow in the MHNP.

Invasive plant removal activity in MHNP by IWMB staff

1.7. Visitor Management & Cleanliness of MHNP:

Visitor management on trails of Margallah Hills National Park is most important component of wildlife conservation. The tourist pressure on trail increases day by day which was managed by the IWMB team work in this wing. The responsible tourism promoted in Margallah Hills National Park to conserve and preserve the natural beauty. The staff deputed on the trails cleans the trail time to time and control plastic pollution from national park.

Visitors and tourist were engaged to protect the park from plastic pollution. Littering in MHNP was increasing day by day. IWMB Visitors' Management Team worked on the awareness & education. IWMB team worked hard to raise awareness amongst visitors and tourists of Margallah Hills National Park to control plastic pollution. Nobody is allowed to take plastic bags and edibles in plastic packing inside the trails.

Visitors Management on the trails heads in MHNP

2. Community Relations:

The Community Relations section conducted 65 community awareness sessions in villages, as listed in the table below, for the protection, preservation, and conservation of the Margallah Hills National Park (MHNP).

Sr. No.	Village Name	Sr. No.	Village Name
1.	Nurpur Shahan	12.	**Gandhain**
2.	Gokina	13.	**Saidpur**
3.	Kainthala	14.	**Sinyari**
4.	Kot Jandan	15.	**Pir Sohawa**
5.	Rumli	16.	**Lubana**
6.	Talhar	17.	**Subban**
7.	Shadara	18.	**Sara**
8.	Mandla	19.	**Kot Jandan**
9.	Jouri Rajgan	20.	**Ratta Hottar**
10.	Nurpur Shahan	21.	**Subban**
11.	Kot Jandan		

Disseminated the information about Fire season SOPs in local communities of Margallah Hills National Park, Islamabad.

2.1. <u>Community Initiatives:</u>

Community Relations section, Islamabad Wildlife Management Board (IWMB) had issued permits to the local community members to collect Kachnaar (Buhaina Variegata) adopt sustainable practices for community-based conservation.

2.2. <u>Volunteer Activities:</u>

- Removal of alien invasive species Lantana and Parthenium from Margallah Hills National Park
- Conducted clean up drives at Trails, visitors point, and inside MHNP in collaboration with universities and academia
- Conducted education and awareness activities with collaboration of volunteers at different sites of MHNP such as trails, visiting and information centers
- Supported and facilitated volunteers in conducting wildlife art exhibition

2.3. <u>Celebration of International Days:</u>

- Arranged World Migratory Bird Day at Trail 5 with the Volunteer group on 11st October 2024
- Celebrated World Wetlands Day at Kinara Park with collaboration of community school and IWMB volunteers
- Celebrated World Wildlife day on 3rd March 2024 in liaison with stakeholders
- Celebrated the World Earth day in collaboration with friends of MHNP and US embassy Islamabad
- Celebrated World Biodiversity Day with Volunteers, university students and public

- Celebrated and facilitated World Frog Day on 5th April along with faculty members of Arid Agriculture University and students. A lecture was delivered by Chinese Professor

2.4. <u>Miscellaneous Activities:</u>

- Completed the study on Relative abundance of Kachnaar in MHNP with coloration with research & planning section of IWMB
- Submitted and got approved the abstract in Zoological Survey of Pakistan on topic of local communities of Margallah Hills National Park
- Collaboration with EPA staff and participants at Trail 5 for single use plastic campaign
- Awareness and educational sessions on Trails to students, visitors and etc.
- Facilitated the Audit team of AGP for “Citizens participatory audit of MHNP” in17 local villages of MHNP
- Facilitated Wildlife section in raids and fire season






Community meetings regarding awareness and importance of MHNP








International days Celebration and Meetings regarding human Leopard Conflicts in MHNP

3. Information and Outreach:

3.1. Guided Tours and Awareness Sessions:

Guided Tours:

A total of 22 guided tours were conducted, offering an immersive experience into the rich biodiversity of the Margallah Hills National Park. Key tours included. Collaborations with WWF, embassies, and universities amplified the outreach of these sessions. These tours attracted diverse groups, including students, professionals, diplomats, and conservation enthusiasts

- **Ridge Trail Tours:** Highlighting the flora, fauna, and scenic beauty of the Margallah Hills National Park
- **Leopard Preserve Zone Tours:** Educating participants about the critical role of leopards in maintaining ecological balance
- **Rescue and Rehabilitation Center Tours:** Showcasing wildlife rescue efforts, treatment, and the rehabilitation process

Education and Awareness Sessions:

19 education and awareness sessions were organized, engaging audiences from various backgrounds. Topics included;

- Human-wildlife coexistence.
- Conservation strategies for endangered species.
- Reducing environmental footprints through sustainable practices, such as banning single-use plastics

3.2. Website and Social Media Management:

Website Management:

- Transitioned IWMB's official domain to iwmb.gov.pk, enhancing accessibility and reliability
- Regularly updated the website with IWMB activities, reports, and announcements

3.3. Social Media and Public Outreach:

- Managed all IWMB's social media platforms, creating impactful campaigns and updates:
- Awareness about the ban on single-use plastics
- Release of a jackal and 17 kites back into their natural habitats
- Rescue and safe relocation of a porcupine
- Rehabilitation of Bahadur, the lion
- Release of an injured female leopard in Azad Jammu and Kashmir (AJK), which garnered widespread attention

These posts raised public awareness and appreciation for IWMB's conservation efforts.

3.4. Press and Media Engagement:

- Organized a press conference at the Monal site to provide updates on the Margalla Viewpoint Project
- Issued a press release on the female leopard's release in AZK, covered extensively by print, electronic, and social media
- Issued a press release on the release of an injured leopard, emphasizing IWMB's commitment to wildlife rehabilitation

3.5. Diplomatic Engagements and Special Arrangements:

- Facilitated special visits for ambassadors and diplomats, including:

- British High Commission
- US Embassy
- Ethiopian Ambassador
- Danish Ambassador

These visits were tailored to showcase IWMB’s conservation initiatives and foster international collaboration.

3.6. <u>Hosting International Days Event:</u>

Served as the stage host for the International Days celebration, showcasing IWMB's conservation efforts and engaging with a diverse audience to emphasize the importance of protecting wildlife and natural habitats. The event included speeches, presentations, and interactive sessions, promoting environmental awareness on a global scale.

3.7. <u>Meetings and Coordination:</u>

Represented the Information and Outreach Department alongside Madam Director, discussing key wildlife policies and conservation challenges during Senate Standing Committee on Climate Change.

3.8. <u>ABT Innovative and Taiz host:</u>

Held discussions on upgrading the department’s website and setting up email addresses for officers, improving communication and outreach.

3.9. <u>Domain and Hosting Provider Coordination:</u>

Coordinated the smooth transition of the department’s hosting services from the previous provider to the new domain, iwmb.gov.pk.

Achievements at a Glance:

- Conducted 22 guided tours and 19 awareness sessions, reaching a wide audience
- Transitioned to a new official domain and improved website functionality
- Enhanced public awareness through social media and widely-covered press releases
- Hosted diplomats and ambassadors, fostering international support for wildlife conservation
- Organized a press conference and released updates on IWMB’s conservation projects

دنیا

آزاد کشمیر سے ریسکیو کیا گیا زخمی تیندوا بحالی مرکز منتقل

تیندوے کی پچھلی دونوں ٹانگیں زخمی، ایکسرے کے بعد حقائق سامنے آئینگے

طبی ماہرین کی رائے کے بعد حکمت عملی مرتب کرینگے، اسلام آباد وائلڈ لائف منیجمنٹ بورڈ

اسلام آباد (دنیا رپورٹ) ترجمان اسلام آباد وائلڈ لائف منیجمنٹ بورڈ کے مطابق آزاد کشمیر سے زخمی تیندوے کو بحفاظت ریسکیو کرا لیا گیا، تیندوے کو محکمہ وائلڈ لائف آزاد کشمیر کی درخواست پر ریسکیو کیا گیا، اسکی پچھلی دونوں ٹانگیں زخمی ہیں، طبی معائنہ اور ٹانگوں کے ایکسرے کے بعد ہی حقائق سامنے آئیں گے، تیندوے کو اسلام آباد وائلڈ لائف کے بحالی مرکز منتقل کر دیا گیا، تیندوے کے علاج سے متعلق حکمت عملی طبی ماہرین کی رائے کے بعد مرتب کی جائے گی۔

روزنامہ سما

Daily SAMA

اسلام آباد

ماحولیاتی تحفظ اور جنگلی حیات کا تحفظ ناگزیر، ایکٹ اہم سنگ میل ہے

NEWSMART

Islamabad Nature Conservation and Wildlife Management Act 2024 becomes Law

STAFF REPORT, ISLAMABAD: The Islamabad Wildlife Management Board (IWMB) on Friday announced the groundbreaking achievement for the conservation of Islamabad's natural heritage, after the Islamabad Nature Conservation and Wildlife Management Act 2024 was signed into law by the President of Pakistan, marking a significant victory for environmental protection and wildlife conservation in the Islamabad Capital Territory.

The landmark legislation empowered the IWMB to effectively carry out its functions, ensuring the conservation and management of Islamabad's natural resources. The Act provided a robust framework for the IWMB to protect and preserve the region's unique biodiversity, promoting a healthy environment for future generations, a news release said. The legislation introduces internal revenue generation as a key feature being proposed in the Act for the management of Margallah Hills National Park. "This will enable the IWMB to sustainably manage the park's resources, ensuring the long-term conservation of this vital ecosystem. Realistic fines and penalties will be applied to ensure accountability and environmental protection," the IWMB said.

The IWMB extended its gratitude to the individuals and institutions for their instrumental roles in making this legislation a reality namely Chief Justice of Pakistan, Justice Qazi Faez Isa for his landmark ruling, Senator Sherry Rehman for tabling the bill in the Senate and National Assembly, the Government of Pakistan for signing and passing this vital Act. "This legislation marks a significant milestone in safeguarding Islamabad's natural heritage. The IWMB is committed to working tirelessly towards conservation and environmental stewardship, ensuring the effective implementation of the Act," the IWMB said.

IWMB helped rehabilitate 381 animals, says Rina

STAFF REPORTER

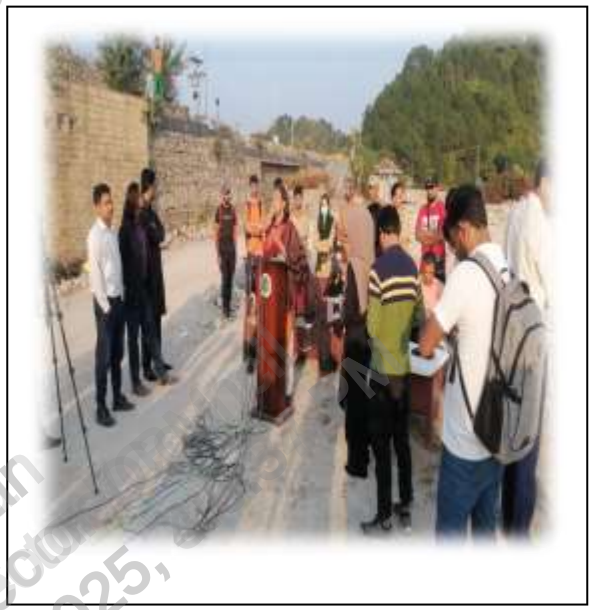
The Wildlife Rescue and Rehabilitation Centre of the Islamabad Wildlife Management Board (IWMB) has since its inception in August 2021 successfully rehabilitated 381 animals of different species suffering from maltreatment. This was shared by IWMB Chairperson Rina Saeed Khan with mediapersons during their visit of the Centre organized by the Board and Second Chance Wildlife on Tuesday.

Rina Saeed Khan said the rescued and rehabilitated animals included mammals, birds and reptiles. "The IWMB only deals with wild animals (indigenous & exotic) which are treated in a non-humane way, orphaned and injured in order to implement the Islamabad High Court's (IHC) judgment in W.P. 1155/2019 which specifically states 'No animal is treated in a manner that subjects it to unnecessary pain and suffering'. She said that the IWMB operated under the Ministry of Climate Change and Environmental Coordination.

CDA services to go online to facilitate citizens


Daily
SAMA


IWMB



Research and Planning:

The major activities and achievements of the Research and Planning Section of the Islamabad Wildlife Management Board include the following:

1. **Research work and Field Surveys:**
    i. Human Leopard conflicts in Margallah Hills National Park, WWF-Pak Project.
    ii. Ecological Consequences of forest fire in Margallah Hills National Park
    iii. Three experimental plots (50feet by 50feet) have been selected at Dhoke Jeevan valley and in one removed Justicia adhatoda from that area to monitor the regeneration of tree species at that area. Second plot in which plantation has been done and third one without any intervention
    iv. Human Monkey conflict and Dispersal of Rhesus Monkey in urban area of ICT from MHNP
    v. Protecting Parakeets species in Pakistan; Survey of Islamabad regarding the distribution and abundance of parakeet's species
2. **Research on Margallah Hills National Park:**

Currently, Nine M. Phil scholars are working with the Research and Planning Section of IWMB;

i. Saliha Quddos. Diversity and abundance of wood peckers in Margallah Hills National Park
ii. Laiba Anees. Distribution and abundance of Parakeet species in Margallah Hills National Park
iii. Faria. Distribution and Nest characteristics of Paradise Flycatcher (Terpsihone paradisi) Margallah Hills National Park
iv. Muhammad Mateen Riaz. Identification of forest fire prone areas and its implications for biodiversity in Margallah Hills National Park
v. Modeling occupancy and detection probability of Red Scorpion (Hottentotta tamulus) in a protected scrub forest
vi. Nayer Abbas. Factors affecting occurrence of Indian Pitta (Family Pittidae) in Margallah Hills National Park
vii. Somia Saher. Multi species and species interaction (frog and fish species) occupancy modeling in a protected chir pine forest
viii. Khalid Mehmood. Distribution and nesting characteristics of Babbler species in Margallah Hills National Park
ix. Parwasha. Occupancy modeling of Water Strider (Metrocoris spp.) and fresh water Crab (Allacanthos spp.) in scrub forest wetlands

3. **International Conferences and Congress:**
    i. Four research articles in proceeding of International Zoological Congress, 2024 with following titles;
    ii. Ecological Consequences of Forest Fires on Soil Invertebrates in Margallah Hills National Park
    iii. Investigation of soil biodiversity of Margallah Hills National Park, Islamabad
    iv. Ecological variation of biodiversity in the entire Margallah Hills National Park Segment I: 1,800 ft. (548.6m) elevation, in Dhoke Jeevan Valley of the south facing aspect of the mountain
    v. Impacts of local communities on biodiversity and conservation of Margallah Hills National Park (MHNP), Islamabad.

One article and poster presented in 8th International Symposium on Galliformes, Taman Safari Prigen, Java, Indonesia 9th to 13th October 2023 with following title;

- Population status of white crested kalij pheasant (lophura leucomelanos) in Margallah Hills

National Park Islamabad, Pakistan

Technical Research Reports:

1. Ecological Consequences of Forest Fire in Margallah Hills National Park, Islamabad
2. Floristic Composition of Various Mountain Aspects in Margallah Hills National Park
3. Soil Biodiversity of Margallah Hills National Park

4. Status of Migratory Birds at Rawal Lake, a Part of Margallah Hills National Park

Fire affected area and field investigations in MHNP

Research Publication:

1. Waseem Ahmed, Muhammad Rais, Ayesha Akram, Muhammad Saeed, Luqman, Sumbul Gill, Aamina Abid and Abdul Hadi. 2024. Movement of amphibians in a habitat mosaic of agriculture landscape. European Journal of Wildlife Research (2024) 70:108
2. T. Mahmood, T. Sadaqat, F. Akrim, M. S. Nadeem, Sakhawat Ali, M. Mushtaq, N. Munawar, M. Farooq and N. Irshad. (2024).Temporal Niche Overlap among Predators and Prey Species of Pothwar Plateau, Pakistan. Pakistan J. Zool., pp 1-9, 2024
3. Rais, M., Ali, M. N., Gray, R. J., Qadir, W., Ali, M., Muhammad Saeed, Leston, L. (2023). Niche suitability and spatial distribution patterns of anurans in a unique Ecoregion mosaic of Northern Pakistan. PLoS ONE, 1–16

4. Batool A, Rais M, Saeed Muhammad, Akram A, Ahmed J, Ahmed W, Batool A, Kyle KJ (2023) New survey data on abundance and movements for two poorly known Asian Spiny Frogs. Herpetozoa 36: 113-121
5. Khattak, R. H., Ahmad, S., Mehmood, T., Ali, Sakhawat and Hua, Y. 2023. Factors affecting habitat selection of the endangered Indian pangolin (Manis crassicaudata) in ravine habitats at the Himalayan foothills, Pakistan. Applied Ecology and Environmental Research 21(6):5889-5899
6. Ali A., B. A. Rakha, M. S. Ansari, S. Akhter and Sakhawat Ali. 2023. Slope Direction, Elevation and Clutch Size Influences Breeding Success of White-Crested Kalij Pheasant (Lophura leucomelanos) in Margalla Hills National Park, Pakistan. Pakistan J. Zool., pp 1-8, 2023
7. Muhammad Rais, Aqsa Shehzad, Anum Sajjad, Farhat Bibi, Jamal Ahmed, Arooj Batool, Waseem Ahmed, Muhammad Saeed and Ayesha Akram. 2023. Abundance estimation and factors affecting the occurrence of Narrow-mouthed Frogs in a subtropical scrub forest, Pakistan. Biharean Biologist 17 (1): 00-00
8. Ahmed Junaid, Muzna Kashaf, Nuzhat Naseem, Muhammad Arif, Rubina Noor, Muhammad Saeed and Muhammad Rais. 2023. A review of research on Ayubia National Park, Khyber Pakhtunkhwa, Pakistan. Biharean Biologist 17 (2): 92 – 97

Project Proposals:

1. Human-leopard coexistence: Mitigating human-leopard conflict through awareness and capacity building in Margallah Hills National Park, Islamabad (Approved)
2. Conservation of Imperiled and Neglected Tortoises and Freshwater Turtles (TFT) in Pakistan. Conservation leadership programme
3. Saving the endangered freshwater turtles in Pakistan through awareness and capacity building. Rufford Foundation

Collaboration with Academia:

The Research and Planning Section collaborates with the following academic institutions to conduct research activities in Margalla Hills National Park:

1. Department of Zoology, Wildlife and Fisheries Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi

2. Department of Environmental sciences, Fatima Jinnah Women University, Rawalpindi
3. Department of Animal Sciences, Quaid-e-Azam University, Islamabad
4. Department of Anthropology, South Asia Institute, Heidelberg University, Germany
5. Department of Social Sciences, University of Pennsylvania, United States
6. Animal section, Pakistan Museum of Natural History, Islamabad
7. Zoological Survey of Pakistan

Training and Capacity Buildings:

The following training and capacity-building programs have been organized to enhance the skills of the existing IWMB officials;

1. "Snake Handling Techniques" training organized at the IWMB Visitor Information Centre, Trail-5, Islamabad
2. Camera Trap Installation Techniques training for the field staff of the Islamabad Wildlife Management Board at Trail-06, Islamabad
3. "Indigenous Plantation Techniques through Grafting" workshop for IWMB volunteers, held at Trail-05, Islamabad
4. Data Collection Techniques workshop for IWMB field staff, to collect digitally data at the IWMB conference room, Islamabad
5. Wildlife Crime Scene Investigation training conducted by the Snow Leopard Foundation at

Training of IWMB officials at VIC Trail-05

Internship program for Young Scientist:

The Internship Program for university students held for 8 week in 2024 focused on students with a keen interest in wildlife-related studies. The program aimed to provide practical exposure and hands-on experience to the participating students, fostering a deeper understanding of wildlife management and conservation efforts. Throughout the internship, students engaged in various activities and projects under the guidance of different sections of IWMB. The program not only enriched the

students' academic knowledge but also allowed them to contribute actively to the ongoing initiatives of the organization. The successful completion of the internship program signifies a valuable investment in nurturing the next generation of professionals dedicated to wildlife conservation.

Indigenous Parakeet Registration Program of IWMB:

The IWMB launched a parakeet registration process in Islamabad to monitor and regulate the ownership of parakeets, particularly in urban areas in December, 2023. This initiative aims to address the concerns around illegal wildlife trade, ensure the welfare of the birds, and reduce their capture from the wild. There are a total of 50 breeders, with 173 individuals registered, totaling 2,070 birds till June 2024. Awareness seminars were organized with consultation of PBAP and HWF to enhance the cooperation among the registered breeders and IWMB.

Parakeet registration, awareness Seminar and inspection by IWMB

THE END

Government of Pakistan

Ministry of Climate Change & Environmental Coordination