



ROLE OF PRIVATE SECTOR IN CLIMATE ACTION

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Role of Private Sector in Climate Action

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Civil Society Coalition for Climate Change (CSCCC)

CSCCC provides a networking platform for civil society organizations, climate experts, academia, researchers, media, private sector and concerned citizens to exchange ideas and build synergies while preserving and strengthening the autonomy and independence of its members. The coalition approach was adopted to enhance civil society capacity for effective engagement with policy makers to support mitigation and adaptation actions that build resilience and reduce vulnerability at all levels by integrating adaptation into relevant socio-economic and environmental policies for sustainable development. The concept of the coalition is in line with the Lima-Paris Action Agenda (LPAA) and Paris Agreement on Climate Change which recognizes civil society as a key player in framing climate policies to strengthen climate governance. The strategic focus of the coalition also covers Agenda 2030 for Sustainable Development particularly SDG13 (Climate Action). CSCCC works with "A Whole of Government Approach" and follows the guidelines of "Open Government Partnership (OGP)" to achieve its objectives.

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ACRONYMS

COP	Conference of Parties
NDC	Nationally Determined Contribution
CPEC	China-Pakistan Economic Corridor
GDP	Gross Domestic Product
COP24	24th Conference of Parties
FGDs	Focus Group Discussions
GHG	Greenhouse Gas
IPCC	Intergovernmental Panel on Climate Change
ADB	Asian Development Bank
GtCO₂	Giga-tonnes of Carbon Dioxide
RE	Renewable Energy
ISO	International Organization for Standardization
PARC	Pakistan Agriculture Research Council
WEF	Water-Energy-Food
UNFCCC	United Nations Framework Convention on Climate Change
SDGs	Sustainable Development Goals
GEF	Global Environment Facility
GCF	Green Climate Fund
MGoS	Major Groups and other Stakeholders
NCCP	National Climate Change Policy
CCI	Council of Common Interests
DRR	Disaster Risk Reduction
MEAs	Multilateral Environmental Agreements
LPG	Liquefied Petroleum Gas
PPIB	Private Power and Infrastructure Board
CDM	Clean Development Mechanism
CERs	Certified Emissions Reductions
PSI	Private Sector Initiative
HPL	Himal Power Limited
FBR	Federal Board of Revenue
WTO	World Trade Organization
CSR	Corporate Social Responsibility
UNGC	United Nations Global Compact
SME	Small and Medium sized Enterprises
CSV	Creating Shared Value
SECP	Securities and Exchange Commission of Pakistan

BACKGROUND AND RATIONALE FOR EXPLORING THE ROLE OF THE PRIVATE SECTOR IN CLIMATE ACTION

The 21st century has seen increasing engagement of the private or corporate actors in development sector ranging from social development to Climate Change themes. The Paris Agreement is referred to as an “historic climate agreement” where entails 195 countries unanimously pledging to combine their efforts and keep global temperature rise under 2 degrees Celsius. In addition they pledged to curtail the temperature rise even further to 1.5 degrees Celsius. Although sovereign states are signatory to the agreement and responsible for the implementation in each respective country; the private sector is seen as the cornerstone for translating this agreement into action particularly through two pillars: innovation and finance.

The United Nations Framework Convention on Climate Change is an international treaty ratified in 1992, presently there are 197 Parties to the Convention. This provides a framework to countries for international cooperation to combat Climate Change by curtailing global temperature rise and coping with its inevitable impacts. Conference of the Parties (COP) is the chief decision-making body of the convention that meets every year unless decided otherwise by the Parties; all the states comprising the convention are present at the COP for reviewing its implementation and undertaking decisions that ensure effective implementation of the Convention. Although the private sector has been present in the previous COPs, its participation was more evident at Paris in 2015; with representatives from diverse industries such as cement, transportation, energy, and consumer producers. The commitments from the private sector pertained to reducing carbon emissions mainly through adopting renewable energy and sustainable management of resources. (United Nations Framework Convention on Climate Change, 2019)

The Private Sector is one of the largest the contributor to Climate Finance; it committed \$243 billion USD in 2014 to climate-related investments and this amount increased by \$50 billion in 2015. The private sector's involvement is not only limited to monetary contributions. It has actively engaged within the sector and all other stakeholders in attendance at the COPs since 2015 through different fora and panels. These highlight the different opportunities and challenges that can be availed and addressed through innovative technologies for scaling up businesses.

The Private Sector is well positioned to play a critical role in addressing existing and upcoming global problems. According to experts by 2050, 70 percent of the world's population will be residing in urban areas; by 2030 urban buildings will contribute to 30 percent of the global emissions (The World Bank, 2015). The investment choices of the private sector can steer the pathway for sustainable urban development. This is only one aspect of a global development challenge; the private sector can address multiple development challenges in collaboration with the civil society and state actors.

Pakistan holds a distinctive position in the global climate policy regime; the share of Pakistan in global GHG emissions is merely 0.8 percent, inversely it is among the top ten most climate-affected countries of the world. The Nationally Determined Contributions (NDC) for Pakistan has been drafted during a critical juncture in Pakistan's economic history with the inauguration of the China Pakistan Economic Corridor (CPEC). CPEC is a framework of regional connectivity; it envisages to enhance geographical linkages through improved road, rail, and air transportation system; and enable people to people contact and augment trade and business. (CPEC, 2017) Pakistan anticipates a 1% increase in its GDP growth from 2020 to 2030; simultaneously an expansion in its emissions due to large scale infrastructure investments, energy, and industrial growth. Pakistan's commitment to reducing emissions up to 20% by 2030 contingent on access to international finance is an encouraging indication. Overall, Pakistan's

¹Climate finance refers to local, national or transnational financing—drawn from public, private and alternative sources of financing—that seeks to support mitigation and adaptation actions that will address climate change.

adaptation needs range between US\$ 7 - 14 billion per annum and the cost of a reduction up to 20% in the forecasted emissions for the year 2030 has been estimated as US\$ 40 billion calculated at current prices. (Ministry of Climate Change, 2016)

The targeted GDP growth rate from CPEC is estimated at 7% which is depicted in an optimistic tone as per the Pakistan's Nationally Determined Contributions (NDC). There seems to be a lack of responsibility in alleviating the environmental degradation caused by CPEC in the document, as that is predominantly dependent on access to international funds. The emissions from the economic growth will contribute to climate change which will affect all segments of the society, however, the welfare from the growth may not trickle down to all the segments of the society.

In Pakistan, the newly elected governments narrative is inclined towards facilitating Climate Action; manifested by the 'Plant for Pakistan' afforestation drive which aims to plant 10 billion trees in Pakistan during the next 5 years. The Prime Minister of Pakistan has also launched the 'Clean and Green Pakistan' campaign that reiterates the government's position for facilitating Climate Action. This context indicates an enabling environment for all the stakeholders to implement Climate Action; and a growing need for a private sector alliance to facilitate the governments narrative and be at the forefront for attaining Climate Action. The impetus for this process requires research and consultations for outlining a more structured role of the private sector aligned with national and global priorities.

RESEARCH DESIGN AND METHODOLOGY

This study has been designed as a qualitative research study. It aims to examine the existing national policies and international commitments of Pakistan pertaining to Climate Action; consolidate insights from pertinent experts and representatives of the private sector; identify opportunities and barriers and propose recommendations for the role of the private sector in Pakistan for Climate Action.

This study comprises of a detailed review of available literature, evidence from similar research studies, existing policies, international commitments, and a situational analysis of the private sector. This is complemented by primary qualitative data acquired through expert interviews, insights from representatives of private sector organizations, and a focused group discussion with prominent professionals from the public, development, and private sector.

The multi-stage study methodology comprised of the following key stages:

Stage 1 – Secondary Research:

The first stage of the research involved a detailed desk review of available literature and research studies on the role of private sector in Climate Action globally. The information collated through literature review was compiled and used in developing the context, including the policy landscape and international commitments of the country, to broadly outline the role of the private sector in climate action.

Stage 2 – Research Preparation and Data Collection:

The second phase of the study includes a detailed exercise for developing the data collection instruments. The primary information for conducting this research was collected through the following research instruments:

- 1) Expert Interviews
- 2) Private Sector Organization Interviews
- 3) Focus Group Discussions

Expert Interviews

These interviews were conducted with international and national experts and government representatives to explore the challenges and emerging needs and determine potential entry points for engaging the private sector for Climate Action in Pakistan. They also acquired insights and experience sharing of regional best practices pertaining to the subject. These interviews were also conducted at the Climate Change Conference COP24 in Poland.

Private Sector Organization Interviews

The objective of the expert interviews was to gain in-depth knowledge of traditional practices that can be categorized as Climate Action; if any attempts have been initiated to institutionalize these practices. The questions explored the reasons for a negligible role of the Private Sector in Climate Action in Pakistan as opposed to the significance of the sector internationally; opinions were solicited from different stakeholders on delineating the role of the Private Sector, considering the opportunities and challenges in the existing political economy of Pakistan. The interviews were conducted with representatives of private sector organizations from key sectors including energy and the services sector.

Focus Group Discussions (FGDs)

Focus Group Discussions were organized to acquire insights, opinions, and experiences of sector experts pertaining to Climate Action in Pakistan. The panel members representing the public,

development, and private sectors contributed their recommendations for a more active role of the private sector in Climate Action. The details on the panel are attached as Annex 1 of this report.

Stage 3 – Analysis and Report Compilation:

Following the completion of data collection, a rigorous data compilation and analysis process was initiated. The analysis of the qualitative data included employing triangulation of data by collating information from expert interviews, private sector organizations interviews, and findings from the Focus Group Discussions to propose recommendations. The research report was compiled based on the secondary review and triangulation of the data collected.

SECTION 1: CLIMATE CHANGE AND VULNERABILITY IN PAKISTAN

Climate Change the threat to Pakistan

Pakistan is among the lowest emitters of greenhouse gases in the world – it's contribution to global GHG emissions is just 0.8%. However, despite its low emissions, Pakistan is among the countries considered most vulnerable to the impacts of global climate change – indeed, it commonly features in lists of the top ten such countries in the world. The other significant point to note about Pakistan is that it faces a range of climate change hazards including but not limited to floods, droughts, and heat waves.

Table 1: Summary of Natural Disasters in Pakistan 2010-2017⁴

Disaster type	Disaster subtype	Events count	Total deaths	Total affected	Total damage ('000 US\$)
Earthquake	Ground movement	7	753	704,791	100,000
Extreme temperature	Heat wave	2	1,368	80,000	18,000
Flood	Coastal	8	373	1,584,306	0
Flood	Flash flood	8	2,325	20,374,273	9,501,000
Flood	Riverine flood	11	1,797	14,484,186	8,500,000
Landslide	Avalanche	3	175	3,818	0
Landslide	Landslide	2	37	26,700	18,000
Mass movement (dry)	Rock-fall	1	13	0	0
Storm	Convective storm	2	50	273	0
Storm	Tropical cyclone	1	23	4,000	80,000
TOTAL		45	6,914	37,262,347	18,217,000

Pakistan is an agrarian economy; the agriculture sector contributes 25% of the GDP; and is the main source of income for 34% and 74% of economically active men and women respectively⁵. Employment opportunities are significantly higher for women and it is also responsible for about 75% of export earnings⁶. Within agriculture, livestock is the largest economic component with 55.4% of the agricultural GDP coming from livestock activities⁷. In physical terms, approximately 36 million ha of land are dedicated to agriculture, which is almost half of Pakistan's total land area⁸.

The agriculture sector is the cornerstone of food security in Pakistan. Its contribution in terms of staple crops, dairy and poultry, and fisheries, it contributes directly to meeting the food availability requirements of Pakistan. Furthermore, agriculture's role in export and contribution to foreign exchange earnings, it plays a major role in shielding the country from economic shocks and stressors. Given this multi-dimensional nature of agriculture in Pakistan, it is essential that the sector remain resilient to the impacts of natural disasters.

The Global Food Security Index of 2018 has ranked Pakistan at 77 out of 113 countries; in which the subsequent ranks for Pakistan are we a 71 for food affordability, 74 for quality and safety, and 81 for food availability (The Economist Group, 2018). The impact of climate change on food security can be in terms

⁴Source: EM-DAT: The Emergency Events Database - Universite catholique de Louvain (UCL) - CRED, D. Guha-Sapir - www.emdat.be, Brussels, Belgium

⁵CIAT; World Bank. 2017. Climate-Smart Agriculture in Pakistan. CSA Country Profiles for Asia Series. International Center for Tropical Agriculture (CIAT); The World Bank. Washington, D.C. 28 p.

⁶TDAP. 2016. Statistics for 2015-2016. Islamabad: Trade Development Authority of Pakistan (TDAP). Retrieved from: <http://www.tdap.gov.pk/tdap-statistics.php>

⁷FAO. 2017. FAOSTAT Pakistan. Rome: Food and Agriculture Organization of the United Nations (FAO). Retrieved from:

<http://www.fao.org/faostat/en>

⁸Ibid.

of direct physical damage to crops as a result of natural disasters. The changing weather patterns due to rise in temperature can also adversely impact the quality of food produced. The water sector in Pakistan is already under threat due to the impending water crises and Pakistan is on its way to reach absolute water scarcity by 2025 (Baloch, 2018). Climate Change is expected to exacerbate the water scarcity challenges due to increased variability in river flows, monsoon and winter rains; coupled with higher evaporation rates at higher temperatures that will lead to an increased demand for irrigation water. Pakistan's water consumption patterns presently include the largest share by agriculture (92%), domestic and infrastructure (5%), and the smallest share by industries (3%). These proportions and the total demand will increase for Pakistan with a growing population and socioeconomic development. The impacts of Climate Change are becoming more visible and intensifying with passing years; and the threat to Pakistan is evident for each sector mentioned above along with underlying and cross-sectoral implications. (Chaudhry, 2017)

Loss and Damage from Climate induced disasters

Natural and human induced disasters are frequent occurrences in Pakistan. The Disaster Risk Management Plan published in November 2008 by the Provincial Disaster Management Authority states that the most commonly occurring natural hazards in Pakistan are floods, heat waves, storms, earthquakes, and droughts. Climate Change will only exacerbate these hazards as the frequency of climate induced disasters increasing with changes in weather patterns and extreme weather events. Pakistan is the 8th likeliest country to be affected by extreme weather events and is amongst the ten most affected countries in the long term index. The unexpected floods in the summer of 2010 along the Indus River Plain affected 21 million out of which 8.6 million were children, 2 million homes and 8.4 million acres of crop were damaged due to the flood. The prevailing drought in Sindh and Baluchistan has affected 184,244 and 216,806 people respectively. (Dawn , 2019) With frequent extreme weather events predicted due to Climate Change, it will be difficult for the rural population to permanently recover from the loss (Sönke, Eckstein, Dorsch, & Fischer, 2015).

The existing mitigation efforts and commitments are not adequate to counter the extreme impacts of Climate induced disasters; the residual adverse effects that occur despite the measures undertaken are termed as 'loss and damage'. Loss refers to the negative impact that cannot be restored or repaired and is permanent in nature; damage refers to the negative impacts that can be reversed. (CDKN, 2012) The areas hit worst by climate-induced disasters are the ones which are most vulnerable and do not have contingency plans to prevent the loss and damage. An area can be vulnerable for many reasons such as, geographical location (villages on flood plains, dry regions, valleys etc.), risk prone sources of livelihood (farm based livelihoods), poverty, lack of education and awareness, cultural beliefs, availability of early

Box 1. Estimates of loss and damage from Pakistan Floods 2010

Floods caused losses and damage amounted to 5.8% of the Pakistani 2009/10 GDP making it considerably more costly – in relative terms – than the 2011 Japanese Tsunami (4.6%) (World Bank and ADB, 2010). Flooding and overflowing rivers caused substantial damage to 14 districts, particularly to the Southern and Northern parts of the country in 2010. These floods:

- Affected 20 million people
- Killed 1781
- Displaced millions
- Damaged 1.8 million homes
- Damaged 5.9 million acres of farmland

The World Bank and ADB (2010) place the cost of damages at \$10 billion (\$5b in the agriculture sector). As well as damage to infrastructure, which affected governance, education, energy, business and communications, the flooding led to widespread health risks from malaria, cholera, and severe malnutrition. With the economy heavily dependent on agriculture, the economic impacts are grave with 5.3m jobs lost (ILO, 2010) and about US\$25–30 billion used on infrastructure and compensation. Source: Lotia, Hina. "Climate change induced loss and damage in Pakistan: An investigation of impacts on society and economy." 2016. International Centre for Climate Change and Development. Document.

warning systems and disaster risk reduction strategies (Lotia & Mirza, 2015). These areas will compromise communities that will disproportionately incur the loss and damage associated with Climate induced disasters; mainly due to their lack of assets and existing vulnerability due to non-climatic factors.

Mechanisms which help curb the residual impacts from the breach of adaptation thresholds are called 'Risk Transfer' Mechanisms. These mechanisms are designed to help change the nature of response from reactionary to proactively, from adaptation to resilience (GIZ & BMZ, 2015). Despite Pakistan's vulnerability to natural hazards, established by recognized global vulnerability indices and standards; the adoption of a reactionary approach in the aftermath of some recent disasters in the country has caused widespread damage and escalated adaptation costs. Due to low investment on Adaptation, focus shifts from managing disasters rather than reducing the risk of disasters. Funds dispensed in this way only alleviate the shock and cannot be directed towards enhancing resilience. 'Economic models show that every dollar spent on prevention saves US\$3–4 in rebuilding, and for early warning systems the savings can even be up to US\$36' (Hallegatte, 2012).

Unlike the health & life insurance industry in Pakistan, the climate risk insurance industry is undergoing through a preliminary phase. The people residing in the vulnerable mountain areas of Pakistan are a prime example of communities highly exposed to climate induced hazards, have incurred loss and damages amounting to millions of rupees, and are not protected by any dedicated climate risk transfer mechanism. Risk reduction measures deployed to these areas are weak and often coupled by poor hazard monitoring and early warning systems. In spite of the high tele-density the early warnings & alerts regarding an impending disaster in declared sensitive locations is either absent or ineffective. The gaps and delays in signaling can be solved through effective partnerships with Government department, Community members, and Organizations with on-ground presence.

Vulnerability Assessment of Prioritized Sectors

Climatic changes cause temperature variations, seasonal shifts, sea level rise, and changes in rainfall patterns. These changes can increase the likelihood of climate induced disasters such as floods, droughts, hurricanes, and tornadoes (IPCC, 2014a).

The effects of climate change on Pakistan's society have been amongst the most significantly observed anywhere in the world. The Global Climate Risk Index 2017 issued during United Nations (UN) climate summit in Poland, notes that Pakistan ranks 7th amongst the countries in the bottom 10 of the long term index climate risk index (CRI) as it has been affected by exceptional catastrophes 1996 to 2015 (Kreft, Eckstein, & Melchior, 2017).

In the last decade alone, Pakistan has suffered from climate induced disasters, including floods of 2010 and 2011, and earlier from the major droughts of 1999 and 2002, which wreaked havoc on the lives and livelihood of the people affected. Many studies conclude that "the observed frequency, intensity, and duration of some extreme weather events have been changing as the climate system has warmed."⁹

"Climate Change in IPCC usage refers to a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity. This usage differs from that in the United Nations Framework Convention on Climate Change (UNFCCC), where climate change refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods-IPCC."

⁹Committee on Extreme Weather Events and Climate Change Attribution et al., 2016: p. 2

Pakistan is likely to experience an overall temperature increase which is expected to exacerbate water scarcity, as climate variability will add additional stresses on water availability and precipitation patterns. These in turn will affect food and water security in the country. Extreme impacts of climate variability can lead to floods, droughts, and sea level rise in coastal areas. Health sector will face additional challenges from outbreak of heat related extreme events. The negative effects of which will tilt towards Pakistan, as it is less able to adapt to the climatic changes and the proportion of its vulnerable population is high (Ahmad, 2015).

Energy

Burning fossil fuels releases carbon into the atmosphere – a known culprit of climate change. Baseline scenario assessment suggests that if a switch to renewable energy sources is not made, carbon emissions from the energy sector will increase from 14.4 GtCO₂/yr in 2010 to 24-33 GtCO₂/yr by year 2050 (IPCC, 2014b). If this happens the adverse impacts of climate change on the economies of developing countries will be disproportionately higher. Heavy reliance on imported fossil fuels and fluctuations in its prices & flows have affected economic activity. Subsequently the energy insecurity makes profitability of economic activity uncertain. Private sector is looking for way to reduce dependence on the fluctuating energy supply, its unreliable flow, and unpredictable price changes.

Renewable Energy (RE) is derived from sources which are naturally replenished. Some of the common sources of this form of energy include: solar, wind, hydel, tidal, geothermal, and biomass. According to the World Energy Outlook 2017 the demand of energy, particularly electricity, is growing. The projected world GHG emissions demonstrate a decreasing rate this can be attributed to an increase in uptake of renewable energy technologies and reduction in the use of traditional fuel sources, particularly coal. Achieving universal energy access has been a challenge and often at the compromise of air quality – inefficient transport and unclean cooking stoves, used in domestic households of rural areas, increase the amount of harmful gases released into the atmosphere.¹⁰ Pakistan has also witnessed the impact of these global trends, save for two areas - coal and air quality – where the Country's performance has been abysmally poor and can be considered well below the global average. Pakistan continues to promote the use of obsolete technologies, and has been unable to incorporate energy efficiency measures in key sectors – smog and poor air quality have disrupted business and have had deleterious impacts on health.

Policy environment for the uptake of some renewable energy technologies is conducive – Renewable Energy Policy 2006 promotes the development of solar, wind, and hydro power (Government of Pakistan, 2006) and is supported through tax exemptions and reduction in custom duties on import of RE technologies. Electricity/Power generation falls under the mandate of the federal government however augmenting electricity supplies has been dependent on the private sector and priorities of the political leadership sub-nationally.¹¹ Pakistan's chronic energy shortage has shaped the political economy of the energy sector in favor of clean and renewable energy.

Underscored by an expansion in the renewable energy sector, an energy revolution is taking place in some developed countries. Renewable Energy (RE) is derived from sources which are naturally replenished. Some of the common sources of this form of energy include: solar, wind, hydel, tidal, geothermal, and biomass. With enabling conditions in place, especially post Paris Agreement 2015, countries like France (Progrss, n.d.) and Sweden (Sam Wong, 2017) are pledging to become carbon neutral by 2050. A world-wide trend of reduction in costs of RE technologies have paved the way towards a low carbon economy. Increase in the affordability of RE technology has bolstered its demand (Amin, 2017). With NDCs (Nationally Determined Contributions) targets in place National and sub-national efforts towards improving access to RE are stronger now, more than ever. Decarbonizing development agenda's in developing countries is gaining momentum. Pakistan's chronic energy shortage has shaped the political economy of the energy sector in favor of clean and renewable energy. Public and private sectors in Pakistan are heavily involved in increasing access to renewable energy and are coming up with innovative ideas to revolutionize the energy sector.

¹⁰<https://www.iea.org/weo2017/#section-5>

¹¹<https://tribune.com.pk/story/1253502/power-islamabad-leads-green-energy-initiatives/>

Uptake of renewable energy technologies by businesses can reduce costs and increase profitability – increasing competitive advantage. An internationally recognized way of doing this is through the implementation of ISO (International Organization for Standardization) of Energy Management in businesses and buildings. Implementing these standards can enable businesses to reduce their carbon footprint by adopting energy efficient measures; these measures reduce costs of operation.¹² Installing renewable energy technologies, such as solarizing buildings, represents huge upfront costs (Council, 2018). Luckily the economy of Pakistan has favorable conditions in place to manage the cost of these interventions and be a part of the renewable energy revolution taking place in many countries.

Within domestic spheres burning of firewood for cooking and heating causes a variety of environment and health related problems. Burning firewood, without the use of clean technology, causes air pollution releasing numerous harmful pollutants (carcinogens and GHG emissions) into the atmosphere. Using firewood for domestic purposes, cooking and heating, is a major source of carbon monoxide and greenhouse gases, which is responsible for respiratory diseases, and eye-infections. Chopping down wood for fuel degrades the environment and is a practice widely employed by the vulnerable and ultra-poor. These unsustainable practices in presence of rapidly degrading environment, deforestation, and climate change impacts make poor and vulnerable energy insecure. In order to enhance resilience of the communities dependent on traditional fuels (firewood and dung) access to clean energy technologies needs to be improved.

Food

A quarter of Pakistan's GDP comes from agriculture. Agriculture has a significant role to play in adapting and mitigating the impacts of climate change. Climate Change threatens to impact both crop growth and productivity by influencing the drivers of agriculture such as solar radiation, precipitation, seasonality, and temperature. It also threatens food security by impacting availability and access to farm produce. Coupled by impact of climate change the pressure on agriculture is likely to mount as population increases. The agriculture sector is currently plagued by imperfect markets, technological gaps, poor value-chains, and poor forecasting. Poor soil and water conservation techniques and sub-optimal use of fertilizers and chemicals reduces the farm yields exacerbate the impacts of Climate Change on agriculture. Deforestation for agricultural use increases the amount of GHGs released into the atmosphere. Farming is energy intensive and releases harmful gases into the atmosphere (Qamar Uz Zaman Chaudhry, 2017). The demand for organic farm output is increasing worldwide, and the private sector in Pakistan is struggling to tap this viable business opportunity.

Organic farming techniques are considered to be climate-resilient and have a huge potential for private sector involvement. Organic food production is free from harmful chemicals and pesticides, environmentally friendly, water efficient, and encourages use of indigenous food varieties. A 2012 report of the Food and Agriculture Organization says that organic agriculture is the fastest growing food sector in the world in both land use and market size, although this fact is tempered by the fact that it was virtually non-existent until very recently. The report also says that growth rates in organic food sales have been in the range of 20- 25% for the last 10 years (Morgera, Bullón Caro, & Marín Durán, 2012). In 2002, the total market value of certified organic products was estimated at US\$20 billion and that value doubled to US\$40 billion by 2006. According to the Pakistan Agriculture Research Council ("PARC," n.d.) the total area under organic agriculture has grown from 35,000 acres in 2005 to 150,000 acres in 2010. An estimated 33% of farmers in Pakistan are going organic and this number is projected to double in the next couple of years' (Aamir Saeed, 2014). Organic food production is free from harmful chemicals and pesticides, environmentally friendly, water efficient, and encourages use of indigenous food varieties. Globally, there is an increase in trend towards consumption of organic products as it is beneficial to health, environment, and local producers. Certified organic products are in high demand, both locally and globally. Using organic products which use drought and flood resistant seed varieties and integrated pest management techniques can help create or develop organic value chains.

¹²<http://worldgbc.org/benefits-green-buildings>

Food preservation technologies are expensive to purchase and energy intensive. Even if the village members are able to find a way to fund the huge upfront costs of equipment (food preservation technologies or modern farm technologies) they are deterred from making the purchase because of intermittent and unreliable electricity supply (load shedding in electricity supply). As a result, large quantities of agricultural output go to wastage and outdated farming techniques are continuously employed.

Local farmers are predicting an increase in the demand of organic products from both consumers and producers. Domestic consumers are being pushed away from items which have undergone extensive chemical treatment, heavy processing, and are damaging to the environment. Instead, they are being pulled towards organic products which use environmentally friendly and natural inputs (bio-fertilizers and integrated pest management). Public awareness campaigns in favor of organic farming have made consumers conscious of their habits. There is a trend towards buying local products and preference of indigenous food varieties. Increased environmental awareness and the need for water conservation also favors organic farming practices. Lack of awareness about certification, its benefits, and reluctance to adopt organic practices - owing to huge technical and financial barriers - has increased the need for organic food certification. Northern areas of Pakistan are a treasure-trove of local flavors and indigenous food varieties, once certified these varieties can be sold in the international market.

Water

Climate change is likely to increase water demand for cultivation and other uses, shrink water supplies and untreated waste dumped into the rivers can reduce water quality. Climate change induced shifts in snowfall and precipitation patterns are likely to increase the stress on existing water resources. Changes in the hydrology are likely to impact the intensity, frequency and cost of extreme events. The deteriorating quality of water is a major health hazard for vulnerable communities. It is exacerbated by the improper management of sewage and unrestricted dumping of waste water by industries (World Bank Pakistan, 2018).

Flooding and droughts are likely to become more frequent and severe. Huge extents of land are lost to salinity and water logging in Pakistan, making it one of the biggest impediments to increasing crop production and attaining food security. The absence of proper drainage choked the Indus Basin's massive irrigation structure through water logging and salinity (Qureshi et al., 2008). Adding to the problem, our largely inefficient irrigation practices caused extensive usage of groundwater to supplement surface water supplies, thus up-coning saline groundwater (Shah, 2007). Some of the challenges to policy implementation in Pakistan are lack of historical data, lack of coordination, lack of storage capacity to conserve water, and technical human resource (Khalid, Masood, Mufti, & Faiq, 2018).

Rural development in mountain communities in the northern areas of Pakistan is thwarted by Water-Energy-Food (WEF) insecurity exacerbated by rapidly changing climatic conditions, and environmental degradation. "The upper Indus basin is composed of mountainous terrains of the Hindu Kush, Karakoram and Himalayan mountain ranges. The basin is already water scarce, and the demand for water continues to grow rapidly putting further stress on the resource owing to rapidly changing demographics and climatic conditions. Climate change is likely to exacerbate the problem. While there are more economic activities in the lower part of the basin, climate is likely the major driver of change in the upper high mountain affecting upstream and downstream populations." (ICIMOD, 2017). The scientific evidence linking water scarcity to food and energy insecurity is strong. Water is vital for domestic consumption and farm & non-farm activities, which stabilizes availability, and accessibility of food in rural areas. Energy, particularly electricity generation, in mountainous areas is water-intensive – hydro and micro-hydel power generation is commonly practiced. The upstream and downstream link to WEF nexus has national and regional implications (Rasul, 2014). People residing in rural areas often cite chronic electricity shortage as a reason for poor living standards and barrier to securing livelihoods.

Global Climate Commitments

Paris Agreement: Nationally Determined Contributions

After signing of the remarkable Paris Agreement 2015 and the current political scrimmage against climate change agenda, the countries need to reinforce their efforts towards meeting their Nationally Determined Contributions (NDC) over the next 5 years. Achieving this is also linked to Agenda 2030 of Sustainable Development Goal 13 of Climate Action. Global change in this context would be to sustain the momentum provided by the Paris Agreement and prevent the reversal of climate efforts by climate deniers.

Article 6 of the Paris Agreement refers to the Private Sector by addressing the Parties to “incentivize and facilitate participation in the mitigation of greenhouse gas emissions by public and private entities authorized by a Party”. It also emphasizes on holistic approaches to implementing their NDCs and encourages the enhancement of the public and private sector participation. (United Nations, 2015)

The decision also encourages the efforts of all the non- Party stakeholders to reinforce the global response; these include the private sector along with the civil society, financial institutions, cities and other sub-national authorities. These stakeholders are summoned to intensify their efforts and exhibit them via the Non-State Actor Zone for Climate Action platform. This portal provides an online platform for these stakeholders to manifest and monitor the progress on their efforts and commitments. (UNFCCC, 2015)

With enabling conditions in place, especially post Paris Agreement 2015, the Private sector can make climate investments which turn ideas into action. These investments can be geared towards finding local solutions to global problems. The sector can help remove technical and financial barriers to climate resilient development by ensuring participation of key players. Climate investments can be directed towards projects which prevent environmental degradation, combating climate change impacts through low carbon development strategies.

Threatened energy security is a severe problem for the economic growth of Pakistan. National energy supply suffers from scarcity and fluctuations in international prices and flows. Financing NDC targets through private sector involvement can ensure energy security for the country. Through effective energy management, the share of off-grid and uninterrupted energy supply can be increased. Under the purview of low carbon development this would mean increasing access to renewable energy technologies and strategies which promote energy efficiency and conservation. Competitive advantage of the businesses owned by private sector depends on effective energy management. Additionally, the profitability of these businesses is subject to variations in energy flows and prices.

NDC implementation will help remove technical barriers, capacity and technology, as they will be supported by the backstopping provided by international facilities (GEF – Global Environment Facility) and donors (Green Climate Fund, UN Environment etc.). Private sector in developing countries can learn from these investments and utilize these services by exploring opportunities together.

The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to increase the ability of countries to deal with the impacts of climate change, and at making finance flows consistent with a low GHG emissions and climate-resilient pathway. Source: United Nations Framework Convention on Climate Change. (2019). Climate Get The Big Picture. Retrieved from UNFCCC: <https://unfccc.int/resource/bigpicture/#content-the-paris-agreement>

Global momentum towards meeting NDC targets needs to be resilient in the next 5 years. The fate of developing countries suffering from the brunt of global warming depends on this momentum. Private sector can play a huge role in meeting these targets. Meeting NDC targets can help strengthen the link between profitability and low carbon development.

Countries are gearing toward green growth and climate compatibility in forming development agendas. New and innovative ways to reducing environmental degradation and impacts of climate change. With enabling conditions in place, especially post Paris Agreement 2015, the Private sector can make climate investments which turn ideas into action. These investments can be geared towards finding local solutions to global problems.

Agenda 2030 Sustainable Development Goals

Sustainable Development Goals came into effect in January 2016 and aim to serve as a guide for UN policies and funding for the next 15 years. The 17 goals through 169 targets feed into the dimensions of sustainable development, namely environmental, social, and economic. As a lead implementing agency UNDP focuses its efforts on 'poverty alleviation, democratic governance and peacebuilding, climate change and disaster risk, and economic inequality' at different levels of governance. In order to achieve the targets UN favors an integrated approach bringing together partnership of governments, private sector, civil society and citizens (UN, 2015)

Sustainable Development:

"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Major Groups and other Stakeholders (MGoS) were fundamental in designing and adopting the SDGs; they collaborate with other sectors including the government for their implementation through projects, knowledge-sharing, initiatives, and advocacy. These Major Groups were recognized and formalized as sectors that would facilitate the UN in enabling sustainable development in the Earth Summit of 1992; these include Business and Industry and Scientific and Technological Community specific to the private sector.

The Sustainable Development Goals Fund is an international multi-donor and multi-agency development mechanism. This was established by the United Nations in 2014 to enable the implementation of the 2030 Agenda activities by means of integrated and multi-dimensional joint programmes. It also unites and mobilizes the efforts of the UN agencies, national governments, academia, civil society, and businesses around the world to address the global challenges and achieve the SDGs. Its fundamental function is convening public private partnerships for SDGs; the four partners that have resulted in the funds success are UN Agencies, Private Sector, Universities, and Donors.

The SDG Fund emphasizes on building private public partnerships by engaging the private sector. The Private Sector Advisory Group consists of business leaders from around the world; they are assisting the SDG Fund in outlining a roadmap for public private alliances to tailor solutions for achieving the SDGs. Diverse businesses in the private sector are sharing their experiences, innovations, and resources for facilitating the Agenda 2030. Individuals from creative industries are contributing by devising approaches to target the 17 goals. (UNDP, 2014)

The 2030 Agenda for sustainable development endorsed by UN Member States, including Pakistan, is an opportunity for the country to benefit from global efforts towards goal-based planning. In an attempt to overcome the shortcomings of the MDGs period (2000-2015), the Sustainable Development Goals (SDGs) are wider, comprehensive and inclusive. The 17 Goals, with 169 targets, and 231 indicators a range of sustainable development issues. From ending poverty, eradicating hunger, improving health and education, climate action, making cities sustainable while protecting oceans and forests. The complexity of these SDGs require new set of policies, systems and data infrastructure to effectively deliver these goals (UN, 2015).

Pakistan has developed numerous policy instruments for almost all social, economic and environment sectors. The majority of them are formulated in silos, insensitive to each other and hardly turn into

practical implementation. Within its integrated approach, SDGs are useful in guiding and revisiting the way we undertake the development of policies and then implement them. The SDGs encourage adopting whole-governance approach with temporal, horizontal and vertical synergies. The future of our next generation is only safe if we manage to strike coherence between our short-term interests and long-term development needs. Horizontal synergies demand the convergence of policies of various ministries, departments, and agencies at the federal level and vertical alignment call for harmony and convergence between national plans and provincial strategies. Enhanced collaboration should involve the entire policy and governance chain; policy planning, formulation, implementation and performance review.

SDGs provide an opportunity to improve interprovincial coordination in ensuring stronger coherence at all levels of decision-making, including between the central government and local authorities. The early engagement with public institutions and helping them revamp their governance and management structure would lead to faster and effective SDG implementation. These measures would improve the governance mechanism for achieving the SDGs in Pakistan; however adapting the international mechanism entails a multi-stakeholder approach. This necessitates creating an enabling political environment for engaging and encouraging the private sector, to participate and become an ally of the government in accomplishing the SDG targets for Pakistan.

SDG 13 Climate Action

The objective of SDG 13 Climate Action is to regulate GHG emissions and promoting renewable energy thereby combating climate change impacts. Financing from low carbon pathways is an integral part of SDG 13. Goal 13 of SDGs talks about taking urgent action to combat climate change and its impacts. It includes five indicators and five targets. The targets include; strengthen resilience and adaptive capacity to climate-related hazards and disasters in all countries; integrate climate change measures into national policies, strategies and planning; improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning; financial commitment to mobilizing jointly \$100 billion annually by 2020; promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities. The SDG 13 Climate Action is the only goal which outsources its responsibility to other frameworks such as the UNFCCC and the Sendai Framework for DRR.

The new global goals have a standalone SDG 13 on climate change which is also linked with around 50 targets directly and indirectly. Some of these targets are not directly relevant however, it can serve as a useful framework to undertake climate actions at provincial level and promoting local actions (UN, 2016).

Table 2-1 SDG 13 Climate Action Targets and Indicators (UN, 2016)

Target	Indicator
13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	13.1.1* Number of deaths, missing people, injured, relocated or evacuated due to disasters per 100,000 people
13.2 Integrate climate change measures into national policies, strategies and planning	13.2.1* Number of countries that have formally communicated the establishment of integrated low-carbon, climate-resilient, disaster risk reduction development strategies (e.g. a national adaptation plan process, national policies and measures to promote the transition to environmentally-friendly substances and technologies)
13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	13.3.1* Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula
13.a Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible	13.a.1 Mobilized amount of US\$ per year starting in 2020 accountable towards the US\$ 100 billion commitment
13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities	13.b.1* Number of least developed countries and small island developing States that are receiving specialized support for mechanisms for raising capacities for effective climate change related planning and management, including focusing on women, youth, local and marginalized communities

NATIONAL POLICY FRAMEWORK

National Climate Change Policy (NCCP, 2012)

The first ever National Climate Change Policy was approved by the Government of Pakistan and published in 2012. The NCCP aims for Pakistan to adopt low emissions pathways and identifies vulnerabilities in the sectors of water resources, agriculture, forests, coastal areas, biodiversity and vulnerable ecosystems. The policy also outlines adaptation measures to be adopted and puts forward appropriate measures relating to disaster preparedness, capacity building, institutional strengthening, technology transfer and international cooperation. The private sector is specifically mentioned in one of the policy objective pertaining to adaptation measures to Climate Change. The objective is as follows: "To foster the development of appropriate economic incentives to encourage public and private sector investment in adaptation measures"

The private sector in the road transport of Pakistan is also targeted through the policy measures. It aims to incentivize the private sector for reducing emissions and enabling transport services that are environment friendly. The private sector is also emphasized for raising awareness about Climate Change along with the Government in the public arena, also generating a momentum for Climate Action amongst all the relevant stakeholders.

National Climate Change Policy Implementation Framework (2013)

This framework is developed as a follow-up to the National Climate Change Policy of 2012. It is more comprehensive and entails the current and the projected climate related threats to the various sectors of Pakistan with a focus on adaptation measures. The sectors underscored for adaptation are water, agriculture, forestry, coastal areas, biodiversity, health and other vulnerable ecosystems. The mitigation efforts have been outlined for sectors such as energy, forestry, transport, industries, urban planning, agriculture and livestock. The document explicitly underscores the involvement of the private sector and indicates determining its role in achieving climate compatible development in Pakistan. The private sector is reinforced in various strategies and actions by means of establishing public private partnerships. It is also to be incentivized for developing climate friendly innovations, insurance system for the agriculture sector, corporate social responsibility pertaining to disaster management, investments in renewable energy projects, waste management, and reducing emissions. Pakistan Climate Change Act 2017

In order to reduce the impacts of climate change the act establishes a council, authority, and fund. In order to ensure climate action the act gives the council and authority the power to establish its rules and regulations. It also established a tribunal to settle any disputes which may arise. This act applies to all of Pakistan. It does not specify the role of the private sector for any of the functions of the council and authority.

Pakistan Water Policy 2018

The ambitious policy aims at planning, regulating, developing, coordinating and managing water resources in the country. The prime objective of the National Water Policy is to identify and assess the triggers of the emerging water crisis and provide comprehensive guidelines. Approved by the Council of Common Interests (CCI) the policy introduces water as a commodity and proposes a certain percentage of the development budget to improve the efficiency in the water sector. Water management related issues are covered comprehensively by the policy. The two foremost sectors that comprise the membership of the National Water Council and are the authority on the implementation of policy, are members of the Federal and Provincial Governments, and five private sector members from water related disciplines. The policy outlines encouraging public private partnerships as one of its objectives. The development of fresh groundwater is designated entirely to the private sector through expediting the transition of the SCARP tube wells from the public sector. The private sector is also streamlined for the development of low-head hydropower projects and resource allocation for conducting research. It also aims to create an enabling policy environment for enhancing private sector participation through investing in areas of interest such as urban water and sewage.

National Food Security Policy

The elements of the National Food Security Policy promote food security by improving food availability, accessibility and sustainability. The policy aims to increase the amount of contribution of rural areas to the GDP of Pakistan by promoting organic farming techniques and poultry farming. The policy goals include establishing public private partnerships specifically for food processing/value addition at the farm level. One of the policy elements for “Building an innovation-based sustainable agriculture sector” is the promotion of the private sector investment. The private sector has been streamlined for developing alternative food chains, investing in the dairy sector, establishing service centers for fisheries, improving harvest and minimizing food loss and wastage, enhancing CPEC agricultural zones, and devising crop insurance schemes.

National Disaster Risk Reduction Policy, 2013

Recognizing the critical role of climate induced disasters, the national DRR policy stresses upon building response capacities at national, provincial and local levels to cope with the climate change impacts and climate sensitive development planning. It also recognizes the role of provincial, district and municipal governments, together with civil society groups and the private sector, to promote and support risk-reduction behavior amongst vulnerable communities and taking disaster risk-reduction measures in collaboration with the federal government. It also emphasizes the need to formulate the legal rights and duties of the private sector amongst others during the occurrence of a disaster. It refers to the private sector for the development of a catastrophe insurance market. It also reiterates the significance of an integrated approach for disaster risk management / reduction by including the private sector and other stakeholders during the planning phase.

Multilateral Environmental Agreements

Multilateral Environmental Agreements are legally binding agreements between several states that have specific goals in order to address global environmental concerns, Pakistan is signatory to 14 MEAs. Through their implementation instruments MEAs ensure sustainable management, preservation, and conservation flora, fauna, water bodies, atmosphere, climate, and human health.

MEA implementation and negotiation is a federal responsibility to understand how these will be managed at a sub national level, post 18th amendment, is extremely important as it has bearings on compliance to international agreements and laws on environment. The MEA Cell was dissolved in 2007 and since then the confusion regarding MEA implementation and development is growing. There is an urgent need to tease out the responsibilities in MEA implementation and development for the federation and the provinces, which is currently non-existent. Presently, there is a need for action planning for implementation of MEAs. The action plans must take into consideration a number of aspects including provincial implementation capacity, capital costs, ground realities, and political will. They must also consider adopting a multi-stakeholder approach and incentivizing the private sector for implementation of the MEAs.

SECTION 2: PRIVATE SECTOR

Defining the private sector and its contribution to Climate Change

The evolution of the private sector in Pakistan has encountered extreme phases; predominantly an enabling environment through the decades since the inception of Pakistan in 1947 but tainted with a rigorous nationalization policy during the 1970s, impeding and reversing the progress that had been achieved earlier. During the 80's and onwards, the private sector was revitalized through a reversal of the nationalization policy. The sector witnessed an upward trend of growth while simultaneously confronting challenges such as macroeconomic instability and political turmoil over the next few decades. The government facilitated an enabling political and legal regime for reinforcing the role of the private sector for Pakistan's economic prosperity.

The Privatization Act 2000 along with establishing the Board of Investment and Ministry of Privatization and Investment, and empowering the State Bank of Pakistan, intended to stabilize macroeconomic conditions and accelerate the growth of the private sector. The government's certitude about the abilities of the private sector is manifested by its strategy to allot state owned enterprises incurring financial losses to the private sector for restoring. The present government considers privatization of 200 state owned companies as a strategy for mitigating the impact of the economic crisis the country is experiencing (Financial Times, 2018).

The private sector in Pakistan is attributed to be the major producer of goods and services, primary contributor to investment, and the largest employer. The data for analyzing sector wise contribution of the private sector in the economy of Pakistan is not available but aggregate investment is documented. The aggregate demand of the economy consists of the total consumption and investment of the economy. The private consumption is calculated at 82.1% and private investment at 9.8%; the gap in public and private consumption is much greater than the gap in investment. Private investment has decreased by 0.2% and Public investment has increased by 0.5% from the year 2016-17 to 2017-2018.

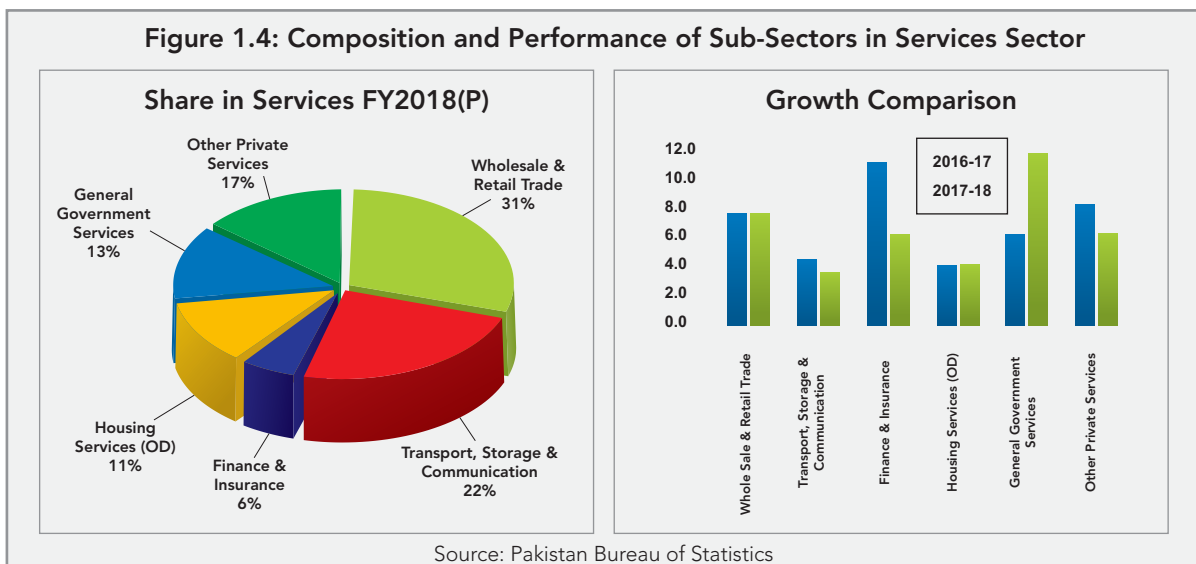
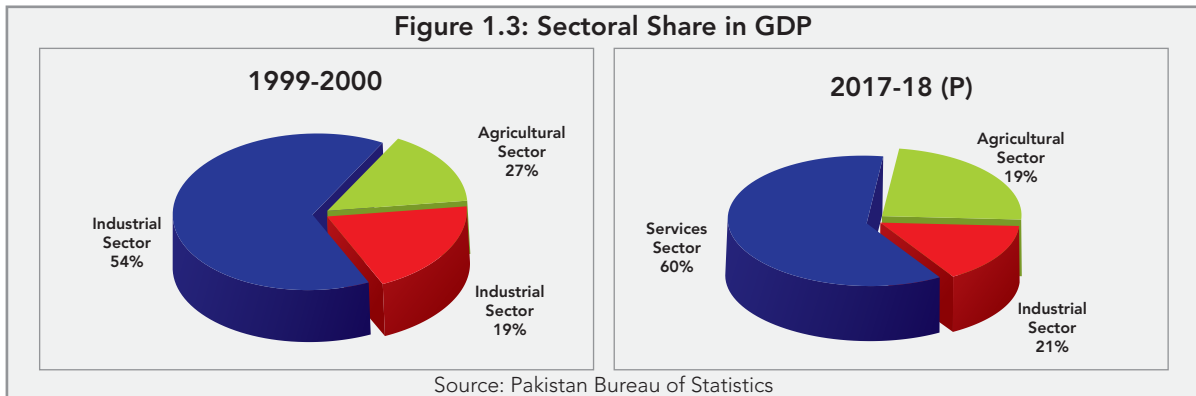
Tabel 1.3: Composition of Aggregate Demand

	2013-14	2014-15	2015-16 F	2016-17 R	2017-18 P
As Percent of GDP (MP)					
Private consumption	81.0	79.8	80.0	82.0	82.1
Public Consumption	10.8	11.0	11.3	11.3	12.4
Total Consumption (C)	91.8	90.7	91.3	93.2	94.5
Gross Fixed Investment	13.0	14.1	14.1	14.5	14.8
Private Investment	9.9	10.4	10.3	10.0	9.8
Public Investment	3.2	3.7	3.8	4.5	5.0
Changes in Stock	1.6	1.6	1.6	1.6	1.6
Total Investment [I]	14.6	15.7	15.7	16.1	16.4
Exports (Goods & Services) [X]	12.2	10.6	9.1	8.2	8.5
Imports (Goods & Services) [M]	18.7	17.1	16.2	17.6	19.4
Net Exports [X-M]	-6.4	-6.4	-7.0	-9.3	-10.9
Aggregate Demand [C+I+X]	118.7	117.1	116.2	117.6	119.4
Domestic Demand [C+I]	106.4	106.4	107.0	109.3	110.9

Source: Pakistan Bureau of Statistics

The Private Gross Fixed Capital Investment which is considered as fixed investment grew by 10.1% in the fiscal year 2017-18 (Ministry of Finance, 2017-2018). The sectoral growth in the economy is demonstrated by three key sectors which are agriculture, industrial, and services sectors. Figure 1.3 indicates the share of each sector in terms of contributing to the GDP and growth over the past 18 years. The services and industrial sectors have exceeded the contribution by the agriculture sector in the GDP; the current year observed 60% of the contribution by the services sector.

The composition of the services sector demonstrates the largest share of the wholesale and retail trade (31%) followed closely by transport, storage, and communications (22%); these subsectors combined can be attributed with half the contribution from the services sector. Other significant subsectors comprise of other private services (17%) and general government services (13%), the two subsectors with the smallest share are housing services (11%) and finance and insurance (6%). The growth comparison between the years 2016-17 to 2017-18, of the subsectors informs a significant growth in general government services.



As for the agriculture sector, the subsectors of cotton ginning and forestry have recorded significant growth; whereas in the industrial sector the highest growth was recorded for the construction sector followed closely by the small scale manufacturing sector.

Since statistics are not disaggregated for the private, and public sector in terms of contribution to the GDP, we will rely on credible literature that has attempted to outline the role of the private sector in terms of its contribution to the economy.

The agriculture sector is predominantly embedded in the private sector, as the public sectors involvement is limited to providing and maintaining irrigation infrastructure, developing waterways for cultivation, enabling agriculture extension services, and agriculture research. The ownership of land and production of primary and value added agricultural goods is with the private sector. The raw materials produced are the cornerstone of the exports oriented industry, specifically textiles in the case of Pakistan.

The industrial sector is predominantly dominated by the private sector; the mining and quarrying

subsector comprises of one state owned enterprise which is the Saindak Metals Limited (SML).¹³ The mining activities carried out in Pakistan are through small scale mining operations conducted by private entities, even large scale mining operations are conducted jointly by private and public companies.¹⁴ However, the presence of only one state owned mining related enterprise is indicative of the dominance of the private sector.

Pakistan Economic Survey 2017-18

Table 1.1: Growth Rates (%)

Sector	2012-13	2013-14	2014-15	2015-16 F	2016-17 R	2017-18 P
A. Agriculture	2.68	2.50	2.13	0.15	2.07	3.81
1. Crops	1.53	2.64	0.16	-5.27	0.91	3.83
Important Crops	0.17	7.22	-1.62	-5.86	2.18	3.57
Other Crops	5.58	-5.71	2.51	0.40	-2.66	3.33
Cotton Ginning	-2.90	-1.33	7.24	-22.12	5.58	8.72
2. Livestock	3.45	2.48	3.99	3.36	2.99	3.76
3. Forestry	6.58	1.88	-12.45	14.31	-2.37	7.17
4. Fishing	0.65	0.98	5.75	3.25	1.23	1.63
B. INDUSTRIAL SECTOR	0.75	4.53	5.18	5.69	5.43	5.80
1. Mining & Quarrying	3.88	1.40	4.97	6.19	-0.38	3.04
2. Manufacturing	4.85	5.65	3.88	3.69	5.82	6.24
Large Scale	4.46	5.46	3.28	2.98	5.62	6.13
Small Scale	8.28	8.29	8.21	8.19	8.15	8.18
Slaughtering	3.63	3.38	3.34	3.61	3.55	3.52
3. Electricity Generation & Distribution & Gas Distribution	-26.38	-0.74	13.48	9.39	5.82	1.84
4. Construction	1.08	5.96	7.26	13.68	9.84	9.13
COMMODITY PRODUCING SECTOR (A+B)	<u>1.73</u>	<u>3.49</u>	<u>3.63</u>	<u>2.92</u>	<u>3.79</u>	<u>4.84</u>
C. SERVICES SECTOR	<u>5.13</u>	<u>4.46</u>	<u>4.36</u>	<u>5.72</u>	<u>6.46</u>	<u>6.43</u>
1. Wholesale & Retail Trade	3.53	4.77	2.60	4.73	7.46	7.51
2. Transport, Storage & Communication	4.03	3.90	5.07	4.89	4.44	3.58
3. Finance & Insurance	8.32	4.31	6.35	6.42	10.78	6.13
4. Housing Services (Ownership of Dwellings)	4.00	4.00	3.99	3.99	3.99	4.00
5. General Government Services	11.32	2.86	4.82	9.72	5.95	11.42
6. Other Private Service	5.26	6.22	6.06	6.77	7.98	6.15
GDP {Total of GVA at bp (A + B + C)}	3.68	4.05	4.06	4.56	5.37	5.79
P: Provisional						

Source: Pakistan Bureau of Statistics

The manufacturing subsectors most significant contribution to the GDP is made by large scale manufacturing with 80% share in manufacturing and 10.8% share in GDP whereas the total share of manufacturing in the GDP for the fiscal year 2017-18 was calculated as 13.6% (Ministry of Finance, 2017-2018). The group wise contribution within the large scale manufacturing is described by table 3.1. It establishes the share of the textile and food, beverages, and tobacco to be the highest which are completely produced by the private sector. The energy sector has been discussed in detail and established as predominantly being in the private sector in the last part of this section.

Construction as a subsector of manufacturing is dominated by the private sector. There is only one state owned company by the name of National Construction Limited which is purely intended for construction and allied activities (Implementation and Economic Reforms Unit, Finance Division, Government of Pakistan, 2013-14). The subsector has flourished due to the investment by international private developers mainly from the Middle East. The growing population and the rapid urbanization in Pakistan have promoted a promising market for this sector. Pakistan is urbanizing at an annual rate of 3%, which is

¹³http://www.finance.gov.pk/publications/state_owned_entities_fy_2013_14.pdf

¹⁴[http://www.mprn.gov.pk/mpnr/userfiles1/file/NationalMineralPolicy2013-120313\(1\).pdf](http://www.mprn.gov.pk/mpnr/userfiles1/file/NationalMineralPolicy2013-120313(1).pdf)

Table 3.1: Group wise growth and Point Contribution rate of LSM for the period of Jul-Feb 2017-18 vs

S.No.	Groups	Weights	% Change		% Point Contribution	
			July-February		July-February	
			2016-17	2017-18	2016-17	2017-18
1	Textile	20.915	0.59	0.47	0.12	0.10
2	Food, Beverages & Tobacco	12.370	7.06	2.33	0.87	0.29
3	Coke & Petroleum Products	5.514	-0.07	10.26	0.00	0.57
4	Pharmaceuticals	3.620	8.87	9.44	0.32	0.34
5	Chemicals	1.717	-2.81	-0.63	-0.05	-0.01
6	Automobiles	4.613	10.09	19.58	0.47	0.90
7	Iron & Steel Products	5.392	16.15	30.85	0.87	1.66
8	Fertilizers	4.441	0.21	-7.36	0.01	-0.33
9	Electronics	1.963	17.91	38.79	0.35	0.76
10	Leather Products	0.859	-19.58	-7.91	-0.17	-0.07
11	Paper & Board	2.314	5.77	8.06	0.13	0.17
12	Engineering Products	0.400	3.41	5.21	0.01	0.02
13	Rubber Products	0.262	-0.16	6.83	0.00	0.02
14	Non-Metallic Mineral Products	5.364	7.10	11.87	0.38	0.64
15	Wood Products	0.588	-95.59	-27.32	-0.56	-0.16

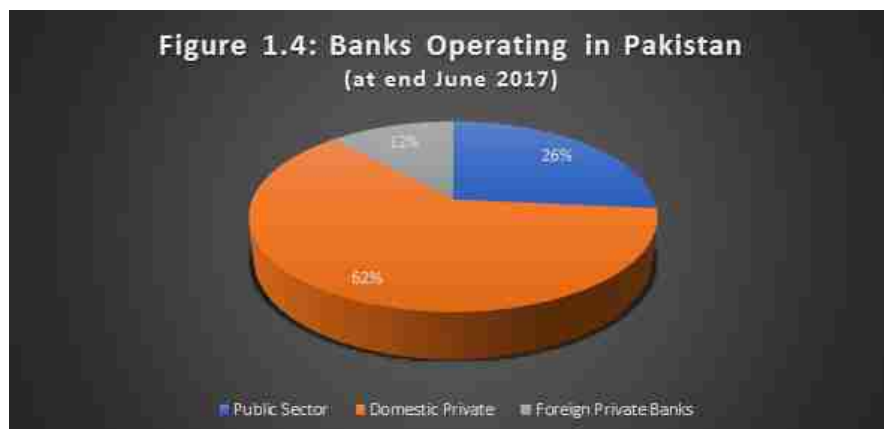
Source: Pakistan Bureau Statistics (PBS)

the fastest in South Asia; according to estimates of the United Nations Population Division, by 2025, nearly half the country's population will live in urban areas. This entails a substantial growth in the subsector in the coming years.

The sector that contributes the largest share in the GDP is the services sector; within this sector the largest contribution is made by wholesale and retail trade (31%) followed closely by transport, storage, and communications (22%); these combined can be attributed with half the contribution from the services sector. The leading sector of wholesale and retail trade is mostly private with the major contribution from export and import; it employs a significant percentage of the labor force with most employment in the informal sector.

The transport, storage, and communications subsector have strong presence of the public sector via railways and air; otherwise the private sector dominates greatly in media both television and radio. The telecommunications and mobile industry are also dominated by the private sector, its considerable presence has enabled telephone density in Pakistan to increase to 152million cellular subscribers (73.23%) (Pakistan Telecommunication Authority, 2018).

The third largest contributor is other private services (17%) followed by public services (13%). Housing services (11%) and finance and insurance (6%) are predominantly private sector owned. The total scheduled banks operating in Pakistan by the end of 2017 were 34 and the share of public, private, and foreign banks is demonstrated by Figure 1.4 below.

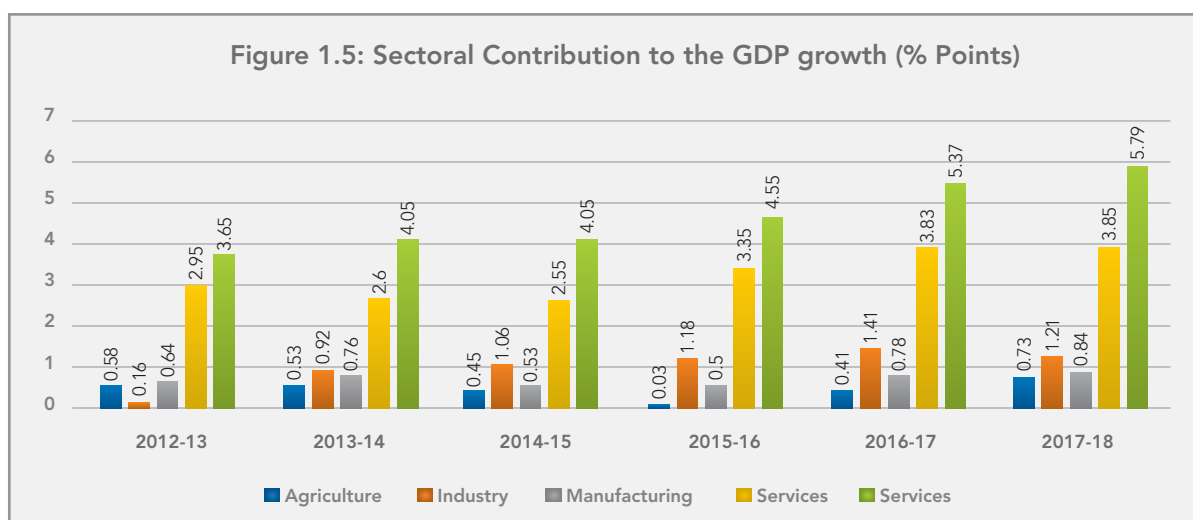


Source: http://www.sbp.org.pk/publications/schedule_banks/Jun-2017/Title.pdf

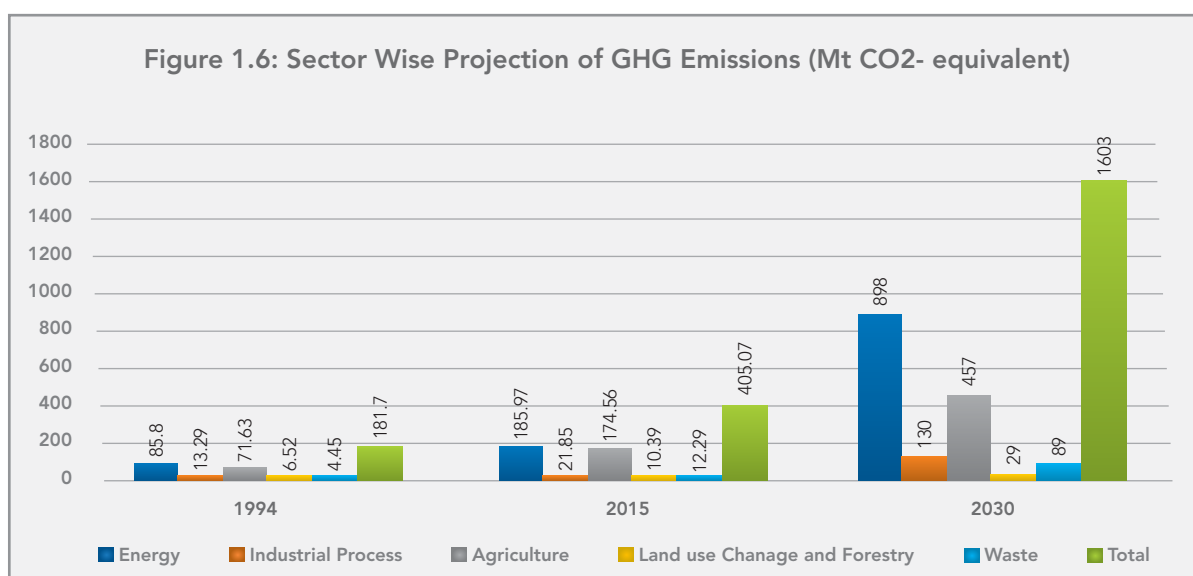
Although the contribution by the private sector in each sector of the economy could not be quantified due to unavailability of data; the conclusion that Pakistan's economy is holistically owned and contributed by the private sector, would not be an exaggeration or entirely inaccurate (Asian Development Bank, 2008).

The sectoral contribution to Climate Change is summarized in Figure 1.6; it specifies GHG emissions from each sector calculated for the year 1994, 2015, and projections for the year 2030. In the past, the two foremost emitting sectors have been energy and agriculture, the difference between the emissions has been negligible. The projected emissions for 2030, for these two sectors illustrate a sizeable shift in the preceding trend, the emissions in the energy sector are will almost double the emissions of the agriculture sector, it will become the leading emitting sector. The industrial processes are predicted to increase their emissions by 83% by 2030 and will become the third highest emitting sector.

The simple process of juxtaposing, the sectoral contribution to the GDP and GHG emitting sectors, underscores agriculture and industry which includes energy, as the two leading sectors with the onus of causing Climate Change. These sectors contribute to the economy and generate revenues, while simultaneously are responsible for propelling emissions causing Climate Change.



Source: Pakistan Economic Survey 2017-18



Source: (Ministry of Climate Change, 2016)

The sectoral contribution of agriculture to the GDP is the least of all the sectors; however it is distinctly positioned as a sector both vulnerable to and contributing to Climate Change. As per table 3, this sector employs 42.3% of the labor force, of which 33.1% are male and 72.7% females. The direct impacts of Climate Change such as rise in temperature, and indirect impacts such as flooding, unpredictability in weather and rainfall patterns, adversely affects agriculture produce of farmers and their livelihoods. According to an estimate 43% of farmers are categorized as small farmers; they constitute a land holding of less than 1ha.¹⁵ This particular group is already marginalized in terms socio-economic indicators and their problems are exacerbated due to Climate Change and its realted impacts. Agriculture also produces raw materials for value addition in the manufacturing and industrial sectors; these goods contribute significantly to the exports of the country.

Agriculture sector has been and is projected to remain the second highest emitting sector of Pakistan and presently contributing 43% of the total emissions of Pakistan. This sector as discussed earlier is predominatly owned by the private sector; this establishes the laibility for adopting and edorsing a climate resilient approach aimed at acheiving Climate Action.

Table 3: Employed Distribution by Major Industry Divisions

Employed Distribution by Major Industry Divisions						
Major Industry Divisions	2013-14			2014-15		
	Total	Male	Female	Total	Male	Female
Total	100	100	100	100	100	100
Agriculture/Forestry/Hunting & Fishing	43.5	34.2	74	42.3	33.1	72.7
Manufacturing	14.2	14.7	12.3	15.3	15.7	14.1
Construction	7.3	9.5	0.3	7.3	9.5	0.2
Wholesale & Retail Trade	14.6	18.5	1.6	14.6	18.7	1.4
Transport/Storage & Communication	5.5	7.1	0.2	5.4	7	0.1
Community/ Social & Personal Services	13.1	13.7	11.5	13.2	13.7	11.3
Others	1.8	2.3	0.1	1.9	2.3	0.2

Source: Pakistan Bureau of Statistics

The foremost emitting sector is the energy sector in Pakistan; emulating the global trends pertaining to sectoral contributions to Climate Change. The supply side of the energy sector is compromised by gas, oil, LPG, coal, hydroelectricity, nuclear electricity, renewable electricity, and imported electricity. The sector is dominated by Gas (43.3%) and Oil (35.5%), with a minimum share of 0.30% by the Renewable Electricity, for the year 2014-15. The demand side of the energy sector is dominated by the industrial and transport sector as depicted by Figure 1.8.

The most recent policy for energy is the National Power Policy 2013; it was formulated by the Ministry of Water and Power to facilitate the existing and projected energy needs of Pakistan. One of the guiding principles of the policy is competition, this entails creating an enabling environment for private sector investment in the sector (Government of Pakistan, 2015). Similarly, the Power Generation Policy 2015 includes private power sector projects as the first intervention as part of its scope (Government of Pakistan, 2015). The Private Power and Infrastructure Board (PPIB) was established in 1994 to facilitate and promote private sector investments, it was made a statutory organization in 2012, its role has been further strengthened to facilitate public sector power and infrastructure projects in Independent Power Producer (IPP) mode. It is the primary institution for implementation of CPEC projects and has also enabled IPPs to share 50% of the country's present installed generation capacity (Private Power and Infrastructure Board, 2018). It is evident that this sector presently is partially private sector owned, and it is probable that with the governments pro-private sector approach this share will only increase.

Developing countries account for a major share in global energy demand due to a high rate of growth

¹⁵World Bank. 2017. World Development Indicators. Washington, D.C: World Bank. Retrieved from: <http://data.worldbank.org/>

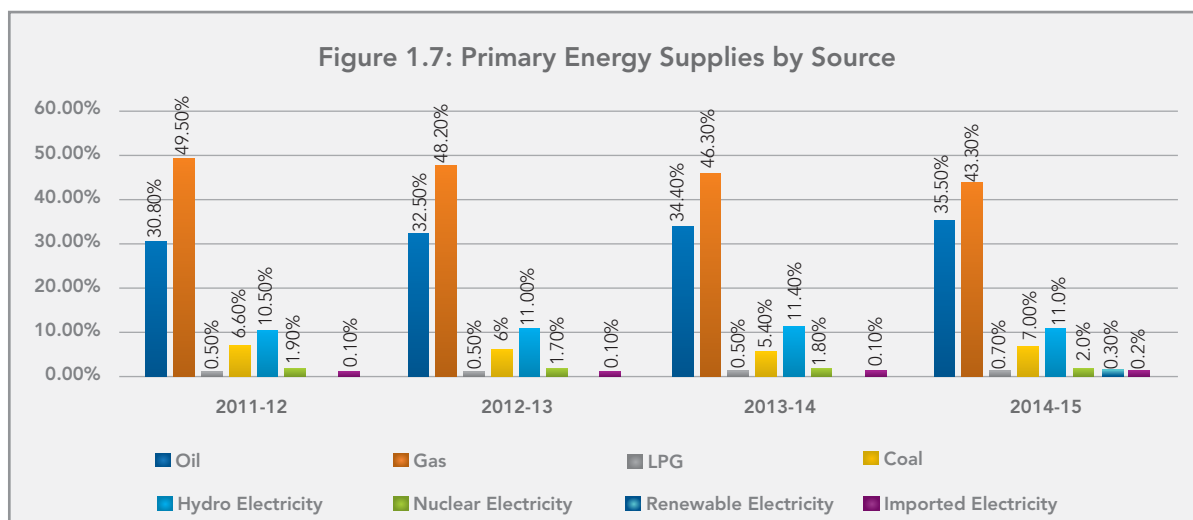
¹⁶Private Power and Infrastructure Board. (2018). Retrieved from <http://www.ppib.gov.pk/index.htm>

and demographic changes. The rapidly growing population, urbanization, and economic transformation due to the onset of CPEC, will contribute to increased energy demand in the country (Ministry of Finance, 2017-2018). Energy is the defining sector for Pakistan's economic development; by endorsing a climate compatible development approach, Pakistan can minimize threats to its development and maximize the available opportunities.

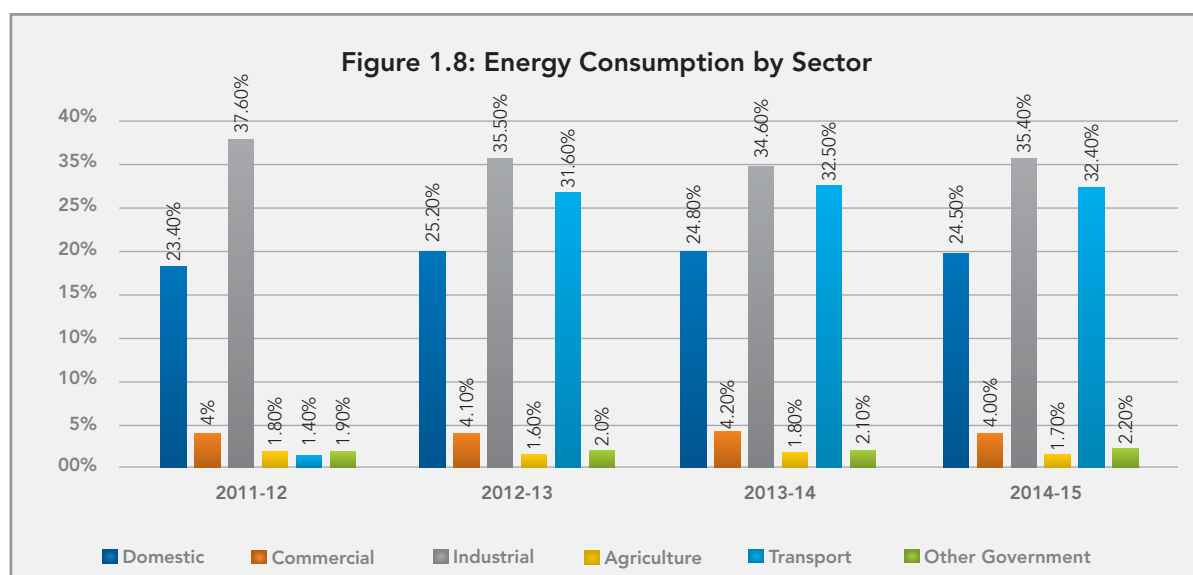
Box 1: Energy and Economy

"The economic progress of past decades has seen hundreds of millions of people enjoy major improvements in their material well-being, and these changes have been particularly noteworthy in the emerging economies. We all understand how globalization and market liberalization have underpinned these developments, but we must not lose sight of the crucial enabling role played by the energy sector. Without heat, light and power you cannot build or run the factories and cities that provide goods, jobs and homes, nor enjoy the amenities that make life more comfortable and enjoyable. Energy is the "oxygen" of the economy and the life-blood of growth, particularly in the mass industrialization phase that emerging economic giants are facing today as their per capita GDP moves between approximately US\$ 5,000 and US\$ 15,000".

Source: Voser, P. (2012). Energy Vision Update. Retrieved from World Economic Forum: http://www3.weforum.org/docs/WEF_EN_EnergyEconomicGrowth_IndustryAgenda_2012.pdf



Source: Pakistan Energy Year Book published by Hydrocarbon Development Institute of Pakistan



Source: Pakistan Energy Year Book published by Hydrocarbon Development Institute of Pakistan

Private Sector Response to the Impacts of Climate Change

Internationally, the Private Sectors contribution to Climate Action has predominantly centered on mitigation with investments ranging from renewable technologies, clean energy, carbon sequestration amongst others. According to an estimate these investments account for 90% of the funds mobilized for Climate Action (Mendoza, 2016). The Clean Development Mechanism (CDM) which was created by the Kyoto Protocol, established the first global carbon crediting scheme. This enabled a UNFCCC approved approach for calculating certified emission reductions (CERs), this verifies emissions and translates them into carbon credits. CDM has enabled the private sector to initiate and design its own mitigation activities.

The Development Bank of Ethiopia supports clean cooking and off-grid electrification technologies, with the banks financing the private sector benefits from lower capital costs in exchange against carbon credits (Stephan Hoch, 2018). Another initiative of the private sector is The Breakthrough Energy Coalition, this is a unique group of private investors that is devoted to building clean energy; it is inclined towards partnerships with governments to enable immense investments and accelerating access to clean energy for more people.¹⁷

The private sectors initiative for Climate Action should be enabled for adaptation equally as that entails delivering change at the local level to communities. The Private Sector Initiative (PSI) of the UNFCCC aims to facilitate the participation of the private sector in the larger adaptation community. This enables a platform for the private sector to strengthen their own adaptation efforts and of the populations that are most vulnerable to the impacts of climate change. The partners of the initiative include global private sector companies; their adaptation approaches are based on principles of sustainability and profitable models. This initiative also maintains a database of best practices of climate action by the private sector in different regions of the planet (UNFCCC, 2018).

Siemens is engaged in Climate Action through developing adaptation technology, it has assisted the government of Singapore, in improving the availability of safe drinking water by providing a waste water purification system. This system is cost effective and can be replicated in other developing countries facing water related challenges especially in the context of Pakistan. Along with this it has developed a portable water purification system that is affordable for the most marginalized communities in developing countries. Additionally, it has also developed a building management system that conserves energy by automatically monitoring and controlling the energy requirements pertaining to heating and cooling requirements in a building.

The Sompoo Japan Group has developed and piloted a weather index insurance scheme in Thailand. It targets the agriculture sector in south-east Asia where weather related risk is high. this financial product entails paying a pre-stipulated amount to farmers if certain conditions are met against indexes for temperature, rainfall, wind speed, snow-depth and other weather-related indices (UNFCCC, 2012). Levis, a retail sector private company has transformed its production process that entails large amounts of water to reduce its water footprint.

The Himal Poer Limited (HPL) company of Nepal has installed a run-of-river hydropower facility for enabling electricity generation in the area which will have significant impact on water resources due to climate change. This has enabled rural electrification and promoting sustainable and climate resilient farming livelihoods (UNFCCC). Pepsico India based on its research and field experiment, developed a direct seeding machine for its farmers to avoid water intensive steps, saving more than 7 billion liters of water in the first year of its implementation and a 70 percent reduction in greenhouse gas emissions (UNFCCC).

Pakistan's Private Sectors contribution to Climate Action is ambiguous, even if it contributes to Climate Action it is not documented at international platforms such as the Private Sector Initiative (PSI) of the UNFCCC. According to a survey conducted by the Pakistan Business Council with its members, 94% of

¹⁷Breakthrough Energy Coalition. (2018). Coalition. Retrieved from Breakthrough Energy Coalition: <http://www.b-t.energy/coalition/>

the companies' state that Climate Change is an extremely significant issue that directly affects their functioning and operations. On the contrary, 90% of these companies depend on combustion of fossil fuels for meeting their energy demands and 20% are engaging in quantification of their respective supply chain emissions. 71.4% of the companies concern about the impacts of Climate Change on their business is associated with its effect on investment in their technology and equipment. The awareness amongst these companies of SDG13: Climate Action is at 63%, this indicates a gap in terms of commitment to endorsing and facilitating the government in achieving these goals. (Shekha, 2017)

There are select private sector organizations that are prioritizing SDGs which entails SDG 13. The Fauji Fertilizer Company Limited, has a wind energy farm with zero carbon footprint and it has solarized 3 villages (Fauji Fertilizer Company Limited, 2018). Bulleh Shah Packaging is a private limited company that provides responsible packaging solutions for companies in Pakistan. In 2016, it inaugurated a biomass boiler for reducing their carbon footprint (Bulleh Shah Packaging (Pvt.) Limited, 2016). Nestle Pakistan has achieved progress on Climate Action through reduced greenhouse gas emissions by 19% per ton of product along with reducing their energy consumption by 24% per ton of product since 2010. It has also achieved improvements in water operational efficiency, between the years 2010 and 2017, the total water consumed per ton of product was reduced by 14% (Nestle, 2018).

The Pakistan Centre of Philanthropy is a non-profit organization, that extends its evaluation services for the Federal Board of Revenue (FBR) and, certifies Non-Profit Organizations for compliance with certification standards. It conducts an annual survey pertaining to corporate philanthropy in Pakistan, including public listed, unlisted, and private companies. This annual survey has conventionally informed only about quantitative aspects of giving in terms of numbers. The report of 2016 is the first survey that includes qualitative aspects through conducting interviews with the foremost giving companies (Pakistan Centre of Philanthropy, 2018).

The quantitative analysis informed that the total share of giving for the top 25 Public Listed Companies is 80 percent, 88 percent for Public Unlisted Companies, and the highest which is 93% for Private Companies. This indicates that there are a limited number of companies that participate in philanthropy and contribute the major share. The sub-sectors that emerged as most charitable as a result of ranking by PCB were Oil & Gas Exploration Companies, Commercial Banks, Fertilizer, Cement, and miscellaneous. The qualitative analysis informed a discouraging approach of the private sector for alignment with the SDGs. Only 33 percent of the 30 companies that were interviewed eagerly aligned their respective CSR policies with the SDGs; the rationale for this alignment it resonates better with their international clientele. Other companies stated that their selected thematic areas were involuntarily aligned with SDGs; while some believed the goals were wide-ranging for interpretation and implementation. The impetuses for being socially responsible were personal satisfaction and ethical business practice. There were no indications for environmental considerations by any company. The thematic areas preferred for philanthropy were Education and Disaster Relief, followed closely by Health. The other areas preferred included Economic Development/Livelihoods and Environment. There was also a very small segment that preferred renewable energy, but the proportion was almost negligible in comparison with preference for other thematic areas (Pakistan Centre for Philanthropy, 2016).

Disaster Relief is the thematic area that can be linked with the private sectors response to climate change impacts; it is a preferred area for philanthropy by the companies included in the PCP survey. However, the information available in the survey report is inadequate to be termed as Climate Action. There is also no other authentic documentation or statistics available for Pakistan's private sector, and its commitment and involvement for enabling Climate Action. There are distinct efforts from different organizations, but there is a huge gap in terms of mobilizing and communicating, a collective response for Climate Action by the Private Sector in Pakistan.

Financing Climate Action

Given viable economic incentive, meeting social responsibility targets, and an enabling environment - Private sector can be used to finance climate action. Government and Development organizations facilitate this process by providing policy advice, technical backstopping, and removing barriers to

climate compatible development. Climate compatibility, for corporations could mean profitability, cost reduction, diversification, and de-risking investment.

The success of any development strategy is ensured through an integrated approach which brings together key players and stakeholders in designing and implementing policies and action plans. The private sector will need to come up with innovative ways to remove technical barriers to green and low carbon pathways. Where luxury or high-end brands can afford to implement green measures and standards the small medium enterprise and its potential towards sustainability should be provided through the correct fiscal policies. Grants and loans need to be provided to those who wish to implement the sustainability framework into their operations and services provide (Alba et al., 2015).

Some of the major donors¹⁸ are trying to implement 'aid for trade' programs in developing countries. These programs are designed in such a way that through them both, developed and developing, countries can prosper. Though development funds recipient countries can produce goods which can be purchased by buyers in developed countries (WTO, n.d.). For example, funds can be used to increase production of Pakistani mangoes, which can then be sold at a profit to buyers in other countries. These funds can be used for value-addition of products, such as organic food certification and devise ways to develop climate resilient value-chains (kiwi, apricot, etc.) to reduce rural poverty in northern areas of Pakistan. Corporate and Development organizations can work together to reduce technical and financial barriers – provide seeds, technology, and trainings to farmers to produce climate-resilient products. Rural development can be catalyzed through these interventions. The certified organic produce from these value-chains can then be bought by local and international consumers. It will provide communities with livelihood diversification options and increase household income (IFAD, 2016).

To increase ambition for Climate Action innovative ways of reeling in the private sector need to be developed. Corporate Social Responsibility (CSR) funds generated by the private sector can be used to design projects and programs which are not only climate compatible but also have the potential to create jobs. By guiding CSR funds to climate action, the Private sector companies can become a part of the global movement against climate change and access international climate finance through funding from other bilateral and multilateral donors. Using CSR to facilitate technology and skill transfer can create and improve enabling environment for new and emerging businesses. Capacity building and training in Value-chain development techniques can increase competitive advantage of products and services provided by communities (Development Initiatives, 2018).

Climate compatible technologies can reduce environmental degradation, tackle climate change impacts, increase efficiency, and provide energy security. Reducing dependence on expensive, unreliable, and imported fuel secures the supply of energy side cost thereby making a business case for private sector and the businesses they run. Public sector can facilitate investments in climate resilient technologies to increase their uptake by private sector using different financial instruments and tools. Facilitation by the Government to access appropriate financial instruments – loans, guarantees, equity, and investments etc. - the upfront costs of these heavy investments can be managed. Technical barriers can be removed by collaborations with international organizations, such as UN Environment GEF, GCF etc. The output of these interventions is reported to have a strong impact on cost reduction and profitability, in some countries (United Nations Global Compact (UNGC), 2012).

Pakistan's startup ecosystem has grown rapidly in recent years. There are several incubators and accelerators, in the Country, providing young entrepreneurs with technical and financial support services. Despite these improvements, Pakistan has dropped from the World Bank's Ranking of 'Ease of Doing Business' 2017, which means that the Country is actually moving further away from the global best practices in business regulation. The Bank's analysis suggests that Policy and Finance related bottlenecks in the startup ecosystem have contributed to this slip. These bottlenecks have had deleterious impacts on the health of the startup ecosystem: policy environment to grow businesses is expensive and slow; young Entrepreneurs are struggling to gain access to investments from venture

¹⁸Including UKAid, USAid, DFID, and DFAT etc.

capitalists and angel investors; low participation of women entrepreneurs; energy shortages; lack of resilient measures (World Bank Group, 2018).

A healthy ecosystem can increase the probability of success of startup's thereby stimulating growth, driving innovation, and providing youth employment. For survival and growth, the health of the ecosystem needs to be improved through policy and financial interventions. From the perspective of the Development Sector, these interventions need to be designed in such a way that they also help Pakistan meet its international commitments under the Paris Agreement and Agenda 2030 of Sustainable Development Goals (SDG). Pakistan suffers from energy insecurity and is struggling to grapple with the challenges of solid waste management in rural and urban areas alike (World Bank Group, 2018).

Private sector engagement

Private sector – called upon by the Paris Agreement and Agenda 2030 Sustainable Development Goals - can enable transformational change towards climate compatible development by removing technical and financial barriers. Climate finance can be provided by this sector to devise profitable ways of climate-proofing investments and providing climate solutions to consumers. Private sector – with support of Government and development organizations - can deliver climate-compatible products and services for profit or to meet objectives of corporate social responsibility. Businesses have a critical role to play in unlocking the merits of and protection against climate change impacts ultimately paving the way towards sustainable economic growth and climate action (Cameron, Erickson, Prattico, & Schuchard, 2015).

Building a business case for the private sector can propel the movement towards achieving sustainability. An integrated approach, technical assistance of development organizations in opportunity identification, which involves the private sector, public sector, development organization, and communities can benefit from the global trends towards promoting environmental sustainability and climate compatibility . Transformation to a low carbon economy implies new patterns of investment. These patterns of investment can be made to meet the objectives of low carbon development. It can help generate economic benefits. Climate proofing economic activity can lead its growth, increase jobs & profitability. In Pakistan, chronic energy deficits have paved the way for a revolution in the renewable energy sector- in which the government and private sector have played a vital role. Corporation can team up with financial institutions and telecommunication companies to develop tools and services which help sell climate solutions to consumers (Stadelmann, Castro, & Michaelowa, 2011).

As the global economy develops innovative climate solutions new product designs and services will emerge. Already, innovation in renewable energy sector has led to the development of products which also ensure water security. Solar panels which can 'literally pull drinking water out of thin air' are ready to be installed in water and energy scarce locales . With water and energy constituents of the water-energy-food nexus secured, the likelihood of food security become stronger.

Corporation can use their Corporate Social Responsibility (CSR) funds to deploy these products to bring about positive social change. CSR funded initiatives aiming to inculcate climate compatible development in their design have the potential to start generating profits. Facilitation from the appropriate financial instruments – grants, loans, feed-in-tariffs, equity, guarantees, & green bonds etc. - the upfront costs can be managed. The results from these interventions have strong impact on cost reduction and profitability (Morgado & Lasfargues, 2017).

Being signatory to the Paris Agreement and the Sustainable Development Goals (SDG) Pakistan will continue to formulate new regulations, incentives, and strategies to meet the goals and targets set out by both. The Government of Pakistan will have high expectations from the Private sector to contribute to sustainability and society. This presents an opportunity for smart actors of the Private sector, whereby they can position themselves as Government supporters in achieving the goals set out by SDGs. SDG's are a product of multi-stakeholder negotiations, including businesses and the private sector. Understanding how they – SDGs - hinder or propel the businesses can provide a roadmap for

environmentally, socially, and economically sustainable growth till the year 2030. The companies who better understand their contribution to the SDG's will be able to withstand the scrutiny on their role in society and will be able to mainstream sustainability in the corporate culture (PwC, 2015).

The Private sector can help remove technical and financial barriers to climate-resilient development by ensuring participation of key players. Climate investments can be directed towards projects which prevent environmental degradation, combating climate change impacts through climate-resilient and low carbon development strategies. Addressing environment issues and dealing with climate change impacts will be one of the biggest challenges our planet has faced, one which will have serious implications for a developing country like Pakistan (Henderson et al., 2018) (WBCSD, 2018).

SECTION 3: OUTLINING THE ROLE OF PRIVATE SECTOR FOR CLIMATE ACTION IN PAKISTAN

Opportunities and Barriers

Pakistan holds a distinctive position in the global climate policy regime; the share of Pakistan in global GHG emissions is merely 0.8 percent, contrarily it is amongst the top ten most climate change affected countries of the world. The Nationally Determined Contributions (NDC) for Pakistan has been drafted during a critical juncture in Pakistan's economic history with the inauguration of the China Pakistan Economic Corridor (CPEC). Pakistan's commitment to reducing emissions up to 20% by 2030 contingent on access to international finance is an encouraging indication. Overall, Pakistan's adaptation needs range between US\$ 7 - 14 billion per annum, and the total abatement cost for the indicated 20% reduction in the forecasted emissions for the year 2030, has been estimated as US\$ 40 billion calculated at current prices (Ministry of Climate Change, 2016).

The intended commitment of Pakistan to the international community via the NDC entails comprehensive efforts at home. The United States President Donald Trump announced to pull out of the Paris agreement with the statement "This agreement is less about the climate and more about other countries gaining a financial advantage over the United States," (Barclay, 2017). There is a greater responsibility on Pakistan, and the developing world at large, to ensure the funds requested in the NDC document will be utilized for the intended purpose exclusively. This can be accomplished by preplanning and delineating a pathway for utilizing the funds requested. Pakistan can also endorse a climate compatible approach of development, that lays its foundation on technology advancement and transfer, and capacity building by the international community, as opposed to adopting an exclusively funds-based approach.

The opportunities for Pakistan override the challenges for adopting a climate compatible approach for development. Pakistan is presently categorized as a lower middle-income country by the World Bank;¹⁹ however, there is enormous potential for uplifting the economy, and transitioning to an upper middle-income country through maximizing the investments in road, railways, and ports entailing CPEC.²⁰ Pakistan still has the chance to influence its development trajectory and adopt a sustainable approach; renouncing the development pathway of the developed world, that has endangered the survival of this planet. There is a diverging global stance on Climate Change; for countries like Pakistan that disproportionately bear the brunt of its associated impacts, it is imperative to strengthen Climate Action and consolidate efforts with comparable countries. The neighboring countries of Pakistan have made notable accomplishments pertaining to Climate Action. Bangladesh has 7 of the world's 10 green garment factories, the entire sector has been able to reduce 20% of greenhouse emissions, 10% water wastage, and 12% of electricity wastage.²¹ The private sector in Pakistan can emulate the measures undertaken by them and achieve similar reductions in utilizing inputs while making profits.

The newly elected government of Pakistan is perceived as environment friendly; its initiatives such as the 'Billion Tree Tsunami' and the 'Clean and Green Pakistan' campaign, promise a conducive regime for facilitating Climate Action. The government needs to guarantee a political environment that encourages and incentivizes the private sector; to adopt sustainable business practices and invest in climate proofing their investments and operations.²² The government can promote Climate Change as an industry for the private sector by implementing policies that ensure risks on investment are minimized and returns

¹⁹World Bank Group. (2018). Data - Lower middle income. Retrieved from <https://data.worldbank.org/income-level/lower-middle-income>

²⁰The World Bank. (2018). CPEC offers enormous potential to Boost Pakistan Economy, Report Says. Retrieved from The World Bank: <https://www.worldbank.org/en/news/press-release/2018/03/22/cpec-offers-enormous-potential-boost-pakistan-economy>

²¹Figures provided by our expert interviews.

²²According to the Asian Development Bank, climate proofing may be defined as a (i) process that aims to identify climate change related risks and to reduce them to an acceptable level; (ii) a measure aimed at mitigating the possible climate risk to which the project is exposed to. Alternatively, it can also refer to a specific measure undertaken to reduce or offset the impacts of climate change on the costs and benefits associated with a project.

maximized. The inclination of the government for privatizing state-owned enterprises, can also include regulations and standards related to climate proofing investments and operations, for transitioning from the state to the private sector.

Pakistan's civil society along with multilaterals, climate experts, and academia can steer this pathway for the private sector; and lend support for engagement with the policy makers and knowledge-sharing about Climate Change based on years of experience with vulnerable communities; participating at international fora's and conferences; increased knowledge for accessing Climate Finance. The civil society can also play a significant role in advocacy for creating an enabling environment for the private sector to undertake Climate Action.

The World Energy Outlook statistics for 2016 indicate an enormous opportunity in the energy sector for Pakistan; 51 million people have no access to electricity and 56% of the total population is dependent on traditional use of biomass for cooking purposes.²³ The private sector in Pakistan can maximize profits through availing this opportunity; and concurrently improve the socio-economic indicators of the population. The Green Banking Guidelines are an encouraging indication for a sustainable economic environment in the banking sector; they provide an adjustment time to the sector and its clients before these become regulations. These entail environmental risk management guidelines for all the banks and financial institutions, green business facilitation, and guidelines on reducing the organizations own impact on the environment (Infrastructure, Housing & SME Finance Department, 2017).

The prime challenge for the private sectors role in Climate Action is the general perception that Climate Change is a development challenge, it affects the vulnerable communities in Pakistan and is exclusively within the governments domain. Pakistan's minimal emissions in comparison to the developed countries also project it as the upper income countries problem because historically the onus of the considerable GHG emissions is on them. These perceptions need to be challenged by depicting Climate Action as an industry that promises profit maximization in new areas of investment. It also aims to minimize the future climate related risks to existing value chains of businesses. This perception especially for the private sector can be transformed through making a business case for Climate Action. The success stories, best practices, and numbers from other countries need to be communicated at a massive scale to encourage private sector investment along with guaranteeing an enabling environment.

There is an encouraging trend of corporate philanthropy in Pakistan and the year 2016 documented the highest figure of PKR 7.31 billion of CSR funds. However, CSR in Pakistan is based on guidelines and encourages adoption of voluntary measures which is why the efforts are thematically contrasting and the percentage of giving may vary. The documentation of CSR funds is quantitative and the knowledge on the impact of spending on the community is limited. Some organizations may also practice philanthropy in kind which is not documented. The documentation of these efforts, and their impact needs to be gauged in a more comprehensive manner to ascertain the real impact.

These efforts of the corporate sector can be mobilized to encourage a mutually decided amount by the private sector for enabling the objectives of SDG13: Climate Action, along with organizational preferences for areas of charity. These CSR funds are charity based and may not be sustainable for Climate Action, additionally organizational preferences for thematic areas of charity may also be a hinderance for pooling resources. A more viable solution may be implementing regulations for climate proofing investments and operations to achieve long term impact. The regulations may also be revised in context of Pakistan's vulnerability to Climate Change and revisiting our efforts for Climate Action.

²³https://hamburg.hk24.de/Veranstaltung/Anlagen/VSD/131017785/Pakistan_Business_Day__Khan.pdf

Box 2: Opportunities and Challenges

Pakistan is presently categorized as a lower middle-income country by the World Bank; it still has the chance to influence its development trajectory and adopt a sustainable approach; renouncing the development pathway of the developed world, that has endangered the survival of this planet.

Pakistan's neighboring countries like Bangladesh has 7 of the world's 10 green garment factories, the entire sector has been able to reduce 20% of greenhouse emissions, 10% water wastage, and 12% of electricity wastage. The private sector in Pakistan can emulate the measures undertaken by countries in the region and achieve similar results.

The newly elected government of Pakistan is perceived as environment friendly; its initiatives such as the 'Billion Tree Tsunami' and the 'Clean and Green Pakistan' campaign, promise a conducive regime for facilitating Climate Action.

The civil society, multilaterals, academia, and climate experts in Pakistan can steer the pathway for the Private Sector in Climate Action and lend support for engagement with the policy makers, knowledge-sharing, and advocacy for creating an enabling environment.

The World Energy Outlook statistics for Pakistan inform that 51 million people have no access to electricity, and 56% of the total population is dependent on traditional use of biomass for cooking purposes. This entails a massive business opportunity for investing in renewable energy by the private sector.

The foremost challenge for the private sector in undertaking Climate Action is the perception that Climate Change is a development challenge, that affects the vulnerable communities in Pakistan and is exclusively within the governments domain for tackling.

The Corporate Social Responsibility in Pakistan is based on guidelines and encourages adoption of voluntary measures which is why the efforts are thematically contrasting and the percentage of giving may vary.

Creating an enabling environment

Environmentally sustainable and climate-resilient enterprises, value-additions, skills, and solutions can generate numerous spill-over benefits thereby heaving market transformations (Development Initiatives, 2018). In the current global landscape Environmental sustainability is an opportunity for the Private sector. These spill-over benefits can be of use to individual consumers and the Government of Pakistan. Given viable economic incentive, meeting social responsibility targets, and an enabling environment - Private sector can be used to finance climate action and environmental sustainability. Government and Development organizations can facilitate this process by providing policy advice, technical backstopping, and removing barriers to environment and climate compatible development (Alba et al., 2015).

As air quality deteriorates (Amin Ahmed, 2014), water security is threatened (Roberts, 2017), rampant water-energy-food insecurity exists, and the menace of improper solid waste management becomes more visible Environmental sustainability and climate-resilience is likely to quickly climb up the Government's Agenda in the years to follow. Private sector in Pakistan remains in nascent stages to provide products and services which can be of assistance to the Government, especially in this sector. The role of the Private sector in environmental sustainability and climate-resilience can be sorted into three interfaces (1) Corporate Social Responsibility (2) Entrepreneurship (3) Climate-proofing investments and operations (Austin, Dickerson; Deborah, Drew; Neha, Joseph; Eliot, Metzger; Amy, Meyer; Eliza, Northrop; Abhilash, Prasann; Elizabeth, Reichart; Geneviève, 2018).

Corporate Social Responsibility Funds can be channeled towards education, and awareness-raising to promote sustainable consumption and behavior. Sponsoring projects and causes – training & capacity building - can increase the value of human capital in environmental sustainability. The role of the private

sector in closing funding gaps presents itself as an opportunity to gain visibility, good-will, and outreach to different segments of the society. Which brings the second interface of Private sector involvement into the discussion, namely Entrepreneurship. As the Private sector gears toward closing funding and technical gaps conducive environment is created for start-ups and small businesses ventures. Demand is created for environmental and climate sustainability through campaigning and awareness-raising for environmental causes. As consumers/citizens become more aware they prefer products and services which have environmental sustainability attached to them – this creates business opportunities for incubators and accelerators. As environmental degradation becomes more visible (improper solid waste dumping; air quality deterioration; and water insecurity) developing and encouraging enterprises which improve environmental quality becomes necessary. For example, Solid Waste Management is a major nuisance to the Government at all levels and consumers living in different parts of the country. There are enterprises who have managed to turn its proper management into a business enterprise. Thereby tackling Solid Waste pollution while creating jobs, revenues, and profits (World Bank Group, 2014) (Alba et al., 2015).

According to the expert interviews and the discussions which took place during the policy stakeholder dialogue organized for the purpose of feeding this research study it is observed that (1) lack of information (2) lack of complimentary/support services prevent the uptake of climate-friendly products. Access to information plays a crucial part in influencing behavior and consumption patterns. Whereas lack of complimentary/support services reduce consumer interest and make the process of adoption of products less favorable. Private sector in Pakistan can be used to fill these gaps of investment and funding. Incubators and accelerators can also be oriented towards providing these services and products. Through Government involvement the policy environment can be made conducive (Development Initiatives, 2018).

Corporate Social Responsibility (CSR) funds generated by the private sector can be used to design projects and programs which are not only climate compatible but also have the potential to generate profits. The private sector is thinking beyond CSR and creating shared value, globally it is engaged in impacting investing, i.e. “Investments made with the intention to generate positive, measurable social and environmental impact alongside a financial return” (GIIN website). Facilitation by the Government to access appropriate financial instruments – loans and investors etc. - the upfront costs of these heavy investments can be managed. Technical barriers can be removed by collaborations with international organizations, such as UN Environment GEF, GCF etc. The output of these interventions is reported to have a strong impact on cost reduction and profitability (CAN, 2013).

Tailored solutions of transferring disaster risks need to be designed in collaboration with key stakeholders, particularly through Public and Private partnerships. Index linked insurance solutions and strong claim verification systems need to be developed and deployed to consumers. Awareness raising, which influences behavioral change, needs to be promoted through campaigns to increase the uptake of insurance and risk transfer mechanisms. To help insurance providers design products and services, to address impacts of climate change, the evidence base needs to be broadened through research and policy advisory. Informed policies can in turn support and initiate advocacy and legislation on mechanisms of risk reduction and transfer. Research can help open up avenues for the Private sector. They can assist with product and service design (Giz, 2017) (Yuzva, Zissener, & Warner, 2014) (The Geneva Association, 2018).

Clean energy can reduce environmental degradation, tackle climate change impacts, increase profitability, and provide energy security. Reducing dependence on expensive, unreliable, and carbon-emitting fossil fuels reduces cost thereby making a business case for private sector and the businesses they run. Public sector can facilitate investments in renewable energy to increase their uptake by private sector using different financial instruments and tools (Stadelmann et al., 2011).

Key Recommendations

This section presents some key recommendations and potential way forward based on the findings of this study:

- The Government of Pakistan can adopt a climate compatible and integrated approach to development by collaborating with key sectors in the economy of Pakistan, and championing the private sector for enabling this development. The climate compatible approach of development, should be founded on technology advancement, transfer, and capacity building by the global private sector as well as other international development agencies.
- The onset of CPEC entails an opportunity for Pakistan to demonstrate its commitment to combating Climate Change, learning from the developed world to implement rigorous regulations and standards for ensuring sustainable growth through CPEC.
- The government should ensure undertaking legal, financial, and policy-related reforms for facilitating the private sector to invest in renewable energy, green infrastructure, and technologies. It should actively promote the impact investing concept.
- It should be mandatory for the private sector of Pakistan to be represented on the panels and fora at COP and other international conferences pertaining to Climate Change every year. This will familiarize them with international best practices and enable linkages for adopting prevailing green technologies and innovations.
- The privatization policy of the government for privatizing state-owned enterprises should integrate standards for climate proofing investments and operations and, ensuring reduction in the carbon footprint for transitioning from the state to the private sector.
- Corporate Social Responsibility guidelines formulated by the Securities and Exchange Commission of Pakistan (SECP) necessitate immediate revisions; they should be aligned with the 2030 Agenda for Sustainable Development and include annual reporting requirements similar to those that mandate external financial audits. The contributions should enable the achievement of the 17 goals with a designated contribution to SDG 13: Climate Action considering Pakistan's vulnerability to Climate Change.
- Climate Change affects the private sector as much as any other sector of the economy, various tax and other incentives may be given to the private sector for transitioning to Creating Shared Value (CSV) approach as well as impact investing. The efforts that have been undertaken by the private sector for Climate Action in Pakistan should be recognized by the government, compensated for the environmental benefits accrued, and promoted for gaining momentum across the sector.
- The perception of Climate Change being a rich man's problem needs to be challenged and the destruction it entails for the private sector, specifically business value chains should be underscored. There is a dire need to raise awareness on the impacts of Climate Change which will be detrimental for all the sectors of the economy, not exclusively for the agriculture sector and marginalized farmers. Private sector may also be given the lead in creating awareness among their peers and public at large.
- Climate Action should be viewed as a viable business opportunity; the development sector and the government should work together to demonstrate the profits associated with investing in climate friendly technologies to the Private Sector; and educate the private sector regarding Climate Compatible Development.
- The Private Sector can influence incubators and accelerators in mainstreaming innovations that can enable Climate Action in Pakistan. The access to information for climate-friendly products should be enhanced for increasing their demand amongst the consumers.
- There exists a tremendous opportunity to educate and strengthen existing networks and Chambers of Commerce about Climate Action in Pakistan. to generate greater impact in contributing to Climate Action.
- A separate Private Sector Network for Climate Change may also be established to strengthen the position for a consolidated voice of the Pakistani private sector for defining and becoming an ally of the government to meet SDGs for Pakistan and to voice their concerns on international for a such as WTO where global practices adversely impact national industry and damage the environment and people's health.

The private sector is inextricably involved in issues pertaining to climate change — as an emitter, innovator, insurer, now mitigator and even preventer — its role and relevance has grown to that of a primary actor in this field and Pakistan needs to harness this potential for reducing its climate vulnerability and further reducing climate change risks.

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ANNEX 1

**“Role of the Private Sector in Climate Action” hosted by Hashoo Foundation
Sustainable Development Conference (SDC) & Eleventh South Asia Economic Summit (SAES XI) 2018,
7th December 2018 at 9:00 – 11:00 a.m.**

	Name	Role	Organization	Brief Profile
1	Mr. Nisar A. Memon	Chair	Water Environment Forum	<p>Currently is Chairman Water Environment Forum, Pakistan and engaged in Water and Climate Change awareness, dialogue and policy. He is member Board of Governors of: FAST National University of Computer & Emerging Sciences, Islamabad since 1997 and US-Pakistan Center of Advance Studies-Water, Mehran University of Engineering and Technology, Jamshoro since 2017. He is Masters in Science from University of Karachi.</p> <p>He was in Information Technology for 30 years with IBM in Pakistan, Europe and Middle East. Has been IBM Pakistan Chief Executive for 10 years and President of American Business Council Pakistan and Overseas Investors Chamber of Commerce and Industry Pakistan. Was Chairman of Engro and Director Pakistan State Oil,</p> <p>In 2003, he was elected to Senate of Pakistan for six years and sat both on treasury and opposition benches. Chaired Parliamentary Committee on Water Resources and Senate Standing Committee on Defence & Defence Production.</p> <p>He was called to Pakistan cabinet as Federal Minister of Information & Broadcasting in 1993, 2002 and 2007. Has been Federal Minister for States & Frontier Regions and Azad Kashmir & Northern Areas (now Gilgit Baltistan).</p>
2	Dr. Shaukat Hameed Khan	Keynote Speaker	Ex-Chairman Comstech (retired July '18)	<p>Dr. Khan is a respected scientist and educationist who possesses nearly 40 years of experience in R&D, teaching, production, technical management and policy planning. He is a Rhodes scholar and has served as Member, Planning Commission, Government of Pakistan, where he looked after science and technology, higher education, industries and minerals. He has also served as an Ex Rector GIK Institute and Ex-Chairman Comstech (retired July '18).</p>
3	Naeem	Panelist	Former	<p>Naeem Zamindar is passionate about leveraging innovation and entrepreneurship to enable lives, so that all people can achieve their human potential for happiness. He is currently the CEO of Zamindar Capital, a member of the Global Advisory Council of Acumen and Board member of Ufone. Naeem also volunteers his time to teach yoga and mindfulness for self-mastery.</p> <p>He was most recently appointed the Minister of State and Chairman, Pakistan Board of Investment. He is a results-driven leader with 25 years of experience in venture capital in Silicon Valley and Pakistan and building businesses in public and private sector companies.</p>

	Name	Role	Organization	Brief Profile
4	Ms. Shazia Maqsood Amjad	Panelist	PCP	Ms. Shazia is a development professional and an Educationist. She has more than 20 years of experience working with national and international organizations. She is a graduate of Harvard Graduate School of education, USA and Institute of Development Policy Management, UK.
5	Mr. Shabih A. Mohib	Panelist	World Bank	Shabih is currently the Program Leader for Equitable Growth, Finance, and Institutions covering the Pakistan Program. In this assignment he leads on macroeconomics, trade and investment, governance, finance, and innovation. He is also the focal point for digital innovation and disruption across the country program and is also member of the World Bank Group Digital Disruption Network. Before this, Shabih was covering the Southeast Asia program where he focused on macroeconomic and fiscal management, digital economy, and deploying technology to solve development challenges.
6	Ms. Ayesha Khan	Special Remarks	Pakistan Country Director and Vice President of the Corporate Social Responsibility body of the Hashoo Group, Hashoo Foundation	A political economy researcher and long-standing development practitioner (for more than 20 years) working for socio-economic development through private sector promotion underpinned by good governance. Her employers have included international multilateral aid agencies such as the World Bank, Asian Development Bank, the European Union, UNIDO and other the UN agencies and bilateral donors like the Swiss government, the Royal Norwegian Embassy, UK Aid. Currently she is VP CSR, HG Hotels and responsible for four social sector organizations instituted by the Hashwani family, including Hashoo Foundation, Hashoo Trust, Hashoo Hunar Association and Umeed e Noor. She holds two master's degrees; 1) MA in International Political Economy from Warwick University, UK and, 2) MBA in Project Management and Financial Analysis. She also has a Diploma in Business Development Services from Glasgow University, UK, and another Diploma in Microfinance, from Colorado University, USA. She is also an IFC-World Bank certified trainer and has taught development economics at University level and microfinance at the National Institute of Banking and Finance (NIBAF).
7	Dr. Imran Khalid	Moderator	SDPI	Dr. Imran Saqib Khalid is a Research Fellow at the Sustainable Development Policy Institute (SDPI). Imran heads the water governance component of the multi-country Pathways to Resilience in Semiarid Economies (PRISE) project in Pakistan. In this context, his research focuses on identifying institutional vulnerabilities and analyzing the political economy of regions and communities most vulnerable to climate change impacts, particularly floods. Imran holds a Ph.D. in Environmental and Natural Resources Policy, and a master's degree in Environmental Policy and Democratic Processes, from SUNY College of Environmental Science and Forestry, Syracuse, New York. Furthermore, Imran has a master's degree in Environmental Engineering from National University of Science and Technology (NUST) and a bachelor's degree in Environmental Science from Virginia Tech. In addition, he also holds a Certificate of Advanced Study in Conflict Resolution from the Maxwell School at Syracuse University, New York.

