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Generating Global
Environmental Benefits - GEB

CONCEPTUAL FRAMEWORK FOR LINKAGES BUILDING THROUGH ENVIRONMENTAL DATA AND RESEARCH

A small-scale study conducted by GEB project to develop linkages between the selected universities/ relevant organizations and the GEB project for environmental data & research activities. Potential universities/ relevant organizations were mapped out.

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



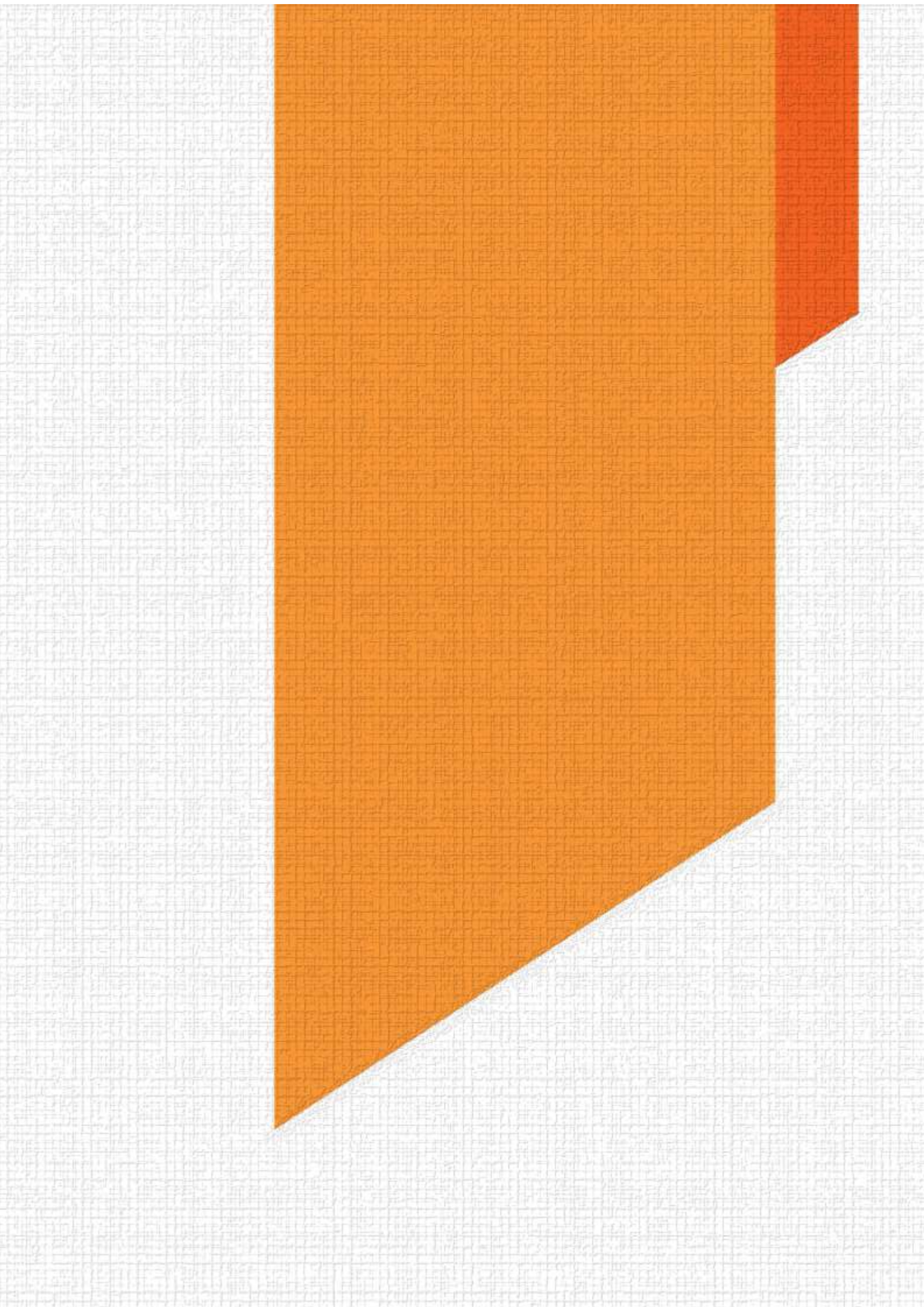


Table of Contents

1. INTRODUCTION.....	1
2. BACKGROUND.....	1
3. METHODOLOGY	3
A. ENVIRONMENTAL INFORMATION AND DATA RESEARCH PARTNER ARRANGEMENTS & SUSTAINABILITY	3
4. POTENTIAL PARTNERS	4
A. CENTER FOR ENVIRONMENTALLY SUSTAINABLE TRANSPORT AND CLIMATE CHANGE (CESTAC), FACULTY OF S&T, ENVIRONMENTAL SCIENCES, FATIMA JINNAH WOMEN UNIVERSITY (FJWU), RAWALPINDI.....	4
B. INSTITUTE OF ENVIRONMENTAL SCIENCES AND ENGINEERING (IESE) AT NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY (NUST), ISLAMABAD.....	5
C. CENTRE FOR CLIMATE RESEARCH AND DEVELOPMENT (CCRD), COMSATS UNIVERSITY ISLAMABAD ..	5
D. DEPARTMENT OF ENVIRONMENTAL SCIENCES AT THE UNIVERSITY OF PESHAWAR.....	6
E. DEPARTMENT OF ENVIRONMENTAL SCIENCES AT THE COMSATS UNIVERSITY, ABBOTTABAD.....	6
F. CENTER FOR CLIMATE CHANGE (CCC) AT THE AGRICULTURE UNIVERSITY, PESHAWAR	7
4.1 ANALYSIS AND CONCLUSION	7
5. POTENTIAL AREAS OF RESEARCH FOR INTERNS	7
6. THE WAY FORWARD	8
8. REFERENCES	9

Generating Global Environmental Benefits: Environmental Data and Research

1

CONCEPTUAL FRAMEWORK FOR GEB PROJECT LINKAGES BUILDING THROUGH ENVIRONMENTAL DATA AND RESEARCH PARTNERS

1. INTRODUCTION

Generating Global Environmental Benefits (GEB) project, funded by the UNDP/GEF and being implemented by the Ministry of Climate Change, Government of Pakistan.

2. BACKGROUND

Generating Global Environmental Benefits (GEB) project, funded by the UNDP/GEF and being implemented by the Ministry of Climate Change, Government of Pakistan, aims to remove the barriers to environmental information management and mainstream global environment concerns into economic decision-making. As per the Project Brief (March 2019) issued by the Ministry of Climate Change, Government of Pakistan and GEF/UNDP, GEB project is initially designed and being implemented in the provinces of Punjab and Khyber Pakhtunkhwa (KP) (Figure-1) whereas its Project Management Unit (PMU) was established in Islamabad.



The GEB project fully meets the needs and priorities not only of the Government of Pakistan but also of the priorities of the GEF and UNDP. As per the ProDoc of GEB, it is part of the GEF Cross-Cutting Capacity Development Focal Area-5, which addresses all of its five objectives, but in particular the second, ***“generate, access and use information and knowledge”*** and the third, ***“strengthen capacities to develop policy frameworks”***. The project also fits perfectly with UNDP's strategic priority of ***“strengthening national capacities to integrate environmental and energy concerns into national development plans”*** and with its country program outcome ***“commitments under global conventions on biodiversity implemented”***. In fact, there is a strong convergence of interests so that Pakistan can ensure the sustainability of its long-term economic development by protecting its natural resource base and improving its global contribution to the environment and sustainable development.

The objective of the GEB project is twofold in its approach; one related to environmental information, and the other to use this information to improve decision making. In addition, this project has three interrelated results:

1. Regular availability of consistent and reliable environmental data;
2. A coordinated and robust environmental information management system; and
3. Enhanced commitment and capacity for sustainable development planning and legislation.

Policy-makers are facing demands to meet needs of citizens in a rapidly changing climate that are economically, socially and environmentally sustainable. The GEB project focuses strategically on addressing the root causes of environmental considerations that escape economic planning and development. It targets the sectors and institutions where capacities and actions are most needed and where success and impacts are most likely. These include entities responsible for economic and environmental planning and management, as well as those that shape public opinions and policies that are fundamental to the successful integration of the environment and development. Although project interventions will focus mainly on the United Nations Convention on Biodiversity, the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention to Combat Desertification (UNCCD), its successful implementation will improve the country's overall capacity to fulfill its obligations under other conventions.



FIGURE 2: GEB BRIDGING ENVIRONMENTAL DATA AND RESEARCH GAP

Therefore, in Pakistan, there is a need to create and maintain a repository of information, technologies, methodologies, standards and best practices used in the climate change and environmentally sustainable development domains by establishing some environmental

information management database. The web-based database of environmental information management and sustainable development needs to collect, maintain and store regularly updated data to be accessible to various climate change and sustainable development stakeholders. Such activity would be helpful for processing and analyzing the data for various purposes ranging from finalizing inputs to the UNFCCC country reporting systems to inputs for several decision-making support systems established in such database, through its web portal, will make available up-to-date and reliable data to governments (federal, provincial and district), United Nations, businesses, consultants, academia, citizens, policy-makers, industry, consultancy & research community besides enhancing the level of awareness of citizens on climate change and environmentally sustainable development matters.

Under the GEB project, there must be at least two (2) institutions, each in the provinces of Punjab and Khyber Pakhtunkhwa, which serve as potential partners for generating information on climate change and sustainable development through research. These partners should provide authentic and up-to-date information to interested parties and act as a platform to share experiences related to climate change and sustainable development in Pakistan. These partners should also conduct research on missing links and gaps in the sectors of climate change and environmentally sustainable development in the country. Although the GEB project should provide start-up funds to initiate such research projects and capacity-building activities through these newly selected partner institutions however at the same time it is important that these partner entities become financially self-sustaining in their operations after the expiration of the GEB Project.

Climate change and environmentally sustainable development are knowledge intensive domains. The planning for climate change and environmentally sustainable development for provinces and country requires lot of primary and secondary data and the requisite knowledge. It is, therefore, essential that such a system is able to capture the latest trends in climate change and environmentally sustainable development and provide environmental information seamlessly to all on a need to know basis.

3. METHODOLOGY

In order for “developing the conceptual framework on linkages building between selected institutions and GEB project on environmental data and research, the methodology was mainly based on secondary data collected through desk/literature review by using internet resources and formal/informal discussions with relevant stakeholders.

The available relevant documents and reports to review similar activities being implemented under various environment and climate change projects and institutions / universities that are dealing with the environmental data and research generation were collected. A thorough web search of potential institutions in and around selected cities was carried out, relevant institutions were shortlisted and six relevant institutions were selected who were checked against their areas of studies, activities aligning with environment and climate change and their work potential and two such potential partners are finally recommended in the recommendations and way forward sections of this report.

a. Environmental Information and Data Research Partner Arrangements & Sustainability

A desk review was conducted to identify preliminary potential partners for the collaboration and technical assistance required to select these environmental information and data research

institutions. Since proposed institutions and GEB project are primarily environmental focused initiatives, therefore, institutions/universities having established environment or climate change institutions/departments (awarding graduate degrees and policy research facilities are available in the same area of operation) were considered as the starting point. But climate change and environmentally sustainable development are multi-disciplinary sectors and have overlapping, interrelations, interconnections and interdependence with several other sectors thus it is imperative to identify institutions that would have research & development background in academics in the allied fields besides environmental focus. These identified partners would not only provide environmental data and research inputs but would also cater the need of Research Interns from their degree programs. The proposed activities of these environmental partner institutions should also include advocacy and capacity building / training activities from field to policy-making and political levels for ensuring sustainability. The policy research projects should also be presented in the form of reports and research papers for a wider audience both on paper and electronically.

Given the objectives and operationalization of the GEB Project, the initiative of selecting partners in the respective regions is highly important as major portion of population is dwelling in rural areas and is adversely affected with the changing climate. Changes in temperatures and uncertain hydrological patterns are expected to affect food security and access to water in these highly diverse and ecologically fragile provinces of Punjab and KP being the major producers of food for the country. People are confronted with these changes and need to be supported in finding and developing adequate responses to these new challenges for ensuring their food security and resilience to weather extremes.

4. POTENTIAL PARTNERS

a. **Center for Environmentally Sustainable Transport and Climate Change (CESTaC), Faculty of S&T, Environmental Sciences, Fatima Jinnah Women University (FJWU), Rawalpindi**

The Center for Environmentally Sustainable Transport and Climate Change (CESTaC) at Fatima Jinnah Women University (FJWU) is the legacy of GoP/UNDP's PAKISTRAN project and was established with an aim to assist in improving environmental conditions in the country that aims to provide technical assistance to reduce the growth of energy consumption & related greenhouse gas (GHG) emissions from transport sector in Pakistan, while simultaneously it is meant to improving urban environmental conditions and improving Pakistan's trade competitiveness besides improved air quality, urban mobility, equity, and aesthetics; and to improve energy security for Pakistan.

CESTaC, FJWU being the outshoot and custodian of GoP/UNDP's PAKSTRAN project and is dedicated to educating, connecting and inspiring academicians, policy/decision-makers and people alike to care about their communities and their environment. CESTaC was established with one broad idea in mind, highlighting climate change issues, sharing data, research, trainings, raising awareness, advocacy and inspiring action. Since, CESTaC is based at the premises of Fatima Jinnah Women University (FJWU), therefore, works in close coordination with university's other departments including departments of environmental sciences, communication and media studies, gender studies, physics, electronics, public administration, behavior sciences, ORIC (Office of Research Innovation and Commercialization) etc. to realize its aim and objectives of climate change adaptation and sustainable development. This coordination provides CESTaC an edge of access to diversified expertise across disciplines besides Interns, students and faculty research collaboration, training, awareness and advocacy by organizing events and competitions. The

environmental sciences department at the FJWU is offering Bachelors, MPhil and PhD degrees. This department is a blend of social and natural sciences, catering for all spheres of environment. Students are imparted in daily life applications and work towards the sustainable environment. Research laboratories have been established which are equipped with latest, sophisticated, analytical equipment. The department has established research linkages with leading universities across the world.

CESTaC also has an edge over its competing institutions since FJWU has an on-campus TV and Live Radio Station, VOW FM 96.6 working since 2006, which also regularly airs programs and discussions on environmental and climate change issues. FJWU publishes several HEC approved peer-reviewed journals too.

b. Institute of Environmental Sciences and Engineering (IESE) at National University of Science and Technology (NUST), Islamabad

The Institute of Environmental Sciences and Engineering (IESE) at National University of Science and Technology (NUST); a constituent Institute of the School of Civil and Environmental Engineering (SCEE), produces environmental engineers with a sound theoretical foundation and hands-on approach of science and engineering principles to improve the environment for human habitation and to remediate polluted sites. Undergraduate program addresses water and air pollution control, recycling, waste disposal, and public health issues. The department offers undergraduate, MS/PhD Environmental Engineering and Environmental Science. The Environmental Engineering program specializes in studies of Environmental Chemistry and Micro-biology, Water Pollution Control, Ground-water Pollution, Water Resources Engineering, Hydrology, Environmental Fluid Mechanics, Environmental and Water Resources Planning, Indoor and Outdoor Urban Air Pollution, Global Air Pollution, Weather and Climate. NUST also produces a Journal on engineering sciences.

c. Centre for Climate Research and Development (CCRD), COMSATS University Islamabad

The COMSATS University Islamabad (CUI) has set up a Centre for Climate Research and Development (CCRD) is a research center to cater the growing recognition that no nation will be immune to the impacts of the changing climate system. Today across the globe climate centers have been established to help understand and address the challenges of climate change. The case for Pakistan is compelling, as South Asia is regarded by the global community as a region highly vulnerable to climate change. The need for building climate resilience is critical. Work on climate vulnerability, adaptation, GHG mitigation and disaster risk management has become equally important. Hence an important aspect of the work of CCRD would focus on mainstreaming climate change into development policy and community- based adaptation to climate change across the country.

Centre for Climate Research and Development is a good research organization but would not be able to provide Internship facilities for GEB project as is not offering any regular academic degree programs. COMSATS has an environmental department but is based at it Vehari and Abbottabad Campuses but nothing at Islamabad Campus.

d. Department of Environmental Sciences at the University of Peshawar

Department of Environmental Sciences at the University of Peshawar is the only university that provides advanced degrees in the field of environmental management and sciences in Peshawar. The Department of Environmental Planning and Management was established in collaboration with Environment and Urban Affair Division, Government of Pakistan in 1987, at University of Peshawar to cater formal education and research in the field of Environmental Sciences at postgraduate level. Lately the Department has been renamed as Department of Environmental Sciences (DES) in 2001. Its curricula were improved and new subjects introduced. Besides, the Department has decided to launch a four years bachelor degree program in Environmental Sciences from the current session.

The department runs MS, MPhil and PhD programs with focus on environmental problems such as air, water, and soil pollution, overuse of natural resources, deforestation, silting of reservoirs and loss of biodiversity. Research and training in the field of Environmental Sciences at BES, MSc, MPhil and PhD levels through course work and research. The subjects of Environmental Chemistry, Environmental Microbiology, Applied Ecology, EIA, Research Methodology, Remote Sensing and GIS, Pollution Control Technologies, Environmental Economics and Natural Resource Management are taught. Students are given the opportunities for conducting research and internships in various GOs and NGOs working for the protection of our environment and natural resources. The department also offer short and long-term certificate and post graduate level diploma courses and trainings in the field of Environmental Education, EIA, occupational health and safety, Natural Resources Management and GIS.

The Department of Environmental Sciences could be an excellent choice for GEB project to host this new arrangement of establishing environmental hub at Peshawar as it could provide Internees for both GEB project PMU level as well as at hub level from bachelors, masters and PhD levels. It could also provide research and data collection facilities for GEB project.

e. Department of Environmental Sciences at the COMSATS University, Abbottabad

Department of Environmental Sciences established in 2004 at the CUI Abbottabad Campus, the Department of Environmental Sciences has become a hub for interdisciplinary graduate studies and research, and advocacy on environmental issues.

The Department of Environmental Sciences aims to conduct high quality basic and applied research, produce qualified human resource, and develop products and processes to meet the needs and niches of academia and industry. The department comprises highly qualified faculty and research staff with diverse backgrounds in a variety of disciplines. Major focus areas of research and development include Earth and environmental studies, water and energy resource management, solid waste management and treatment, water sanitation and health, conventional and alternate energy, agriculture, and biotechnology. The broad spectrum of the department thus provides its students a great flexibility in choosing the program of their interest. The Department of Environmental Sciences offers BS, MS and PhD level degrees and research facilities.

f. Center for Climate Change (CCC) at the Agriculture University, Peshawar

The Center for Climate Change (CCC) is a research institution of Agricultural University, Peshawar. Since climate is changing and is creating new challenges (risks and also opportunities) in the field of food production is a fact. Yet, what to do to be able to live with those changes to ensure food security and local resilience? Where should the farmers, researchers and extension agents see for seeking the right guidance for timely actions? The CCC has emerged from an ongoing dialogue around these questions among multi-stakeholders which concluded that there is no institutional facility in the country that provides services on options to deal with adaptation needs arriving from the climate change. The University of Agriculture Peshawar and Inter-cooperation Pakistan together agreed to establish a Centre at the University. This consensus was based on the premise that the University is rightly placed to mainstream climate change in research and education as well as coordinate efforts to act as a knowledge repository on mainstreaming adaptation. However, the center will not be limited to this. It will also serve as a service hub to find solutions and build capacity to adapt to unprecedented changes in the climate. This initiative is to prepare University and other relevant institutions to offer relevant support in preparing stakeholders to deal with impacts of these changes.

Center for Climate Change is a good research organization but would not be able to provide Internship facilities for GEB project as is not offering any regular academic degree programs.

4.1 Analysis and Conclusion

After a thorough analysis i) Fatima Jinnah Women University's institution namely Center for Environmentally Sustainable Transport and Climate Change (CESTaC); and ii) University of Peshawar's Department of Environmental Sciences are found the most relevant and appropriate institutions that fall in the GEB-relevant selected cities of Rawalpindi/Islamabad and Peshawar to be taken as partners of GEB project. Both the organizations have the resources, capacity and are willing to be part of GEB partner network.

5. POTENTIAL AREAS OF RESEARCH FOR INTERNS

Pakistan ranks 135th in terms of greenhouse gas emissions (GHGs) and according to the Global Economy rankings, the share of Pakistan in total global GHG emissions is merely 0.8 percent. Yet, it's amongst the countries most affected by climate change. Over the years, it has lost billions of dollars owing to increase in the intensity and frequency of extreme weather events. Apart from this, Pakistan is a signatory to a number of multilateral environmental agreements including the United Nations Convention on Biological Diversity (UNCBD) of Rio 1992, the United Nations Framework Convention on Climate Change (UNFCCC), and the United Nations Convention on Combating Desertification (UNCCD). Pakistan is also signatory to the Ramsar Convention (1978), Bonn Convention on Migratory Species (1987) and Convention on International Trade in Endangered Species of Wild Fauna and Flora or CITES (1976). It reflects Pakistan's commitment and seriousness to address the key challenges of environment and climate change adaptation at local level, which is aligned with global environmental sustainability and GEB project was designed to address this challenge by devising robust environmental information management system (EIMS) to support country's environmental decision-making for sustainable development. Following potential areas of research are proposed to achieve the desired outcome but to identify and prioritize specific research topics, Some topics of research are as follows

- Gender mainstreaming through enhanced role of women from research, intervention and decision/policy-making focused on climate change adaptation and mitigation;
- Finding effective and efficient ways and means for implementing United Nations Framework Convention on Climate Change (UNFCCC) at the local level;
- Exploring and expanding research for local implementation of United Nations Conventions on Biological Diversity (UNCBD), which is affecting most parts of Pakistan;
- Sensitizing and sharing information with communities especially farmers in mitigating United Nations Convention for Combating Desertification (UNCCD) goals, locally;
- Acclimatize people in the wake of climate change effects and encouraging indigenous knowledge with a blend of scientific developments to attain SDGs;
- Developing strategies to deal with climate change adaptation issues at socio-cultural and environmental level;
- Preparing populace to brave climatic change challenges through the implementation / use of behavior change communication (BCC), advocacy, training and capacity building;

Since, finalizing potential activities/topics to achieve desired results need further elaboration with the consultation of emerging potential partners and key stakeholders, therefore, a separate document is needed, importance of which is being outlined in the “WAY FORWARD” section.

6. THE WAY FORWARD

The topics proposed for areas of research are generic that need to be explored further. In order to come with meaningful intervention, the above report suggests framing of a detailed document to identify the most relevant and pressing climate change adaptation topics that should feed into the environmental information management systems (EIMS) to be developed under GEB project for the use at the national, regional and district levels. The document should come with concrete but specific recommendations to be made through research topics harnessing needs of the country and mitigating the challenges of the communities to cope with climatic change. The report shall be based on consultation with stakeholders including policy-makers, researchers, academia, environmental professionals, potential partners and community for ownership and long-term sustainability and guiding current academic research in the country towards national and local environmental priorities aligning with needs and priorities of global conventions.

After the analysis i) Fatima Jinnah Women University’s Institution namely Center for Environmentally Sustainable Transport and Climate Change (CESTaC); and ii) University of Peshawar’s Department of Environmental Sciences are found to be two of the most relevant and appropriate institutions situated in the finally selected cities of Rawalpindi/Islamabad and Peshawar to be taken as partners of GEB project. Separate LOAs should be signed with these institutions and a lump sum amount of PKR 1-2 million should be given against their own Work plans with research/awareness programs on NEIMS related topics.

7. REFERENCES

- UNDP - Environment and Climate Change: Project Brief – Generating Global Environmental Benefits (GEB) from improved decision-making systems and local planning systems, United Nations Development Program / Ministry of Climate Change, Government of Pakistan, March 2019
- Project Document (ProDoc) Generating Global Environmental Benefits (GEB) from improved decision-making systems and local planning in Pakistan, United Nations Development Program / Ministry of Climate Change, Government of Pakistan, 2016
- Terminal Evaluation of Project – National Environmental Information Management System (NEIMS), United Nations Development Program, October 2003
- Websites of Center for Environmentally Sustainable Transport and Climate Change (CESTaC), Faculty of Science & Technology including Environmental Sciences, Fatima Jinnah Women University, Rawalpindi
- Websites of Institute of Environmental Science and Engineering (IESE) and National University of Science and Technology, Islamabad
- Websites of COMSATS University and Centre for Climate Research and Development (CCRD), Islamabad
- Websites of Department of Environmental Sciences & Department of Urban and Regional Planning at University of Peshawar, Peshawar
- Websites of Department of Environmental Sciences, COMSATS University, Abbottabad
- Websites of Climate Change Center (CCC), The University of Agriculture, Peshawar
- The Global Economy: Economic Indicators over 200 countries.
https://www.theglobaleconomy.com/Pakistan/Carbon_dioxide_emissions/

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