



Generating Global
Environmental Benefits - GEB

MAPPING CLIMATE CHANGE ACTIVITIES AND NEED DETERMINATION FOR FUTURE INITIATIVES



A study conducted by GEB project that assessed the status/current situation with respect to the past (major initiatives taken during the previous five years) and ongoing developmental activities of MoCC and its selected attached departments at the federal level covering specific environment and climate change related thematic areas

***GEB - A Joint initiative of United Nations Development Programme (UNDP)
& Ministry of Climate Change (MoCC)***





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MAPPING CLIMATE CHANGE ACTIVITIES AND NEED DETERMINATION FOR FUTURE INITIATIVES

Executive Summary

This short term study was undertaken on behest of UNDP's Global Environmental Benefits (GEB) project with three pronged objectives including (i) mapping of major environment related initiatives undertaken by various formations of MoCC during recent five years (ii) discerning work areas that remain unattended with respect to mandate assigned to concerned formations, and (iii) Need Assessment for program/project/policy interventions that can be taken in hand on a priority basis for compliance of MoCC's mandate.

The study conducted in close liaison with GEB Project, commenced with preliminary meetings with the Heads/senior officials of various Wings of the MoCC. They were briefed on the study intent. Mapping formats were developed and distributed to all concerned for information gathering. Follow-up consultations were later held with the concerned formations to seek elaboration and further detail wherever needed.

The report is organized in three parts. Part One contains the preamble, objectives and the methodology adopted to prepare the report, while Part Two contains a snapshot of on-going and upcoming projects based on the information received from the relevant offices. Part 3 presents a commentary on status quo situation and delineates actionable agenda that merits attention by MoCC and its principal regulatory agency Pak-EPA.

The mapping exercise covers a listing as well as an overview of PSDP and foreign funded projects under implementation during the recent five years or being processed for approval. The project portfolio was reviewed in the context of (i) thematic areas under various Wings of the MoCC (ii) Framework for Implementation of National Climate Change Policy (NCCP 2013), which has 748 actionable points on its recommended agenda (iii) Nationally Determined Commitments on climate change adaptation and mitigation, and (iv) federal mandate after the 18th amendment and international environmental obligations, in particular in response to UNFCCC accords.

At present, only two PSDP projects are under execution, one by the Forestry Wing and one by Pak-EPA, which is near completion. MoCC's flagship project is the 10 Billion Tsunami Tree Plantation Project, which is an extension of a previously approved project. The amended project awaits ECNEC's nod. The project involves planting / Regeneration of 3.29 billion plants, improvement of National Parks and Biosphere Reserves and is to be executed by the Forestry Wing.

Generating Global Environmental Benefits (GEB) Project

In addition, Seven (9) GEF/UNDP funded projects are being implemented by MoCC – four by the Forestry Wing, and three by IC Wing. The remaining two projects namely the Global Environment Benefits (GEB) Project and the Glacier Lake Outburst Flood (GLOF) Project are directly under the Secretary MoCC and at initial stages of implementation. The Environment Wing, MoCC has no executed project to report on for the recent five years. It however has three new small scale projects in the pipeline that are ready to take off after necessary approvals. As of now, there appears to be a limited progress on project development, as only one other project related to bio-safety is in the pipeline and no fresh projects are reported either as under preparation or being processed for approval.

The study finds no significant effort on project initiatives in priority areas of climate change adaptation or mitigation. Important areas such as Air and Water Quality Monitoring, Hospital Waste Management, Solid Waste Management, Water treatment, etc stand completely missed out from project portfolio. The report suggests developing demonstration activities/model projects in partnership with concerned organizations which can be replicated elsewhere, and working out joint plans of action or creating venture capital funds for the execution of such initiatives.

The study notes that despite a few landmark achievements in terms of policy initiatives, the implementation and compliance of core regulatory functions remain a huge challenge. There are basic structural impediments and capacity constraints that retard the launching of new programs/projects. These impediments need to be addressed. The situation calls for a detailed review of current institutional, legislative, and regulatory regimes and taking such initiatives that tend to convert the existing set-up to better performing, result oriented units.

The study identifies the need for a comprehensive human resource transformation analyses with a view to consolidate the environment sector framework for planning, controlling, directing and evaluating the ongoing and upcoming programs. The study will help in bringing about necessary changes in HR structure of MoCC and its focal regulatory agency, the Pak EPA. This is considered necessary for a number of different reasons including need to encourage work efficiency, open up career pathways, performance based assessments, and to minimize prolixity in work distribution. With appropriate placement and induction of professionally suitable human capital at each level, the concerned entities are likely to shift focus from stagnancy to vibrancy and better productivity.

The study recommends taking focussed attention for taking urgent project initiatives with respect to air and water quality monitoring in the capital. This activity cannot be put on the back burner. The need and requirements for such monitoring network has therefore been discussed in some detail in the report. In addition the report highlights the need for establishing and strengthening the NEQS regime, consolidating polluter pay charges for industries, initiating follow-up activities on NCCP

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implementation, initiating structured programs on best practices in climate change technologies, developing information system and knowledge based pilot and demonstration activities, and initiating research and development activities, etc.

The study considers enforcement of pollution charges as an important tool for aligning the industry towards path of environment compliance. These charges will not only discourage industries to lower their effluents, but also can raise revenue for the concerned agencies to bolster pollution control program implementation. There is a strong question on the status of compliance of pollution charge rules (2002) and whether at all the awareness with respect to the existence of pollution charge rules exists. The study therefore identifies the need for an appropriate program initiative in this regard.

The study indicates that a large part of actionable agenda contained in the “Framework for Implementation of Climate Change Policy” as well as other plans and policies remains unattended. A review and assessment of the subject is beyond the scope of this short term study. A three pronged action is however recommended for systematic follow up of NCCP implementation (i) A high powered forum be constituted by the Secretary to identify 8-10 major development projects that need to be initiated on a top priority basis. The identified projects should be need based, should have clear objectives and clear terms of reference, should be visible, should concern the general public, be replicable, serve the demonstration purpose, should act as model projects based on best practices, should be gender sensitive, and the intended projects should have quantifiable benefits; (ii) The projects should help in data generation and building up incidental information systems which can be used to develop further projects; and (iii) Working out joint plans of action/implementation and/or joint ventures with the partner organizations for the execution of these programs by clearly delineating roles and functions of each partner (iv) work out appropriate institutional interventions, like creating joint venture funds, etc for initiating if need be so for sharing the benefits for the purpose of generating more activities.

The study notes that the a serious effort is required to institutionalize the three Environment Funds that continue to be dysfunctional and which can play a vital role to mobilize environment and climate change related activities throughout the country.

MAPPING CLIMATE CHANGE ACTIVITIES AND NEED DETERMINATION FOR FUTURE INITIATIVES

PART ONE

1.0 Preamble

The Ministry of Climate Change (MoCC) is the premier federal ministry for undertaking environment and climate change related initiatives in Pakistan. MoCC is also mandated to ensuring compliance of regulatory functions assigned to concerned formations, and follow up on a wide range of international conventions and protocols on the subject. Pakistan Environmental Protection Act 1997 aimed at protecting and rehabilitating the environment, control of pollution, and promotion of sustainable development provided necessary impetus to achieve environment goals in the country. Pak EPA, consequently established to implement the provisions of the Act, became the principal regulatory arm of the Ministry and was assigned a wide range of tasks to safeguard environmental concerns. Considerable follow-up action has been taken since then by the concerned agencies to regulate the state of environment, albeit, it is generally felt that key areas of improvement remain unaddressed. Amongst other impediments, a lack of attempt to change the status-quo, absence of integrated environmental management information system, and disaggregated efforts to pursue major environmental issues, etc. can be cited as reasons for visible gaps between plans, policies and the implementation. This short term exercise was done under the auspices of UNDP/GEF Generating Global Environmental Benefits (GEB) project being jointly implemented by the Ministry of Climate Change & UNDP-Pakistan. The study pertains to mapping environment sector initiatives being undertaken by key wings of Climate Change Division and its key department, the Pakistan Environmental Protection Agency. The study provides a third party need assessment for developing prioritized action plan for the future.

1.1 Purpose/Objectives

The purpose of this short term exercise was to (i) help assess the status quo situation with respect to on-going activities of Ministry of Climate Change and other related organizations, mainly its key technical arm, the Pakistan Environmental Protection Agency to extract variance information which can be useful for future estimation and corrective actions. It is a critical exercise essential to look into the basic thematic objectives associated with the concerned department/wings and measure delivery with respect to schedule and available budgetary provisions. (ii) to assist in setting vision, and project scope right, involving the project stakeholder right, challenging the myths, and setting the policies and strategies right. (iii) to help reducing path dependence on policy shift because institutions are sticky, and actors protect existing model even it is sub-optimal. Moreover, the exercise would reflect on various protocols adopted by the Ministry of Climate Change and/or any other related organization, primarily the Pak-EPA for gathering primary environmental information/data.

1.2 The Methodology

(a) Start off Meetings for information gathering

Start off meetings with the GEB project were held (i) to have a non-conflicting assimilation of perceived outputs from this exercise. (ii) Basic materials/documents/papers that needed to be looked at before taking off were identified; and (iii) basic thematic areas to be included for information gathering were discussed (iv) extent, limitations and techniques for collecting basic data, (v) content of self-administered questionnaires for distribution and methodology; and (vi) schedule of meeting the concerned offices of MoCC. The MoCC comprise various work divisions and attached departments and serve as data sources for gathering relevant information. Follow up meetings were then held with respective work division as well as Pak EPA, the principal technical arm of MoCC to brief them about the purpose of the exercise and to seek their support for carrying out the study. It was decided that one or a combination of different survey techniques such as direct or participatory observation, literature search, structured/unstructured interviews (e.g., face-to-face, telephone, e-mail), self-

administered questionnaires, and focused group discussions, will be employed for completing the exercise.

(b) Developing Information Gathering Formats and Follow on Consultations

MOCC has four technical wings including Environment Wing, Forestry Wing, International Cooperation Wing and a Development Wing. In addition a Climate Fund Unit exists within the Ministry to support various climate change initiatives undertaken by the Ministry. Pakistan Environmental Protection Agency, an attached department of MOCC is the principal technical arm of the ministry. Global Impact Change Studies Centre (GICSC) and Zoological Survey of Pakistan are the other two departments of the Ministry. To facilitate information gathering, specific formats were developed/finalized for each wing in consultation with NPM. The formats were circulated to all concerned for seeking relevant information. Follow-on deliberative meetings were held with respective offices after receipt of data to seek clarifications on missing links and deliberate on

(c) Preparing the Draft Report and Debriefing

The draft report containing the results of the survey, suggestions and recommendations were accordingly submitted to GEB Project. A debriefing was done for the Secretary of the CCD on the outcomes of the study. The report developed as a process of gathering and measuring information on targeted variables of interest will enable the decision makers to answer relevant questions and evaluate outcomes on a variety of environmental related issues, and retargeting future line of action wherever necessary. The report includes a resume of whether accepted data collection techniques are being used by various environment groups within the MOCC for environmental data gathering, whether any plans, approach or method or objectives are set to collecting data by the respective wings/departments and/or to protect the credibility and reliability of environmental data.

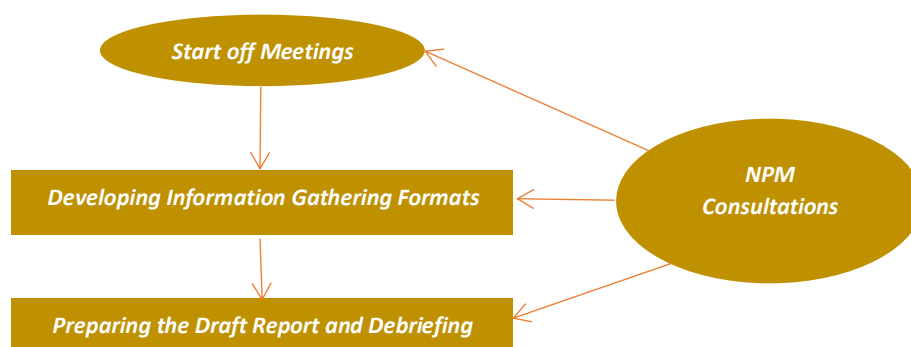


Figure 1

PART 2

2.1 Work Distribution for Pak EPA and MoCC Wings

The mapping exercise was undertaken in the context of thematic areas assigned to each of the Wings under the MoCC and Pak EPA, the main technical arm of the ministry to rehabilitate environment and control pollution at the federal level. The thematic areas of Pak EPA and respective Wings are summarized below:

PAK EPA

The Pakistan Environment Protection Agency, the Pak-EPA, created consequent to enactment of the Pakistan Environment Protection Act, 1997 (Act XXXIV of 1997) is entrusted with a wide range of responsibilities for the protection, rehabilitation and improvement of the environment and for the prevention and control of pollution. The Agency is empowered to perform functions assigned to it under the Act and develop rules and regulations thereunder for compliance of its mandate. Article 6 of the Act delineates the functions of Pak-EPA which in a way represent the thematic areas the

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Agency is aspired to perform actions to meet its objectives. The key function as stated under Article 6 assigns EPA to “take or cause to be taken all necessary measures for the protection and control of pollution”. It’s a huge responsibility and all efforts need to be made to dispense with this responsibility in a whole some manner. Other responsibilities include developing and ensuring NEQS compliance, Development of National Environment Policy and ensuring its implementation; and developing rules, regulations and subordinate legislation to achieve the objectives of PEPA Act 1997. Thematic areas covered under the Act are described in figure 2.

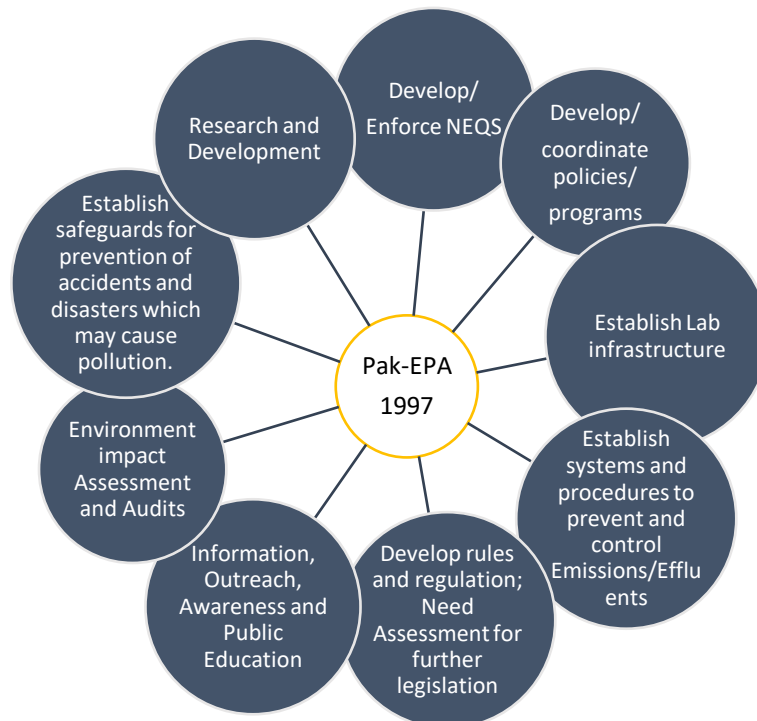


Figure 2

Environment Wing, Climate Change Division

The Environment Wing serves as PEPC Secretariat. The Wing is headed by a Director General and is a key technical Wing of the Ministry. It coordinated the development of various policies including National Environment Policy 2005, National Drinking Water Policy 2006, National Sanitation Policy (2009), National Climate Change Policy (2012), and Framework for implementation of National Climate Change 2014-2030 that was developed and approved in 2013. The Wing is also coordinating initiatives with international and regional organizations in developing various reports like the National Sustainable Development Strategy, Environment Climate Change Outlook (ECCO) Report, National Technology Need Assessment, Second National Communication, National Report on Urban Development of Pakistan, Climate Change Vulnerability Assessment of Islamabad, Nationally Appropriate Mitigation Action (NAMAs), and National Adaptation Plans. Other key functions assigned to the the Environment Wing are presented in Figure 3.

Key Functions - Environment Wing	<i>Environment legislation</i>
	<i>Trans-boundary issues (inter-provincial, regional and international)</i>
	<i>Matters relating to Sustainable Development, Water and Sanitation, Sustainable Urbanization</i>
	<i>Multilateral Environmental Agreements (MEAs), including UN Framework Convention on</i>
	<i>Clean Development Mechanism (CDM)</i>
	<i>Coordination with UN Agencies/ International and Regional Organizations/international NGOs including UNEP, UNICEF, UN-HABITAT, SAARC, SACEP and SACOSAN</i>
	<i>Acts as Secretariat for PEPC</i>
	<i>Policy formulation</i>

Figure 3

The International Cooperation Wing

The Wing headed by a Joint Secretary is primarily responsible for pursuits to streamline and improve coordination with international agencies on environment and climate change related issues. The main areas under IC Wing are presented in Figure 4.

Areas under IC Wing	<i>To streamline and improve coordination with international environmental agencies</i>
	<i>To implement/follow-up on activities with respect to the signed conventions and protocols including Basel Convention, Stockholm Convention, Rotterdam Convention, Vienna Convention, Montreal Protocol, Minamata Convention, and EU's Generalized System of Preferences Plus (GSP) scheme with respect to environment related convention/protocols</i>
	<i>To facilitate compliance with international obligations</i>
	<i>To attract international support for addressing the climate change/environmental related issues and initiatives in Pakistan.</i>
	<i>Comprehensive elimination and reduction of persistent organic compound and local capacity building for chemical management of POPs in accordance with Stockholm convention provisions.</i>
	<i>Phasing out of Ozone Depleting substances in accordance with Montreal Protocol.</i>

Figure 4

The Forestry Wing

Forestry Wing is headed by Inspector General Forests who is assisted by two Deputy Inspector General Forests, Conservator Wildlife, Director Biodiversity, Assistant Inspector General Forests (BS-18), two Deputy Conservator Wildlife (BS-18), Deputy Director Biodiversity and Assistant Secretary-Wildlife. In accordance with Rules of Business (Amended), 2012 Forestry Wing is mandated to perform following functions as in the capacity of technical wing of the Ministry of Climate Change:

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<i>Functions performed by Forestry Wing</i>
<i>Formulation of National policy, plans, strategies and programmes regarding ecology, forestry, wildlife, biodiversity and desertification.</i>
<i>Coordination, monitoring and implementation of environmental agreements with other countries, international agencies and forums.</i>
<i>National Forest Policy (draft), 2015 (Under consideration of CCI)</i>
<i>Pakistan Trade Control of fauna and flora Act, 2012 (CITES Law)</i>
<i>Draft National Law on Access and Benefit Sharing (under Nagoya Protocol)</i>
<i>Green Pakistan Programme (Revival of Forestry and Wildlife Resources in Pakistan)</i>
<i>Coordination of inter-provincial/inter-ministerial tree planting campaigns</i>
<i>National Biodiversity Strategy & Action Plan (draft)</i>
<i>Community Managed Trophy Hunting Programme</i>
<i>Administering conservation Funds namely “Mountain Areas Conservation Fund (MACF)” and Fund for Protected Areas (FPA), which are run through Board of Directors</i>
<i>Assembly Business - Implementation of Cabinet Decisions, Presidential directives, PM Directives, National Assembly & Senate Standing Committees</i>
<i>National Taskforce on coral-reef</i>
<i>RAM (Ramsar Advisory Mission) on flood control management</i>

<i>Responsibilities of Forestry Wing as National Focal Point (NFP)</i>
<i>Convention on Biological Diversity (CBD)</i>
<i>UN Convention to Combat Desertification (UNCCD)</i>
<i>Convention on Conservation of Migratory Species of wild animals (CMS)</i>
<i>RAMSAR Convention on Wetlands of an international importance.</i>
<i>Convention on International Trade in Endangered Species of Fauna and Flora (CITES)</i>
<i>Nagoya Protocol on Access & Benefit Sharing (ABS)</i>
<i>United Nations Forum on Forests (UNFF)</i>
<i>Mangroves for the Future (MFF) initiate</i>
<i>IPBES (Intergovernmental Platform on Biodiversity and Ecosystem Services)</i>
<i>Asia-Pacific Forestry Commission (APFC)</i>
<i>COFO (FAO Committee of Forest)</i>
<i>United Nations UN-REDD Programme</i>
<i>Global Snow Leopard and Ecosystem Protection Programme</i>
<i>Forest Carbon Partnership Facility (FCPF)</i>
<i>REDD+ component of UNFCCC</i>
<i>SAWN (South Asia Wildlife Network)</i>
<i>All programmes of FAO, UNDP and World Bank related to forestry, wildlife, biodiversity, protected areas and wetlands etc.</i>
<i>Coordination with international NGO's like IUCN, WWF, Wetlands International etc.</i>

The Development Wing

The wing is primarily responsible for all administrative, coordination, budgetary and policy matters related to MoCC development schemes/initiatives/PSDP projects. The Wing also oversees matters

Generating Global Environmental Benefits (GEB) Project

related to National Bio-Safety Centre (NBC), issuance of licences, and related to establishment of NBC.

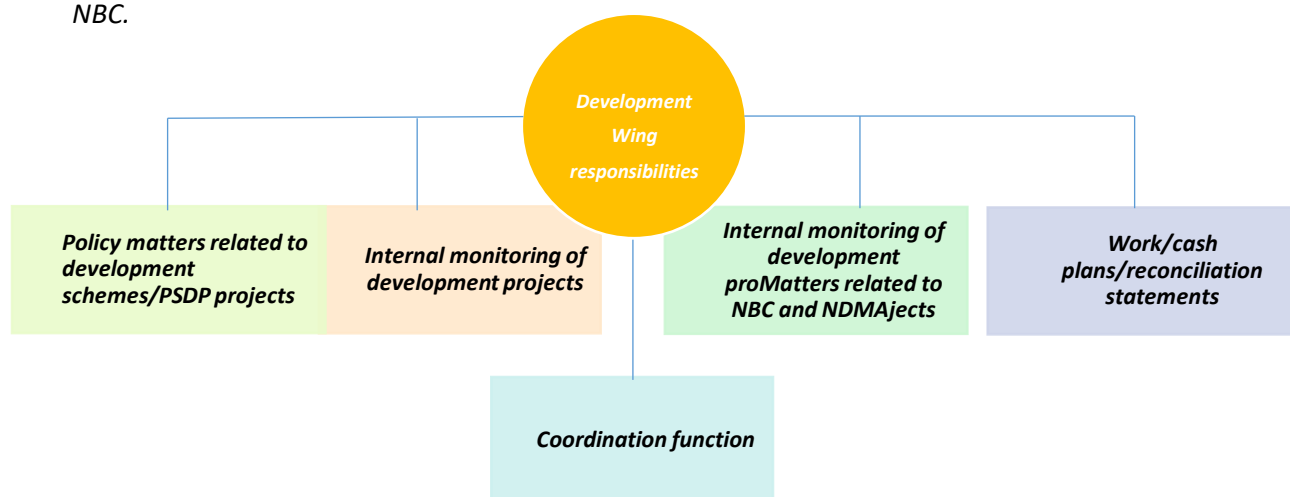


Figure 5

Climate Finance Unit

Climate Finance Unit (CFU) works under the direct supervision of Additional Secretary, Ministry of Climate Change (GEF, GCF Focal Point), as a dedicated office to coordinate with relevant stakeholders and facilitate the Ministry in looking after global climate finance opportunities and GEF/GCF related matters. It focuses on project development, accreditation of national entities, and Country readiness programme through tapping global climate finance. The CFU overall objective is to secure a larger-scale and a more sustained impact on the global environment through partnerships with Federal and Provincial Government, UN agencies, based on Pakistan's national priorities. The unit aims to enhance the capacity of Federal and provincial stakeholders and promote awareness for implementation of Pakistan's Climate change policy and its implementation framework, NDCs, GEF/GCF program in an effective and sustainable manner. The main functions are shown in figure 6:

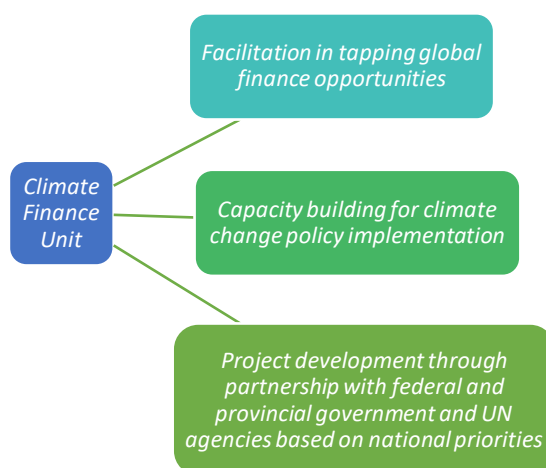


Figure 5

2.2 MoCC's Project Portfolio – A SNAPSHOT

Based on the feedback received from the mapping exercise, a snapshot of MoCC project portfolio is provided below:

The Forestry Wing: The Wing has currently two approved PSDP projects primarily pertaining to revival of forests, revival of wildlife, combating desertification, and preserving biological diversity.

The projects include a flagship government sponsored (i) Rs 125.16 Billion Ten Billion Tree Tsunami Programme (Upscaled Green Pakistan Programme – Revival of Forest and Wildlife Resources in Pakistan-Revised), and (ii) Rs 1.666 Billion Sustainable Land Management to Combat Desertification Project. In addition four GEF/UNDP funded projects are also underway which include a) USD 9.0 million Sustainable Forest Management project b) USD 3.978 million project relating to Reversing deforestation and degradation in high value Chilgoza pine forests in Pakistan c) USD 7.18 million project REDD+ (Readiness Preparation) and d) USD 4.64 million project pertaining to Global Snow leopard and Ecosystem Protection Programme. The projects as reported by the Forestry Wing are placed at Table A appended with this chapter.

The Climate Finance Unit: There is no project being implemented or under preparation by the Climate Finance Unit. Complete list of projects reported by CFU are placed at table B:

The International Cooperation Wing (IC Wing) has no ongoing PSDP project and its activities are primarily funded by UNDP/GEF. The three funded projects include (i) a US\$ 287,318/- Phasing out of Ozone Depleting Substances (ODS) consumption from Pakistan in Refrigeration, Air Conditioning, fire-fighting and foam sector. The project which commenced in April 2019 is likely to extend up to March 2021. The first phase of the project was recently completed. (ii) Another project titled Institutional Strengthening Project for the Implementation of Montreal Protocol funded by Multilateral Fund Secretariat of the Montreal Protocol, is also being executed by the IC Wing. (iii) The third project relates to Reduction and Elimination of Persistent Organic Pollutants in Pakistan, and the project cost is to the tune of 545,000/- USD. The project funds are not under PC I & II format and follow Project Cycle Operation Manual (PCOM). The IC Wing has reported a number of capacity building programs, mainly in the form of training of concerned stakeholders, as essential component of the project. The projects as reported by the IC wing are placed at Table C appended with this chapter.

Pak EPA: The Pak EPA has been stagnant in terms of developing projects due to various reasons. The only ongoing PSDP project reported by EPA pertains to Establishment of a Geomatic Centre for Climate Change and Sustainable Development. The project cost amounts to Rs 48.85 million and it actually commenced in 2015. The Project includes some useful outputs like developing the Digital Atlas of Islamabad; developing the State of Environment Report, Ambient Air Quality Survey of Industrial Area of Islamabad, developing Maps of flood prone areas of Pakistan, developing Maps of Vegetation Cover of Islamabad, developing Maps of urban sprawl of Islamabad. And developing Maps of earthquake prone areas of Islamabad developing Maps of food and Health facilities of Islamabad; and developing water sampling locations of WP3 tricycle project. Due to non-availability of data, many of the project objectives doesn't appear to have been achieved. The other is a 496. 116 National Biosafety Data Centre which is under process for approval. As of now, there is no project funded through GEF/UNDP window. Also there is no structured program reported for the training, education and awareness of the stakeholders or any research and development program that is currently in hand or taken up recently. The projects as reported by the Pak-EPA are placed at Table D appended with this chapter.

The Environment Wing: The Environment Wing has currently no ongoing PSDP project, albeit three PSDP projects each valuing around Rs 50 million await processing for approval at different forums. The projects relate to (i) Establishment of Climate Change Reporting Unit in the Ministry of Climate Change (ii) Establishment of Pakistan WASH strategic Planning Cell (Facilitating Achievement of SDG 6.1 & 6.2 , and 9 , and (iii) Climate Resilient Urban Human Settlement Change Reporting Unit in Ministry of Climate Change. The projects are in various stages of approval. There is no GEF/UNDP funded activity presently being carried out by the Environment Wing. The projects as reported by the Environment wing are placed at Table E appended with this chapter.

The Development Wing: There is no project being implemented or under preparation by the development wing.

Table A

Ministry of Climate Change
Mapping Exercise of Environment Sector Activities/Projects

Department/Wing: Forestry
February 2020

Date:-Thursday, 6

Thematic Area	Projects PC-I/II		Status		Other Activities			Constraints
Please fill in the column with thematic areas that come under your Wing/work distribution	Title	Total cost	*Approved / Not approved / Ongoing	Overall impact	** Law / Rules /Regulations notified	Major Initiatives	MOUs/Linkages with institutions	
Forest, Wildlife and Biodiversity	Ten Billion Tree Tsunami Programme (Upscaled Green Pakistan Programme – Revival of Forest and Wildlife Resources in Pakistan-Revised)	Rs. 125.1843 Billion	Approved (Revised version under approval process)	Tree cover increased Preservation and conservation of wildlife improved	Not required	- Planting / Regeneration of 3.29 billion plants - Improvement of National Parks and Biosphere Reserves	Not required	-
Forest and Biodiversity	Sustainable Land Management to Combat Desertification	Rs. 1.666 Billion	Approved	Land management practices improved	Not required	Management of 800,000 ha improved through forestry, rangeland, agricultural and water harvesting measures	Not required	
	Sustainable Forest Management	USD 9.000 Million	Approved	Management of natural forests improved	Not required	Management of riverine, scrub and coniferous forests	Not required	
	Reversing deforestation and degradation in high value Chilgoza pine forests in Pakistan	USD 3.978 Million	Approved	Local livelihoods improved through increase productivity and enhanced services and functions of the Chilgoza ecosystem	Not required	- 34,400 ha of Chilgoza forest ecosystems sustainably managed. - 98,247 ha of Chilgoza forest ecosystems sustainably managed/ restored through indirect impacts (7,724,809million t CO ₂ equivalent over a period of 20 years or 4 tCO ₂ eq per ha per year)	Not required	

<i>Forest</i>	<i>REDD+ Readiness Preparation Project</i>	<i>USD 7.18 million</i>	<i>Approved</i>	<i>Capacities in REDD+ Implementation improved at National and Sub-National level</i>	<i>Not required</i>	<i>Preparation of National REDD+ Strategy, MRV System, Social and Environmental Safeguards, Forest Management Plans of 15 sites, outreach.</i>	<i>Not required</i>	<i>Lengthy procurement procedures, coordination between foreign consulting firms and their local partners lacking, little understanding of REDD+ concept at national and sub-national level.</i>
<i>Wildlife</i>	<i>Global Snow leopard and Ecosystem Protection Programme</i>	<i>USD 4.64 Million</i>	<i>Approved</i>	<i>Landscape approach for the survival of snow leopard promoted</i>	<i>Not required</i>	<i>- Conservation of Snow Leopard through participatory approach at landscape level. - Protected areas expansion and strengthening.</i>	<i>Not required</i>	
<i>Biodiversity</i>	<i>Mountain and Markets: Biodiversity and Business in Northern Pakistan</i>	<i>USD 2.526 Million</i>	<i>Approved (Complete)</i>	<i>Sustainable production of biodiversity goods and services through community ecosystem – based enterprises demonstrated in northern mountain areas of Pakistan.</i>	<i>Not required</i>	<i>Stimulate market demand for biodiversity – friendly NTFP and natural resource use</i>	<i>Not required</i>	

*A: *Approved*
OG: *Ongoing*
R: *Rules*

NA: *Not Approved*
** L: *Laws*
Rg: *Regulation*

Table B

Department/Wing: <i>Climate Finance Unit-MoCC</i> 2020								Date:-Thursday, 6 February
The matic Area	Projects PC-I/II		Status		Other Activities			Constraints
	Title	Total cost USD (MN)	*Approved / Not approved / Ongoing	Overall impact	** Law / Rules /Regulati ons notified	Major Initiatives	MOUs/Linkages with institutions	
Please fill in the column with thematic areas that come under your work distribution								
Biodiversity, Climate Change	Sustainable Forest Management to Secure Multiple Benefits in High Conservation Value Forests	8.3	Ongoing	Project will promote sustainable forest management in Pakistan's Western Himalayan Temperate Coniferous, Sub-tropical broadleaved evergreen thorn (Scrub) and	N/A	Component 1 will support the incorporation of sustainable forest management objectives and safeguards in forest management planning, forestland allocation and compliance of monitoring systems at the local level.	NPD: JS ADMIN MOCC	

				<p>Riverine forests for biodiversity conservation, mitigation of climate change and securing of forest ecosystem services. In particular, it aims at implementation of three inter-related and mutually complementary components that are focussed at addressing the barriers of inadequate planning, regulatory and institutional frameworks to integrated forest resource management, and the limited experience among key government and civil society stakeholders in developing and implementing SFM practices on the ground.</p>		<p>Component 2 will identify, demarcate and implement on-the-ground approaches to improving management of high conservation value forests within seven landscapes covering an area of 67,861 ha with the aim of meeting the life requisites of the target species, and habitats such as breeding areas, feeding areas, water sources, dispersal and connectivity corridors, etc. Component 3 will develop practical approaches to enhancing carbon sequestration through restoring degraded and former forested areas (LULUCF activities) by a combination of restoration and reforestation of 10,005 ha of degraded conifer forests; 3,400 ha of degraded scrub forests, and reforestation of 13,099 ha of Riverine forests with native species.</p>		
	Addressing the Drivers of Deforestation: Reducing the pressure on the High Conservation Value Forests of Chilgoza Pine of Pakistan	3.9	Ongoing	<p>34,400 ha of Chilgoza forest ecosystems sustainably managed/restored with a well balance package of goods/services provided to society directly</p> <p>98,247 ha of Chilgoza</p>	N/A	<p>Forest and Landscape Restoration through the promotion of sustainable forest management practices and multiple other options such as Assisted Natural Regeneration and Agroforestry practices. This will be achieved through the Chilgoza forest participatory</p>	FAO Country Office	

				<p>forest ecosystems sustainably managed/restored through indirect impacts of the project on crop lands, rangelands and forest lands(7,724,809million t CO2 equivalent over a period of 20 years or 4 tCO2eq per ha per year) CBD Aichi Targets (1, 5, 7, 11, 14, and 15) Contributing to national delivery of relevant Sustainable Development Goals (SDGs) (including 1 (poverty), 5 (gender), 6 (water), 13 (climate and 15 (life on land)</p>		<p>inventory and an assessment of restoration options in order to prepare an integrated management plan for the four sites. In addition, awareness raising and capacity building of the local community for conservation, restoration and management of the Chilgoza ecosystem will be launched. A Chilgoza Forest Protection and Conservation Committees (CFPCC) will be established with the mandate to work closely with the forest department and private sector for the sustainable management and judicious utilization of the Chilgoza forests. The second focus area will be the value chains development with a strong focus on the pine nuts value chain which present a high potential for increasing incomes for local stakeholders.</p>		
Land Degradation	Sustainable Land Management Programme to Combat Desertification 2	3.79	Ongoing	At the national and (particularly) the provincial levels the project will ensure a strong and sustainable enabling framework for implementing SLM approaches to land	N/A	This project will assist the Government of Pakistan to achieve the long-term goal – “to combat land degradation and desertification in Pakistan” with the primary objective - “To promote sustainable management of land and	NPD: JS Admin MOCC	

			<p>degradation across the country. This will involve establishing permanent Desertification Cells, nationally and in all four provinces to coordinate the inter-sectoral delivery of SLM approaches. In addition, the project will develop cross-sectoral policy and planning tools for SLM, as well as integrating SLM approaches into sectoral policies at provincial level.</p> <p>Furthermore, the project will build capacity for SLM approaches and support the development of an SLM land use planning and decision support system. A high proportion of the project budget and effort will be given to up-scaling successful SLM approaches that were piloted during Phase I. These will be extended across 800,000 hectares of degraded landscapes in all four provinces, including 400,000 hectares of rain-fed farm lands, 300,000</p>		<p>natural resources in the arid and semi-arid regions of Pakistan in order to restore degraded ecosystems and their essential services, reduce poverty, and increase resilience to climate change". The project will depend on the strong commitment of the provincial and federal Governments of Pakistan and the involvement of key stakeholders, in particular those at the community level. The major initiatives of the project are:</p> <p>1: Strong enabling environment at national and provincial levels supports up-scaling of SLM practices; 2: Effective, targeted and adaptive implementation of SLM Land Use Planning & Decision Support System; 3: On-the-ground implementation of climate-resilient SLM activities is up-scaled across landscapes. The project will result in successful application of SLM over an area of 800,000 ha in 15 districts covering more than 200 villages.</p>		
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				<p>ha of rangelands, and some 100,000 ha of dry forests.</p> <p>Enabling policies and institutional mechanisms for SLM are in place at federal and provincial levels and being implemented.</p>				
Capacity Building	Generating global environmental benefits from improved decision making systems and local planning in Pakistan.	0.995	Ongoing	<p>Strengthened national capacities to mainstream environment and energy concerns into national development plans and implementation systems</p> <p>Vulnerable Populations benefit from improved sustainable environmental management practices, including climate change mitigation and adaptation</p>	N/A	<p>Highlighting the importance of environmental information and its integration in broader economic development, NCS lead to the creation of a first set of national and provincial institutions that would carry this responsibility. Since then, several projects have been undertaken for the purpose. While significant environmental capacity and awareness have been created, sustainable environmental information management system and integration of environment and development remain to be adequately achieved. The project would help achieve this by addressing the barriers to (a) regular availability of consistent and reliable environmental</p>	NPD: Secretary MOCC	

						data; (b) coordinated and robust environmental information management system, and (c) sustained commitment and capacity for sustainable development planning and legislation. In doing so, the project seeks to leverage the investments made previously building on the foundation these investments have laid.		
Biodiversity, Land Degradation	Pakistan Snow Leopard and Ecosystem Protection Program	4.644	Ongoing	Solutions scaled up for sustainable management of natural resources, including sustainable commodities and green and inclusive value chains; Innovative nature-based and gender-responsive solutions developed, financed and applied for sustainable recovery.	N/A	The four inter-related components of the project are: 1) Landscape level approach for snow leopard conservation; 2) Protected Area expansion and strengthening; 3) Participatory conservation in snow leopard model landscapes through sustainable community development; and 4) Support for international cooperation and conservation and management actions informed by knowledge, awareness and monitoring and evaluation. These actions are aimed at conserving the snow leopards, wild prey and associated species and habitats contained within these landscapes	NPD: JS Admin MOCC	

						through measures such as maintaining their ecosystem values and ameliorating climate change impacts, enhancing surveillance, monitoring and inter-provincial and trans-boundary cooperation to reduce wildlife crime and related threats, and improving knowledge and communications.		
Chemicals/POPs	Comprehensive Reduction and Elimination of Persistent Organic Pollutants in Pakistan	5.15	Ongoing	Development and implementation of a Regulatory, Policy and enforcement system to reduce POPs releases. Capacity building of local communities and public and private sector stakeholders to reduce exposure to and releases of POPs. Collection, Transport and Disposal of PCBS and POPS Pesticides Monitoring and Evaluation	N/A	Objectives of this project are reducing human health and environmental risks by enhancing management capacities and disposal of POPs in Pakistan through: i) the development and implementation of a regulatory, policy and enforcement system to reduce POPs releases and to regulate POPs waste disposal; ii) capacity building to reduce exposure to and releases of POPs; iii) collection, transport and disposal of 300t of PCB and 1200t of POPS Pesticides .The elimination of POPs pesticide stockpiles became even more urgent after the 2010 floods which damaged some of the	NPD: JS IC MOCC	

						storage sites of hazardous chemicals and pesticides. To ensure environmentally sound disposal of POPs, a facility to be upgraded, tested and permitted in compliance with Stockholm Convention BAT/BEP. As an alternative, the project will however keep open the option of shipment of POPs waste abroad for disposal, in compliance with the Basel Convention, if at an early stage it will result evident that the POPs cannot be disposed of using the technologies available in the country.		
Climate Change	Sustainable Energy Initiative for Industries	3.55	Ongoing	Policy, legal and regulatory framework for EE investments in industry adopted Sustainable financing and delivery mechanisms developed for Industrial Energy Efficiency technologies. Applications of Renewable Energy technologies for industry increased.	N/A	Develop the policy and regulatory framework on use of EE/RE in Industry Create an investment platform for promoting investments in RE/EE and scaling up the market Establish an accreditation center for energy experts on EMS & RE applications in industry	UNIDO Country Office	
	GEF UNIDO Cleantech Programme for SMEs	1.37	Completed	SME associations and national agencies	N/A	National Cleantech Platform (NCTP) to promote clean	UNIDO Country Office	

				involved in promoting clean technology innovations mobilized and a coordinating platform at the national level established Annual Cleantech business competitions held across selected SME clusters covering four clean energy sectors Capacity building of national industrial associations to host the Cleantech programme Mentor Program launched, and 100+ mentors identified and trained regionally and online Policy and regulatory environment affecting Cleantech innovation in SMEs reviewed and proposals for improvements presented to decision makers		technology innovations and competitiveness in SMEs in Pakistan to deliver global environmental benefits Capacity enhancement initiative for clean technology innovations Policy and regulatory framework strengthened for scaling up of Cleantech competition, innovations and acceleration activities across Pakistan Monitoring and Evaluation Management		
	Mainstreaming Climate Change Adaptation through Water Resource Management in Leather Industrial Zone Development	3.31	Ongoing	Incorporation of Climate Change Adaptation (CCA) into Punjab and Silakot district urban development plan Development of flood management plan for	N/A	Mainstreaming Adaptation into urban and rural development planning Capacity Building of targetted communities and leather business owners. Silakot district and Silakot urban	UNIDO Country Office	

				<p>Silakot district and the pilot Dugri drain in Sialkot.</p> <p>Assessment of various alternatives especially water harvesting, appropriate effluent treatment technology for pilot Silakot tannery zone</p> <p>Segregation of useful byproducts of leather industrial waste, for further use by agriculture.</p>		<p>plan implementation, dissemination of information, demonstration of safe, affordable and advance technology for water treatment and water conservation in the pilot Sialkot Tannery Zone.</p>		
	Delivering the Transition to Energy Efficient Lighting in Residential, Commercial, Industrial, and Outdoor Sectors	1.57	Ongoing	<p>Developing a National Efficient Lighting Strategy</p> <p>Strengthening monitoring, verification and enforcement (MVE) capacities in Pakistan to ensure an effective transition to efficient lighting</p> <p>Design for a “Lighting Funding Window” in Pakistan’s Revolving Loan Fund (RLF)</p> <p>Accelerating the use of light emitting diodes (LEDs) and controls</p>	N/A	<p>Draft policies, including minimum energy performance standards (MEPS), are developed to ensure a successful transition to an efficient lighting market including financial mechanisms to support Pakistan in its effort. National laboratories to verify compliance with standards including for LEDs and controls strengthened.</p> <p>Support the design and evaluation of pilot demonstration programme/s for locally appropriate LEDs and lighting controls in high profile locations and for disadvantaged populations</p> <p>Training for building managers and lighting designers on</p>	UNIDO Country Office	

						installation of LED systems and controls		
Adap tatio n	Scaling up of Glacial Lake Outburst Flood in Northern Areas of Pakistan	37.5	Ongoing	Strengthened sub-national institutional capacities to plan and implement climate change -resilient development pathways Community-based EWS and long-term measures are up-scaled to increase communities' adaptive capacity	N/A	Provincial line and planning departments have technical capacities to mainstream climate change into development plans At the provincial level, the project will support the integration of GLOF risks into existing KP provincial climate change policies GCF resources will also be used to strengthen and expand existing sub-national institutional and coordination arrangements including financial, planning and budgeting processes and other requirements for implementing adaptation action plans and climate change initiatives in GB and KP. The project will facilitate the updating of river discharge and meteorological information into the Pakistan Meteorological Department (PMD) network to address the vulnerability of the identified target area and provide information for the	NPD: Secretary MOCC	

						development of an Early Warning System. The installation of 50 automatic weather stations (22 in KP and 28 in GB) and the installation of 408 river discharge gauges/sensors (170 in KP and 238 in GB), will be used to measure lake volume, flow and discharge rates, and will provide data to conduct hydrological modeling to generate flood risk scenarios Existing flood early warning systems in the target area will be established to enable the dissemination of flash flood warning signals on a 24-hour basis.		
	National Adaptation Plan	3.0	Approved	Process of NAP formulation and subsequent implementation of the NAP established; training and awareness raising procedures and/or manuals developed; and events for public and private sectors, CSOs, and local communities on the NAP organized Sustainable climate information system (monitoring, modelling, forecasting and	N/A	Institutional Coordination and Governance Instrument for Advancing the NAP Process in Pakistan Use of Science and Knowledge for medium and long-term Adaptation Planning in Pakistan Mobilization of Adaptation Climate Finance for NAP in Pakistan Processes and Results Monitoring and Feedback System	UNEP Regional Office	

				dissemination) to inform climate change adaptation, including a long-term plan for operation and maintenance established Assessment of the financial needs for long-term adaptation planning carried out A monitoring and reviewing system for the NAP process established				
Mitigation	Green BRT Karachi	49.0	Approved	Procurement and construction of BRT and complementing core infrastructure completed Environment friendly Green BRT system in Karachi operationalized BRT project is compliant with Environmental and Social Management requirements, and implements an effective bus industry restructuring mitigation action plan Effective management by TransKarachi and SMTA of BRT in- service	N/A	Construction of main BRT corridor Construction of common corridors Construction of depots and staging facilities Procure BRT bus fleet Procurement and installation of a distance- based fare collection system, BRT control center, and other Intelligent Transport System components Implementation of bus industry restructuring program Implement project performance and GHG monitoring and evaluation system (including surveys, reporting and evaluation activities)	ADB Country Office	

Adap tatio n	Transforming the Indus Basin with Climate Resilient Agriculture and Water Management	35.00	Pipeline	Developing a water accounting system Establishing an evapotranspiration- based water management system Improving availability and use of information services Developing farmers' capacity to transform agriculture practices with CRA and OFWM	N/A	Enhancing information services for climate change adaptation in the water and agriculture sectors Building on- farm resilience to climate change Creating an enabling environment for continued transformation	FAO Country Office	

*A: *Approved*
OG: *Ongoing*
R: *Rules*

NA: *Not Approved*
** L: *Laws*
Rg: *Regulation*

Table C

**Department/Wing: International Cooperation Wing Unit-MoCC
2020**

Date:-Thursday, 6 February

Thematic Area Please fill in the column the thematic areas that comes under your work distribution	Projects PC I/II(Foreign funded projects only)		Status		Other Activities			Constraints
	Title	Total Cost	Approved/Not Approved/Ongoing	Overall Impact	** Law/Rules/Regulations notified	Major Initiatives	MOU/Linkages with institutions	
Phasing out of Ozone Depleting Substances (ODS) consumption from Pakistan in Refrigeration , Air Conditioning , fire fighting and foam sector	Institutional Strengthening Project for the Implementation of Montreal Protocol (This project is funded by Multilateral Fund Secretariat of the Montreal Protocol,these funds are not under PC I & II format and follow Project Cycle Operation Manual	US\$ 287,318/- (April-2019 to March 2021)	Approved and Ongoing	Pakistan is in compliance of Montreal Protocol and successfully phased out 1 st generation of ODSs and also achieved 10% phase out targets of 2 nd generation of ODSs i.e. HCFCs on 1 st January, 2015.. Now Pakistan is heading towards completion of 35% reduction targets of	HCFC import quota is being regulated through Appendix-F of the Import Policy Orders (IPO).	1. Stakeholder's awareness on environmental effects of the emissions of controlled and other substances 2. Quota system based on international allocations for limiting the imports of HCFCs and ODS Phase-out Strategy	Pakistan's compliance to the Montreal Protocol and Phasing out of Ozone Depleting Substances (ODS) consumption from Pakistan in Refrigeration, Air Conditioning, fire fighting and foam sector through various implementing	Lack of particular rules and regulations for managing implementation of Montreal Protocol in the country.

	(PCOM)			HCFCs.		and International meetings 3. Data reporting to International agencies by involving stakeholders (Budget.	measures.	
Chemical Management	Comprehensive Reduction and Elimination of Persistent Organic Pollutants in Pakistan	\$545,000,0	Started in 2015 and Ongoing	<p>1. Detailed Gap Analysis of the existing Legislation/Rules in Pakistan to manage POPs has been completed work on the amendments in the existing legislation on POPs is underway.</p> <p>2. Capacity building of federal level and provincial EPA</p>		i. Reconfirmation of POPs pesticides stockpiles from all provinces of Pakistan was completed by the project. The remaining available stockpiles are 286 MT which will also be disposed of by the end of	Chemical Management	Comprehensive Reduction and Elimination of Persistent Organic Pollutants in Pakistan

				<p>Laboratories through provision of GC-MS, an equipment used for testing of all kinds of POPs.</p> <p>3. 475 MT of POPs pesticides and PCBs have already been transported and disposed from different locations all around Pakistan to protect human health and environment of communities living in vicinity of these locations.</p> <p>4. Around 1001 number of people were trained by conducting 22 number of</p>		<p>project.</p> <p>ii. Data compilation to update national chemicals profile for Pakistan updated.</p> <p>iii. Sampling and testing of 2000 equipment contaminated with PCBs from all over Pakistan to develop PCBs inventory which was missing from NIP 2009.</p> <p>iv. Project has developed a report on remediation</p>		
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				different trainings including specific trainings for Customs officers and Energy Sector. Out of these, 250 were females.		of POPs (including contaminated soil) and assessment of POPs risks to Human health and impact on environment.		
Chemicals and waste pollution	Review and Update of National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants in Pakistan	210,609/- USD	Approved / Completed	Inventory of new (11)POPs and updating NIP in Pakistan		Chemicals and waste pollution	Review and Update of National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants in Pakistan	210,609/- USD
Mercury Pollution	Minamata Initial Assessment in Pakistan	197,000/- USD	Approved / Completed	Inventory of mercury in products and processes and way forward for ratification of Minamata Convention on Mercury		Mercury Pollution	Minamata Initial Assessment in Pakistan	197,000/- USD

*A: *Approved*

NA: *Not Approved*

OG: *Ongoing*

****L:** *Laws*

R: *Rules*

Rg: *Regulation*

Table D

**Department/Wing: Pakistan Environmental Protection Agency
2020**

Date:-Thursday, 6 February

Thematic Area	Projects PC-I/II		Status		Other Activities			Constraints
	Title	Total cost	*Approved / Not approved / Ongoing	Overall impact	** Law / Rules /Regulations notified	Major Initiatives	MOUs/Linkages with institutions	
Implementation of NEQS: Ambient Air Quality	Nil	NA	NA	NA	S.R.O.1062(I)/2010 NEQS for Ambient Air	Secure the supplementary grant for maintenance, repair and calibration of fixed and mobile automatic ambient air quality monitoring station.	Nil	Shortage of Technical Human Resource
						Ambient Air Quality monitoring of industrial area of Islamabad.		
						Regular monitoring of Ambient Air Quality of Islamabad.		Insufficient Financial Resources for repair and maintenance and operation
						Ambient Air Quality data is being received through Environmental Impact Assessment (EIA) reports.		
Implementation of NEQS: Industrial Emission	Nil	NA	NA	NA	S.R.O.549(I)/2000 NEQS for Industrial Gaseous	Secure the supplementary grant for maintenance, repair and calibration of PG-	Nil	

					Emission	250 Stack Emission Analyzer		
						Real time emission monitoring of steel industries		
Implementation of NEQS: Municipal effluent	Nil	NA	NA	NA	S.R.O.549(I)/2000 NEQS for Municipal and Liquid Industrial Effluents	Research on municipal effluent of Nalla Lai Rawal Lack Catchment areas monitoring CDA Sewage Treatment Plant I-9 monitoring Any other monitoring on need basis		
Implementation of NEQS: Noise	Nil	NA	NA	NA	S.R.O.1062(I)/2010 NEQS for Noise	Noise monitoring is being carried out during Public Complaint Redressal exercise		
Implementation of NEQS: Vehicular Emission	Nil	NA	NA	NA	S.R.O.72(KE)/2009 NEQS for Motor Vehicle Exhaust and Noise	Ministry of Climate Change has already taken up the matter with Ministry of Interior to strengthen the Motor Vehicle Examination System in ICT to include the private vehicles alongwith public vehicles for issuance		Non availability of Euro-II complaint fuel in the country, due to which cannot go for higher Euro standards

						<p>vehicle fitness certificate in terms of emissions.</p> <p>Pak-EPA conducts vehicular emission testing in collaboration with Islamabad Traffic Police.</p>		
Awareness & Dissemination of Information to public	Nil	NA	NA	NA	Pakistan Environmental Protection Act, 1997	<p>Public consultation during EIA of major projects</p> <p>Public Hearing during EIA approval process</p> <p>Sharing of daily Ambient Air Quality Report of Islamabad on social media</p> <p>Sharing Environmental Information through Pak-EPA Website</p>	<p>@PakEPAIslamabad</p> <p>http://www.environment.gov.pk/</p>	
Training programs and public education	Nil	NA	NA	NA	Pakistan Environmental Protection Act, 1997	<p>Training session for students of different public and private sector universities during their visits of Pak-EPA.</p>	All major universities of Islamabad and Rawalpindi	

						Pak-EPA provides internship opportunities to the students of different universities.		
Disaster Management/Contingences Plan	Nil	NA	NA	NA	National Marine Disaster Contingency Plan	BARACODA exercises	Pakistan Maritime Security Agency (PMSA) National Institute of Oceanography (NIO) Karachi	
Environmental Studies/Research	Establishment of Geomatic Centre for Climate Change and Sustainable Development	48.885	Ongoing	Project is playing vital role for the generation and management of environmental data	Nil	Digital Atlas of Islamabad. State of Environment Report. Ambient Air Quality Survey of Industrial Area of Islamabad. Maps of flood prone areas of Pakistan. Maps of Vegetation Cover of Islamabad. Maps of urban sprawl of Islamabad. Maps of earthquake prone areas of Islamabad. Maps of food and Health facilities of Islamabad.	SUPARCO	Limited availability of data

						Maps of water sampling locations of WP3 tricycle project		
Developing Laboratories Biosafety testing Laboratory'	National Biosafety Data Centre	496.419	Not approved	The project will strengthen the Pak-EPA to properly regulate the GMOs activities at National and International level	S.R.O.336(I)/2005 Pakistan Biosafety Rules, 2005	PC-I has been submitted to Development Wing of Ministry of Climate Change for review and approval	Ministry of National Food Security and Research Ministry of Health Services, Regulation and Coordination Ministry of Textile Ministry of Science and Technology Ministry of Commerce PARC NIBGE CEMB FBR HEC Intellectual Property Organization NIH	PC-I is pending with Ministry of Climate Change for 8 months
Environment/CC Policy and Implementation								
Research and	Nil	NA	NA	NA	Pakistan	Students of different	Quaid-e-Azam	

Development					Environment al Protection Act, 1997	universities are doing their research work in Central Laboratory for Environmental Analysis and Networking (CLEAN)laboratory of Pak-EPA	University Bahria University Fatima Jinnah Women University Arid Agriculture University International Islamic University Pakistan Meteorological Department	
State of the Environment - Report	Establishment of Geomatic Centre for Climate Change and Sustainable Development	48.885	Ongoing	Project is playing vital role for the generation and management of environmental data	Nil	State of Environment Report for 2017-18 has been completed and launched	Pakistan Meteorological Department	
International Obligations	National Biosafety Data Centre (under Cartagena Protocol)	496.419	Not approved	The project will strengthen the Pak-EPA to properly regulate the GMOs activities at National and International level	S.R.O.336(I)/ 2005 Pakistan Biosafety Rules, 2005	Genetically Modified Organisms (GMOs) / Living Modified Organisms (LMOs) activities are being regulated in the country to some extent under Cartagena Protocol.	Ministry of National Food Security and Research Ministry of Health Services, Regulation and Coordination Ministry of Textile Ministry of Science and Technology Ministry of Commerce PARC NIBGE	Lack of technical and management human resource.

							CEMB FBR HEC Intellectual Property Organization NIH	
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*A: *Approved*
 OG: *Ongoing*
 R: *Rules*

NA: *Not Approved*
 ** L: *Laws*
 Rg: *Regulation*

Table E

Department/Wing: Environment

Date:-Thursday, 6 February 2020

Thematic Area	Projects PC-I/II		Status		Other Activities			Constraints
Please fill in the column with thematic areas that come under your work distribution	Title	Total cost	*Approved/ Not approved/On going	Overall impact	** Law/Rules/R regulations notified	Major Initiatives	MOUs/Linkages with institutions	
Climate Change	Establishment of Climate Change Reporting Unit in Ministry of Climate Change.	47.52 Millions (Rs.)	Approved	The project aims to establish a CC Unit to collect and collate data / information regarding CC issues in the country for future planning.	NCCP, 2012, Framework for implementation of NCCP, 2013, Climate Change Act, 2017	A brief is attached.	UNFCCC, Kyoto protocol,	Technical and financial resources requirements.
Water, Sanitation and Hygiene	Establishment of Pakistan WASH strategic Planning Cell (Facilitating Achievement of SDG 6.1 & 6.2)	40 Millions (Rs.)	Approved	The project aims to promote water, sanitation and hygiene practices vis-a-vis SDGs 6.	NCCP, 2012, Framework for implementation of NCCP, 2013, Climate Change Act, 2017	A brief is attached.		Technical and financial resources requirements.
Urbanization and its CC impacts	Climate Resilient Urban Human Settlement Change Reporting Unit in Ministry of Climate Change	56.825 Millions (Rs.)	Approved	A reporting Unit will be established under the project regarding urban sprawl and its related issues which will address and report on implementation of	NCCP, 2012, Framework for implementation of NCCP, 2013, Climate Change Act, 2017	A brief is attached.		Technical and financial resources requirements.

*A: Approved

NA: Not Approved

OG: Ongoing

** L: Laws

R: Rules

Rg: Regulation

PART 3

3.0 Actionable Agenda For Future

This part includes prioritized actions that need to be contemplated upon by the MoCC for setting into motion new programmes, activities and/or projects in a systematic manner. The actionable agenda is based on the gaps identified in assigned mandate and the actual work in hand, feedback from officials during the course of mapping study and C

onsultant's own value judgement.

3.1 Review of Legislative Regime

Consequent to 18th Amendment that came into force on 19th April 2010, some 44 subjects, including environmental pollution and ecology, became the sole legislative domain of the Provincial Assemblies. The provinces later brought about their own Environment Protection Acts to assume responsibilities of environment protection and pollution control in their respective areas of jurisdiction. The environment related international obligations however remained a part of federal legislative list and hence the federal subject. The Pak EPAs implementation role was confined to federal areas. The Ministry of Environment was renamed as Climate Change Division which later became a full Ministry called Ministry of Climate Change. The Climate Change Act, 2017 enacted without superseding any previous legislative provision further exacerbated the situation that was already undergoing transitional effects of the 18th amendment.

The 18th amendment and the introduction of Climate Change Act, 2017 transformed the environment landscape in a way that requires a careful assessment of the need to amend the environment related legislative regime in its entirety. The assessment should address a host of issues to deal with the post 18th amendment challenges, particularly related to need for amending definitions, and related to need to address overlapping of functions, conflict of interest, uniformity of standards and procedures, linkages with environmental provisions in other laws, and ordinances like Factories Act, Motor Vehicle Ordinances, the disaster management Act, etc, and related to the need to adapt to a new environment protection and pollution control regime in the country. It is understood that no serious pursuit was recently made for reviewing the current regulatory environment in the aftermath of 18th amendment, and consequent to enactment of the Climate Change Act. It is important to take note of the need of undertaking a purposeful review of the entire legislative regime rather than being evasive and sticking to proverbial "burying the head under the sand" approach to maintain the status quo.

Recommendation 1: *Despite a few landmark achievements in terms of policy and regulatory initiatives, the environmental implementation and compliance leaves much to be desired and remain a huge challenge for the government. The situation calls for a review of current institutional, legislative, and regulatory regimes and taking such program initiatives that tend to convert the existing administrative set-ups to better performing and result oriented units.*

3.2 Review of Policy Framework

The Ministry formulated several environment related national policies from time to time. The list includes National Sanitation Policy (2006), National Rangeland Policy (2005), Pakistan Wetland Program (2007), National Environment policy (2012), National Climate Change Policy (2013), Framework for Implementation of Climate Change Policy (2013), and the latest being the National Forest Policy that was developed in 2015. The National Environmental Policy provide overarching framework for addressing the concerned environmental issues facing Pakistan. It is however felt that policies at the federal level did not find willing followers at the local levels. Insufficient and inconsistent implementation at all levels has held back significant headway being made at every level. The mapping exercise identifies there has been less than sufficient follow-up to implement or

review policies which were generally a bit too open-ended, unwieldy and devoid of actionable agenda.

Recommendation 2: *The present government's well-orchestrated priority of changing lanes from a pollution-intensive model to resource efficient and sustainable growth model is a welcome step, albeit without analysing behavioural, institutional and capacity barriers to implementation, and without focussed attention on best-practices to bridge policy and implementation gaps elsewhere, meeting the environmental goals will continue to be a pipe dream.*

3.3 HR Transformation

The study identifies the need for fundamentally rethinking and re-chartering the human resource management in the MoCC and its focal regulatory agency, the Pak-EPA in the first place. The changes in structure appear to be necessary for a number of different reasons ranging from a need for realigning the work functions, need to minimize prolixity in work functions, need to introducing performance drivers, need for improving leading indicators for success, that is, increased proficiency, lower average time to resolution, increased productivity, increased know how of environment business modelling and best practices, and increased stakeholder satisfaction. In the present set up, instead of the leading indicators providing a sense of direction, the organization attempt to drive the leading indicators.

Recommendation 3: *A comprehensive HR study will help change the organizational culture. Employees in what appears to be bloated layers of management do not tend to set any standards of performance, nor do they tend to rise the standards set for them. The majority of employees need to connect to the big picture or tied to larger organizational ambitions as they must know what excellence looks like.*

3.4 Environment and Climate Change

Climate signifies weather conditions prevailing in an area in general or over a long period of time, whereas weather refers to day to day state of the atmosphere, or short term variations in the atmosphere. Environment is everything that is around us. It can be living things and non-living things. It includes physical, chemical and other natural forces like short term variations in the atmosphere or weather conditions prevailing in an area in **created** general or over a long time. Living things live, interact and adapt themselves with the things in their environment. The environment encompasses the interaction of all living species, climate, weather, and natural resources that affect human survival and economic activity. Climate change is a major environmental concern inexorably linked with increased_level of atmospheric carbon dioxide and significant long term change in the expected weather of a region over a significant period of time. Climate change adaptation and mitigation acts cannot be delinked with environmental issues like efficient resource management, pollution control, biological diversity, soil erosion and land degradation, energy efficiency, forest management and glacier melting etc.

Recommendation 4: *The enactment of Climate Change Act, 2018 has a regulatory anomaly which has implication in terms of creating work function superfluities or dilutions. The situation warrants a serious effort to review the /assess the need for revoking/amending/redefining the boundaries of similar legislations like the Pakistan Environment Protection Act, (Act XXIV of 1997), National Energy Efficiency and Conservation Act, and the provincial Environment Protection Acts, as also discussed in para 3.1 above.*

3.5 Develop Ambient Air Quality Monitoring System

The air pollution concentration vary spatially and temporarily causing the air pollution pattern to change with different locations and time due to changes in meteorological and topographical conditions and other situational factors. The sources of air pollutants include vehicles, industries, power plants, domestic sources and natural sources. Because of the presence of high amount of air pollutants in the ambient air, the health of the population, the vegetation, and property can be adversely affected. Ambient air quality remains a serious concern for ICT as in other cities. A strong monitoring program is therefore required to determine the existing quality of air, evaluation of the effectiveness of control programme and to identify areas in need of restoration and their prioritization. In order to arrest the deterioration in air quality, the present and anticipated air pollution through continuous air quality survey/monitoring programs is necessary to be assessed. Monitoring Air Quality of the capital is one of the principal functions of the MoCC/Pak-EPA and cannot be put on the backburner

Status Quo Situation-- Whether the present monitoring arrangement enough: A reliable Ambient Air Quality Monitoring programme requires a network of monitoring stations extended throughout the capital. At present, only one monitoring station is functioning at Pak-EPA premise in H-8. The Pak-EPA also has one mobile lab donated to it by JICA which appears to be dysfunctional since long. Even otherwise, a sole mobile station has limited utility as to an overall air quality monitoring system for a city. The international guidelines for monitoring would require ICT to have several more (at least 15 or so) monitoring stations for ICT --- and as such the capital remains without an adequate monitoring infrastructure to say the least. Consequently there is no data of short – term variation (24 hourly average) or seasonal variations (monthly average) and as such data on violations of air quality emissions at critical locations of ICT. The status and trend information, exposure level determination, and scavenging behaviour of environment are important elements of air monitoring system. A fundamental responsibility of the Pak/EPA and MOCC's Environment Wing to have ensured initiation of such projects for the capital. That the existing program is inadequate or non-existent should be a cause of serious introspection for MOCC. It is fundamental obligation of the MOCC and its concerned department to plan a comprehensive programme for prevention, control and abatement of air pollution; to secure the execution of such projects and to collect and disseminate information related to air pollution on a regular basis.

Required Actions for Establishing Air Monitoring Network: The ambient air quality monitoring network involves measurement of a number of air pollutants at number of locations in the Capital territory so as to meet objectives of the monitoring. Any air quality monitoring network thus involves selection of pollutants, selection of locations, frequency, duration of sampling, sampling techniques, infrastructural facilities, man power and operation and maintenance costs. The network design also depends upon the type of pollutants in the atmosphere through various common sources, called common urban air pollutants, such as Suspended Particulate Matter (SPM), Respirable Suspended Particulate Matter (RSPM), Sulphur dioxide (SO₂), Oxides of Nitrogen (NO_x), and Carbon Monoxide (CO) etc. . The areas to be chosen primarily are such areas which represent high traffic density, industrial growth, vicinity of power plants, human population and its distribution, emission source, public complaints if any the land use pattern etc. Generally, most of the time the basis of a network design are the pollution source and the pollutant present. Major considerations in setting up the monitoring stations will require:

Monitoring Station Criterion

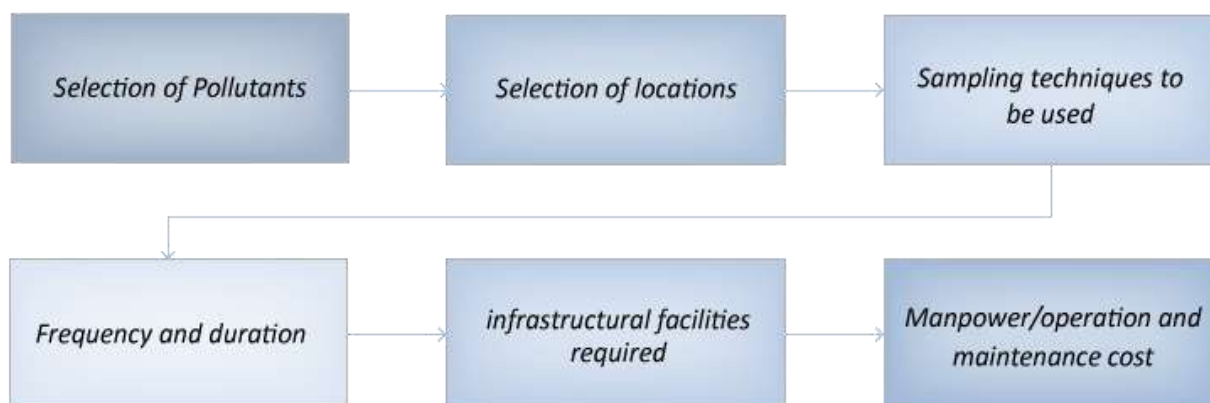


Figure 6

Other Pre Project Required Actions: Establishing monitoring stations by requires a careful pre-project information gathering for the source of emissions, determination of number and distribution of monitoring stations, selection of pollutants, measurement methods, sampling duration and frequency, quality control and assurance requirements etc in accordance with internationally accepted guidelines. These are summarized in Figure 3.5(a). Setting up of an ambient air quality monitoring network, the most important thing to be considered prior to commencement of actual monitoring is to collect its background information. The concerned department need to check whether a repository of background information is available to take initiative or needs to be built up specifically for this purpose.

Background Information Check

- ☐ Sources/types of pollution
- ☐ Epidemiological profiles/health impacts
- ☐ Demography
- ☐ Topographical conditions
- ☐ Land use patterns
- ☐ Meteorological conditions

Figure 8

Meteorology and Air Pollution: Air pollutants show short term, seasonal and long term variations. Atmospheric conditions determine the fate of the air pollutants after their release into the atmosphere. The mean transport wind velocity, turbulence and mass diffusion are three important and dominant mechanisms in the air pollutant dispersal. Meteorology plays a major role in study of air pollution. Air pollutants show diurnal variations in their levels. During the daytime, solar heating causes maximum turbulence and strongest vertical motions. This causes the maximum amount of momentum exchange between the various levels in the atmosphere. On clear nights with light winds, heat is radiated from the Earth's surface resulting in cooling of the ground and air adjacent to it. This results in extreme stability of the atmosphere near the Earth's surface. Under these conditions turbulence is at a minimum.

Areas of Concern for High Air Pollution: Under air monitoring programs in various countries four air pollutants viz, Sulphur Dioxide (SO₂), Oxides of Nitrogen as NO₂ and Suspended Particulate Matter (SPM) and Respirable Suspended Particulate Matter (RSPM/PM₁₀), are considered for regular monitoring at all the locations. Besides this, additional parameters such as Respirable Lead and other toxic trace metals, Hydrogen Sulphide (H₂S), Ammonia (NH₃) and Polycyclic Aromatic Hydrocarbons (PAHs) are also monitored in metro-cities.. The monitoring of meteorological parameters such as wind speed and direction, relative humidity and temperature was also integrated with the monitoring of air quality. The reasons and areas of concern for air quality deterioration are many such as poor quality of fuel, absence of vehicular inspection centres, poor compliance of standards, etc. A list of reasons are presented in figure 9.

Reasons and Areas of Concern for Air Quality Deterioration

(i) Poor Quality of Fuel	(vi) inefficient fleet management
(ii) Old Process Technology	(vii) Poor Compliance of Standard in Small/Medium Scale Industries
(iii) Wrong Siting of Industries	(viii) No Pollution Prevention and Control System in Small/Medium Scale Industry
(iv) No Pollution Preventive Step in Early Stage of Industrialization	(ix) Uncontrolled Growth of Vehicle Population, high density, older vehicles, absence of vehicular inspection mechanisms, large number of two wheelers and two stroke engines
(v) Poor Vehicle Design	(x) of mass transit systems

Figure 7

Adequacy of knowledge base: Whether the concerned departments are sufficiently acquainted with the components of Monitoring; whether the concerned officials are acquainted with latest measurement methods; whether they know about sampling techniques, duration and frequency, whether they are acquainted with laboratory requirements, and data handling, data integrity, data interpretation and presentation detail; whether they know about operation of equipment, calibration methodologies and concepts of analytical quality control. Without having a solid knowledge base, no agency can successfully run a meaningful monitoring regime for air quality control.

Analytical Quality Assurance: Quality Assurance is normally done at two levels, an internal quality control system and intra lab control arrangement. The absence of monitoring infrastructure negates this concept at the outset. An ICT air quality monitoring network would normally involve more than one monitoring agencies that would conduct monitoring at number of locations. The quality assurance which aims at achieving comparability of data from various agencies is a very important element of the monitoring program. Quality assurance can be within laboratory quality assurance programme. Internal quality assurance may be understood to include normal internal procedures such as periodic calibrations, duplicate checks, split samples, spiked samples and the keeping of adequate and neat records. External quality assurance may be taken to include those activities that are performed on a more occasional basis, usually outside the normal routine operations, e.g., on-site system surveys, independent performance audits, inter-laboratory comparisons, and periodic evaluation of internal quality assurance data. The WHO prescriptions for quality assurance can be utilized to ensure quality assurance of the monitoring systems.

Data Handling and Presentation: Air quality depends on the physical characteristics of the area. Site observations must be recorded so that data interpretation can be easier. Site observations can be type of area, whether residential, industrial, sensitive or traffic intersections, distance from nearby sources, whether location is in a market place, height of instrument above ground level, etc. The data should be validated by rejecting erroneous data, applying corrections as per the calibrations performed of flow rates etc. The data presentation should be such that the objectives of monitoring, that is compliance with NEQS, are met. Whether 24-hourly average and annual average are computed or whether 8 –hourly and 1-hourly averaging is being performed, and whether violations are within permissible levels; and whether scavenging behaviour is being adequately plotted to interpret seasonal variations and trends in air quality; whether outlier values are being checked for contamination of sample and discarded accordingly.

Validation checklist		
<input type="checkbox"/>	Number and Distribution of Monitoring Locations	
<input type="checkbox"/>	Selection of Monitoring Location	
<input type="checkbox"/>	Selection of Pollutants	
<input type="checkbox"/>	Sampling Duration and Frequency	
<input type="checkbox"/>	Measurement Methods	
<input type="checkbox"/>	Meteorological Measurements	
<input type="checkbox"/>	Laboratory Requirements	
<input type="checkbox"/>	Quality Assurance	
<input type="checkbox"/>	Data Handling and Presentation	
<input type="checkbox"/>	Financial Requirements	
<input type="checkbox"/>	Manpower Requirements	
<input type="checkbox"/>	Operation of Air Quality Monitoring Equipment	
<input type="checkbox"/>	Quality Assurance and Quality Control in Air Quality Monitoring	
<input type="checkbox"/>	Analytical Quality Control	
<input type="checkbox"/>	Ring Test Facility at CPCB	
<input type="checkbox"/>	Reasons for Poor Quality of Data	

Figure 8

Dispersion Modelling: It is also important to combine continuous emission and meteorological monitoring dispersion modelling to predict downwind exposures. When the predicted exposures approach the acceptable levels, the information is used to reduce production rates and emissions. This is an inefficient method, but may be an acceptable interim control method for an existing facility. The converse of this to announce warnings to the public when conditions are such that excessive concentrations of contaminants may exist, so that the public can take appropriate action. For example, if a warning is sent out that atmospheric conditions are such that sulphur dioxide levels downwind of a smelter are excessive, susceptible populations such as asthmatics would know not to go outside. Again, this may be an acceptable interim control until permanent controls are installed.

Generating Air Quality Data: The objective of a manager of an air pollution control system is to ensure that excessive concentrations of air pollutants do not reach a susceptible target. Targets could include people, plants, animals and materials. In all cases we should be concerned with the most sensitive of each of these groups. Air pollutants could include gases, vapours, aerosols and, in some

cases, bio-hazardous materials. A well designed system will prevent a target from receiving a harmful concentration of a pollutant. An important element of Air Quality Monitoring is to make reliable data available to the stake holders with respect to air pollution control system. This information system unavailable for the time being. The data generated thereby should be able to provide response to the following questions, which is at present.

- What is emitted, in what concentration?
- What are the targets? What is the most susceptible target?
- What are acceptable short-term exposure levels? And what are the health hazards
- What are acceptable long-term exposure levels?
- What combination of controls will be taken to ensure that the short-term and long-term exposure levels are not exceeded.

Recommendation 5: Establishing a reliable Air Quality Monitoring network is a paramount need for the Capital. As much as it is also one of the principal functions of the MoCC/Pak-EPA and cannot be put on the backburner. Establishing a reliable ambient air quality system will require several pre-project actions as mentioned above, proper understanding of the variables involved, knowledge of state of the art methodologies, and data handling and presentation techniques, which need to be taken in hand on priority basis.

3.6 Develop Water Quality Monitoring Initiative

Water quality continues to be a major threat to public health in ICT like the rest of the country.. Pak EPA has well defined National Environment Quality Standards for waste water effluents. The wastewater effluent criteria relate to limitations on pollutant constituents present in wastewater effluents and are a further method of control. They may be set as related to the water use designations of bodies of water and as they relate to the above classes for chemical criteria. Biological criteria are based on water body habitat conditions which are needed to support aquatic life. It is generally considered that water quality is poorly monitored and managed. Without an adequate water monitoring system, the NEQS will continue to have question mark with respect to their compliance.

The Surface water as well as the ground water resources, both need protection from exposure to a variety of pollutants. The surface water pertains to aquatic systems that are above ground, that is, found on exterior of earth's crust like lakes, rivers, etc and other water bodies that are used by municipalities, agriculture and industries or other human activity. They can get polluted in a number of ways, which include chemical water pollution (due to unregulated chemicals), suspended matter water pollution, microbiological water pollution (due to various pathogens – bacteria viruses, protozoa, etc) oxygen depleting water pollution, ground water pollution, nutrient pollution. The primary pollution of ground water on the other hand results from substances that naturally occur in ground water and mineral environment by all types of point and diffused sources of pollution. Therefore, ground water also requires protection, regular monitoring and some treatment before it is used for drinking and other domestic use.

Causes: The causes of water pollution are generally demarcated as Eutrophication (enrichment of water with nitrogen and phosphorus) , industrial waste (liquid effluents) , municipal waste/sewage and waste water pollution; waste from agriculture and animal production; atmospheric water pollution; underground storage leakages; oil pollution in water (nuclear waste water pollution, marine dumping and water pollution). The primary pollution of ground water on the other hand results from substances that naturally occur in ground water and mineral environment by all types of

point and diffused sources of pollution. Therefore, ground water also requires protection, regular monitoring and some treatment before it is used for drinking and other domestic use.

Natural waters and wastewaters are characterized in terms of their physical, chemical and biological composition. The principal physical properties and the chemical and biological constituents of wastewater and their sources are a lengthy list, and analytical methods for these determinations are available in various public health and environmental publications and manuals. Standard Methods for the Examination of Water and Waste Water by the American Public Health Association is one such publication for reference.

Five Freedoms from Pollution for Water Bodies: Each designated water body should be controlled according to regulations which is comprised of both basic and more detailed numerical criteria as defined. To the extent practical and possible, all bodies of water should attain the basic criteria of the "Five Freedoms from Pollution" as described below:

1. free from suspended solids or other substances that enter the waters as a result of human activity and that will settle to form putrid or otherwise objectionable sludge deposits, or that will adversely affect aquatic life
2. free from floating debris, oil, scum and other floating materials entering the waters as a result of human activity in amounts sufficient to be unsightly or cause degradation.
3. free from materials entering the waters as a result of human activity, producing colour, odour or other conditions in such degree as to create a nuisance
4. free from substances entering the waters as a result of human activity, in concentrations that are toxic or harmful to human, animal or aquatic life and/or are rapidly lethal in the mixing zone
5. free from nutrients entering the waters as a result of human activity, in concentrations that create nuisance growths of aquatic weeds and algae.
6. Water quality criteria are numerical limitations and guidelines for the control of chemical, biological and toxic constituents in bodies of water. With over 70,000-plus chemical compounds in use today it is impractical to specify the control of each. However, criteria for chemicals can be established on the basis of limitations as they first of all relate to three major classes of consumption and exposure:

Class 1: Chemical criteria for protection of human health are of first major concern and should be set according to recommendations from governmental health agencies, the WHO and recognized health research organizations.

Class 2: Chemical criteria for control of agricultural water supply should be based on recognized scientific studies and recommendations which will protect against adverse effects on crops and livestock as a result of crop irrigation and livestock watering.

Class 3: Chemical criteria for protection of aquatic life should be based on recognized scientific studies regarding the sensitivity of these species to specific chemicals and also as related to human consumption of fish and sea foods.

Generating Water Quality Data: When a water quality monitoring programme is being planned, the programme is expected to yield data and information that will be of value for management decision-making. The following are examples of the type of information that may be generated by a monitoring programme:

- *How the quality and quantity of water in a water body relate to established water quality standards, and as such to requirement of the including users, animals and plant life.*
- *The capacity of the water body to assimilate an increase in waste discharges without causing unacceptable levels of pollution.*
- *Whether or not existing waste discharges conform to existing standards and regulations.*
- *The appropriateness and effectiveness of control strategies and management actions for pollution control.*
- *The trends of changes in water quality with respect to time as a result of changing human activities in the catchment area. Quality could be declining as a result of waste discharges or improving as a result of pollution control measures.*
- *Control measures that should be implemented to improve or prevent further deterioration of water quality.*
- *The chemical or biological variables in the water that render it unsuitable for beneficial uses.*
- *The hazards to human health that result, or may result, from poor water quality in the water body.*
- *How developments in the catchment area have affected or will affect water*

***Recommendation 6:** Freshwater is a finite resource as essential to agriculture and industry as it is to basic human existence. Water quality monitoring is a fundamental tool in the management of freshwater resources. Designing a well-orchestrated Water quality program for the Capital is therefore considered a priority with action with a clear statement of aims and objectives, information expectations and intended uses, a description of the study area concerned, a description of the sampling sites, a listing of the water quality variables that will be measured, proposed frequency and timing of sampling, an estimate of the resources required to implement the design, and a plan for quality control and quality assessment.*

3.7 The National Environment Quality Standards

Air Emission Standards: Pak EPA developed air emission standards which set quantitative limits on the permissible amount of specific air pollutants that may be released from specific sources over specific timeframes. The primary objective of these standards is to indicate the levels of air quality necessary with an adequate margin of safety to protect the public health, vegetation and property. Ambient air quality objectives/standards are pre-requisite for developing programme for effective management of ambient air quality and to reduce the damaging effects of air pollution.

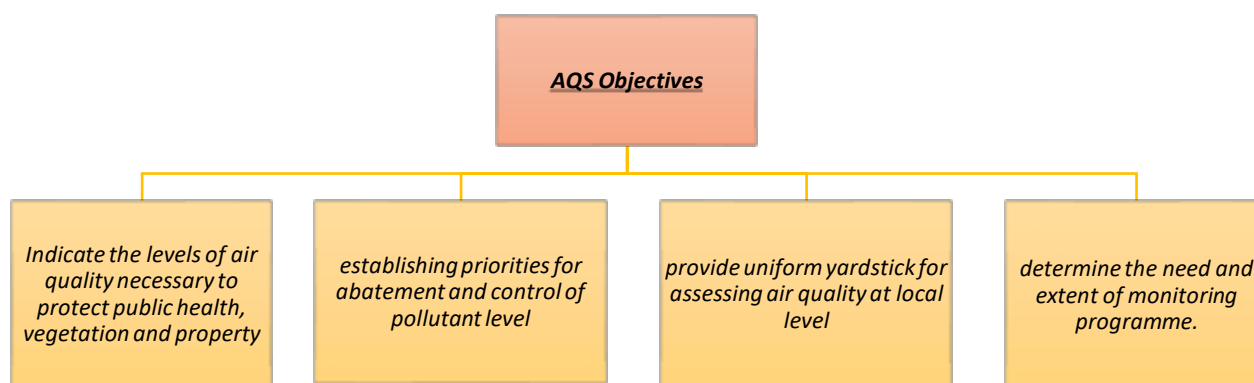


Figure 11

The Notified NEQS: The National Environmental Quality Standards for industrial gaseous emissions and for municipal and liquid industrial effluents were first notified in 1993. A few amendments to the standards were later notified with the approval of PEPC in August 2000, and later in 2013. Air emission standards and by Pak EPA for major pollutants released in the atmosphere through various common sources, called common urban air pollutants, such as Suspended Particulate Matter (SPM) Sulphur dioxide (SO₂), Oxides of Nitrogen (NO_x), and Carbon Monoxide (CO) etc. The standards development is continuing activity and requires consistent follow up for research and improvement, wherever necessary.

Concerns/Missing Areas: Air pollutants are added in the atmosphere from variety of sources that change the composition of atmosphere and affect the biotic environment. The concentration of air pollutants depend not only on the quantities that are emitted from air pollution sources but also on the ability of the atmosphere to either absorb or disperse these emissions. Continuously operating measurement networks are based on automatic measuring stations, and serve primarily for air quality monitoring of urban areas. Measured are air pollutants such as sulphur dioxide (SO₂), dust, nitrogen monoxide (NO), nitrogen dioxide (NO₂), carbon monoxide (CO), ozone (O₃), and to an extent also the sum of the hydrocarbons (free methane, C_nH_m) or individual organic components (e.g., benzene, toluene, xylenes). In addition, depending on need, meteorological parameters such as wind direction, wind speed, air temperature, relative humidity, precipitation, global radiation or radiation balance are included.

Measurement networks for random sample measurements: Beyond the telemetric measurement network, other measuring systems for monitoring air quality are used to varying extents. Examples include (occasionally partially automated) measurement networks to determine:

- dust deposition and its components
- suspended dust (SPM) and its components
- hydrocarbons and chlorinated hydrocarbons
- low volatile organic materials (dioxins, furans, polychlorinated biphenyls).

A series of substances measured in this manner have been classified as carcinogens, such as cadmium compounds, PAHs or benzene. Monitoring them is therefore particularly important.

Developing New Standards: There is no evidence of any recent emission inventory study or modelling results available for pollutants expected from the sources in the ICT. The National Environmental

Quality Standards for common urban air pollutants in metropolitan cities and urban areas, such as carbon monoxide, SO₂, NO₂, SPM and RSPM has been available for more than two decades, albeit, MoCC needs to have special studies done and standards developed for other non-conventional parameters which are generally recorded in discontinuous measuring systems such as Polycyclic Aromatic Hydrocarbons (PAHs), halogenated hydrocarbons, polychlorinated biphenyls, polyhalogenated, dibenzofurans, etc etc. and trace metals. Resources be made available to carry out monitoring of such parameters. A cursory list of contaminants which are subject to continuous or discontinuous measuring systems these days and form part of the national environmental quality standards is provided below to provide a baseline as to the missing areas of work for further standards development.

<i>Discontinuous measuring parameters/Multi-component measurements</i>
<p style="text-align: center;">Benzene and other hydrocarbons Halogenated hydrocarbons Dust deposition and material composition Soot Polychlorinated biphenyls Polyhalogenated dibenzodioxins and dibenzofurans (PCDD/PCDF)</p>

<i>Continuous measuring parameters</i>
<p>Sulphur dioxide Nitrogen monoxide Nitrogen dioxide Carbon monoxide Suspended particulate matter (SPM) Ozone Hydrocarbons Wind direction Wind speed Air temperature Air pressure Relative humidity Radiation balance Precipitation</p>

<i>Partially automated measuring parameters</i>
<p>SPM composition: Lead Cadmium Nickel Copper Iron Arsenic Beryllium Benzo[a]pyrene Benzo[e]pyrene Benzo[a]anthracene Dibenzo[a,h]anthracene Benzo[ghi]perylene Coronene</p>

Recommendation 7: It can be noted that while we have NEQS for continuously monitoring parameters, the NEQS for many of the discontinuous measuring or partially automated systems are yet to be evolved. There is a need to carefully evaluate which of the above parameters merit inclusion in the NEQS

3.8 Develop Discharge Licensing System based on Industrial Pollution Charge Program (Collection and Calculation) Rules, 2001 - Discharge Licensing System: The Collection and Calculation Rules allow pollution charge to be levied according to pollution load, which can be computed as per the said Rules. As per the Rules, it's the role of the industrial unit to make sure that correct reporting, calculation of charges related to pollution is done. The inspection has to be

Recommendation 8: Enforcement of pollution charges as an important tool for aligning the industry towards path of environment compliance. These charges not only discourage industries to lower their effluents, but also can raise revenue for the concerned agencies to bolster pollution control program implement ability. There is a strong question here on the state of compliance and even whether the awareness of the existence of pollution charge rules that were developed in 2001. The situation therefore demands an appropriate program/project initiative in this regard.

established by Pak EPA to determine the industrial unit's level of pollution annually on the bare minimum, as well as the allowed exception for received water for the industrial unit. Generally the calculation of the pollution charge is done through the multiplication of the level of pollution with the real production within the period when the charge is payable, while the pollution unit rate is applicable yearly. The pollution charges are biannually payable as per the real production during the last six months.

3.9 Data Generation with respect to Self-Monitoring and Reporting Rules: The Rules were notified in exercise of Powers conferred under section 31 of Pak EPA Act, 1997, and provide for all

Recommendation 9: There is no evidence that a data generation system is in place to contain update information on the subject in compliance to the above rules due to reported lack of resources. An appropriately designed development project can be initiated by the concerned agency in this regard.

industrial units to submit correct and timely submission of Environmental Monitoring Reports comprising both liquid effluents and gaseous emissions. to the federal government. The industrial units are classified in terms of type of industry it belongs. It is classified into type "A", type "B", Type "C" or Special industries. An industrial unit in category "A" is required to submit reports on a monthly basis, while Category "B" on a quarterly and category "C" on biannual basis respectively. The priority parameters for reporting are provided in the Rules. Sampling, Testing and Analysis of effluents and emissions are to be done in accordance with Environmental Sampling Rules, which were also notified in 2001. Pak EPA is required to compile, analyse and manage the data with the objective of enforcing the NEQS and maintain the data base.

3.10 Hospital Waste Management initiative:

The Rules notified in 2005 were primarily designed to regulate management of risk and non-risk waste in hospitals, that included any clinic, laboratory, dispensary, pharmacy, nursing home, health unit, maternity center, blood bank, autopsy center, mortuary, research institute and veterinary institutions, and were designed to regulate management of risk and non-risk waste. The rules made the respective hospital managements to be responsible for collection segregation, storage, transportation and disposal of hospital waste in accordance with best international practices. The Rules provides for formation of various committees Hospital Complaint Security Committee, Hospital WM Advisory Committee, etc to oversee the implementation of WM Rules. The situation on ground however paints a different story. The committees, if any, appear to be non-functional; only a couple of hospitals in the capital may have appropriate waste management and disposal facilities; no M&E program has been in place to determine the adequacy of the installed systems; no training, education and outreach program has been in place, no model pilot project initiated by the regulator, and a very few facilities have applied for licences from the concerned agency for installation of HWM systems.

Recommendation 10: In a society which lacks of knowledge base on the subject, Rules have to be supplemented by technical guidelines, outreach and dissemination programs, joint plans of Action, pilot demonstration projects, information system on best practices, benchmarking and comparative analyses etc. No evidence of any such activity being undertaken at any level, and the situation warrants an appropriately thought out initiative to be taken in this regard.

3.11 Initial Environment Examination and Environment Impact Assessment Regulations 2002: The regulations enlists the projects requiring EIA and IEE. Regulation 9 stipulates the preliminary scrutiny has to be completely in 10 days after filing of request, while period of review for IEE and EIA are 45 days and 90 days respectively.

Recommendation 11: A monitoring system needs to be developed to monitor that the development projects go through a strict IEE and EIA regime as prescribed or to ensure that the timelines for IEE and EIA are strictly adhered to.

3.12 Initiatives required in compliance to NCCP implementation and other Plans:

The MoCC project portfolio has primarily been reviewed in the context of (i) National Climate Change Policy, 2012 (ii) Framework for Implementation of National Climate Change Policy, 2013 (iii) Nationally Determined Commitments on climate change adaptation and mitigation, and (iv) Situation arising out of 18th Amendment and (v) response to other international obligations.

The framework for NCCP implementation was developed and adopted keeping in view the current and future anticipated climate change vulnerabilities of Pakistan. The framework provided key areas of concern with respect to climate change and brought forward actionable points as to how to adapt to varying impacts of climate change and how to play a role in its mitigation. Sectors considered most exposed to climate change threats were included in NCCP. The list included the water sector, agriculture, forestry, energy, bio-diversity, coastal areas, transport, health

and other vulnerable ecological systems. The document singled out 44 objectives, 140 strategies and around 747 (seven hundred and forty seven) **Actions** necessary to be taken either on a priority basis (240 Actions) or in the short (400 Actions) , or in the medium term (103 Actions) or in the long term (4 Actions). Table 3.12 below shows a summary of areas covered and the number of actionable points recommended in the above document. As can be seen, the priority and short terms actions mentioned therein envisage an implementation time frame of 2 to 5 years. **(TABLE 3.12).**

FRAMEWORK IMPLEMENTATION OF CLIMATE CHANGE POLICY-SECTOR SPECIFIC ACTION PLAN

Sr.No	SECTOR	OBJECTIVES	STRATEGIES	ACTIONS				TOTAL
				P	SP	MT	LP	
1	WATER	6	26	42	83	12	-	137
2	AGRICULTURE + LIVESTOCK	5	22	47	72	15	-	134
3	FORESTRY	7	7	29	30	7	-	66
4	BIODIVERSITY	11	25	32	66	25	-	123
5	DISASTER PREPAREDNESS	6	6	29	30	14	-	13
6	HEALTH	1	5	9	9	-	-	18
7	ENERGY	3	12	22	55	11	2	90
8	TRANSPORT	3	21	15	21	6	2	44
9	INDUSTRIES	1	7	8	12	2	-	22
10	URBAN PLANNING	1	9	7	22	11	-	40
TOTAL		44	140	240	400	103	4	747

KEY:

P: Priority Action

ST: Short Term

MT: Medium Term

LT: Long Term

There are a host of other national action plans to combat climate change challenge in response to Paris Agreement and other international conventions/accords. Responsibility for implementation of various actions is assigned to a multitude of other concerned organizations who are mandated to deliver the work. It however doesn't absolve the MoCC, its Wings and other departments to carry out pilot programs/projects/activities which can be replicated and presented as model projects for other organizations. Also it does not retard the co

A review of Project portfolio gathered as part of this mapping exercise indicates (i) that a large part of actionable agenda presented in the framework remains unattended (ii) That the Ministry is considerably dependent on funding agencies to initiate many of its activities and a little effort spent to develop PSDP projects other than one in the Forestry sector (iii) That the pipeline projects, particularly the in the approval process, need to be reviewed/amended for their priority for implementation, for defining specific terms of reference, for defining specific physical targets and more specific outputs for both adaptive actions and mitigation actions. It is beyond the scope of this study to anatomize the entire gamut of activities being undertaken by the MoCC and its various Wings. There are basic structural impediments that retard the launching of wholesome program or project initiatives. These impediments need to be addressed. Otherwise, the above plans will remain only on papers. MoCC and its various Wings cannot obviously remain inactive or silent to the need of follow-up on its own plans, nationally determined commitments, and its own needs and requirements.

Recommendation 12: *A three pronged action is recommended in this regard (i) A high powered committee to be constituted by the Secretary to identify 8-10 major development projects that need to be initiated on a top priority basis in the Capital. Such project should be need based, should have clear objectives and clear terms of reference, should be visible, should concern the general public, be replicable, serve the demonstration purpose, should act as model projects and based on best practices, should have quantifiable benefits, gender sensitive and (ii) The projects should help in data generation and building up incidental information systems which can be used to develop further projects; (iii) Working out joint plans of action/implementation and/or joint ventures with the partner organizations for the execution of these programs by clearly delineating roles and functions of each partner (iv) work out appropriate institutional interventions, like creating joint ventures funds, etc for initiating if need be so for sharing the benefits for the purpose of generating more activities.*

3.13 Assess Resource Mobilization and Realignment:

The mapping exercise highlights the need for resource mobilization and re-alignment for the purpose of (i) taking program or project initiatives in priority areas of environmental concern both at the federal or regional level which remain unattended, (ii) diverting resources from areas where the resources remain unutilized or under-utilized due to various reasons of merit or otherwise, and (iii) to ensure increased maximizing proficient use of available resources. It may therefore be necessary to carry out a careful assessment of various MoCC activities/projects in terms of their objectives, achievements, tangible outcomes and resource utilization plans for the future to determine the extent and the limits to which such provisions could be made. UNDP/GEF can be taken on board on initiating this exercise which can be MoCC's own auto-assessment to be done internally or a third party assessment involving external help.

Recommendation 13: *MoCC may carry out a resource mobilization/re-alignment exercise to assign resources, if and where possible, to high priority areas of environment concern which remained neglected in the past and where the MoCC can no longer remain oblivious to the need for taking initiatives.*

GEB Management



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