

# DEVELOPMENT ADVOCATE **PAKISTAN**

Volume 2, Issue 4



## **Climate Change:**

*The reality of our times*



DEVELOPMENT ADVOCATE  
**PAKISTAN**



*Development Advocate Pakistan* provides a platform for the exchange of ideas on key development issues and challenges in Pakistan. Focusing on a specific development theme in each edition, this quarterly publication fosters public discourse and presents varying perspectives from civil society, academia, government and development partners. The publication makes an explicit effort to include the voices of women and youth in the ongoing discourse. A combination of analysis and public opinion articles promote and inform debate on development ideas while presenting up-to-date information.

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Printed by: Agha Jee printers, Islamabad

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ISBN: 978-969-8736-13-2

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# December 2015

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## Climate Change: The Reality of Our Times

2015 will be remembered for two landmark global agreements. In September, UN member states endorsed the 2030 Development Agenda and the Sustainable Development Goals. Later in the year, 196 parties to the UN Framework Convention on Climate Change adopted the Paris Agreement at the conclusion of the UN Climate Change Conference (COP21) in France.

2015 will also be remembered as the warmest on record with temperature rises breaking the 1°C milestone above pre-industrial era average. A heat wave swept the globe including Sindh, where 2,000 perished, reminding us of the increased intensity and frequency of climatic events and its growing impact on development, particularly the poor and vulnerable.

It has now been firmly established that climate change is the consequence of Greenhouse Gas Emissions (GHG) and is caused by human activities. The severity of climate change and its effects are on the rise. The Intergovernmental Panel on Climate Change Synthesis Report of 2014 pointed to an increase in global temperatures of 4°C contrary to initial estimates of about 3.5°C till 2100. Developing countries are more vulnerable because of their dependence on agriculture and socioeconomic dynamics including their weak capacities to cope with climate change challenges. It is already evident. In 2008, more than 100 million people fell below the poverty line largely due to food price hikes and low agriculture yields.

The world community is cognizant of the challenges of climate change (CC). At the COP21, participating countries adopted the first-ever universal, legally binding global climate deal. The ambitious agreement promises a global action plan to save the world from the catastrophic effects of CC by limiting global warming to 1.5°C.

The COP21 agreement is indeed a great diplomatic success. However, the intentions in the Paris Agreement and actual commitments in the form of Intended Nationally Determined Contributions (INDCs) by governments do not connect with each other. Estimates suggest that the combined impact of all the INDCs, if fully implemented, will account for 86 percent of GHG emissions and will still result in global average temperature hikes above the 2°C threshold. Similarly, the intention of developed countries to mobilize 100 billion USD per year until 2025 is not only insufficient for mitigation and adaptation measures, but also uncertain to be realized.

Pakistan is the eighth most vulnerable country to CC although it contributes less than 0.5 percent to global GHG emissions. Events like the 2010 floods resulted in the loss of 2000 human lives and economic losses equivalent to seven percent of the GDP reconfirm that climate change is the most pressing and immediate development threat faced by this country. There is a clear and visible shift in summer monsoon trends from north-east to north-west by a range of 80-100 km, threatening the agriculture sector. Increasing frequency of other extreme weather events like cyclones, droughts and glacial lake outburst floods show that Pakistan is becoming increasingly vulnerable to climate change.

Pakistan is conscious to the threats posed by climate change. The National Climate Change Policy (NCCP) of 2012 outlines the mitigation and adaptation actions for combating the effects of CC. Pakistan is one of the few countries to have undertaken a Climate Public Expenditure and Institutional Review (CPIER) and has established public expenditure and institutional benchmarks. Post the 18th amendment, climate change has largely become a provincial subject and provinces must now take the lead. It is encouraging to note that some of the provinces have already started initiatives such as the "Billion Tree Plantation Drive".

The deficit of engagement and action remains widespread, however. The INDC put forward by Pakistan for COP21 was considered limited and devoid of any quantitative commitments and investment requirements for adaptation and mitigation. This, despite the many on-going adaptation measures already in place. Using the CPEIR, Pakistan could have spelled out in detail its vulnerability to CC the way India, Indonesia and Zimbabwe did. This would have afforded Pakistan an opportunity to plead its CC related needs and priorities in front of lobbyists, donors and negotiators across the globe. Pakistan can still revise its INDCs and should do so.

Pakistan needs strong institutions to implement its NCCP. The severity of the CC threat and its cross cutting nature require a "whole of government" approach including parliament, finance, planning and sectoral departments at all levels. The Medium Term Budgetary Frameworks of ministries should take into account CC effects. The finance and planning institutions at the federal and provincial level should track CC related expenditure and progress. Provinces must integrate CC issues in their growth strategies given its impact on poverty and social development.

Pakistan incurred six billion USD CC related losses in 2012. It needs to invest 5.5 percent of GDP annually for mitigation and 1.5-3 percent for adaptation to address the effects of CC. For a 15 percent reduction in GHG reduction, an annual investment of around eight billion USD is needed. Given the substantial global shortfall in financing, Pakistan requires an overarching CC financing framework which can help streamline budget allocations and ensure holistic response to CC challenges in the country.

The so far evidence on CC affirms that no will remain untouched of its consequences. Developing countries will be most affected. It is time to act together. As UN Secretary General Ban Ki Moon said, "there is no plan B, because there is no planet B".



## Climate Change: Reflections on Issues, Challenges and the Way Forward

### Introduction

Climate change and associated emergent risks are threatening the very existence of modern civilization with all its magnanimous advances. Environment, if interpreted as a complex system, is composed of biotic and abiotic factors that remain in constant need of adjustment with each other. It stretches to consensus that current climate changes are not natural and overtly endanger the sustainable existence and sustenance of life on Earth.

Despite some dissenting voices, climate change has earned the consensus as an existential threat to the world. Thanks to sophisticated advances in computing technologies, climate experts and scientists are recording and projecting unprecedented damages caused by climate change the world over with the highest fall on developing countries. Within the developing part of the world, the distribution of damages is skewed towards the most deprived and vulnerable already. Of the sectors of economy, agriculture stomachs the heaviest of the burden and stays most vulnerable to rising temperatures, erratic rains and to extreme heat and cold waves. This exposure and vulnerability of the agriculture sector, consequently, affects the associated sections of livestock and livelihoods leaving bottom poor the most affected by climate change.

Increase in temperatures, melting of ice at poles, rising sea levels and overall degradation of the ecosystem have badly hurt the natural balance and exposed the globe to a global crisis of climate. Given the higher exposure coupled with lower adaptive capacity, the highest vulnerability is documented for poor living in the developing part of the world. Other than the scale of damages, the range thereof has emerged as a matter of serious concern also. In addition to health effects and extreme weather generated disasters, the dependence of masses on agriculture and allied occupations in developing countries is worsening the situation by threatening the very source of earning

livelihood.

Pakistan is one of the most vulnerable countries to climate change. The importance of climate change for Pakistan is multifold amidst its prime reliance on agriculture, poor level of human and physical capital, higher unemployment rates, lower political will, poor research capacity and persistent massive poverty<sup>1</sup>.

### Emergence of the Climate Change Discourse

Given the realization of the severity of the issue and likely implications, three major strands of inquest emerge in discussion and debates on climate changes. First, what drives climate change? Second, and more importantly, how to fight the changing climate? And third, how much and from where is the finance to come for the battle against climate change. The evidence unequivocally endorses that the driving factors of climate change are anthropogenic. Greenhouse gases (GHG) are seen as the main culprit behind the increase in temperature, sea rise and melting of ice at poles in Greenland and Himalaya. Interestingly, developed countries are held to be the largest contributors to global warming through higher GHG emissions<sup>2</sup>.

The answer to the second question, based on drivers of climate change, provides two options to combat the changing climate, namely mitigation and adaptation, where the former primarily falls in the hands of the developed world, while the latter is related to the developing countries. Mitigation involves a cut in GHG emissions through applying environment friendly means of production, including technologies adopted and fuels used. The use of fossil fuel such as coal to produce energy, has earned a great concern in the context of GHG emissions from developing countries and renewable energy production is considered to be a primary mitigation tool with these countries. The innovation and distribution of green technology is to come from the developed part of the world, primarily because of their ability to do so, so as to

enhance and strengthen mitigation efforts. The efforts seem ineffective so far for multiple reasons including reluctance on transferring green technology on part of the advanced nations, poor capacity of developing countries to adopt renewable energy and limited financial support available from the developed world.

It must, however, be realized that GHG emissions, even if cut down to the required level, guarantees no immediate reduction in the frequency and intensity of natural disasters. The momentum of changing climate is expected to go long in time. Given this momentum and the considerably low option for effective mitigation, adaptation came out as the key to success for developing countries in this run against climate change. The developing world has to adjust to changing climate through continuously updating their modes of business. Adaptations grabbed serious consideration in the agriculture sector of developing economies. A plausible reason might be the primary reliance of developing countries on the agriculture sector, in terms of its contribution to employment, income and export earnings. It is further argued, that all adaptations are not necessarily an intentional response to climate change. Some may be a product of a natural process ongoing in time and space. A divide, therefore, emerged between autonomous and planned adaptations wherein the former needs no special efforts in terms of advocacy or finance, but effectiveness thereof remains a serious concern. The unanimous voicing for planned adaptation, therefore, acted as the primary tool available to the developing countries.

Planned adaptation, though a successful tool, is hard to come by and an organized effort connected at the local, national and global level appeared to be most crucial. The organization of this effort gave birth to the third question- who will be financing this organized effort and how shall this be done. It is in this context that climate finance became the major point of debate



in policy realms with special focus on the supply of finance. Developed countries, being the major contributor of GHG, were held responsible for accumulating and pooling climate finance while the beneficiaries of this fund are primarily the developing countries. Despite their lower share in GHG emissions, they share the highest burden in order to get compensated, in the form of negative impact of climate change on their environments.

The diversification of causes, scale and nature of damages as a result of climate change, as well as the centrality of efforts required against risks associated with the changing climate, brought into action diverse organizations and entities. These included national, global and regional organizations working on the issue of climate change, think-tanks and research organizations as well as the private sector.

Needless to say, that despite all efforts, the run is going out of hands. The frequency, scale and range of damages are all increasing. Those who are at the bottom are being pushed further deep. Consensus emerging in meetings sees no translation on ground. World Bank recently published a report on climate change and its imposing risk to already vulnerable sections: various estimates concluded that due to the growing climate change burden, the modest gains in poverty reduction could be lost and possibly one billion people will fall into poverty because of extreme weather events<sup>3</sup>. Climate experts and scientists are in agreement that effectual mitigation of climate changes hinges on switching to renewable energy by 2050 and the introduction of technologies lowering GHG emissions. The divide between GHG contribution, distribution of environment friendly technologies and supply of climate finance continues to increase. The divide within developed countries on the pooling ratio of climate finance is of serious concern as it is affecting the outcomes very badly through decreased adaptation in developing countries. Also, the reluctance on sharing green technologies is creating new GHG emitters. Developing countries are of the view that since they are not significant contributors towards GHG emissions, hence they should not be part of the pooling ratio for climate finance. In addition, poor research capacity, distributed focus on the issue and lack of political will/commitment in developing countries is adding to the pre-existing hurdles against climate change. The call is very tough, but it is now or never. The call is for both the developed and developing world. The call is for policy realms and for creating research arms at the local,

national and global level. The call is for everyone.

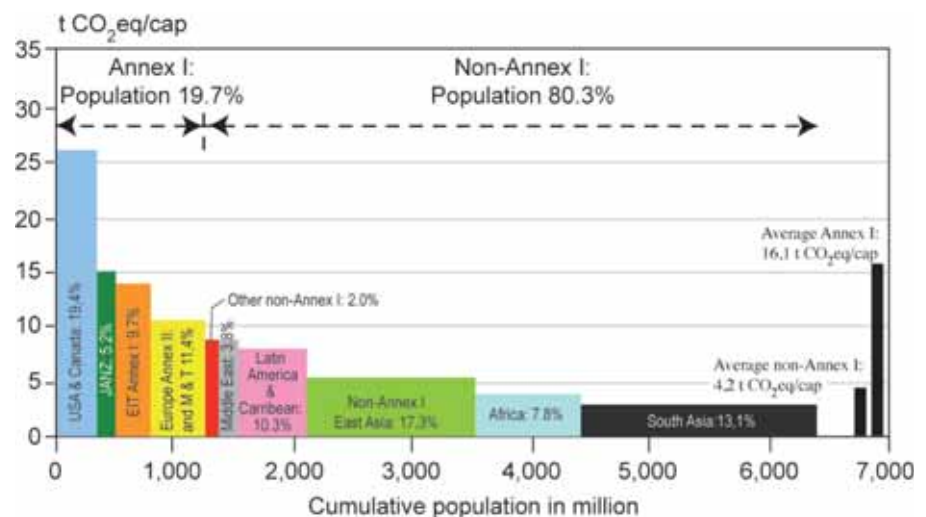
### Global Drivers of Climate Change and Environmental Degradation

The primary role in destabilizing the climate is rendered to GHG emissions, largely emitted by industrialized countries such as United States, Canada, Russia and recently China<sup>4</sup>. The share of developing countries in GHG emissions is marginal, but these countries are paying the highest price for lagging behind in the race of industrialization.

An unceasing problem in reaching to an agreement on curtailing carbon emissions is to curb them without compromising

India, Brazil and the Russian Federation. Similarly, the outsourcing of emissions from industrialized nations to China and India (which is the reason behind their sudden increase in emissions contribution) is another point of concern. Foreign investment finds shores of developing countries in search of cheap raw materials and labour including little or no binding environmental protection laws. The use of coal and fossil fuels to meet energy demands increased as the purpose was to maximize corporate profits, not social surplus. This process increases the share of developing countries in GHG emissions and problematizes mitigation efforts at the global level.

Figure 1: Distribution of regional per capita GHG emissions



Source: Inter Governmental Panel on Climate Change.  
Available at [http://www.ipcc.ch/publications\\_and\\_data/ar4/wg3/en/figure-1-4.html](http://www.ipcc.ch/publications_and_data/ar4/wg3/en/figure-1-4.html)

**Annex-I Parties** include the industrialized countries that were members of the OECD (Organization for Economic Co-operation and Development) in 1992, plus countries with economies in transition (the EIT Parties), including the Russian Federation, the Baltic States, and several Central and Eastern European States. The full list is available at

[http://unfccc.int/parties\\_and\\_observers/parties/annex\\_i/items/2774.php](http://unfccc.int/parties_and_observers/parties/annex_i/items/2774.php)

**Non-Annex I Parties** are mostly developing countries. The full list is available at [http://unfccc.int/parties\\_and\\_observers/parties/non\\_annex\\_i/items/2833.php](http://unfccc.int/parties_and_observers/parties/non_annex_i/items/2833.php)

The countries in each of the regional groupings include:

- **EIT Annex I:** Belarus, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russian Federation, Slovakia, Slovenia, Ukraine
- **Europe Annex II & M&T:** Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom; Monaco and Turkey
- **JANZ:** Japan, Australia, New Zealand.
- **Middle East:** Bahrain, Islamic Republic of Iran, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, United Arab Emirates, Yemen
- **Latin America & the Caribbean:** Antigua & Barbuda, Argentina, Bahamas, Barbados,

Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Lucia, St. Kitts-Nevis-Anguilla, St. Vincent-Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela

- **Non-Annex I East Asia:** Cambodia, China, Korea (DPR), Laos (PDR), Mongolia, Republic of Korea, Viet Nam.
- **South Asia:** Afghanistan, Bangladesh, Bhutan, Comoros, Cook Islands, Fiji, India, Indonesia, Kiribati, Malaysia, Maldives, Marshall Islands, Micronesia, (Federated States of), Myanmar, Nauru, Niue, Nepal, Pakistan, Palau, Papua New Guinea, Philippines, Samoa, Singapore, Solomon Islands, Sri Lanka, Thailand, Timor-Leste, Tonga, Tuvalu, Vanuatu
- **North America:** Canada, United States of America.
- **Other non-Annex I:** Albania, Armenia, Azerbaijan, Bosnia Herzegovina, Cyprus, Georgia, Kazakhstan, Kyrgyzstan, Malta, Moldova, San Marino, Serbia, Tajikistan, Turkmenistan, Uzbekistan, Republic of Macedonia
- **Africa:** Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Congo, Democratic Republic of Congo, Côte d'Ivoire, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Swaziland, Togo, Tunisia, Uganda, United Republic of Tanzania, Zambia, Zimbabwe

In the same way, developing countries also contribute in depleting the ecosystem but through different channels. Of these channels, the population factor is of crucial importance. A higher population growth unleashes demands causing deforestation, land desertification and an increased use of fertilizers and pesticides that eventually disturb the natural equilibrium of the ecosystem. The share of non-annex-1 countries in world population is 80.3 percent, while their share in emissions is 28 percent (Fig-1). And of more concern is the fact, that whilst the South Asian region alone contributes one fourth of the population, its total contribution in emissions is just 13 percent. But the burden is heaviest on the region in terms of climate related damages.

### Global Reasons of Concerns

Despite all efforts, both the severity of and concerns for climate change are on the rise. Contrary to initial estimates of the increase in global temperature at about 3.5°C till 2100, new evidence suggests a rise of around 4°C, hence demanding more strenuous and organized global efforts ranging from production to social and political spheres of economies/countries<sup>5</sup>. Other emergent hazards of climate change that were not particularly studied earlier have received special attention recently. Five Integrative Reasons of Concerns (FIRC) framework presents the concerns categorized into two sub-themes namely, a) Frequency of variation in environmental variables and, b) Vulnerability and exposure of social and ecological system at

the global/national level.

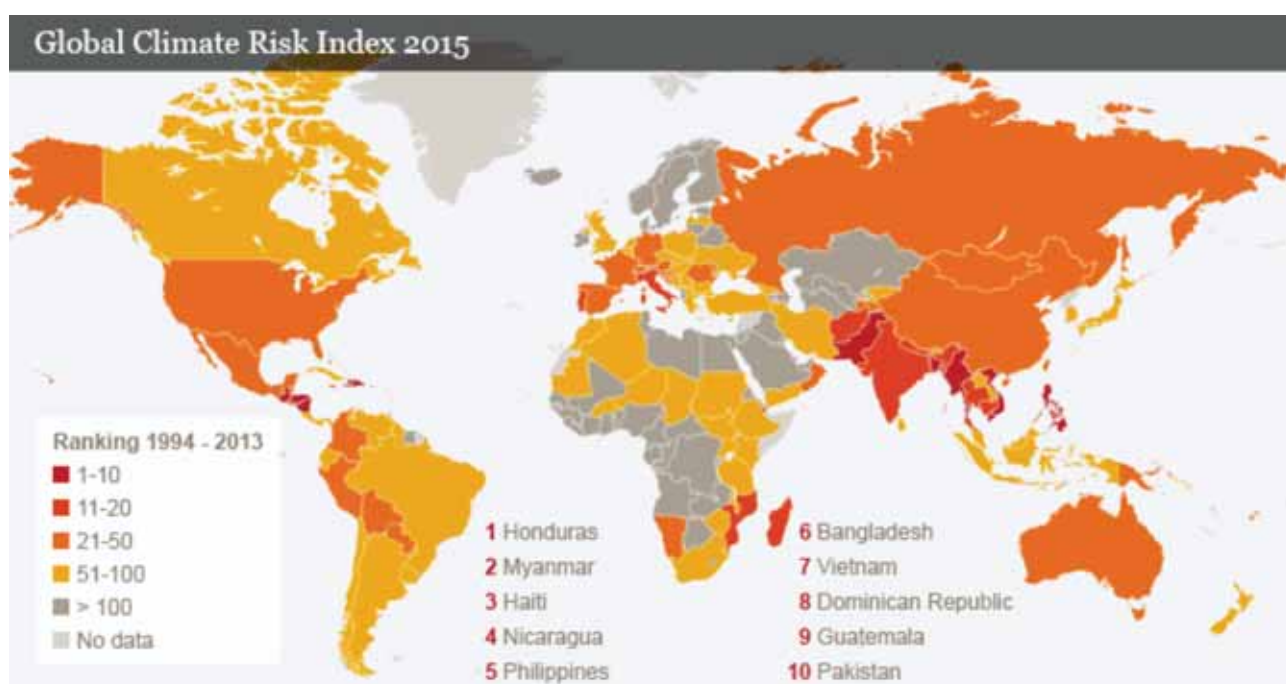
When looked through this framework, some ecological and cultural systems are in acute danger of deformation or even extinction i.e. arctic areas and coral reefs. Developing nations are more vulnerable courtesy their structure of economy and socioeconomic dynamics that are different from developed ones. The centrality of the agriculture sector has increased their vulnerability to climatic hazards. Reduced agricultural productivity because of extreme weather events, could elevate food insecurity, poverty and socio-political instability to new levels. Furthermore, population in developing countries, on average, is growing by two percent per annum. This increasing population requires food, clothing and other subsistence needs in order to avoid any social conflicts leading to political volatility. The increase in productivity through green revolution technologies has touched the ceiling and in the wake of scarce land available for cultivation, it becomes important for these (developing) countries to look for Climate Resistant Green R&D to maintain food security. Pleasantly, it has recently been realized that some sections of population (such as women, poor, minorities etc) and some geographical regions are more susceptible to damages caused by climate change because of their nature of exposure to hazards.

The world stands at a consensus that different manifestations of climate change and its appended non-climatic factors are

increasing the social, institutional, financial and political vulnerabilities of societies, communities and socio-ecological systems. World Bank report (2015), "Shock Waves: Managing the Impacts of Climate Change on Poverty", expresses grave concerns about the cumulative effect of climate change on agriculture production, food insecurity, incidence of disease and poverty. Important to note, however, is its assertion that net impacts of climate change would be transmitted through socioeconomic trends like inequality, demography and growth.

Recent research also states the possibility that if effective mitigation and adaptation strategies to combat climate change do not come up to the task, rate of poverty would increase manifold. Increased temperatures and reduced availability of water for irrigation directly, but negatively affects the availability of food through reducing productivity. Increased food prices mean large food bills for poor households, which could absorb up to 60 percent of their income, rendering them extremely vulnerable to falling below the poverty line in case of any minor or major subsequent shock. In 2008, 100 million people fell below the poverty line while in 2010-11, an additional 44 million price hike in edible commodities with accentuated climate change, magnified the risk further. Put simply, repercussions are serious for the most vulnerable part of the world: South Asia.

**Figure 2: Most Vulnerable Regions to Climate Change**



Source: German watch, Munich ReNatCatService. Available at <https://germanwatch.org/en/download/13503.pdf>

Note: According to the **Global Climate Risk Index 2016**, Pakistan ranks at no. 8 in terms of climate vulnerability.

Owing to its dependence on water for agricultural purposes in order to ensure food security, South Asia remains most vulnerable to climate change impacts (Fig-2). It is also one of the most populous and poverty ridden regions in the world bearing different social cleavages, geopolitical tensions and low per capita income. The rate of urbanization is also one of the highest which again lends support to the aggravation of environment problems. According to Maple Croft's Climate Change Index 2015, South Asia remains at the top in terms of climate vulnerability<sup>6</sup>. A prime reliance on agriculture for livelihood, lower human capital productivity, higher dependency ratio, already crippling physical infrastructure and higher incidence of poverty, render Pakistan one of the most vulnerable countries to climate change.

Poor adaptive capacity adds further fuel to the fire.

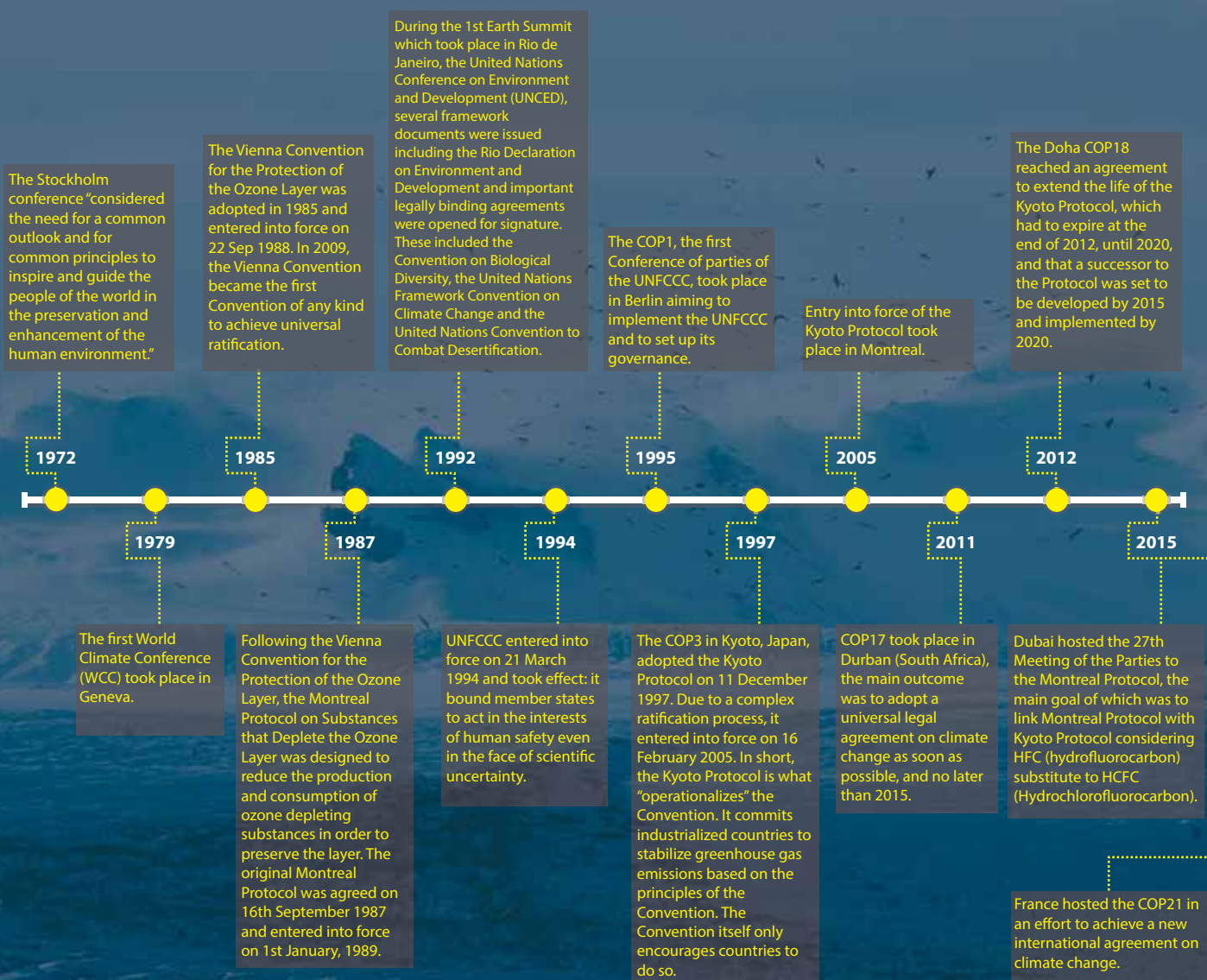
### Climate Challenge and Progress on the Mitigation and Adaptation Agenda: A Brief Chronology

Given the nature, drivers, scale and range of the threat, the verdict is simple; the developed world has to take the lead on mitigation whereas the developing world requires strong adaptation measures. The biggest problem regarding climate change management is the hierarchy of the world system divided into nation states. Different sets of priorities, agendas, needs, level of development and realization about subjective vulnerability to climate change problematize the direction and intensity of global efforts.

### Hurdles in combating climate change at the global level:

- Developing mitigation and adaption strategies that would not hurt economic growth.
- Generation of requisite climate finance for the development of climate friendly R&D.
- Developing a consensus among different parties regarding their respective levels of emissions, local demands and vulnerabilities.
- Developing a climate change mechanism that would ensure and enforce effective implementation of international covenants at both national and global levels.

## Tracing 50 years of Climate Change



Source: A history of Climate Change conferences and agreements.  
Available at <http://www.unep.org/climatechange/ClimateChangeConferences/tabid/55125/Default.aspx>



## **Climate Change and Environmental Degradation in Pakistan**

Owing to its continuous exposure to extreme weather events for the last few years, Pakistan now ranks at 6th position (at high risk) in terms of its vulnerability to climate change. Pakistan has an abundance of natural resources with an economy predominantly dependent on agriculture, which constitutes for 21 percent of GDP, accounts for half of the employed labour and for the largest share of foreign earnings. The extreme dependence of agriculture on climate is a stylized fact and associated events such as floods, delayed and erratic rains, extreme maximum and minimum temperatures and heat and cool waves hurt the economy sternly through decreased agriculture and livestock produce keeping it confined between a middle-to-low economic growth rate.

Besides climate change, overall environmental degradation has caused emanating from changing demographics and the social structure of the country. The increasing hunger, food insecurity and degradation of arable land, are the outcomes of urbanization, population growth and environment unfriendly industrialization. These impending hazards made Pakistan vulnerable to a rise in global temperatures within a medium span of time.

Increasing temperature interrupts the regular average flow of water in the Indus led irrigation system in Pakistan, which could have serious implications for food security in particular, and economic development and growth in general. According to meteorological experts, monsoon weather patterns have undergone gradual transformations over the past few years, with decreasing rain frequencies but increasing intensities. As a result, crop harvests are affected. Experts argue that this pattern will sustain itself for a few years and then become very acute. To meet this challenge, there is a need to increase the water storage capacity, which is currently on the decline due to silting. The coming future holds a precarious situation for Pakistan as far as per-capita water availability is concerned. Water conservation and storage requires meeting the challenges of climate change and must be the single most important goal for Pakistan presently.

Likewise, the livestock sector in Pakistan provides a 65 percent value addition to the agriculture sector through its supply of milk, meat and leather. Pakistan is the fourth largest milk producer, second largest buffalo meat producer and eleventh largest chicken (broiler) producer

in the world. It is a potential sector that could create employment, enhance food security and export earnings. Changes in climate directly impact upon livestock production mechanisms and increase production costs. Availability of fodder is critically important for milking animals and changes in rain cycles, with an increased variation in the rate of precipitation, negatively affect fodder crops. Hence, these factors limit the potential of livestock growth, an area that needs further exploration in Pakistan.

The impact of climate change on the production and consumption of energy (electricity) is also of vital concern in Pakistan. British petroleum's recent forecast for energy consumption has shown a tremendous global increase of 40 percent by 2020. Most of this increase is by virtue of emerging Asian economies. Amid fossil fuels produced energy, this increase in energy demand is at odds with environmental concerns proposed by the Fifth Assessment Report of IPCC<sup>7</sup>. Climate change, the report forcefully argued, also derived changes in energy demand. In Pakistan, altering patterns of energy demand are easily discernable with the increase in the demand of cooling and heating devices. Increased intensity of heat waves creates a human crisis that is dealt only through a provision of cheap energy sources. Also, coal based power plants in Pakistan lead to an increase in GHG emissions considerably, hence adding fuel to the fire.

## **Underlying Factors of Exposure to Climate Change Risks in Pakistan**

Being an agricultural driven economy, the dependence of Pakistan on the environment becomes extremely crucial for an in-time availability of primary inputs, especially water. Importance increases multifold for the rain-fed regions of the country. River Indus and its tributaries are the primary sources of water. An upsurge in temperatures causes an intense melting of glaciers. This results in an increased flow of water in rivers (floods) coupled with a reduced storage capacity of water reservoirs because of silting. This increased flow of water in the short run will bring a reduced flow in the long run, thereby putting the whole human system of Pakistan at stake.

According to the Global Food Policy Report by the International Food Policy Research Institute (IFPRI)<sup>8</sup>, every 4th (exactly equal to Ethiopia) Pakistani faces hunger, whilst per-capita availability of water is pushing it towards becoming a water scarce country. Urbanization, deforestation, over pumping of water for domestic and agriculture use, land

desertification and loss of bio-diversity are all negative outcomes of uncontrolled population growth and lop-sided governance regimes. Pakistan, as being part of temperate climatic zones, carried forest cover far less than global average. Growing population and the requirement for timber along with homestead settlements is eating away this already meagre resource, including the loss of flora and fauna dependent on these forest systems.

Land desertification is another issue that demands careful attention of policy makers and academia. 68 million hectares of land lying in rain-fed areas is continuously and swiftly losing land productivity because of changing patterns of rainfall. The meteorological data in the last decade represents a discernable trend of infrequent rainfall in Pakistan that has exposed the population in such areas to climate related risks. Another major source of land desertification is wind, which is wearing away the top fertile cover of soil, especially in Khyber Pakhtunkhwa and Balochistan. The shrinking of forest cover (about 9000 hectares taken away annually) leaves the soil open and vulnerable to the effect of strong winds in hilly areas.

Simultaneously in Sindh, about 20 million hectares are affected by water logging and salinity, an outcome of sea intrusion as a direct result of rising sea levels caused by a melting of ice. In 2015, rice cultivation was banned in a few districts of Sindh for concerns of increasing salinity that spread through an overuse of underground water. Underground water tables close to delta areas are increasingly becoming unusable rapidly, which demands intervention of the state department in favour of farmers to halt and reverse this process. Climate change and socioeconomic dynamics of Pakistan, coupled with traditional world views and institutional structures, is proving to be very hostile to the comprehension, mitigation and adaptation of climate induced changes<sup>9</sup>.

## **Governance of Climate Change and Environment Protection in Pakistan**

Pakistan has remained historically prone to hydro-meteorological and geological risks and hazards. Crop failures because of drought, torrential rains and floods have kept impacting the already beleaguered economic foundation and managerial state structures. Nevertheless, no attention was given to such issues as security was perceived only in jargons of national security and considered hazards were political and social dissent.

It is pertinent to note, that Pakistan has previously dealt with disaster in an arbitrary and response oriented manner. The sole objective of the first environment related legal instrument, Calamity Act 1958, was to guide central bureaucracy for streamlining any relief efforts guided by the Emergency Relief Cell (ERC) in the Cabinet Secretariat.

Environment literacy has remained in ebb, at global levels too, and concerns regarding sustainability were never on the agenda of post-colonial governments and their foreign economic advisers. Agriculture was considered as the foundation that could help in moving towards an industrialized socioeconomic formation. Therefore, increasing productivity, capital accumulation, foreign

reserve ratios and maintaining balance of payment, remained at the fore front of governments, donors and multi-lateral lenders. The governance regimes, whether authoritarian or democratic, following import substitution strategies and protectionist ideology or free market strategies and neo liberal ideology, remained almost the same and treatment of environment received little attention.

### Environmental Conventions ratified by Pakistan

Name	Year of Ratification	Key Objective	Funding Opportunities	Implementation Status
<b>Biodiversity-related Conventions</b>				
Convention on Biological Diversity	1994	To preserve biodiversity and ecosystem and equitable sharing of the benefits from genetic resources.	38.6 million USD worth of projects implemented at various stages.	<ul style="list-style-type: none"> <li>Developed Biodiversity Action Plan.</li> <li>Established Biodiversity Directorate in Ministry of Environment (now Ministry of Climate Change).</li> <li>Establishment of Protected Area System (National Park, Wild life Sanctuaries, Game reserves).</li> <li>The conservation of biodiversity in the mountain areas supported by community based organizations in conservancies, through a diverse range of interventions.</li> <li>Protection and management of 'chilghoza' (a type of dry fruit) forests in Balochistan.</li> </ul>
Cartagena Protocol on Bio-safety (CPB)	2009	Addresses safe transfer, handling and use of Living Modified Organisms (LMOs) that may have an adverse effect on biodiversity with a specific focus on trans-boundary movements.	Funding available through GEF and bilateral projects.	<ul style="list-style-type: none"> <li>The implementation mechanism for the regulation of activities related to GMOs and their projects developed.</li> <li>Pakistan Bio-safety Rules 2005 developed.</li> <li>National Bio-Safety Guidelines 2005 developed.</li> <li>National Biosafety Centre established in Pakistan Environmental Protection Agency (Pak-EPA), Ministry of Environment (defunct) in April 2006 to meet the obligations of CPB. The centre has processed more than 200 cases of GMOs and their products related to Laboratory Genetic Manipulation Work, Field Trials for Research and Development (R&amp;D), Import and Export and Commercialization (Sale and Purchase). The Centre has been regulating the R&amp;D and commercialization of Genetically Modified Cotton, Corn and other crops (Sugarcane, Chili, Tobacco, and Wheat etc).</li> </ul>
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	1976	To control international trade in endangered species of wild animals and plants so that their survival is not threatened.	Possibility of funding of projects through GEF Fund, UNEP and CITES Convention Secretariat.	<ul style="list-style-type: none"> <li>The import and export of listed species is regularized by the National Council for Conservation of Wildlife (NCCW) through a system of permits/NOCs.</li> <li>Developed Pakistan Trade Council of Fauna and Flora Act 2010.</li> <li>NCCW acts as CITES management and scientific authority.</li> <li>Pakistan's trade policy covers all provisions of CITES trade obligations.</li> <li>CITES bill 2010 to implement CITES in Pakistan was passed by the National Assembly post the 18th Amendment.</li> </ul>
Convention on Wetlands of International Importance (or the Ramsar Convention on Wetlands)	1976	To stem the loss of wetlands and to ensure their conservation and wise use.	Funding of 12 million USD ongoing through Pakistan Wetland Program-part of these funds include the UNDP/GEF fund which has been concluded already.	<ul style="list-style-type: none"> <li>19 sites have been declared as Ramsar sites (Coverage: 1,343,627 hectares).</li> <li>Developed National Wetlands Policy (under approval process) with a new water policy being developed.</li> <li>Wetland Action Plan and National Rangeland Policy 2010, draft developed.</li> <li>Awareness raising and capacity building of key stakeholders and development of management plans for wetlands through Pakistan Wetlands Project.</li> </ul>
Convention on the Conservation of Migratory Species of Wild Animals (CMS)	1987	It aims to conserve terrestrial, marine and avian migratory species over the whole of their migratory range.	Possibility of funding projects through GEF Trust Fund, UNEP and CMS Convention Secretariat.	<ul style="list-style-type: none"> <li>All migratory species under the convention (endangered) are protected under Provincial Wildlife Acts.</li> <li>Developed Pakistan trade control of Fauna and Flora Act 2010.</li> <li>Pakistan is signatory to Convention MOU's on Siberian Crane, Birds of Prey and Marine Turtles.</li> <li>Mandatory reports are regularly being sent to CMS Secretariat about the measures that are being taken to implement the provisions of this Convention.</li> </ul>

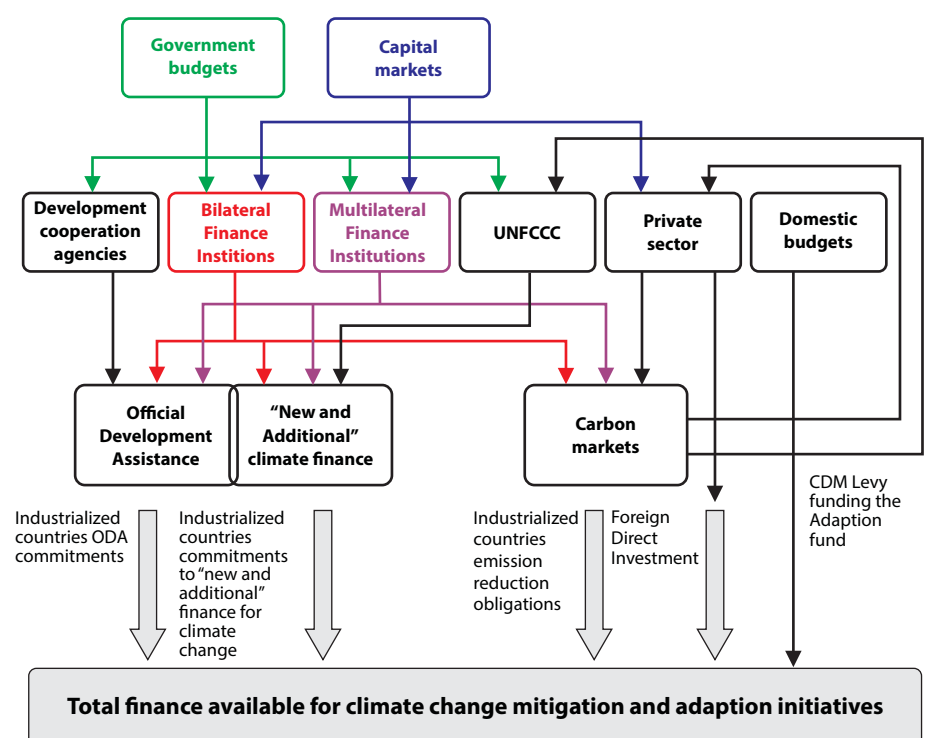
Name	Year of Ratification	Key Objective	Funding Opportunities	Implementation Status
<b>Atmosphere / Climate Change (UNFCCC)</b>				
United Nations Framework Convention on Climate Change (UNFCCC)	1994	Efforts for global stabilization of greenhouse gas concentrations in the atmosphere, to ensure that food, water, energy security and economic development are not threatened.	Green Climate Fund to provide funding of 100 billion USD per year till 2020, additional possibility of funding through GEF and bilateral projects.	<ul style="list-style-type: none"> <li>Developed comprehensive inventory of greenhouse gases emission sources and sinks.</li> <li>Submitted initial national communication (GHG emission report) to UNFCCC.</li> <li>Established Global Change Impact Studies Center.</li> <li>Second National Communication under process.</li> <li>National Climate Change Policy developed and approved in 2012.</li> <li>National Environmental Quality Standards (NEQS) for Industrial Gaseous Emission 2000, developed.</li> <li>NEQS for Motor Vehicle Exhaust and Noise (Amended) 2010, developed.</li> <li>INDC developed for Pakistan, yet to be finalized.</li> </ul>
Kyoto Protocol to UNFCCC	2005	Binds developed countries to fulfill their assigned targets and to voluntarily contribute to achieve an average reduction of 5.2 percent of GHG emissions from 1990 levels by 2012, under the 1st commitment period, and agree in the targets for further reduction of GHG emissions under the 2nd commitment period beyond 2012.	<ul style="list-style-type: none"> <li>Under the Clean Development Mechanism Cell (CDM), there is an expected 770.67 million USD investment from 30 approved projects</li> <li>From the Adaptation Fund, so far 216.15 million USD are expected, besides the four million USD already approved.</li> </ul>	<ul style="list-style-type: none"> <li>Developed National Operational Strategy for Clean Development Mechanism.</li> <li>Established a Clean Development Mechanism (CDM) Cell for approving and facilitation of CDM projects.</li> <li>Established a task force on climate change.</li> <li>Pakistan Energy Conservation Bill 2010, developed and approved.</li> </ul>
Vienna Convention for the Protection of the Ozone Layer And 1987 Montreal Protocol on Substances that deplete the Ozone Layer	1992	The production and consumption of compounds to delete the ozone in the stratosphere are to be phased out as these compounds could significantly deplete the stratospheric ozone layer that shields the planet from damaging Ultraviolet-B radiation.	<ul style="list-style-type: none"> <li>Funding is through the Multilateral Fund of the Montreal Protocol.</li> <li>20 million USD have been received so far in different projects; 30 million USD projects in pipeline.</li> </ul>	<ul style="list-style-type: none"> <li>First generation of ozone depleting substances have been completely phased out (Chloro-fluorocarbons, carbon-tetrachloride) as of 1st January 2010 and there is a complete ban on their import.</li> <li>Ban imposed on import of Methyl Chloroform.</li> <li>Hydro-Chlorofluorocarbon (2nd generation of ozone depleting substances) Phase-out Management Plan (HPMP) to be completed by 2030.</li> </ul>
<b>Land Convention / Environmental Cooperation Conventions</b>				
United Nations Convention to Combat Desertification (UNCCD)	1997	To combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification through effective action supported by international cooperation.	Worth of 6.357 million USD projects under various stages.	<ul style="list-style-type: none"> <li>National Action Plan (NAP) to combat desertification prepared.</li> <li>Four biannual National Implementation reports submitted to Convention Secretariat.</li> <li>A comprehensive sustainable Land Management Project launched.</li> <li>Policy documents such as Poverty Reduction Strategy (PRSP) have integrated NAP's programme areas of sustainable use of natural resources as a means towards poverty alleviation.</li> </ul>
<b>Chemicals and Hazardous Wastes Conventions</b>				
Rotterdam Convention on Prior Informed Consent (PIC) for certain Hazardous Chemicals and Pesticides in International Trade	2005	Promote shared responsibility and cooperation among parties in international trade of hazardous chemicals through a global information exchange mechanism.	Possibility of funding of projects through GEF Trust Fund, UNEP and Rotterdam Convention Secretariat, as well as bilateral projects.	<ul style="list-style-type: none"> <li>All pesticides and chemicals under Rotterdam Convention, subject to Prior Informed Consent (PIC), are either banned, deregistered or restricted in Pakistan.</li> <li>No import/export possible without explicit import/export response from Designated National Authorities of two countries.</li> <li>National Advisory Committees established for advice on pesticides and chemicals.</li> <li>National system for issuance of NOC for import/export of restricted chemicals in place.</li> </ul>



Name	Year of Ratification	Key Objective	Funding Opportunities	Implementation Status
Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal	1994	To minimize generation and trans-boundary movement of hazardous waste. The convention also aims at preventing illegal trafficking of hazardous wastes.	Possibility of funding of projects through GEF Trust Fund, UNEP and Basel Convention Secretariat, as well as bilateral projects.	<ul style="list-style-type: none"> <li>Certification of Environmental Laboratories Regulations, 2000 developed.</li> <li>Restrictions imposed on export/transit and import for final disposal and recovery under the Pakistan Environmental Protection Act 1997.</li> <li>Hazardous Substance Rules drafted in 1997, updated in 2007 and 2009, but have not been adopted as yet.</li> <li>Guidelines for Hospital Waste Management (1998) prepared by the Environment Health Unit of the Ministry of Health.</li> </ul>
Stockholm Convention on Persistent Organic pollutants (POPs)	2008	To protect human health and the environment from harmful impacts of Persistent Organic Pollutants (POPs).	Possibility of funding of projects through GEF, UNEP and Stockholm Convention Secretariat, as well as bilateral projects.	<ul style="list-style-type: none"> <li>All the POPs pesticides are either banned or deregistered in Pakistan.</li> <li>National Implementation Plan (NIP) prepared and submitted to Stockholm Convention Secretariat.</li> <li>NEQS for Ambient Air 2010, developed.</li> </ul>
<b>Regional Seas Conventions and related Agreements</b>				
United Nations Convention on the Law of the Sea (UNCLOS)	1997	Peaceful use of the seas and oceans, equitable and efficient utilization of its resources, conservation of its living resource, and preservation of the marine environment.	Possibility of funding for technical assistance and training.	<ul style="list-style-type: none"> <li>Development of National Institute of Oceanography.</li> <li>Extension of continental shelf from 200 nautical miles to 350 nautical miles.</li> <li>Maritime boundary lines with Iran and Oman were each determined and signed.</li> </ul>
Convention Concerning the Protection of the World Cultural and Natural Heritage	1976	To identify potential sites, natural or cultural, which can be considered for inscription on the World Heritage List and to ensure their protection and preservation.	Funding through UNESCO.	<ul style="list-style-type: none"> <li>Six sites have been identified as cultural heritage sites, with 18 properties submitted on the Tentative List which is an inventory of those properties intended to be considered for nomination.</li> <li>UNESCO works on the restoration and preservation of all the identified heritage sites.</li> </ul>

Source: Ministry of Climate Change, Government of Pakistan

**Figure 3: Global Climate Finance Architect**



Source: Inter Governmental Panel on Climate

### Outlook for Climate Finance in Pakistan

The center of gravity is climate finance. For developing countries, this poses a dilemma: the scale and frequency of environmental hazards demand a continuous supply of financial resources in substantial amounts that developing countries cannot afford given the tradeoff between climate change and other issues of immediate concerns<sup>10</sup>. To facilitate the process, UNFCCC has developed an international architecture of climate finance (Fig-3).

This architecture is very similar to other business and economic development models endorsing public-private partnerships. Financial markets in Pakistan are not much developed and due to an informalization in the economy, their spread is limited. Thus, the role of the state in steering finance towards this cause, which, as argued above, has no constituency of its own, becomes critically important.

It is a revealing fact that the situation of climate finance is very bleak in Pakistan. In the fiscal year 2015-16, only 936 million PKR were allocated for environment protection, in which the share for climate change related issues was only 25 million. It was slashed by a staggering 73 percent from last year and does not seem justifiable in the increasing incidence of extreme weather events. Similarly Punjab, Sindh and Balochistan allocated 102, 101 and 210 million PKR respectively for their environment protection agencies and departments. In such a dismal financial situation, the only option left is to accumulate resources through climate related international funds. Unfortunately, Pakistan did not do well in this venture either, as approaching and accessing climate finance requires good diplomacy, comprehensive planning and up-to-date knowledge in order to meet the eligibility criteria set by the Standing Committee on Finance. Moreover, the external climate finance availability is also limited, owing to the unwillingness of Annex-II (developed) countries to provide public finance and stress on the role of private finance to meet the challenge of climate<sup>11</sup>. Hence, Pakistan has remained ineffective (to date) in cashing on both external and internal opportunities.

In order to combat climate change demands, Pakistan requires 7-14 billion USD while only a fraction of it, 500 million USD, flows into Pakistan. Of most urgency is the need for Pakistan to develop a firm strategy to tap forthcoming financial opportunities ratified by the COP21 Paris session in December last year. For this purpose, different options are available including developing a National Climate

Fund (NCF) that could coordinate with international donors and streamline funds to required areas. Unfortunately, Pakistan failed to submit the Intended Nationally Determined Contribution (INDC) goals timely. Also the INDCs were submitted without any measurable target to be achieved, which may impact upon future climate finance flows towards the country further. An example to learn from is Bangladesh's climate finance architecture: The country took pioneering steps in 2008 to initiate national climate funds which have led to the development of two Trust Funds (the BCCTF and the Bangladesh Climate Change Resilience Fund/BCCRF). Climate finance in Pakistan is one of the two biggest problems impacting climate change mitigation and adaptation efforts. The implications for not arranging a sufficient amount of climate finance would be apocalyptic. The ensuing human and ecological crises have the potential of threatening the very existence of the state.

### Conclusions

To meet the challenges of climate change, a multi-pronged strategy is required. Climate associated risks must become of high priority and for this political will/commitment is the most important ingredient. Politicizing climate change has reaped dividends in developed countries while examples of environment related activism have also gained reputable presence in several countries, for example India<sup>12</sup>. Such a political constituency is missing in Pakistan. The following areas require attention:

**GHG Emissions:** Being a low profile emitter of GHGs, mitigation might be of a lower returns policy option at the initial

stage for Pakistan. Nevertheless, a concerted effort is required to gradually shift towards environment friendly 'Green Technology' (and other alternate energy sources with a lower emission rate) with a low rate of carbon emissions. For this purpose, it is critically important that as defined in COP21, the Annex-I countries unanimously accept emission ceilings and start materializing their pledges for climate finance, as the need of time is urgency.

**Industrial Waste:** Developing adaptation mechanisms targeting the management of industrial waste, are one of the few areas that require high priority. Appropriate policy for land use in Pakistan and its rigorous implementation is also required to protect fertile land from several abuses, such as building housing societies, with a review of previous construction mechanisms, ensuring effective implementation of zoning laws and environment friendly architecture. Micro level resistance against brick kilns, discharging waste materials into fresh water reservoirs and other health related hazards require advocacy. This can only be made possible by making the environment protection's legal architect more responsive to the changing needs of communities.

### Agricultural and Food Security:

Adaptations to changing weather patterns are of utmost importance for keeping food security and poverty in control. The target population, in this regard, is farmers and in Pakistan, about 80 percent farmers own land 12 acres or below, hence limiting their capacity for effectual adaptation. Then, there are serious issues related to

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1. These factors jointly shape the adaptive capacity of households to fight changing climate effectively.
2. The contribution of developing countries, though very small as compared to their share in bearing the losses, comes primarily from rapidly vanishing forests along with over use of fertilizers and pesticides.
3. Hallegatte, Stephane; Bangalore, Mook; Bonzanigo, Laura; Fay, Marianne; Kane, Tamaro; Narloch, Ulf; Rozenberg, Julie; Treguer, David; Vogt-Schilb, Adrien. 2016. "Shock Waves: Managing the Impacts of Climate Change on Poverty". Washington, DC: World Bank. © World Bank. Available at <https://openknowledge.worldbank.org/handle/10986/22787> License: CC BY 3.0 IGO.
4. China has overtaken United States in 2006 as the largest emitter. These countries are included in Annex-1 of United Nation Framework Convention on Climate Change.
5. IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp. Available at [http://epic.awi.de/37530/1/IPCC\\_AR5\\_SYR\\_Final.pdf](http://epic.awi.de/37530/1/IPCC_AR5_SYR_Final.pdf)
6. Maple Croft's Climate Change Index 2015. Available at <http://maplecroft.com/portfolio/new-analysis/2014/10/29/climate-change-and-lack-food-security-multiply-risks-conflict-and-civil-unrest-32-countries-maplecroft/>
7. Ibid
8. International Food Policy Research Institute. 2015. 2014–2015 Global Food Policy Report. Washington, DC: International Food Policy Research Institute. Available at <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/129072>
9. The sources of exposure to climate change are too large in number and diverse in effects to cover in this brief section. This note provides a brief on a couple of major factors in the context of the agricultural sector purposefully, as those who are most vulnerable are deployed in one way or the other in the agricultural sector. The list can be extended to factors shaping the adaptive capacity of the households which then shape the overall fight of regions/countries to climate change.
10. It becomes more of a political economy of resource allocation by the government. It is also worth noting that policies in Pakistan are generally politically motivated putting politically less beneficial issues (in short run) on second priority.
11. The required amount of finance for adaptation and mitigation measures amounts to one trillion USD per year.
12. Narmda Bachao Andholan has received very high profile reception in India; a movement of indigenous people who were not happy about construction of a dam.

agricultural credit, informational inequalities, farm size and access to quality farm inputs that negatively influences the adaptive capacity of farmers further. The need of the hour is to a) Invest in R&D for climate resistant seed varieties, b) Provision of finance to small (less than 12 acres in Punjab and Sindh, with a higher ceiling in Balochistan) farmers who are most vulnerable to the vagaries of both climate and market, and, c) Ensure the uninterrupted availability of water for agriculture, especially at critical stages of crop growth.

**Finance:** To meet all these ends, availability of finance is mandatory. Positive signals from Annex-1 countries about pledging climate finance through the Global Environment Facility (GEF) and Green Climate Fund (GCF) could help Pakistan in meeting the climate challenge. One of the internal options to meet financial needs can be to form a national consortium, consisting of civil society, political parties and public and private research institutions. This consortium must design local finance architecture for climate finance, state its sectoral expenditures ratios and define channels of generation.

**Climate Literacy:** Awareness is a key issue if any of the challenges are to be addressed. A focus on 'climate literacy' at both the macro and micro levels, through trainings, awareness campaigns, education modules etc. is required. The gap in research and implementation also needs to be covered, with a defined focus on research and its translation into the policy narrative.

## COP21-The Paris Agreement: A Summary of the main highlights

- To keep global temperatures "well below" 2.0 °C (3.6 °F) above pre-industrial times and "endeavour to limit" them even more, to 1.5 °C.
- To limit the amount of greenhouse gases emitted by human activity to the same levels that trees, soil and oceans can absorb naturally, beginning at some point between 2050 and 2100.
- Common binding agreements for all parties, including the establishment of a global emissions inventory, to be updated by all countries and will include information on emissions and carbon sinks, adaptation, funding, technology transfer and capacity building.
- Developed countries must contribute funds (100 billion USD per year committed from 2020), with the aim to increase fund mobilization after 2025.
- All countries must submit new NDCs every five years: Collective achievements will be reviewed in a global stock take every five years, commencing in 2023.
- Establishment of an adaptation committee to analyze and facilitate implementation and compliance.
- Developed countries may offer assistance to climate-threatened developing countries in several areas as outlined in Article 8 (4).
- Emission reductions will be tradeable between countries and will add to the respective country NDCs.
- Focus on improved technology development and transfer in order to improve resilience to climate change.
- Improved efforts towards enhancing climate change education, training, public awareness, public participation and public access to information.

Source: United Nations Framework Convention on Climate Change. "Adoption of the Paris Agreement", Annex: Paris Agreement (2015). Available at <https://unfccc.int/resource/docs/2015/cop21/eng/l09.pdf>

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## The National Climate Change Policy Framework



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Pakistan finds itself confronting a cruel irony when it comes to climate change. Being one of the world's lowest per capita emitters of greenhouse gases, its own contribution to global warming-the leading catalyst of climate change-is negligible. However, the country itself is widely regarded as amongst the world's most vulnerable to the impact of climatic vagaries, especially on energy, food and water security. According to the most recent Germanwatch Global Climate Risk Index, Pakistan was amongst the ten countries most affected by climate change between 1994 and 2013<sup>1</sup>. Of particular concern are the inimical effects of variable weather patterns and extreme conditions such as floods and droughts on Pakistan's agricultural sector.

Pakistan's policymakers are not wholly oblivious to the gravity of the challenge posed by climate change. In 2012, the government approved a National Climate Change Policy (NCCP) with the goal of 'mainstreaming' climate change in those sectors of the economy most at risk of being impacted by it and leading Pakistan towards 'climate resilient development'<sup>2</sup>. Launched formally in 2013, the NCCP laid down a number of policy objectives including the following: adequately addressing climate change challenges; integrating climate change policy with

other relevant national policies; devising pro-poor and gender-sensitive adaptation procedures as well as cost-efficient mitigation strategies; ensuring water, food and energy security; mitigating risks arising from the onset of extreme weather conditions; strengthening relevant governmental decision-making and coordinating mechanisms; harnessing domestic and international opportunities to promote the cause of climate change adaptation; incentivising public and private investment in the development of adaptive techniques; enhancing the institutional capacity and know-how of relevant stakeholders; and promoting environmental conservation.

The NCCP proposed a series of measures aimed at putting in place an effective institutional architecture at both federal and provincial levels to achieve the above mentioned policy objectives. These measures included the establishment of Climate Change Cells within relevant federal and provincial ministries and the setting up of a National Climate Change Commission to coordinate domestic climate change activities as well as to fashion appropriate responses to international developments. It was also proposed that the administrative structures of federal and provincial Environmental Protection Agencies (EPAs) be redesigned in order to integrate climate

change concerns into Initial Environmental Assessment (EIA) processes, and that national and provincial implementing entities be instituted to manage adaptation and mitigation projects at the federal and provincial levels respectively<sup>3</sup>.

The NCCP called on the federal government to develop an 'Action Plan' for implementation of its policy directives and also required provincial governments to come up with their own implementation strategies<sup>4</sup>. To oversee progress in that regard, the NCCP proposed the creation of federal and provincial Climate Change Policy Implementation Committees, which would meet on a biannual basis, with the provincial committees reporting on the status of the NCCP's implementation to the national committee. In November 2013, the current government followed up the NCCP that had been launched by its predecessor with the publication of a Framework for Implementation of Climate Change Policy (FICCP) aimed at reinforcing and further streamlining coordination at the federal and provincial levels in order to ensure greater integration of climate change concerns into national planning and development. Under the FICCP, the implementation of each proposed initiative has been set according to specific timeframes, with priority actions to be completed within two years, short-term actions within five years, medium-term actions within 10 years and long-term actions within 20 years<sup>5</sup>. Notwithstanding the provision of such elaborate mechanisms for implementation, the actual execution of the strategies outlined in the NCCP and the FICCP has been inadequate. In particular, the institutionalization of climate change at the federal and provincial levels, an agenda item emphasized in both policy documents, has yet to be meaningfully addressed. This failure stems primarily from the inability of both federal and provincial governments to adapt more effectively to the major overhaul of governance structures brought about in 2010 by the passage of the 18th Amendment to the Constitution of Pakistan, which devolved 47 legislative

subjects, including environmental pollution and ecology, from the federal parliament to the provincial legislatures.

In practice, however, the lines of authority when it comes to the environment and climate change remain blurred between the federal Ministry of Climate Change (MCC) and its provincial counterparts. While the 18th Amendment has made the provinces responsible for environmental law making and climate change service delivery, it has retained the authority of the federal government to direct the implementation of relevant international obligations as well as set the direction of national policy on climate change<sup>6</sup>. This imprecise division of responsibilities between the centre and the provinces has inhibited institutional clarity and prevented the establishment of clear and effective working arrangements. Moreover, federally devised policy instruments like the NCCP have yet to generate significant buy-in from the provinces.

The federal government itself has sent mixed signals about its long-term commitment to dealing with the effects of climate change. The decision to set up the MCC in 2012 was a step in the right direction, placing Pakistan amongst a very small group of countries around the world with a full-fledge ministerial establishment to tackle climate change. MCC was subsequently downgraded in 2013 to the status of a division under the federal cabinet and had its budget slashed by more than 60 percent<sup>7</sup>. In 2014, spending on the environment markedly declined once again from PKR 58 million (around USD 580,000) the previous year, to just PKR 25 million (around USD 250,000)<sup>8</sup>. It was only in January 2015, that the climate change division was again upgraded to a dedicated ministry but without any accompanying increases in budgetary allocation or the provision of new projects.

Such fluctuations in the approach of the federal government towards the MCC has weakened the latter's functioning and restricted it to the pursuit of a narrowly defined environment-centric approach to climate change instead of a more holistic one that seeks to fully incorporate climate change into core budgetary and planning procedures across a range of relevant sectors. Effective policy delivery on climate change is contingent upon the establishment of firm linkages between the MCC as the lead federal agency dealing with the environment and sectoral ministries such as agriculture, energy, finance, planning and development, transport, urban planning and water.

Those linkages have yet to be fully institutionalised. Moreover, the performance of the MCC in raising sufficient awareness about the impact of climate change amongst line ministries remains patchy. As a result, one of the key objectives of the NCCP-the mainstreaming of climate change into core budgetary and planning procedures across different sectors-remains largely unfulfilled.

While the MCC is the primary national coordinating agency with respect to implementation of the NCCP, the actual delivery of outcomes enshrined in the NCCP rests with the provinces, to which the 18th Amendment has devolved relevant sectors such as environment and forestry. Yet, devolution has not been complemented with a corresponding increase in the capacity of the provinces to effectively shoulder the new responsibilities allocated to them. A lack of institutional clarity about the part played by various governmental tiers in legislation, regulation and enforcement has prevented the framing of an effective provincial response both to the challenges as well as the opportunities presented by the devolution process.

The continuing confusion and lack of comprehension regarding institutional functions, obligations and powers has been a major obstacle to the consolidation of a long-term process directed at a fuller alignment of federal and provincial climate change policies. A case in point is the uncertainty surrounding jurisdictional authority over the commercial cultivation of genetically modified organisms (GMOs), which are accused by their detractors of carrying adverse implications for agriculture as well as the environment, both subjects that lie within the legislative purview of the provinces. In May 2014, the Lahore High Court suspended the issuance of licences for the commercial cultivation of GMOs until the concerned licensing authority-the National Bio Safety Committee (NBC)-had its legal status clarified in the light of the 18th Amendment<sup>9</sup>. Although environmental pollution and ecology was a devolved subject, the provinces had failed to put in place a regulatory mechanism for GMOs, with the result that the NBC, a federal entity, ended up filling the legal vacuum by vetting applications for commercial cultivation of GMOs.

Institutional structures dealing with the environment can be found at both the federal and provincial level but there appears to be an absence of protocols that can facilitate increased collaboration towards the pursuit of a common climate change agenda. All four provinces have

their own EPAs which also attend to adaptation and mitigation activities but all of which are organised under varying administrative arrangements that make it harder to coordinate federal and provincial climate change responses. A Climate Public Expenditure and Institutional Review (CPEIR) conducted by the UNDP under the federal government's auspices and published in May 2015, also identified the continuing absence of any linkage between the Pakistan Environmental Protection Act (PEPA) of 1997-a federal law-and provincial EPAs. The CPEIR emphasised the pressing need for an effective coordination mechanism between federal and provincial EPAs to ensure effective implementation of domestic policy instruments as well as international treaty undertakings<sup>10</sup>.

The delegation of climate change responsibility to the provinces has taken place in a 'historical vacuum' in that there was no provincial policy on the subject prior to the passage of the 18th Amendment<sup>11</sup>. Without filling the void in terms of policy-setting and delivery capacity, devolution has placed on the provinces the onerous task not only of policy formulation and execution on climate change but, also of determining climate change expenditure priorities and targeting 'interventions with the most cost-effective outcomes'<sup>12</sup>. Since the 18th Amendment came into force, all four provinces have passed amended versions of the PEPA-Balochistan and Punjab in 2012 and Khyber Pakhtunkhwa and Sindh in 2014-that seek to bring the environmental legislation in line with the shift in environmental powers and responsibilities from the federal to the provincial level. The new environmental laws in the provinces each provide for the creation of a provincial environmental protection council headed by the respective chief minister of the province and tasked with approving environmental policies and provincial environmental quality standards<sup>13</sup>.

Although such legislation is an essential first step towards identifying core provincial issues and subsequently directing resources towards them, the procedures for provincial policy delivery are not clearly articulated and could vary considerably between provinces, thereby exacerbating the problem of weak policy coordination. This underscores the need for establishing firm linkages between provincial climate change policy and federal policy instruments like the NCCP and the FICCP. To that end, the role of inter-governmental bodies such as the Council of Common Interests (CCI)-the primary forum for dispute resolution and

participatory federalism-will be critical. Historically a moribund entity, the CCI has been resuscitated by the 18th Amendment and can provide a key platform for climate change concerns to be voiced and priorities to be determined at the highest policy-making level. The Ministry of Inter Provincial Coordination, which serves as the secretariat for the CCI and whose primary functions include 'promoting uniformity of approach in formulation of policy and implementation among the provinces and the federal government in all fields of common concern,' can also play an important role in harmonizing federal and provincial climate change policies<sup>14</sup>.

Instead of simplifying the response to an already complex and multi-faceted subject like climate change that cuts across a range of sectoral boundaries, the devolution process instigated by the 18th Amendment has thrown up new challenges of institutional development that have proved difficult to overcome. At the same time, the post-devolution organizational arrangements also present opportunities for meaningful progress on climate change. Given the eventual attainment of greater institutional clarity by the provinces, they can then utilize their increased discretionary resources to strike a gradual balance between budgetary costs and local requirements. In the form of the NCCP, the provinces have a solid reference point for the framing of policy germane to their respective climate change concerns. Federal and provincial governments must expeditiously develop appropriate responses, both to the challenges, as well as the opportunities that have arisen in the wake of the 18th Amendment, if Pakistan is to reduce its vulnerability to the potentially catastrophic long-term effects of climate change.

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## Disaster Risk Reduction in Pakistan: Current Status, Challenges and Ways Forward



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### Background

Pakistan, owing to its diverse topographic, demographic and geopolitical placement, is vulnerable to a variety of environmental hazards. The country has experienced 23 major floods since 1947, in addition to a number of sporadic flash flood incidents that have resulted in massive devastations to public and private property, infrastructure, economic losses and most importantly, the loss of over 12,150 human lives<sup>1</sup>.

In recent times, the unprecedented July 2001 urban floods of Islamabad-Rawalpindi, followed by torrential rainfall, led to 74 casualties and loss of billions of rupees worth of assets of Small & Medium Enterprises (SME). In addition, the 2010 floods alone inflicted a massive blow to the country's economy through an economic loss of 15.5 billion USD, equivalent to seven percent of the national GDP and 40 percent of the annual federal budget for the same year<sup>2</sup>.

Records show that the South Asian region, and Pakistan in particular, has been highly prone to major seismic activities over the last century during which (including the October 26, 2015 earthquake) over 12,890 earthquake shocks ranging between 4 to 8.1 on Richter Scale were experienced; 42 shocks with an intensity of more than

seven were recorded<sup>3</sup>.

A very prominent progression in cyclonic activity at the southern coastline of Pakistan has been observed since 2007. The coastal communities and industries have faced the risk of Cyclones Yemyin (2007), Phet (2010), Nelofer (2014) and Ashobba (2015). Successive droughts in the years of 1998-2002 and 2014-2015, have exposed Pakistan's vulnerability to a considerable extent<sup>4</sup>.

Less known extreme events (heat waves, hail storms, sand storms, dust storms, tornadoes, fog, landslides, Glacial Lake Outburst Floods (GLOFs) and wild fires) are becoming increasingly vulnerable in the context of Pakistan. Just this year, the city of Peshawar witnessed severe devastations owing to mini cyclone/tornadoes, killing heat waves in Karachi and Sindh, GLOF events during monsoon in Chitral and ongoing vulnerabilities and risks as a consequence to the 2010 Attabad landslide.

In parallel, man-made disasters such as terrorism incidents, accidents at various industrial hubs, fire hazards in urban centres and forests etc, have also added further complications.

### Climate Change

Credible research results and assessments indicate a clear and visible shift in the summer monsoon trend that has now shifted from north-east to north-west by a range of 80-100 km with an additional vulnerability to an approximate 25 districts of Khyber Pakhtunkhwa (KP) and Punjab<sup>5</sup>. The mean temperature rise since the 1950s over Pakistan, is twice as high as change in the global mean temperature. Darkening of glaciers owing to black carbon deposition, is resulting in a decrease in albedo or reflexivity, and hence, an increase in heat absorption and the rate of their melting. Snow maxima is shifting from January towards February resulting in a shrinking of snow residency periods. A comparison of the last 15 years between the Sea Surface Temperatures (SST) of the Bay of Bengal and the Arabian Sea indicate higher SST values for the latter; this ably shows the progressively increasing

frequency of tropical storms in the Arabian Sea and the growing vulnerability of the coastal areas.

### Proactive Disaster Risk Reduction (DRR) Approach

Institutional response to the challenges of disasters and development has been evolving in Pakistan since the 2005 earthquake. Among the most notable achievements are the development of the National Disaster Management Framework in 2007 as well as the National Disaster Management Plan and the National DRR Policy in 2013. These three key frameworks suggest the adoption of top-down and bottom-up approaches in Disaster Risk Management (DRM) involving key decision makers and community members in policy development and community-based DRM approach. Nonetheless, it should be noted that until fairly recently, DRM in Pakistan has heavily focused on emergency response and recovery<sup>6</sup>. There is an ongoing, non-trivial gap of discourse and practice in Pakistan; recent research findings and new insights from the Hyogo Framework for Action (HFA) and the Sendai Framework for Disaster Risk Reduction (SFDRR) have limited influence on the policymaking process and its implementation for different reasons.

At the same time, the establishment of the National Climate Change Policy in 2012 provides a framework for addressing various issues mentioned above, that Pakistan may face in the future owing to changing climate. The National Climate Change Policy focuses on mitigation and adaptation efforts; the latter having more focus on community preparedness. The promotion of the Community Based Disaster Risk Management (CBDRM) and Climate Change Adaptation (CCA) are central to those national strategies in DRR and DRM. The government of Pakistan has been actively seeking cooperation with the international community for their implementation.

At the broader level, the challenge on DRR in Pakistan is the cooperation and collaboration between different epistemic communities, international organizations

and sectors to address CCA and DRR in a more integrated manner.

### **Current Issues in Disaster Risk Management**

**Limited Capability – Meteorological Early Warning System:** Obsolete weather forecasting radars-present capability stands at an accurate forecast of only up to 24 to 48 hours in advance; critical shortage of automatic weather stations and rainfall gauging stations-only 65 percent coverage of Pakistan by Weather Radars, 80 percent area of Balochistan and 100 percent NAs (Gilgit Baltistan) not covered; limited coverage of meteorological network at district/tehsil level; limited rainfall measuring stations (KP, GB, Balochistan, AJ&K); prediction of medium to long range forecasting stands between a minimum of seven to 15 days, lack in Quantitative Forecast of Extreme Events (2010 and 2014 floods); accuracy in seasonal weather prediction-50 to 60 percent; deficient upper air weather data for storm tracking; and no urban flood forecasting system except for Islamabad-Rawalpindi.

**Weak Trans Border Rain and Flood Inflow Mechanism:** No mechanism to obtain real time inflow/out flow data sets for a more precise forecast for lower riparian areas.

**Huge Quantum of Flood Protection Measures Required:** Strengthening of the existing flood protection network; flood diversion/dispersion works across hill torrents; construction of mega dams; enhancement of flood passing capacity of barrages and bridges; construction of small dams in all provinces; model studies for major railway bridges; measures for GLOFs and land sliding in hilly areas; coastal flood protection works; comprehensive studies for all existing breaching sections; River Act; watershed management policy for re-forestation; revision of Mangla & Tarbela Dam SOPs; capacity building of relevant stakeholders and institutional reforms.

**Building Codes exist but no Legislation for Enforcement:** Pakistan Engineering Council Bye-laws notified in August 1986; Seismic provisions 2007 incorporated in September 2008 and Energy provisions 2011 incorporated in March 2013. Revised Building Codes is a necessity but yet to be framed.

**National Fire Safety Codes do not exist:** Fire Safety Codes of Development Authorities, Municipalities, Cantonment Boards, Defence and other private housing authorities are inadequate to meet the

challenges of the increasing number of fire incidents.

**Duplication of Responsibilities amongst Organizations:** In line with the Earthquake Reconstruction and Rehabilitation Authority (ERRA) Act, earthquake rehabilitation and reconstruction rests with ERRA. Simultaneously, the National Disaster Management Act 2010 assigns NDMA the entire spectrum of disaster management as its mandate and function, which also includes rehabilitation and reconstruction.

**Capacity Issues of NDMA, PDMA and DDMA:** Non-availability of disaster management specialists, non-availability of permanent staff; frequent transfers/movements of human resources, lack of institutional memory; inadequate budget/funding and no dedicated staff at DDMA.

**Unregulated Interventions of Development Partners:** Nonexistence of an institutionalized system of identification, need/demand, planning, monitoring; coordination and acceptance of interventions, interventions are noncompliant to the National Disaster Management Plan and are sometimes undertaken in isolation without the knowledge/involvement/approval of NDMA, PDMA and DDMA; duplication of efforts and hence wastage of funds/time i.e. different organizations carrying out similar interventions either simultaneously or at different times in the same area/community/institution; interventions are supply driven and not need based/demand driven; lack of uniformity with respect to requisite parameters such as mapping protocols, resource coding and documentation procedures; no system of quality assurance acceptance from the user i.e. DDMA, PDMA and NDMA; piecemeal interventions focusing only on a part of the community and not leading it to the whole community for a logical conclusion; misplaced priority vis-à-vis vulnerability matrix/priority defined by user/National Disaster Management Plan; attendant issues of NGOs with respect to transparency, financial management, quality control and tangible output; absence of monitoring mechanism at NDMA, PDMA and DDMA level and direct interaction at lower tier without the knowledge of the higher tier of government.

### **Tangible Solutions**

The global climate change phenomenon presents a real threat which will escalate unless preemptive measures and changes

are undertaken. Accordingly, there is an immediate need to implement the National Climate Change Policy (NCCP) that can inform greater international cooperation: for example, presenting Pakistan's view point of climate change at the strategic climate change conferences and securing funding from the Green Climate Fund (GCF). In addition, the NCCP will help to undertake short, medium and long term measures for adapting to climate change: reforestation and enactment of forest and environmental laws, effective awareness of climate change risk, proactive approach to DRR, implementation of the NDMP and further investment in DRR, allocation of at least two percent of Public Sector Development Programme (PSDP) from the national and provincial budget to DRR interventions, transferring donors' budget line from reactive to proactive DRR, implementation of the National Flood Protection Plan, carrying out micro level risk assessment of the entire country, modernization of weather and flood forecasting system, enhanced implementation of building and fire safety codes, promoting advocacy, awareness and an increased resilience of communities and community-based DRR interventions.

Climate change risk, as an additional threat to the existing risk of environmental hazards, requires immediate and timely implementation of DRR measures in Pakistan. There is a compelling need to enhance the overall capacity of NDMA, PDMA and DDMA, as well as cognate institutes such as Rescue 1122 and Civil Defence at a district level. Existing anomaly and disconnect in the Disaster Management Act should be addressed forthwith to ensure smooth working in the entire spectrum of disaster management, both top-down and bottom-up. It is also important to set up a smart National Disaster Response Force by up-scaling Rescue 1122, revamping Civil Defence and raising volunteers. Equally important is to enhance operational worthiness and upgradation of rescue and response equipment, regular review and update of Contingency Plans at all levels, strengthen local government response mechanism at the tier of districts, integration of the Youth, Boy Scouts and Girl Guides in disaster management, devise a National Volunteer Network, involve communities in DRM, regulate efforts of NGOs to fill the gaps, as well as continuous and concerted disaster awareness campaigns.

With a view to improve real time cross border data dissemination in order to ensure precise and effective flood forecasting for the protection of

downstream riparian areas, strict adherence to the implementation of existing treaties pertaining to upper riparian, is a pre-requisite, both in letter and in spirit, ensuring provision of inflows into reservoirs upstream, reservoir levels, existing live storage as well as reservoir filling criteria under emergencies and normal conditions.

Economic ratification of disasters is a serious issue to be tackled within the agenda of DRR. Their impact on GDP/PSDP warrants serious consideration of the adoption of disaster risk insurance in Pakistan. Equally important to be considered is the involvement of the private sector in DRR and the adoption of pro-poor disaster-resistant construction guidelines and applications.



Flood protection wall being constructed in Kotky Shahi Khel, Lower Dir

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## Sustainable Development, Equity and Violence<sup>1</sup>



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### Introduction

In Paris, the recent terrorist killings (on 13th November, 2015) and the Climate Summit (from 30th November to 12th December, 2015), one of horror the other of hope, signify the two principal global challenges of our time: violent extremism and the environmental crisis. The former threatens the fabric of society while the latter endangers the physical life support systems of the planet. It can be argued that each of these phenomena is rooted, although in different ways, in the exclusion of humanness in the systems of power and forms of production and distribution that have characterized capitalism over the last three centuries.

Within the capitalist mode of production there is a systematic tendency for an increase in the volume and range of commodities<sup>2</sup>. The structural imperative for continuous expansion of production is associated with the development of a 'consumerist' culture in which the individual is driven by an insatiable desire to increase the acquisition of commodities. It is not surprising that for a long time within the capitalist forms of production and social life, nature was seen as an 'exploitable resource': The impact on the ecosystem was not adequately taken into account in the process of technological change and economic growth.

The evidence shows that the process of economic growth within this framework has involved an increase in economic inequality at the inter personal as well as inter country levels<sup>3</sup>. This has resulted in the exclusion of a large proportion of the population in a globalized economy from the fruits of economic growth. For example, while the richest one percent of the world's population lives in luxury, the bottom 39 percent live in poverty defined in terms of an income of USD 2, per person per day. Economic deprivation is accompanied by political exclusion of large sections of society from the systems of power and governance which shape their social, cultural and environmental conditions.

In this article, I will first indicate that the latest scientific evidence suggests that life on earth is threatened as a consequence of human intervention since the industrial revolution, into the ecosystem. Therefore, the countries of the world need to undertake an urgent reduction in carbon emissions to mitigate that threat. I will then argue on the basis of social science and an ancient though vitally relevant knowledge tradition, that the current environmental crisis is the result of a particular inhuman relationship between humans, commodities and nature. Therefore the crisis of the environment is not merely a technological problem, but is essentially, a crisis of human civilization.

### The Challenge of Reducing Greenhouse Gas Emissions

Since the industrial revolution, the stress on the world's ecosystem has been building up and may now have reached a critical point. At each stage in the process of production, extraction of raw materials from the earth, fabrication of these raw materials to produce products, the consumption of products and the disposal of waste involves, in most cases, the generation of heat through fossil fuels. Consequently, greenhouse gases such as carbon dioxide, methane and nitrous oxide, are emitted into the atmosphere. This has resulted in the phenomenon of global warming. The UN Report of the Inter-governmental Panel on Climate Change (IPCC) 2013 reiterates the findings

of the earlier 2007 IPCC Report<sup>4</sup>, that global warming is indeed occurring. It can be argued that this has been caused by the impact of the forms and levels of production and consumption on the planet's eco system: The IPCC Report 2013 warns that, "Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed..."<sup>5</sup>

Climate change, associated with global warming, has caused an increase in the intensity and frequency of extreme climatic events such as droughts, floods, hurricanes and extreme cold in some places whereas extreme heat in others. These phenomena have caused large scale destruction with loss of life and livelihood and associated human suffering. Not only human beings, but other living creatures and plants will also be adversely affected by climate change over the next four decades. If average temperatures exceed 1.5 °C, then approximately 20 to 30 percent of plant and animal species are likely to become extinct<sup>6</sup>.

The current consensus amongst scientists is that if the increase in average temperatures goes beyond 2 °C by the end of this century, we will enter uncharted territory and the consequences for the life support systems of the planet could be catastrophic. In view of this, the recent Paris Climate Summit (COP 21) aimed to address the fact that under current global emissions trends of 2.2 percent increase per year, the rise in average global temperatures is projected to reach between 3.7° to 4.8 °C by the year 2100. Accordingly, to avoid a catastrophe and keep the end of the century temperature increase below 2°C, the world community will need to agree to achieve a 40 to 70 percent reduction in global greenhouse gas emissions by 2050, as compared to the 2010 levels.

### Humans, Commodities and Nature

Beyond the mitigation measures, the long term effort to restore the life support systems of the planet (fresh air, adequate fresh water, fertile soils), can only be



undertaken through a change in consciousness. This will involve developing forms of economic organization and political decision making that are based on the human sensibility of empathy and compassion towards others and towards nature.

The consciousness that emerged from the social and economic life under capitalism is characterized by a particular relationship between humans, commodities and nature. Individuals and economic organizations within the market system are pitted in aggressive competition in the pursuit of the accumulation of profits and commodities. Interaction with the 'other' is seen not as a mode of enhancing the self but rather as a means to achieving material ends.

The individual is driven by an insatiable desire to acquire more and more commodities, which are seen as the emblem of one's worth. The production system through its sales efforts has engendered a consumerist culture whereby commodities are perceived not merely in terms of their functions as objects of convenience but as the receptacles of the qualities of attractiveness, efficacy and power.<sup>7</sup> Thus, qualities which are inherent to human beings are alienated from them and transposed into commodities. We are then invited by the advertisement industry to not simply acquire commodities but essentially to repossess ourselves<sup>8</sup>.

Capitalism has engendered a culture and constructed a psyche which impels the individual to strive to acquire more and more products. It is not surprising therefore, that the historically unprecedented increase in the volume and range of commodities may now be approaching the maximum loading capacity of the eco system. Nor is it surprising that within such a mode of production and forms of consciousness, nature is regarded as an "exploitable resource". There is a tendency therefore to objectify nature as if it were divorced from the spiritual experience of knowing ourselves as human beings connected to God and His creation.

The contemporary preeminence given to commodities can be counterposed by the Classical Greek tradition. Aristotle in his *Nicomachean Ethics* in 4th century BC, when analyzing the concept of value, suggests that goods cannot be of value since they are merely useful. What is of value is the functioning of human beings according to the principles of virtue. He argues, "If ... we state the function of man to be a certain kind of life, and this to be an

activity ... of the soul implying a rational principle ... human good turns out to be activity of soul in accordance with virtue ..."<sup>9</sup>

Amartya Sen 2,400 years later, in taking up Aristotle's insight on human functioning while ignoring his emphasis on a life of virtue, has presented a new perspective on 'Development as Freedom'<sup>10</sup>. Dr. Mahbub ul Haq had earlier pioneered the concept of human development, broadened the concern of development from merely per capita incomes to two additional vital aspects of human well being: health and education. He made a lasting impact on public policy across the world by quantifying these three elements (per capita income, health and education) into a Human Development Index. Amartya Sen takes the idea of development further by suggesting that not only is it necessary to provide the material requirements of human functioning such as health, education, income, but at the same time, a whole range of entitlements related with freedoms that human beings consider to be of value<sup>11</sup>.

### **A Perspective on Sustainable Development**

The idea of Sustainable Development which is now exercising the minds of public policy makers in view of the environmental crisis, was originally propounded by Mrs. Brundtland and her team that produced the Report of the World Commission on Environment and Development (WCED) in the mid-1980s<sup>12</sup>. It was defined in the WCED as "... development that meets the needs of the present without compromising the ability of future generations to meet their own needs"<sup>13</sup>. This definition has two conceptual underpinnings which have profound implications for economics and economic policy.

First, sustainable development so defined involves a sense of responsibility for future generations in terms of pursuing the individual and collective welfare of the present generation so that the life support systems of the planet (fresh water, fresh air, fertile soils) are maintained for future generations to fulfill their needs. This implies a shift away from the central proposition of conventional Neo Classical Economics, that the optimum outcome of the market mechanism requires that the life time income of the individual be maximized<sup>14</sup>. The above definition of sustainable development suggests that the individual must act today out of a sense of responsibility towards future generations. There is therefore, recognition that the individual is part of a community that lives in history from

generation to generation.

Second, it can be argued that since the concept of sustainable development involves a sense of responsibility towards future generations yet unborn, it surely implies responsibility towards other members of the human community living in the present generation, who may be deprived of the ability to fulfill their needs. This again goes against the grain of Neo Classical Economics which propounds the pursuit of individual welfare maximization regardless of inter personal considerations. Thus, it can be suggested, that contrary to conventional economic theory but inherent to the idea of sustainable development, is a concern for equity. Therefore, if sustainable development is to be meaningful, equality of opportunity for all members of society must be built into the process of development. I have presented elsewhere a framework for such an inclusive development in Pakistan<sup>15</sup>. Furthermore, I have argued that inclusive development is not only necessary for human development but, in so far as it creates a broad base for savings, investment and innovation, it leads to higher long term growth. Inclusive development would also contribute to greater social cohesion and thereby help control violence in society.

One can suggest that an important dimension of human functioning which has not yet been recognized in development literature is that of developing our sense of beauty and experiencing our humanness through a relationship of care and compassion with each other and with nature. It means experiencing the other as a means of knowing oneself. It also involves a re-awareness that the mountains, the rivers, the trees, the soil and all living creatures on earth are part of a sacred unity that sustains our physical and spiritual life. This consciousness is common to many of the wisdom traditions of the world particularly South Asia<sup>16</sup>.

### **Conclusion**

There must be the recognition that protecting the life support systems of the planet is rooted in a rediscovery of the experience of being human: loving care towards all creatures and the physical environment. This means conducting the process of development such that it is marked by equity, justice and is in harmony with nature. This is the narrative that can become the basis of a new trajectory of sustainable development.

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## Climate Change: Perspective of a Civil Society Organization



**Aisha Khan**

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In the face of obligation to tackle climate change, many states either remain insensitive or resort to subterfuge by putting forth the argument that climate change is global and is caused by rich states who should fund all national efforts. This argument hurts Pakistan because it tends to dismiss the concern of climate change as “not ours” ignoring clearly observable activity inimical to climate like deforestation, degradation and fragmentation of natural and built environment, construction in hazardous zones and weak water regulation. How can civil society play a role in influencing the National Climate Change Policy and ensure its effective implementation? These are important questions that need to be addressed if civil society wishes to play a defining role in demanding “Climate justice” with local action and international support.

Climate Change is a relatively new thematic area for most people and its cross cutting impacts are not easily understood by developing countries, diminishing its importance in local politics and rural and urban social agendas. Pakistani civil society is by and large, unaware of climate change causes and effects or national contribution and international responsibility. The Intended Nationally Determined Contributions (INDC), Nationally Appropriate Mitigation Actions (NAMA) or National Adaptation Plan for

Action (NAPA) are all alien terms for most people. Pakistan failed to submit its INDC before the 1st October 2015 deadline and has not registered in the V20 Forum (A forum set up by finance ministers of vulnerable countries) to access funding from the one billion dollar annual Green Climate Fund, despite the fact that Pakistan is the tenth most vulnerable country to climate change in the world<sup>1</sup>. This reflects the non-serious approach of the government and lack of interest from civil society towards an issue that has been declared a “defining challenge of our time and a fundamental right of the citizens of Pakistan” by Judge Syed Mansoor Ali Shah, in a landmark judgement in Lahore on 31 August 2015<sup>2</sup>.

The power of civil society lies in its ability to make a difference when it stands behind a cause motivated by conviction. It can also challenge the government and use its voice for accountability. Generally speaking, Pakistani civil society does not link issues like food, water, energy and disasters with climate change. This awareness needs to be disseminated to the masses by Civil Society Organizations (CSOs) and the media to create the critical mass that can demand climate compatible development policies to safeguard its socio-economic wellbeing. Civil society in Pakistan is resilient and vibrant, but comes into effective play for only limited engagement to achieve short-term goals mostly in response to humanitarian relief work. The role of civil society during the 2005 earthquake is an example of the power of collective action and its success. But apathy among Pakistani civil society towards climate change is largely due to its preoccupation with immediate issues related to poor governance, burgeoning population, low levels of literacy, poor community infrastructure, low quality of health and education service delivery, and extended power outages leaving little time for thought on distant goals.

However, climate change is now fast finding resonance with rural communities who rely on agriculture for sustenance. The recurrent changes in precipitation patterns and hydrological imbalances are creating awareness at the grass root level,

linking food, energy and water with climate change. The Lahore High Court judgement on a public interest litigation case brought by a farmer against government failure to develop the required resilience to climate change as set out in the 2012 National Climate Change Policy, is a landmark judgement that will open new pathways for civil society to use judicial activism to demand a National Climate Change Policy that secures the wellbeing of the masses<sup>3</sup>.

Civil Society is the “aggregate of non-governmental organizations and institutions that manifest interests and will of citizens; individuals and organizations in a society which are independent of the government.” It has a role to play in shaping social values and critical thinking that can influence state policy and its subsequent implementation.

Public awareness about climate change comes late in the life of a citizen in Pakistan. The reason is either absence of the subject in school textbooks or incompetent and non-specialized treatment of the subject. The school textbook which forms the mind of the citizen often carries a heavy ideological overlay. The absence or thematic weakness of non-secular subjects forms a mind closed to such ‘distant’ topics as climate change, thereby affecting the citizen’s immediate environment.

How can the subject of climate change be rescued from a sense of ‘distance’? A layman often separates it from change of environment. How can the link between environment (domestic) and climate (global) be explained to the citizens? Our textbooks have mostly covered issues of environmental degradation, air pollution and poisoning of underground water but, they have not effectively covered climate in such a way as to create a sense of awareness and responsibility among the general public towards climate change and its negative consequences. Increased activism by civil society to influence curriculum and initiatives to introduce issues of climate change through interactive events would play a positive role in sensitizing people and mobilizing

support.

The academia and centres of higher education also do not address climate change with the required seriousness. One reason for this could be the conflicting opinions amongst the scientific community on the interpretation of data, thereby creating controversies that leave people confused and uncertain about the connection between human activity and climate change.

The print and electronic media can play a pivotal role in influencing the public mindset and mobilizing opinion. There are very few journalists who comment on climate change in the English print media and close to none in the Urdu media, which has a larger circulation. Similarly, despite the proliferation of TV channels, there are no regular programs either to attract the younger audience, or to engage civil society in meaningful dialogue on the subject.

Government and civil society coordination and cooperation in multiple ways are essential for promoting awareness and addressing climate change issues. Governments can frame policy but require the support of civil society for effective implementation. Similarly, civil society voices cannot bring change without regulatory support from the government. Civil society can play an effective role in adopting collaborative and non-confrontational approaches to build consensus on climate compatible development policies and removing disconnects that exist between the state and non-state actors in the broader understanding of climate change and its short and long term effects.

Persuading civil society will be a long-term program starting with a patient campaign at the grassroots level; persuading the state will take longer, but sustained voices from civil society can ultimately achieve this goal.

However, to be truly effective, civil society in Pakistan must learn to make a distinction between the impact of poor governance at home and the effects of global warming on Pakistan as a result of actions by developed countries. Once it develops this understanding, it will be in a better position to demand local action and international commitments in influencing the National Climate Change Policy in ways that are fair and equitable for all.

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## Climate Public Expenditure and Institutional Review (CPEIR): An Analysis of Key Findings



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### Introduction

Adapting to and mitigating climate change is a multi-sectoral and a multi-dimensional challenge. It is not only sufficient to address it theoretically and conceptually at a policy level, but implementation and monitoring of relevant interventions need to be backed by public financing, allocation and expenditures. Underscoring the role of public expenditures necessary to implement the climate change agenda, UNDP supported the Ministry of Climate Change for a study on 'Climate Public Expenditure and Institutional Review (CPEIR)' to establish policy, institutional and public expenditures benchmarks, guidelines and recommendations<sup>1</sup>.

Similar to the World Bank work on Public Expenditure Reviews (PERs), Public Expenditure and Institutional Reviews (PEIRs) and Public Expenditure Environment Reviews (PEERs), the CPEIR objective is to aggregate spending across the area of climate change, to provide information on spending and allocation and to link this to policy objectives. However, the CPEIR approach is made more challenging because of the

disaggregation of expenditure across many governmental bodies as well as the climate beneficial responses sitting within business-as-usual activities in those sectors.

### Methodology and Data Sources

In methodological terms, the climate budget is made through an aggregation of separate climate related elements. In this study, as well as with many other implemented CPEIRs, data is collected by budget line within key line ministries and then aggregated to form an overall governmental climate budget for the targeted institutions. For each budget line within the selected governmental bodies, a three phase process is undertaken:

**Identification of climate change expenditures:** Budget lines which have an adaptation or mitigation component are selected as a sub-set of the overall data for further analysis.

**Classifying climate change expenditure:** Budget lines are classified into one intervention type from a pre-determined list of intervention types linked to climate change policy objectives.

**Assessing climate relevance:** Determining the proportion of the expenditure of the budget line which is related to climate change outcomes. As the context of this discussion is the public expenditure profile of climate change, it is useful to dilate on this phase:

Similar to the methodology followed in previous CPEIRs, a number of categories related to expenditure were created, from highly relevant (75 percent+) down to marginal relevance (<25 percent). A rationale for the high, medium low and marginal categories were established and possible examples of the types of expenditures were placed into each category to aid categorization.

The federal level estimates of climate change relevant public expenditure based on the above methodology are derived from four years data (2010/11, 2011/12, 2012/13 and 2013/14) available from

various government budget and public sector investment publications<sup>2</sup>.

### How much is the federal government of Pakistan investing currently?

In-depth analysis of the federal budget of the four years (2010-14) under study have the following implications for climate change response: From an investment angle, the growth in development expenditures is fairly respectable and nearly three times the growth in the current budget. Slowly increasing share of climate response is embedded rather explicitly through investment in projects related to energy, agriculture and communications. However, the increasing share of investment spending outside the Public Sector Development Programme (PSDP) versus PSDP budgeted investment indicates that short-term priorities override the planned policy aligned-allocations, undermining the formal process of PSDP formulation with the probable consequential fall out for increasing explicit investment in climate related projects.

In terms of budgeting higher current expenditure for climate response, the trends indicate that the current budget is over-stretched with only 8-9 percent allocated to the running of the federal government and a large part committed to non-discretionary expenditures. Effective climate response in future will require increasing technical and professional capacities of existing human resources as well as increasing the pool of human talent and allied supporting infrastructure. Thus, the challenge for planning and finance officials is to mainstream climate change into the current budget.

Table 1 presents summary results of climate change-related expenditures at the federal level for four years. During this time, climate change related expenditures by the federal government moved in a close of 5.8-7.4 percent of the total budget. These trends for Pakistan compare favourably with Bangladesh as it spent 6-7 percent of its annual combined

**Table 1: Federal Government summary results**

(Million Rs.)	2010-11	2011-12	2012-13	2013-14
Total CC Weighted Actual Expenditures- (a)	192048.26	199330.07	196733.42	243400.49
Total Revise Budgetary Expenditure- (b)	2537438.00	3057334.00	3402848.00	3912945.00
Total CC weighted expenditure as a percentage of total budgetary expenditure	7.57%	6.52%	5.78%	6.22%

(development and non-development) budget on climate sensitivity activity during 2010-12<sup>3</sup>. As a ratio of GDP, the estimated climate change expenditures were in the range of 1.1 percent during the period. In Nepal, although the expenditure on climate change related activities constituted six percent of government expenditure, they were two percent of the GDP<sup>4</sup>. In contrast, in Cambodia, the share of climate relevant expenditure in total public expenditure increased from 14 percent in 2009 to nearly 17 percent in 2011<sup>5</sup>.

The pressing need for more energy and the mitigation of growing greenhouse gas (GHG) emissions in Pakistan both require a substantial investment of over five percent of GDP<sup>6</sup>. Investment requirements for mitigation to de-link economic growth from the corresponding GHG emissions increase have been estimated to be the order of eight billion USD, annually for a 15

percent GHG reduction. There are significant mitigation possibilities on both the supply and demand side, with energy conservation measures being most efficient. National adaptation requirements have been estimated to be between 1.5 and 3.0 percent of GDP and there is presently a substantial global shortfall of finances. Although estimates are difficult, the average costs for annual adaptation to climate change for Pakistan were estimated to range annually from six billion USD to 14 billion USD in 2050, or an average 10.7 billion USD per annum (2010 figures). A comparison of the global cost estimates with the current level of adaptation funding indicates that projected global adaptation needs to be significantly greater than current investment levels, particularly in vulnerable developing countries like Pakistan.

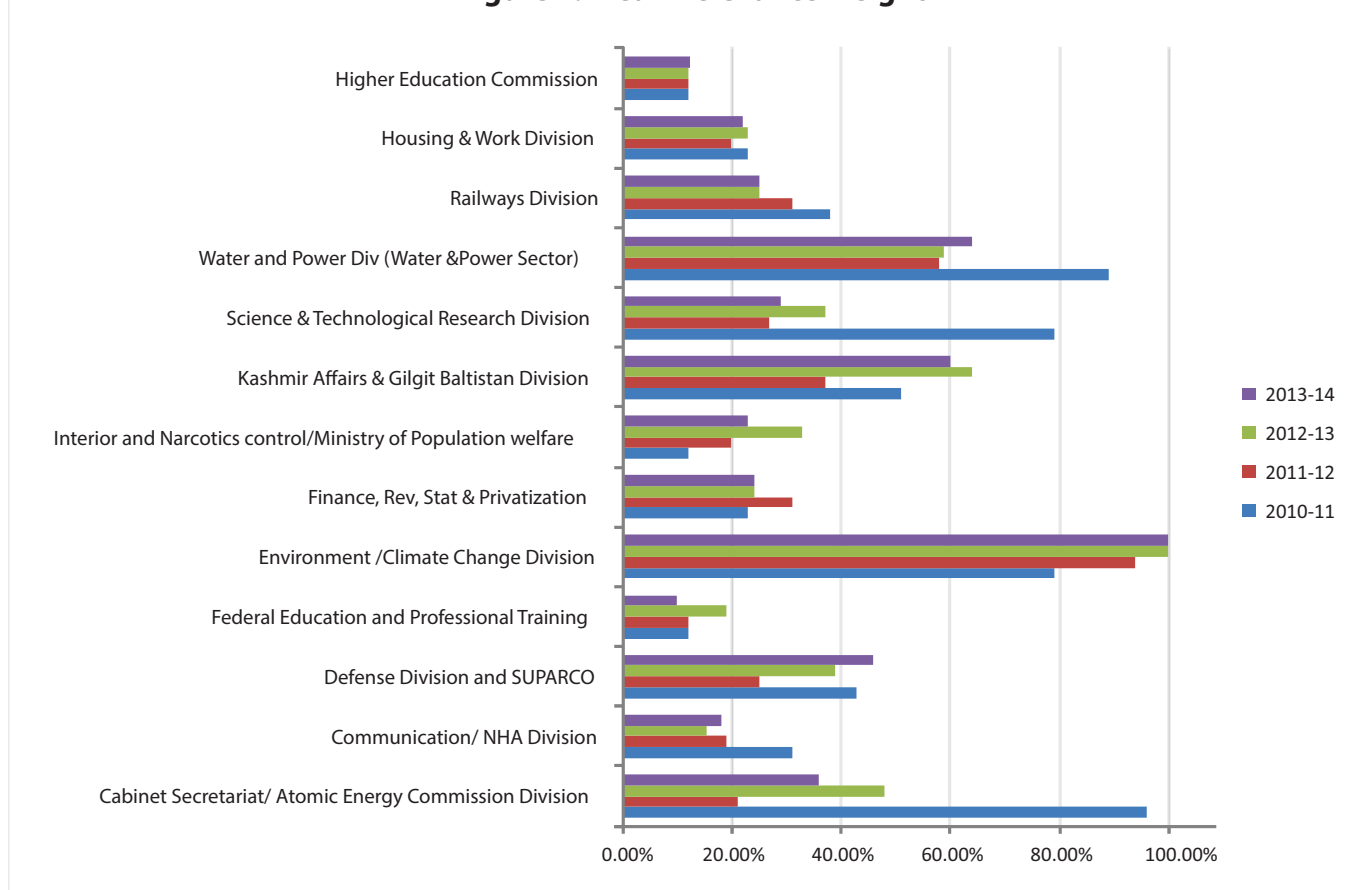
Climate relevance weight assigned to

interventions in various ministries is an important building block of the above summary expenditure ratios. Figure 1 gives the mean climate relevance weight by few selected federal institutions. Generalizing the above four year trend, water and power sector exhibits strong relevance, followed by environment/climate change division. The average climate relevance of projects under Science and Technology Research and Kashmir and Gilgit-Baltistan Divisions show variability across the four years and possess strong to moderate relevance. Some other findings from the analysis are:

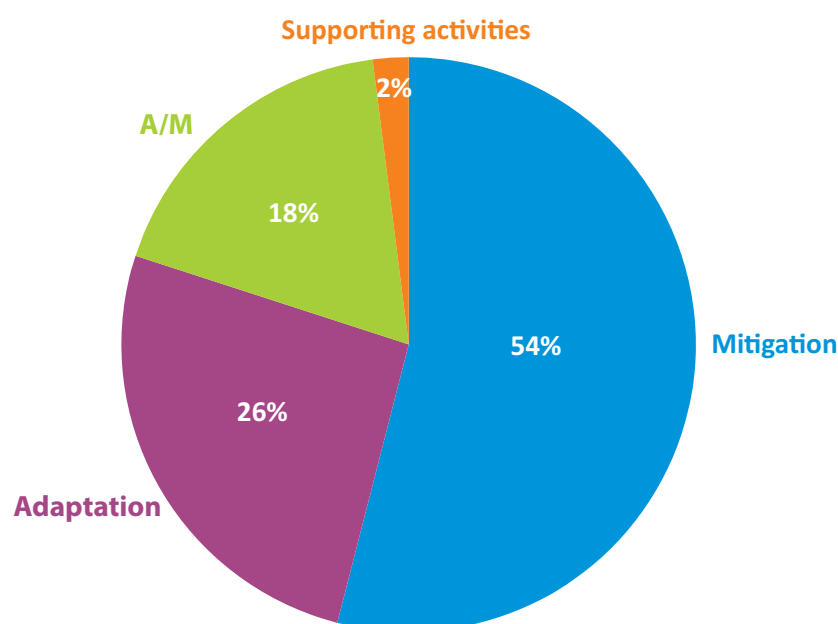
**a)** The relative proportion of the climate-relevant budget spent on adaptation and mitigation varied significantly across studied years; adaptation varied between 25 and 60 percent and mitigation between 30 and 71 percent (combined adaptation and mitigation benefits were a maximum of 11 percent)<sup>7</sup>. While the fiscal headroom for climate-related development expenditures is tight, it is nonetheless growing. Bangladesh and Nepal spend 97 and 75 percent respectively, of their climate relevant budget on adaptation activities.

**b)** The number of climate-relevant development projects and the proportion of climate-relevant projects within each government institution vary widely across

**Figure 1: Mean Relevance Weight**



**Figure 2: Allocation of expenditures to climate relevant themes in the PSDP of 2013-2014**



Source: CPEIR Pakistan, UNDP, May 2015.

the studied years, suggesting rather erratic resource allocation and policy delivery. The highest percentage of climate-relevant projects tended to be in the Ministry of Climate Change (MCC), the Water and Power Division and the Kashmir Affairs and Gilgit-Baltistan Division.

c) In terms of absolute expenditure, between 60 and 80 percent of the total climate-related actual investment expenditure during the four years is split between two ministries; the Ministry of Water and Power (MoWP) (including the Water and Power Development Authority [WAPDA]) and the Cabinet Division (including the Atomic Energy Commission [AEC]). These erratic patterns of CC-related expenditures highlight the need for an overarching CC financing framework which can help streamline budget allocations and ensure a holistic response to CC challenges in the country.

#### What Pakistan needs to do from a fiscal perspective

a) The National Climate Change Policy and Framework for Implementation are in place, but challenges remain in prioritizing actions and converting them into budget-prioritization agendas and implementation plans.

b) Planning and budgeting still remain two disparate domains because the institutional arrangement remains divided in different agencies. This weak linkage becomes further fragmented when it comes to crosscutting issues like climate change.

c) Mainstreaming climate change is somewhat limited and may well remain so until there is a clearer working agreement on post-18th Amendment mandates across the MCC, MoF and MPDR.

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2. For further details of the methodology, sources of data and challenges faced in estimation, see chapter 4 and 5 of the CPEIR, UNDP, May 2015.
3. Bangladesh Climate Public Expenditure and Institutional Review (CPEIR), May, 2012.
4. Nepal Climate Public Expenditure and Institutional Review (CPEIR), December 2011.
5. Cambodia Climate Public Expenditure and Institutional Review, July 2012.
6. Pending more accurate estimation of CC expenditures in the province of Punjab, Sindh and Balochistan, the aggregate CC expenditures by the Federal and KP Governments and three regions (GB, FATA and AJK) constituted 1.1 percent of national GDP in 2013-14. In a back of the envelope exercise, if we add another 125 billion PKR, a combined estimate of the other 3 provinces, it will raise the ratio in the range of 1.5-1.75 percent of national GDP.
7. For the year 2013-14, see Figure 2.

## Pakistan's INDC: Where Did We Go Wrong?



**Sohaib Jamali**<sup>1</sup>

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Business Recorder

"In Paris, we will need to respond with common but differentiated responsibility to the threat posed by climate change. Partisan interests must not stand in the way of an ambitious and collective commitment to halt and reverse the damage done to our planet," Pakistan's Prime Minister Mian Nawaz Sharif told the United Nations General Assembly in September 2015.

About a month later, he-along with US President Barrack Obama-expressed the country's commitment to press for an ambitious agreement on climate change at the Paris climate conference in December 2015.

In the backdrop of these remarks, one expected Pakistan to have efficiently and transparently developed its INDC (Intended Nationally Determined Contribution) and really showcased its commitment to the cause. Yet, what followed was quite the contrary. Pakistan's much delayed INDC was only a page long-350 words to be precise-and failed to make any quantitative or qualitative commitments to mitigate and/or adapt to climate change.

For the uninitiated, an INDC is a document that sets out a country's non-binding intentions to reduce greenhouse gas (GHG) emissions and the steps or financing needed to take such mitigation or

adaptation measures.

According to the UNFCCC convention, an INDC is expected to share quantifiable information about GHG mitigation, the reference point or a base year, time frames for implementation, scope and coverage, planning processes, assumptions and methodological approaches.

Thanks to a lack of clarity on part of UNFCCC, there is no clear cut understanding or any standard pro-forma of what an INDC should be comprised of or how it should be structured. The general understanding however, is that the INDC of a developed country should be more focused on mitigation measures, whereas that of a developing country is focused more on adaptation and the finances, capacity building and technology transfer needed for mitigation and adaptation.

These unsaid and unwritten rules are rooted in two key articles of the UNFCCC convention, namely Article 3.1 and Article 4.7. The former refers to the principle of equity and common but differentiated responsibility, as well as the need for developed countries to take the lead in combating climate change.

The latter says that "the extent to which developing countries will effectively implement their commitments under the convention will depend on the effective implementation by developed countries of their commitments related to financial resources and transfer of technology and will take fully into account the fact that economic and social development and poverty-eradication are the first and overriding priorities of developing countries."

### **The Development Of Pakistan's INDC**

The INDC in its current proposed form was conceptualized at the COP20 held in December 2014, albeit the general idea had been agreed upon at COP19 in November 2013. Switzerland was the first country to submit its INDC in February 2015, whereas Pakistan, which is one of the last countries to submit its INDC, started working on it in mid-March 2015.

In order to get a more holistic view and perhaps to speed up the process, Pakistan's Ministry of Climate Change (MoCC) decided to form two groups for the purpose of preparing the country's INDC. The first of these was an internal group comprising of the ministry's officials, whereas the second was an external group comprising of technical experts who were funded by international donors.

The draft INDC proposed by the former is now known as 'Zero Draft', which was finalized mid-August 2015, whereas the draft proposed by the latter is known as 'Confidential Draft', finalized on August 28, 2015.

Before we evaluate the early drafts, it is pertinent to note that both the drafts said that "four consultative workshops covering all stakeholders were organized before, and after the commencement of the task of preparation of INDC-Pakistan". Sources say, however, that in reality, only one full-fledged three day consultation workshop was held between March 30th and April 1st. That workshop was mainly represented by stakeholders in the federal government, with limited participation of provincial governments. Local governments could not be represented for want of it, whereas private sector businesses did not participate.

Commenting on this subject, Dr Vaqar Ahmed, Deputy Executive Director at Sustainable Development Policy Institute, points out that the main reduction in emissions is expected from the changed behaviour of private sector and households. "While the former were not on-board the government consultations, the latter really require a level of outreach not envisaged at the government level," he said.

In contrast, Vietnam's INDC has been developed with the participation and contributions from different line ministries, non-governmental organizations, research institutions, business sector representatives as well as international development partners. Likewise, Kenya's INDC is built on the participatory multi-stakeholder and cross-



sectoral consultative processes during the development of their national climate change response strategy and plans at the national levels.

#### An Evaluation Of Pakistan's INDC

Both the 'Zero Draft' and the 'Confidential Draft' prepared by Pakistan conveyed a sense of commitment to the cause of

combating climate change. Both made certain quantitative commitments based on business-as-usual (BAU) estimates and also specified the policy measures that the country could take in terms of mitigation and adaptation across the sectors identified in the respective drafts (see table 1).

However, just before the submission of the INDC to the UNFCCC, a third and final draft emerged-one that was devoid of any quantitative commitments or qualitative policy measures. This was a major disappointment, particularly considering that almost all INDCs from developed and developing countries have economy-wide, or near economy-wide sectoral coverage.

**Table 1: COMPARISON OF INDC**

GDP/capital (\$)	Country	Base Level	Reduction Target	Target Year	Sectors	Sector-wise measures	Vulnerability	International financing needs
54,629.50	USA	2005	26% - 28% (unconditional)	2025	Energy, industrial processes and product use, agriculture, waste	Not specified	None mentioned	None mentioned
36,194.40	Japan	2013	26% (unconditional)	2030	Same as above	Specified with GHG but without USD amounts	None mentioned	None mentioned
34,300	EU	1990	40% (unconditional)	2030	Same as above	Not specified	None mentioned	None mentioned
27,971	South Korea		37% (BAU)	2030	Same as above	Not specified	None mentioned	None mentioned
12,736	Russia	1990	25% - 30%	2030	Same as above	Not specified	None mentioned	None mentioned
11,385	Brazil	2005	37% - 43% (unconditional)	2025 - 2030	Not specified	Specified without GHG or USD amounts	Passing reference	None mentioned
7,594	China	2005	60% - 65%	2030	Not specified	Not specified	Passing reference	None mentioned
3,631	Sri Lanka	2010	7% (unconditional) (BAU) (4% energy, 3% other sectors), 23% (conditional) (16% energy, 7% other sectors)	2030	Energy, transportation, industry, waste and forestry.	Specified without GHG or USD amounts	Brief mention	USD amount not mentioned but conditional reductions are subject to external financial support, technology transfer and capacity building
3,492	Indonesia	N/A	29% (BAU) (unconditional), additional 12% (conditional on international support)	2030	Energy, industrial processes and product use, agriculture, waste	Not specified	Detailed mention	USD amount not mentioned; but 12% BAU reduction is subject to tech transfer, capacity building, access to finance
2,052	Viet Nam	2010	8% (BAU) (unconditional), additional 17% (conditional on international support)	2030	Energy, transportation, agriculture, forestry and other land use, waste	Specified without GHG or USD amounts	Detailed mention	USD amount not mentioned but says that state resources can only meet 30% of adaptation needs

COMPARISON OF INDC								
GDP/capital (\$)	Country	Base Level	Reduction Target	Target Year	Sectors	Sector-wise measures	Vulnerability	International financing needs
1,596	India	2005	33% - 35% (contingent on Article 3.1 & 4.7)	2030	Not Specified	Specified without GHG or USD amounts	Detailed mention, justifies development	International finance needs to be finalized later, preliminary estimates equal \$2.5 trillion
1,443	Ghana	2010	15% (BAU) (unconditional), additional 30% (conditional on international support)	2025-2030	Energy, industrial processes and product use, agriculture, waste	Specified with USD amounts but without GHG	Passing reference	\$16 billion
1,358	Kenya	N/A	30% (BAU)	2030	Same as above	Specified without GHG or USD amounts	Passing reference	\$40 billion for mitigation and adaptation across sectors
1,334	Pakistan - Submitted draft	None	None	None	Potentially all sectors	Not specified	None mentioned	None mentioned
1,334	Pakistan - Zero draft	N/A	37% on energy supply, 22% energy demand, 8% transportation, 5.5% agri and forestry (BAU)	2030	Energy demand/supply, agriculture and forestry, transport	Specified without GHG or USD amounts	Detailed mention	None mentioned. No explicit mention of conditionality but implicitly based on Article 4.1
1,334	Pakistan - Confidential draft	2012	Option 1: 10% (5% unconditional, 5% conditional) Option 2: 18% (5% unconditional, 13% conditional) Option 3: 18% (conditional)	2030	Energy (including transportation) and agriculture	Specified without GHG or USD amounts	Detailed mention	USD amount not mentioned but conditional reductions are subject to external financial support, technology transfer and capacity building
1,093	Bangladesh	N/A	5% (BAU) (unconditional), 15% (conditional on international support)	2030	Power, transport, industry	Specified without GHG or USD amounts	Detailed mention	USD amount not mentioned but conditional reductions are subject to external financial support, technology transfer and capacity building
896	Zimbabwe	N/A	33% (BAU) (conditional)	2030	Energy	Specified with USD amounts but without GHG	Detailed mention	\$26.175 billion required for adapting measures in agricultural sector
659	Afghanistan	2005	13.6% (BAU) (conditional)	2030	Energy, natural resource management, agriculture, waste management and mining	Specified with USD amounts but without GHG	Detailed mention	Detailed financing needs mentioned. Total: \$17.4 billion, of which \$10.7 billion is for adaptation and \$6.6 billion is for mitigation

Source: UNFCCC INDC Submissions: <http://www4.unfccc.int/submissions/INDC/Submission%20Pages/submissions.aspx> (World Bank for per capita GDP)  
BAU=Business as Usual scenario

Table 1 shows how even countries from the low middle income group-such as Kenya and Bangladesh-as well as low income group-such as Zimbabwe and Afghanistan-have made some quantitative commitments to reduce emissions, even if they are conditional pledges.

Moreover, the investment requirement for adaptation and mitigation has really not been estimated by Pakistan. "The government was informed regarding practices in other countries, which link the emissions with macro-level forecasts of sectors such as LSM and transport. The basic macro modeling that should have gone into estimating the investment requirement was not undertaken. This was not a matter of expertise as the Finance Division could have done this if ministries of climate change and of finance had coordinated with each other," says Dr. Vaqar.

Pakistan's INDC submitted to UNFCCC is also factually incorrect. It states that the document is "also aligned with the country's continued commitment to the issue of climate change as reflected in the National Climate Change Policy as well as national policies on agriculture, power, energy, energy efficiency, water and other sectors." The reality, however, is that Pakistan does not have any comprehensive agriculture policy; nor does it have a fully developed and approved water policy as yet.

Government sources give two reasons for Pakistan's weak INDC. First, certain foreign policy experts advised the government that they should not quantify any intention for mitigation because they fear that these would be made legally binding. Second, Pakistan lacks the data to be able to determine its voluntary mitigation. However, both these arguments are rather wanting, and an official reason for a weak INDC is still anybody's guess.

Pakistan's 'Zero Draft' had clearly stated that the statement of contribution is 'an intention only', subject to what would be agreed at COP21. "INDC-Pakistan would, therefore, not constitute an international obligation of the country, and its implementation will be based on domestic and external resources. It is also based on the current socio-economic conditions, and provides projections for the period 2020-2030. It shall be periodically updated, based on national circumstances," the Zero

Draft said. The statement of this caveat could have accompanied an official submission of any of the earlier drafts, once fine-tuned.

The Sri Lankan INDC also clearly states that the country "reserves the right to revise its intended national contributions and targets at any point of time and consider its INDCs to be a living document that should be integrated with changed/modified national development goals and targets." Likewise, Bangladesh states that it "reserves the right to revise its intended national target and contribution at any point of time and considers its INDC to be a living document that should be integrated with changed/modified national development goals and targets."

Similarly, the absence of data has not prevented many other countries from submitting their INDC. Bangladesh, for instance, clearly stated that their "data quality and availability is an issue in Bangladesh. If new and more robust data comes to light in the future, or if assumptions change, the government will update its analysis accordingly". Afghanistan had also faced the challenges of "lack of reliable historical climate data", whereas Zimbabwe admitted that it had used "proxy data" in places where information gaps existed.

#### **You Snooze, You Lose**

The unfortunate reality is that the world does not wait for laggards: you snooze, you lose. And Pakistan has done just that.

If Pakistan really feared that the INDC would become legally binding, it could have made an entirely conditional contribution to GHG mitigation, such as option three of the 'Confidential Draft'. And if it did not want to put out official numbers, it should have at least spelled out the policy measures needed for mitigation and adaptation.

The latter would have been a la Saudi Arabia, which did not give a quantitative GHG reduction target, but at least spelled out policy measures it plans to take-such as energy efficiency, methane recovery, marine protection, water management etc.

Pakistan's failure to spell out its vulnerability to climate change in detail also means that it has lost the opportunity to make a case in front of the lobbyists,

donors, and negotiators from across the world. Other countries, such as India, Indonesia and Zimbabwe, have detailed their vulnerabilities in their INDC even though they are not as vulnerable to climate change as Pakistan<sup>2</sup>. Pakistan too needed to explain how vulnerability in specific sectors or for specific communities shapes its needs and priorities.

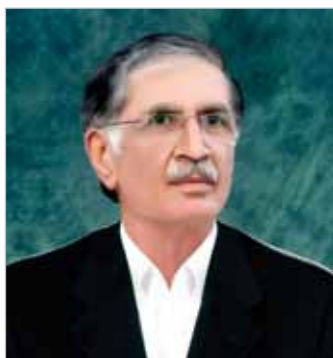
On a related note, Dr. Vaqar aptly points out that Pakistan has not been imaginative enough to coin a regional solution to rising emissions. "In the first consultation, a key point was raised regarding role of China and India in increasing the incidence of environmental deterioration in Pakistan," he added. How should we pursue both our neighbours and compel them to reduce the black carbon leading to faster melting of Pakistani glaciers? This is one of the key elements missing from Pakistan's INDC.

By submitting what is arguably the world's shortest INDC, Pakistan has given itself the short end of the stick. But losing a few wickets at the start of a cricket match does not necessarily mean that you have lost the match; it means you got a weak start and the test lies in making up for the losses. Can the Pakistani team win?

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#### References:

1. The writer's views do not necessarily represent that of the newspaper he is engaged with.
2. Pakistan is the tenth most affected country in the world according to Global Climate Risk Index 2015.



## Pervez Khattak

Chief Minister,  
Khyber Pakhtunkhwa

**Is there sufficient awareness regarding climate change and its impacts in Pakistan, especially Khyber Pakhtunkhwa, among key policy makers? What should be done to further enhance awareness and create and sustain the commitment of policy makers in this important area?**

The government of Pakistan is working at a national and sub-national level to address climate change issues and its impacts on the country. To create awareness on climate change and to draft a provincial policy, the government of Khyber Pakhtunkhwa (KP) has established a Climate Change Cell for Multilateral Environmental Agreements (MEAs) under the supervision of the Environmental Protection Agency (EPA), which has been functional since June 2014 under an Annual Development Programme Scheme. The Cell houses representatives from all provincial line departments and the issue is being tackled on a divisional basis throughout the province.

In order to create awareness, a total of five training workshops and one seminar have been held so far in different educational institutes across the province in the previous year. The Climate Change Cell of EPA will also address the issue in other parts of KP, as per available budget for the fiscal year 2015-16.

The government of KP, under its Green Growth Initiative, launched a massive afforestation/re-afforestation project entitled 'Billion Trees Plantation' from 2014, under which one billion trees are to be planted in the province within four years.

In order to combat the global crisis of climate change, all parties must work together in achieving results. This includes receiving support from developed countries and international donors such as UNDP, GIZ etc, to assist in the field of Climate Friendly Technology Transfer such as hydro and solar technology, capacity building on MEAs and its implementation, as well as financial help to address the issue of climate change and the importance of MEAs on district to district, and village to village levels in KP.

**Is climate mitigation and adaptation a priority of Khyber Pakhtunkhwa's overall policy framework and public expenditure? What policy, legal or administrative changes and measures are needed in this regard?**

The National Climate Change Policy 2012 clearly defines mitigation and adaptation. KP's provincial policy is also in process and will propose recommendations for both mitigation and adaptation in various sectors including, but not limited to, water resources, agriculture, forestry, wildlife and biodiversity, energy conservation, transport, industries and town planning.

*say that again*

*"...sufficient budgetary allocations are required for conducting trainings and seminars for sensitizing policy makers and government line departments."*

The province is currently spending more than seven percent of its total budget on combating climate change (CPEIR Report 2015). Once the provincial policy is finalized by 2016, the Provincial Climate Change Implementation Committee (PCCIC) will undertake the task of implementation, under the chairmanship of KP's Provincial Minister for Environment.

**What are the implementation issues with regard to climate change adaptation and mitigation, especially at the provincial, district and community levels? What should be done to improve the situation?**

As of present, the Provincial Climate Change Policy is still under process-a draft of the policy was reviewed by the Advisory Committee and changes are underway, as per the discrepancies highlighted by the committee.

In order to improve the situation, sufficient budgetary allocations are required for conducting trainings and seminars for sensitizing policy makers and government line departments, at utmost priority.





## Arif Ahmed Khan

Secretary,  
Ministry of Climate Change

**Is there sufficient awareness regarding climate change and its impacts in Pakistan, especially among key policy makers? What should be done to further enhance awareness and create and sustain the commitment of policy makers in this important area?**

Yes there is sufficient awareness among policy makers and officials who are involved in making decisions that have direct or even indirect relevance to climate change. When policy makers make their decisions in committees, or task forces, or ministries, they also take advice from consultants and advisors and other people who are experts on the subject. In any major decision or project, specialists are always sought to improve the decision making process.

Climate change, being of pivotal importance, is always kept in due consideration whenever a major project is being planned. Of course, there is always a need for additional knowledge and better understanding, as the subject is also evolving. This is a continuous process. At the policy level, we expect our offices to keep abreast of the latest developments and data regarding climate change from around the world.

**Is climate mitigation and adaptation a priority of Pakistan's overall policy framework and public expenditure? What policy, legal or administrative changes and measures are needed in this regard?**

Mitigation and adaptation are both a priority, adaptation more so than mitigation. We are tiny emitters so mitigation is our second preference. Nonetheless, it is an important part because we do not want to fall out of sync with what the UNFCCC (United Nations Framework Convention on Climate Change) wants the whole world to do. And we also do not want to be in a situation where we reach a level of emissions that is undesirable for our own environment, let alone international standards.

Frankly, if you look at our policy document, it practically takes care of all these issues. There are legal instruments available with all environment protection agencies in the country, at both the provincial and federal levels. The real question is about implementation. We have the laws, policies and direction. The implementation needs some serious thought.

### *say that again*

*"...climate change framework needs continuous flow of money, access to subsidized technology and development of capacities."*

**What are the implementation issues with regard to climate change adaptation and mitigation, especially at the provincial, district and community levels? What should be done to improve the situation?**

Implementation has a lot of issues and they are essentially the same limitations which exist in all developing countries. First, is the limitation of finance. All developing countries, constantly strained for resources, find it very hard to spare enough money for this issue in our resource allocation. Second, a lot of technology is required to handle this issue in the long run, and this technology is not manufactured or available in the developing countries. It is available in the developed world at a very high cost. The federal governments of most developing nations find it very hard to acquire the technology without paying an exorbitant cost. Finally, the third issue is capacity, both in terms of human resources and the institutional setup. Comprehensively and in order to be sustainable, climate change framework needs continuous flow of money, access to subsidized technology and development of capacities.



## Shafqat Kakakhel

Member Board of Governors, Sustainable Development Policy Institute  
Former Assistant Secretary General of UN

**Is there sufficient awareness regarding climate change and its impacts in Pakistan, especially among key policy makers? What should be done to further enhance awareness and create and sustain the commitment of policy makers in this important area?**

I think there is sufficient awareness among the general public, especially the educated people, which has been fostered by a spurt of articles and analysis in our English language newspapers. But this is not the case among policy-makers. The people who are running the government appear to be somewhat frightened of the subject of climate change. They think it is too technical and it is somehow not relevant, or perhaps, beyond their comprehension.

What can be done is to conduct seminars and workshops and prepare user-friendly policy briefs to enable our ministers, senior officials and parliamentarians to understand that climate change is about water security, food security, energy security, health security, livelihood and about protecting our people from more frequent and more devastating disasters. I do not think this has happened so far and there will be an increasing need for this.

**Is climate mitigation and adaptation a priority of Pakistan's overall policy framework and public expenditure? What policy, legal or administrative changes and measures are needed in this regard?**

Both mitigation and adaptation should be accepted as our national priorities. Mitigation of course should be a greater priority for developed countries, because they need to drastically slash their greenhouse gas emissions which are, in the first place, responsible for creating the problem of climate change. But developing countries such as Pakistan should also accept responsibility to both mitigate as well as adapt. It is possible to do so for a number of reasons. The most important of these reasons is the nexus between energy and mitigation. All developing countries need additional quantities of energy for their industry, for their agriculture, for their transport sector, for better functioning hospitals, schools and market places and for making offices and homes more comfortable to work in and to live in.

If developing countries are enabled to develop clean, renewable sources of energy, they will be doing both mitigation and adaptation. Mitigation in the sense that clean energy sources, such as wind, hydro and solar cause negligible amounts of greenhouse emissions compared to those resulting from the use of fossil fuels for producing electricity and other sources of energy. At the same time, renewable energy will boost the resilience of the developing countries to cope with the negative impacts of

*say that again*

*"...if developing countries are enabled to develop clean, renewable sources of energy, they will be doing both mitigation and adaptation."*

climate change, which is adaptation. Such policies and practices are meant to protect people, communities, economies and ecosystems from the negative effects of climate change. So, I do not think the distinction between mitigation and adaptation is as significant, so as to make us prefer one over the other. In the case of Pakistan especially, it is so.

Using fossil fuels has led to incredible pollution all over the world, especially in emerging economies and we need to learn from these examples. If places like Beijing and New Delhi had cleaner sources of energy, they would not be afflicted by smog and haze as they currently are. So developing countries should consider mitigation and adaptation as two sides of the same coin. In the coming years, adaptation will need to be of a higher priority because of a range of natural disasters, such as hurricanes, storms, floods and heat waves, are becoming increasingly common and are directly hurting the public. You have to protect your people from the effects of climate change on a war footing. It is especially urgent to plan for coping with a reduction in fresh water resources caused by climate change.

**What are the implementation issues with regard to climate change adaptation and mitigation, especially at the provincial, district and community levels? What should be done to improve the situation?**

Implementation of policies is the central challenge. We have a comprehensive framework policy called the National Climate Change Policy approved in 2012, which is based on the report of a task force under the Planning Commission, which was set up in 2008. I used the word framework, because it calls for policy interventions for mitigation, for adaptation, for capacity building concerning vulnerable sectors such as water, energy, agriculture, food, transport, coastal areas, and the public at large. There are about 120 policy interventions which are mentioned in the framework. What is now needed is to develop national mitigation plans and adaptation plans. In fact, multiple action plans are required, for example, one on technology, another on financing, yet another on capacity building etc., particularly at the local levels. So far that has not happened, and it is a serious gap in our efforts and also in our bid to garner external financial, technological and capacity building assistance.

Meanwhile, and this is a very important point, Pakistan is doing a



## Dr. Ghulam Rasul

Director General,  
Pakistan Meteorological Department

lot of things which can be brought under the rubric of climate change. The Water and Power Development Authority has very ambitious plans for hydro power, represented by mega projects on the Indus. There are also efforts to develop renewable sources of energy, and to promote energy efficiency. These are being viewed as energy-related activities, but fundamentally they are about climate change. If you have cleaner, renewable energy, then you are helping mitigate climate change.

Hence, if you change your narrative and bring energy into the framework of climate change, you can convince the international community of your seriousness about the issue and prove that Pakistan is willing to manage its climate change challenges. This will greatly help in securing support from the windows that have already been established in the framework of the UN Climate Change Convention to help developing countries mitigate and adapt. These include, the Green Climate Fund which has already started disbursing, the Adaptation Fund, the Technology Mechanism etc. Pakistan has to strengthen its institutional mechanisms in order to receive the much needed doses of capital, technology and capacity building, which are desperately needed in this country.

The question of capacity in provinces and local communities, including districts, towns and villages, is fundamental. A governance revolution is what is urgently needed in this country. What you have in Pakistan is an increasingly dysfunctional system of governance, and I do not speak of the "government" alone but of all the organs of the state. I sincerely hope that governance undergoes a revolution and a new era can be ushered in to address all our challenges, including climate change.

**Is there sufficient awareness regarding climate change and its impacts in Pakistan, especially among key policy makers? What should be done to further enhance awareness and create and sustain the commitment of policy makers in this important area?**

Awareness is increasing gradually at the public level because of frequent disasters in the form of floods, drought, tropical cyclones, heat waves, glacial lake outburst floods and heavy downpour in a short span of time. Vision 2025 has also given due consideration in policy but the implementation process is rather slow.

**Is climate mitigation and adaptation a priority of Pakistan's overall policy framework and public expenditure? What policy, legal or administrative changes and measures are needed in this regard?**

Mitigation is of least priority because Pakistan has contributed an almost negligible amount of GHG emissions to the atmosphere. However, adaptation to changing climate must be emphasized. "Too much water and too little water" is the basic challenge for Pakistan that can be addressed through increased storage, as most countries have done and are doing. Heavy monsoon rains in Khyber Pakhtunkhwa and Punjab generate devastating floods which destroy crops and infrastructure; therefore storage during the monsoon zone will reduce the onset of floods and drought risk, hence ensuring energy security.

**What are the implementation issues with regard to climate change adaptation and mitigation, especially at the provincial, district and community levels? What should be done to improve the situation?**

Deforestation punished Pakistan; the country must now grow forests to safeguard its future generations. At the government level, a mass transit system should be promoted and individual cars use be discouraged through legislation. Solid waste should be used in power generation and making by-products instead of its burial underground. Water must now be a charged utility, and legislation on ground water use must come into force in water depletion zones. In glaciated zones, tree cutting must be banned and gas provision for cooking and heating should be ensured.



## Ambassador (Retd.) Shahid Kamal

Founder and Head of the Centre for Climate Research and Development (CCRD),  
COMSATS Institute of Information Technology

**Is there sufficient awareness regarding climate change and its impacts in Pakistan, especially among key policy makers? What should be done to further enhance awareness and create and sustain the commitment of policy makers in this important area?**

In Pakistan, the level of awareness regarding climate change and its impact is not adequate, especially in comparison to the global level of awareness. However, the good news is that there is a lot of advocacy work going on as demonstrated by the increasingly active role being played by NGOs, universities and media in spreading awareness regarding climate change and its impact. CCRD at COMSATS is one such example, as the institute was established with the core objective to conduct research on issues related to climate change.

Media has a responsibility to play an active role in spreading awareness about climate change. Although print media can also be used, but radio can be a more effective tool, especially in reaching out to rural communities that get affected most severely from variations in climate.

At the government level, the Ministry of Climate Change has also accelerated its work in addressing climate change issues and is now more actively involved in taking initiatives. The Ministry requires more support, commitment and resources from policy makers to allow it to operate effectively. The threat to Pakistan from climate change will be more severe in the coming years and hence, policy makers should ensure that the commitment, preparation and resources commensurate with the scale of threat and vulnerability that Pakistan will face.

On a sub-national level, with the 18th Constitutional Amendment, the provincial authorities have been given greater authority and responsibility in managing issues related to climate change and environment. There needs to be greater coordination between federal and provincial level authorities. Although coordination mechanisms are improving, but they need to be further improved, especially through regular consultations on climate change issues. Few provinces have already developed climate change units and that is a commendable move.

The real work needs to be done at the district level, where the real impact of climate change lies. Some good examples can be found from South Asian and Latin American countries where communities have been empowered through information and resources to build resilience against climate change issues. For instance, they have been informed on measures to take in order to mitigate effects of droughts and floods and varying patterns of rainfall. Empowering communities through such initiatives at the

district level can be an effective tool for policy makers to better prepare them against the adverse effects of climate change.

As Pakistan's governance structure is being devolved, it is also important to first spread awareness amongst local councils that are being set up and then to link them to provincial plans in order to develop a better coordinated system of implementing measures against climate change.

**Is climate mitigation and adaptation a priority of Pakistan's overall policy framework and public expenditure? What policy, legal or administrative changes and measures are needed in this regard?**

Currently, Pakistan is ranked very low on the global scale of GHG emitting countries. However, simultaneously, its population, transport sector and rate of urbanization is growing at a rapid pace causing a huge negative impact on the quality of air in our country. So with respect to the question of mitigation alone, the climate change debate will become increasingly important in the coming years.

The level of pollution is growing in our cities. According to one report by WHO and the World Bank, the level of pollution in our major cities like Karachi, Rawalpindi and Peshawar is reaching levels considered to be unhealthy in terms of air quality and its general impact on health. Air quality may not be a huge problem at the moment but it will become a major issue in the next 15 to 20 years considering forecasted population growth rates and the consequent high rate of urbanization that will follow. Therefore, climate change mitigation must become central to our policy frameworks.

Similarly, the transport sector and rapid construction of buildings are also playing a major role in contributing to increasingly high levels of pollution in the country and hence, must be considered in high priority by policy makers to mitigate climate change impact.

Hence, climate change mitigation and adaptation must be integrated in urban planning by municipal authorities. They must integrate sustainability and the environmental aspect of buildings during construction and make green lands and/or parks mandatory in urban planning. Similarly with transport, policy makers must place checks on emissions. Even though it will be a major challenge, but if the air quality becomes increasingly worse, it will have dire effects on health, especially of children, causing wide spread diseases like asthma.

Policy makers should take lessons from initiatives taken by China to aggressively address air pollution and the negative



## say that again

*"...climate change mitigation and adaptation must be integrated in urban planning by municipal authorities."*

consequences of heavy air pollution on health being faced by India. There are many worldwide lessons to be learnt and best practices to be followed and they should all be integrated in our policy frameworks.

Legislations will also be required to address climate change issues through the setting of targets. However, it must be ensured that the targets are not extremely ambitious to make them unachievable. They should be incremental so that we slowly achieve the desired results. Zero emissions target in public transport, checks on emissions of cars and making it mandatory for all cars to undergo emission testing after two years, are all good examples for target setting to begin with.

### **What are the implementation issues with regard to climate change adaptation and mitigation, especially at the provincial, district and community levels? What should be done to improve the situation?**

In terms of implementation, there needs to be a better understanding of the 18th Amendment and how it can be made more effective by delegating responsibilities and resources. Second, our governance system needs to address the question of integrating local councils with provincial authorities. The planning and implementation of climate change policies can be much more effective if local councils get involved in the implementation aspect of climate change activities.

The third aspect relates to the federal government and the broad guidelines it can give to provincial authorities about the international commitments that Pakistan has made and the international support mechanisms that are available for them to gain benefit from. This will be useful for provincial authorities to formulate and successfully operationalize climate change policies by helping them in understanding the kind of possibilities and opportunities that exist in the national and international sphere.

Even though the level of awareness regarding climate change is not as widespread in Pakistan as it should be, the recent trends show that communities are increasingly becoming aware of the changes in climate from their own personal experiences. To build up on this awareness, initiatives need to be taken to inform communities of the consequences of climate change and how they can better prepare themselves to face the challenges. For instance, through changing crop patterns, building better resilience in deserts, conserving water and reducing wastage of water in irrigation practices, many communities can mitigate the negative impacts of climate change. However, to successfully implement such measures, provincial climate change and

environmental departments need to work more closely with local councils.

At the local level, community groups could be brought together by local councils with the support of provincial authorities. These community groups could first be informed and then made responsible for spreading further awareness and implementing climate change initiatives.

However, this process will need to be followed by a system that allows resources to be trickled down to the community level. Although distribution of resources to the lowest level will be a challenge for provincial authorities, but it will deliver better results by empowering communities and making them responsible for their own initiatives.

For implementation, capacity building is also necessary, not just in terms of resources but also by equipping local institutions and authorities with basic technology. However, empowering communities and local institutions with just basic know-how and technology can also be extremely effective and sufficient. For knowledge on specific measures that can be taken to mitigate the impact of climate change, we can learn from the experiences, projects and best practices of other countries while using only basic technology that is already available in our society.

To understand the change that is taking place due to climate and then be able to adapt to it with the appropriate strategies and mobilization of people, will be critical in building the resilience that we need for the future. It is doable provided we start working with greater connectivity, greater communication and greater cooperation within the national level and also at the international level. This is a global issue and a global challenge and this will also be a test for global solidarity for saving our beautiful planet and saving the lives and livelihood of billions of people that have a chance of a much better future.

# Youth Voices

## BALUCHISTAN

Is the youth aware of climate change issues?  
How can it contribute to climate change mitigation and adaptation in Pakistan?



**Hina Naseem**

The educated youth is definitely aware of this phenomena that has become a challenge for the world, and can play a positive role in raising awareness and exerting pressure on the government to tackle the issue.



**Abida Baloch**

There is little awareness regarding climate change as far as the youth is concerned. The situation needs to change; the youth need to become more proactive in the cause of climate mitigation and urge the government to pay much needed attention to this otherwise sidelined issue.



**Tanveer Ahmad**

The situation in Balochistan has compelled the youth to make themselves more aware of the issue of climate change: with decreasing water table levels resulting in a significant decrease in agricultural productivity, paucity of rain and a rise in global warming, this region has severely been affected by climate change. The only solution to this lies in the government becoming more active and initiating projects such as construction of dams, plantation drives, prohibition on the chopping of trees etc.



**Fareed Ahmad**

The youth is somewhat aware of climate change. Global warming is resulting in rapid glacial melts that may cause an imbalance of rain and dryness, resulting in floods. Political youth representatives need to tackle this issue by exerting pressure on the government in initiating measures to combat deforestation, air pollution and other consequences of climate change.

## SINDH

Is the youth aware of climate change issues?  
How can it contribute to climate change mitigation and adaptation in Pakistan?



**Ujala Ahmed**

Recent events have emphatically demonstrated our growing vulnerability to climate change. Our youth is not fully aware of this issue but will be in the next few years. Young people who are adept at spreading new habits and technologies are well placed to contribute to the fight against climate change. Moreover, their contributions are even more significant now, when climate change has become an unavoidable reality for Pakistan and is beginning to manifest itself through increasing intensity.



**Ata Rehman Zaki**

A more defined role should be given to the youth to prevent the impact of climate change. It is essential to conduct major studies among youth regarding awareness about climate change as well as role of youth in combating climate change. While the climate change policy expresses the commitment of the government of Pakistan to achieve climate-resilient development, these priority actions will assist Pakistan in moving towards the development of an improved evidence base of the impacts of climate change that the country is facing.



**Ali Hyder Shah**

According to my grandfather, the 1960s saw timely production and occurrence of rain, seasonal fruits and seasons. Now the situation has completely inverted with lesser rain, soaring temperatures and irregular seasonal frequencies. Creating awareness is how the youth can help. Pollution needs to be curtailed. More plantation needs to be initiated and vehicles emitting smoke need to be properly monitored. Proper policies by the government should be initiated in order to save trees, prohibit carbon emissions and restrict pollution practices of the commercial industry.



**Sarfarz Ahmad Sheikh**

Most youth know about climate change issues, reasons and causes, and can contribute through their physical and moral efforts in mitigation and adaption. We must plant a tree at homes and holy places, and at academic centers. We should save water and take measures to reduce greenhouse gas emissions.

Is the youth aware of climate change issues?  
How can it contribute to climate change mitigation and adaptation in Pakistan?



**Mahfooz ur Rehman**

Human activities such as pollution through traffic, cutting of trees for new projects and mills/plants/factories are the real problem, resulting in an increase in greenhouse gases. Our youth is so energetic about new issues. If we give presentations about the disadvantages of tree-cutting, for example, then we can help mitigate climate change and protect ourselves and our country from its eventual destructible consequences.



**Marva Anter**

There is growing global consensus that climate change is humankind's greatest threat in modern times and is likely to have profound consequences for socioeconomic sectors such as health, food production, energy consumption, security and natural resource management.



**Majid Qureshi**

Pakistan is very high on the vulnerability scale due to weather changes, changes in precipitation patterns, dependence on agriculture, limited capacity and resource constraint. Climate change can be mitigated by using new technologies and renewable energies, making older equipment more energy efficient and changing management practices or consumer behavior in Pakistan.



**Sonia Ahmad**

According to my limited research and knowledge, changes in weather patterns, seasonal variations and natural disasters are due to climate change. If Pakistan is unable to address this issue in a timely manner, there will certainly be consequences.



## KHYBER PAKHTUNKHWA

Is the youth aware of climate change issues?  
How can it contribute to climate change mitigation and adaptation in Pakistan?



**Abdul Mehmood**

Climate change is an issue of global concern and needs to be tackled in communion with leaders all over the world. With a rise in monsoon flooding, increasing deforestation to make way for the construction of roads, and expanding heatwaves, Pakistan has severely been affected. We need to save our forests, clean our environment and constitute laws for industries. A clean and green Pakistan is the only solution to this menace.



**Saiqa Khan**

Neither civil society, nor the government or any political party is focusing on this issue. Pollution is on the rise in Pakistan and unless the NGOs, social activists and the government launch nationwide campaigns to combat this issue, it will gradually eat away the environment.



**Sonia Batool**

Owing to a lack of political will on the issue, climate change continues to remain one of the most under-addressed issues, with the majority completely clueless to its existence. In such a scenario, the responsibility to inform and educate relies on the shoulders of the youth. A clear policy needs to be created and implemented. Problems of garbage management, uncontrolled traffic, air pollution from industries and excessive use of plastic shopping bags are examples of a few issues that require immediate attention. The change needs to begin from within and then extended towards families and communities.



**Sajid Hasan**

There is no widespread awareness regarding climate change in Pakistan. Whilst national media conveniently focuses on issues of extremism and celebrities, it fails to do justice to the much needed attention that climate change requires. The impact is not just limited to land, in fact, even aquatic life is being affected. Extensive use of chemicals needs to be abolished, old vehicles should be banned from being run on the streets and proper environmental laws for factories and vehicles need to be implemented.

**DEVELOPMENT ADVOCATE**  
**PAKISTAN**