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Political Dimensions of Climate Change Adaptation

Framing Financial Attributes in Pakistan

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Abstract

The interest towards climate change adaptation has gradually increased from local to international levels around the globe. This is one reason that there is less than the due attention paid previously, on its implementation, besides relatively lower levels of funding available for the adaptation related activities. To elaborate on the tricky relationship between adaptation funding and policy priorities in the global South, this thesis focuses on the case of Pakistan. Pakistan is one of the most climate changes prone countries with several events of climate change related disasters taking place on an annual basis. However, there is an extremely weak mechanism of climate change adaptation that could help the vulnerable communities to resist the disaster impacts. The respective study findings suggest that the primary cause of this issue is the lack of an effective climate change policy. The existing National Climate Change Policy of Pakistan (NCCP), is not a living document at this point, that can address the climate change adaptation issues. The existing policy was not only drafted by the funding agencies themselves, who enabled the formulation of the policy, but it was also proposed before the 18th constitutional amendment in the country, which produced significant changes. Since the 18th amendment (2010), the implementation of the adaptation policy has been affected due to the change in administrative power and authority levels, from national to provincial. Another important aspect which is associated with the adaptation of climate change is the politics behind the funding that may enter the country from international sources. The national policy does not provide any comprehensive guideline for the funding agencies regarding the adaptation priorities, vulnerability and adaptive capacity of the locals, or the organization of funds at various scales. This leads the international funding agencies to lose their trust in the government; and lead these agencies to set up their own channels for enabling the funds to implement the projects on climate change adaptation or mitigation. Similarly, the lack of interest for the national government towards adaptation activities further deviates the flow of funds into adaptation actions, and the focus remains over mitigation. This master's thesis adopted the in-depth case study research strategy, and semi structured interviews were conducted with 23 climate change experts, including

but not limited to policy makers and international organizations staff. The results of the study were organized in four major focused areas including, a) priorities in adaptation, b) actors of adaptation, c) question of scales, and d) vulnerability and adaptive capacity of the affected communities. This study concludes that climate change adaptation is a neglected topic in Pakistan, and the mishandling of adaptation funds, under the weak policy guidelines, end up in maladaptation.

Key words: climate change adaptation, adaptation funding, climate change policy, corrective justice, differential responsibility, maladaptation, political ecology.

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Cover Image: Floods in Sindh, Pakistan

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Acronyms

ADB	Asian Development Bank
CBOs	Community Based Organizations
DFID	Department For International Development
GLOF	Glacial Lake Outburst Flood
GCRI	Global Climate Risk Index
GEF	Global Environmental Facility
GHGs	Greenhouse Gas
INDC	Intended Nationally Determined Contribution
INGOs	International Non-governmental Organizations
L&D	Loss And Damage
MoCC	Ministry Of Climate Change
NDMA	National Disaster Management Authority
NDC	Nationally Determined Contribution
OXFAM	Oxford Committee For Famine Relief

PCCF	Pakistan Climate Change Fund
PCCP	Provincial Climate Change Policies
PDMA	Provincial Disaster Management Authority
UNDP	United Nations Development Program
UNFAO	United Nations Food And Agriculture Organization
UNFCCC	United Nations Framework Convention On Climate Change
WB	World Bank
WWF	World Wildlife Fund

Chapter 1: Introduction

Climate change has become a vital issue of concern for the developing world over the past few years, together with the developed world. The world leaders and scientists have also realized that tackling climate change is much more crucial for the developing countries, since they face the bigger challenge of effective regulations, which could support the implementation of policies (Betzold & Weiler, 2018). In addition, they also lack the sufficient funds to invest in the needs which relate to climate change, particularly adaptation. The reason is the inclination of the government in resolving various other public sector issues on priority, besides climate change. Similarly, the funding agencies also engage with the government in strategizing the flow of their funds, therefore, the funding agencies are also not able to independently implement the adaptation projects (Bhave et al., 2016). The climate change adaptation, which is also a connotation for proactive response to climate risks and resulting disasters, is generally a less discussed topic internationally, beyond the lip service at international summits. While with reference to the developing countries, it is rather least discussed and implemented. In the given context the climate change adaptation policy and the financial support for implementation are the major pillars of adaptation (Craft & Fisher, 2018). To further investigate this problem, the respective thesis study is primarily based on a set of several approaches, which have been developed through surveying about the climate change adaptation awareness, recognition, and implementation needs in the country. This includes how the policy oversees the adaptation issue through a top down approach. What role does it play in creating an organized channel of actions and actors, collectively engaging with climate change adaptation financing, planning and implementation. In addition, the study also provides an insight from the global south, on how adaptation policy is designed, and how the current policies provide an enabling or disabling environment for the stakeholders to fail or succeed in achieving adaptation finance and their benefits.

To intrude into the basic concepts and connections between adaptation needs, policy and financial aspects, this thesis discusses the case of Pakistan. Pakistan's climate

change policy and climate funding has been mostly inclined towards mitigation, even though the country ranks 5th on the Global Climate Index (GCI) ranking (Khan et al., 2016). This thesis analyzed the major hurdles in developing the adaptation approaches towards reforming the policy which is mostly mitigation centric for Pakistan, the major actors involved, how does the adaptation awareness and willingness to adapt flows between the scales from international, national, and the local levels, and the vulnerability and adaptive capacity of the vulnerable communities. It also reviews the influence of policy on the funding priorities of international funding agencies, besides the processes and issues involved in reaching adaptation goals. Also, it has been discussed that the policy is a driving force to attract international funds. Yet, climate financing is the basic enabling and disabling factor behind climate change adaptation. So, having a comprehensive, well-articulated and a focused policy can help to achieve the maximum benefit from available funding, besides channeling of those funds towards the needs of adaptation for the front-line fighters of climate disasters, the vulnerable communities. In the context of Pakistan, the influence of policy's credibility in guiding the funding sources to invest in adaptation actions has been discussed.

Chapter 2: Literature review

Climate change is an ongoing process, which is being witnessed at every corner of the world. In order to address the everyday impacts of climate change happenings, there has been much lesser emphasis on the adaptation policy and its implementation, as compared to the mitigation. Also, the adaptation related projects around the globe are quite less in number as compared to the mitigation projects, besides being less seriously handled (Bachner et al., 2019). The reason behind this situation is the complications associated with adaptation, especially concerning who is adapting, what is being adapted, and where it is being adapted (Ahmed & Wei, 2013).

Climate change policy on adaptation has several connected issues, including the climate change impacts which need adaptation, socio-economic damages control, governance at various management scales, and the adaptive capacities of the vulnerable. To understand this better, a simplified approach would entail understanding the international perspective on adaptation, i.e. how do different regions of the world prioritize adaptation and the needs for adaptation arising from climate change risks and disasters. This process is further interconnected with scientific and theoretical concepts, which help to elaborate and organize the research on the issue. To analyze the adaptation policy, and the logical grounds of its formulation, there are several theories and concepts, introduced by the research community from time to time.

For instance, the first challenge of adaptation arises from the question of scales. The adaptation of climate change is a correlation between those who are vulnerable to climate disasters, and the funding agencies that support the vulnerable towards implementing adaptation measures (Scoville-Simonds et al., 2020). While in essence, adaptation is a political function. The adaptation implementation is primarily dependent upon political factors of power, conflicting policy preferences, finance and resource allocation, and administrative tensions (Dolšak & Prakash, 2018). Most disappointing aspect of politicizing the adaptation function is through masking the existing disaster management projects and strategies, with the new face of climate adaptation

policy. The politicizing of adaptation of climate change, leads to further complications between various scales of governance, and it becomes evident that the policy approaches of the national and local bodies' conflict, when it comes to the flow of funding (Nightingale et al., 2020). The national level policies mainly try to formulate proactive policies, and encompass the broader issues depending upon the type of climate change and level of stress that can be caused at the national level. In contrast to the national level, the local needs of climate adaptation are inclined towards a reactive adaptation strategy. The local communities and government departments at the local levels have different perceptions of climate risks. The local communities sit at the frontline of climate disasters; therefore they do not prioritize the adaptation at the larger scales such as economic development, deforestation, and desertification. Instead, they prefer the adaptation based upon the up-coming risks, besides specific preferences about how, when, and where to adapt (Atteridge & Remling, 2018).

Since the national climate change policies do not accommodate the underlying local level issues and interest of adaptation, the disconnect between the scales leads to the failure of adaptation. In addition, this leads to the political challenge of organizing the resources to channel the local level adaptation, as the local governmental bodies in various developing states, do not have the authority to raise resources, through taxation. Similarly, the international funding agencies also have their funding interests vested in the national level policy preferences. These interests relate to their organizational priorities for adaptation such as investing in small scale projects for funding small businesses or awareness campaigns. Therefore, it becomes harder for the local governmental units and vulnerable populations to adapt as per need and choice due to lack of both government and international interest in investing into the required adaptation action plans (Dolšak & Prakash, 2018).

The issues and concerns related to the core of adaptation, and scenarios which halt the effective implementation of adaptation policies, are or can be, collectively covered under the overarching theme of corrective justice. Corrective Justice holds that the major conflict of climate change adaptation arises from the issues of inequalities and argues

that there is asymmetry between the statuses of those who cause climate change and those who bear the brunt (Aristotle et al., 1998). According to Birsha Ohdedar (2016), climate justice entails connecting corrective justice, to climate change responses, which are fair and equitable in relation to adaptation. Here, the core of corrective justice lies in the linkages between vulnerability and adaptation mechanism. The vulnerability in the given context depends upon the levels of wealth, education, health status, gender, age and class, and varies across temporal and spatial scales. Briefly, vulnerability can be defined as lack of rights, resources, and opportunities, resulting in exposure to a range of possible harms. In addition, It is also notable that loss and damage (L&D) is not the outcome of the climate disasters, but in fact it is the negative outcome of lack of community's capacity to show resilience and adapt effectively as a result of inequalities of power, and adaptation capacities (Fekete & Sakdapolrak, 2014).

In the light of corrective justice, another connected idea is the question of differential responsibility, which also entails two dimensions of climate change adaptation management. The first one refers to the distribution of responsibilities between different scales. According to Pellizzoni (2004), the attribution of responsibility has four factors depending upon different scales. a) Liability, which is an international responsibility that attributes climate change to anthropogenic forcing, and its resulting loss and damage (L&D). b) Care, which is the state's responsibility of preparing in advance through national plans and legislations, to adapt to the expected climate disasters. c) Responsiveness, which is assigned to all the actors for implementing adaptation actions in an anticipatory and reflexive manner. d) Accountability, which is the individual responsibility of every actor, to do self-governance and voluntary governance. The second dimension is the communication of information related to climate change adaptation plans and actions, and the gap in transfer of the required information between the scales. The scales may include the international funding agencies, international policy making bodies, federal ministries, provincial governments, district level government departments, as well as individual citizens at the local levels (Mees, 2017). In the given situation, the government should take a lead, such as the federal ministry, to align all the government departments, and the government bodies at the sub

national levels, such as provinces and districts. Therefore, the state is regarded as the central authority that has the responsibility to govern, communicate and implement adaptation measures, through the cooperation and efforts of all the other scales (Biesbroek et al., 2010). Even though the above mentioned two dimensions of management, are held as a primary concept to initiate adaptation, the local governments can still fail to deliver the basic services, and have lack of capacity to address the adaptation needs (Carter et al., 2015), ending up in the transfer of national responsibility to local non-governmental level (Broto et al., 2015). This inability of the government to bring all the stakeholders on the same page further becomes the reason that hinders the effective communication of information between the relevant actors, besides loss of trust (Middelbeek et al., 2014). The issue of improper handling and implementation of adaptation related actions, arising due to the improper fulfillment of the responsibilities by the stakeholders, which include the implementing bodies, and vulnerable communities, further weakened communications. This generates a bigger question for the funding agencies, to decide which actor to trust, how to ensure the legitimacy, and who deserves the financial aid (Klein et al., 2016).

The policy makers and experts often discuss the channeling of funds for climate change adaptation, and putting the policies together to ensure that adaptation is feasible where needed. However, the implementation of adaptation is not completely successful unless it is effective and bears benefits for the vulnerable communities (Atteridge & Remling, 2018). If the implementation of adaptation is not conducted in a systematically organized method, it leads to yet another negatively impacting situation, where the adaptation leads to increased vulnerability of climate change disasters, adversely impacting various sectors, systems, and social groups, instead of reducing it. This is termed as “Maladaptation.” One of the relevant examples here is the increased use of agricultural technologies, to encounter droughts. This adaptation measure may benefit some, but introduce greater risks of job loss, and resulting poverty rise for the rural population, who depend upon agriculture based livelihoods (Christian-Smith et al., 2015). In the light of the above, the funding for adaptation is also faced with the challenge of differentiating between the project which can adapt effectively, and the

projects which have the potential to shift the vulnerabilities. So, if the adaptation is not planned and organized as required, it will be maladaptation, if it does not weigh the actual positive and negative outcomes, beyond the intended beneficiaries.

Barnett and O'Neill (2010), lists five indicators of maladaptation:

a) Increased greenhouse gas (GHG) emissions: The increase of GHG emissions is mostly the result of energy-intensive adaptation actions, such as installation of air conditioners, which is done in the hot and humid regions, for adapting to health impacts of heat waves. Such adaptation measures set up a positive feed-back loop instead, further increasing the GHG emissions (Mitchell et al., 2008).

b) Disproportionate burden over the most vulnerable: The vulnerable are at the risk of worst impacts of maladaptation. An adaptation which is planned to meet the needs of specific sectors or groups, without considering its consequent impacts on the marginal populations, leads to maladaptation. For instance, the water and power projects implemented without keeping the costs under consideration, may suffer the lower income households, instead of benefit. These households will have to pay additional costs of the facilities, without having enough income to install technologies for reduced water or power use (*Water Plan*, 2009).

c) High opportunity costs: For adapting to the issues, such as water shortage, the techniques adopted can sometimes be much more expensive and unsustainable, resulting in maladaptation. For example, to ensure the availability of potable water, desalination or pipeline projects are required. However, these expensive techniques can be replaced by treatment of wastewater and pumping it up for use. This can produce 42% more water at only 60% of the cost as compared to desalinization and pipelines combined (Juhola, 2019).

d) Reduced incentives to adapt: Adaptation can also be achieved through the conscious efforts of individuals, through modifying their lifestyles and habits. Such as to

adapt to the water scarcity in Melbourne, the households have modified their lifestyles to taking shorter showers, and planting native plant species instead of non-indigenous plants. Yet, the expensive projects which are implemented to ensure water availability for household use, including pipelines and desalination, are not only expensive, but also discourage the people from making efforts at the local level. This type of maladaptation stifles the water conservation norm (Magnan et al., 2016).

e) Selecting Paths: The paths of development, towards climate change adaptation, include fluctuating factors such as climate, environment, economy, and social conditions. It is unpredictable when and how any of these paths change in the future. The unforeseen circumstances connected to these factors, may lead to a decreased flexibility in responding to the sudden changes. For instance, a desalination plant built in Santa Barbara in 1990, was never used, while being kept as an insurance measure, and hence it is considered a sunk cost (Pauliuk, 2018).

The thesis focuses on the relation between above mentioned concepts, and with the help of in-depth case study research, intrudes into the core of climate change adaptation related issues in Pakistan. Here, the focus of the study is on adaptation funding priorities and the national level policy in the country.

Chapter 3: Methodology

In the light of the literature review of the theories and concepts on the politics of climate change adaptation, the current study aims at assessing how does the funding interests of the international donors frame and mold the adaptation policy for various states, and vice versa, while setting up the priorities in adaptation policy. This concept is further merged into the question of scales, i.e. how and why, a disconnect is created between the international, national, and local level governance bodies, leading to contrasting interests and needs of adaptation, based upon the available aid incentives. Lastly the research focuses on the actors involved in framing, formulating, implementing and destroying the adaptation activities. More precisely, who is the most vulnerable vs. who is responsible for exploitation of adaptation funds, without properly implementing?

To analyze the depth of the issue, an in-depth case study, is conducted on Pakistan. Pakistan is one of those countries, who contribute the least amount of global carbon emissions, yet it is being impacted by climate extremes more often than not (Eckstein et al., 2019). So, this research expands upon the assessment of adaptation policy in the context of efforts which are underway, or need to be conducted, to carry out an effective climate change adaptation at the grassroots level, through international funding opportunities. The study also intends to emphasize through the research, that there is a need for developing a comprehensive data base of adaptation projects, funding, target areas, and needs of adaptation at the national level. This database can set the grounds for international funding bodies to focus the priorities of adaptation in a developing country at the local levels, instead of following the documented policies. The research also sets the pioneering basis for the national and sub-national level authorities, such as the Ministry of Climate Change (MoCC), National Disaster Management Authority (NDMA) of Pakistan, and city municipalities, for developing a liaison, and interchanging information, while implementing the national adaptation policy. This will further help to investigate the adaptation funding, its use and priorities.

The methodology of this study has been designed based upon three main strategies, while considering the case study of Pakistan.

- a. **Review of primary and secondary literature:** The review of literature includes the study of international academic work, including research articles, presentations, conference papers, and books on the topic of adaptation. In addition, the review of reports, newspaper articles, and visual documentaries is also conducted.
- b. **Analysis of official documents:** This step includes the review of the national adaptation policy for climate change, and its functions at the international and national levels. In addition, it comprises of the case study investigation of Pakistan, through relevant research papers, governmental reports on climate change adaptation policies, brief review of international funding agencies regarding their adaption interests in Pakistan, and analysis of the main actors involved in the implementation (success and failure), of nationally funded adaptation projects (Yin, 2014).
- c. **Semi-structured Interviews:** For the purpose of the survey, a careful selection of candidates has been made to conduct the interviews. 23 interviewees were recruited by snowball technique mainly from the climate change related professionals from the government departments, international NGOs, community, academia, and local governmental departments (See Annex 2 for the full list). The interview questions have been kept semi-structured and open ended, to keep the interviewees at ease while conducting the interviews (Interview guideline is given in Annex 1). This strategy mainly provides access to required information, and an insight to the theoretical meaning of the case study related findings (Jackson, 2008).

The triangulation approach has been adopted to conduct the research which narrows to its findings through collectively analyzing the interviews, official reports and the

academic literature, on the flow of climate change adaptation policies between the international, national and local scales, besides how climate adaptation is shaped and reshaped by international funds.

The given aim of the research trickles down to the following research questions:

1. How does the National Climate Change Policy (NCCP), influence the adaptation funding and its implementation?
2. How the priorities are set for adaptation, what are the needs for adaptation, and who are the main actors involved in the adaptation process?
3. How the relation between international, national, and local governing bodies is mediated, and why does the conflict exist between their adaptation interests?

In the respective study, the topic under discussion poses several interconnected concepts, besides several theories which may hold true in the given context. However, considering the time constraints, inability of direct field observation, and scope of the study, the research has been delimited from all the aspects which are external to the concept of how climate adaptation is shaped and reshaped by international funds, besides the role of main actors in designing and implementation of the adaptation policies in Pakistan. Based on the nature of this research, the study adopted a qualitative research approach. The in-depth interviews precisely raise non statistical data and results, however, there is more potential to deduce conclusions from the in-depth analysis of the case study. In addition, as the researcher was based in Sweden, there was a lack of direct observation opportunity, since the case under study is from Pakistan. This may raise concerns about the data specifications and quality, besides authenticity. However, the case study research through interviews, and the relevant references provided by the interviewees, helped to verify the information and reach maximum accuracy. Moreover, the research and scientific data on adaptation policy and funding interests of the donors in Pakistan were not sufficient or easily available. Similarly, there was a very brief data pool available, which included the resources from the governmental sources or NGOs, which can highlight the main issues of vulnerability

and adaptation capacity of the affected communities. This further complicated the research and achieving the desired results. Therefore, the chapter on data collection and analysis is primarily based upon the snowball research strategy.

To reach the intended finding of the study, a series of interviews was conducted, with 23 respondents. The selection of respondents was based upon their educational and professional backgrounds, experience, and relevance towards the respective study. These respondents included professionals from the education sector, international non-governmental organizations (INGOS), representatives of environment and climate change consultant firms, experts from think tanks associated with policy based research, and government officials from the national Ministry of Climate Change (MoCC). The interviews were conducted in a semi structured way. The respondents were asked to reflect freely on the topic around the key while expressing their views about the events and facts, associated with the political and financial system, which is responsible for deriving the climate change adaptation process in Pakistan. It is important to mention here that several respondents volunteered to share the important insights to the facts, related to the government as well as the funding agencies, regarding their operations, financial distribution, and handling of the projects financed under climate change adaptation. However, to maintain personal privacy, all respondents are kept anonymous (other than their institution and relevance to the topic) for the purpose of this research. In order to distill the comments of interviewees, the study has been narrowed down, explained and divided into four main sections. The first part of the findings consists of priorities in adaptation policy. The second section of the findings entails main actors of adaptation in Pakistan. The third section deals with the question of scales, which includes the international, national, and local level bodies, involved in decision-making. The fourth and the final section of the survey is about vulnerability and adaptive capacity of the affected people, including the local citizens and marginal communities across the country. The major limitation encountered during this research was limited access to government officials, especially due to physical absence of the researcher in Pakistan.

Chapter 4: Case Study of Pakistan

4.1 Context

Pakistan is a democratic state, situated in the southern part of Asia. The country shares borders with India on the east, Iran and Afghanistan on the west, and China on the north. While the Arabian Sea lies in the south of the country, next to one of the biggest cities of Pakistan, called Karachi. The total land area of Pakistan is 796,095 sq km, out of which 25,220 sq km is covered with water. The state religion of the country is Islam (96,4% Muslims). Pakistan is a primarily an agricultural country with 35.2 % of the land under irrigation. Almost 36 % population lies between 0-14 years, and 34% is between 25-54 years of age, with 2,07% growth rate per annum. The literacy rate is 59 % with majority of the male educated population (CIA, 2020). According to the Human Development Index (HDI) report of 2019, Pakistan ranks 152nd out of the 189 countries included in the United Nations HDI. The HDI value for Pakistan is 0,560, where life expectancy is 67,1 years, average years of schooling are 5,2 years, and gross national income per capita is \$5,190 (The Nation, 2019).

The Global Climate Risk Index (GCRI) has ranked Pakistan 5th most vulnerable state to climate change (Eckstein et al., 2019). The extreme climate events between 1994-2013 caused up to 450 deaths per year, and average annual economic losses of US\$3.99 billion (Eckstein et al., 2019). The main climate events included drought (1997–2004 and 2013–14), floods (2005, 2008, 2011, 2012, and 2013), the super-flood of 2010, heavy snowfall in the northern mountains (2005– 2013), heat waves (2010, 2013, and 2015), cyclones (2007), heavy rains, glacial lake outburst floods (GLOFs), and landslides (Rehman et al., 2015). There are several sectors which face the dire impacts and damage due to climate disasters. According to Parry (2016), globally the most vulnerable sector is productivity and biodiversity. This is followed by loss of life and injury due to extreme weathers. Other related losses include, loss of mangroves, socio-economic losses, soil fertility, community displacement, and cultural losses (Khan, 2008). According to the first Intended Nationally Determined Contribution (INDC),

studies conducted by the National Disaster Management Authority (NDMA), revealed that the climate change events caused an average economic loss of USD 3.99 billion per annum, between 1994 to 2013 (MOCC, 2016). Similarly, the five recurring floods, between 2010-2014, caused monetary damages of USD 18 Billion. In addition 38.12 million people were affected. This also caused an agricultural loss of 10.63 million acres (MoCC, 2015). In the given context, it is important to note that there is very limited research on climate change adaptation and resulting loss and damage (L&D) in the country. Similarly, there is no clear guideline on the formulation of adaptation policy, with regards to the international funding priorities. Even the National Climate Change Policy (NCCP) does not possess any substantial information on adaptation, which may include vulnerable groups, and their adaptive capacities. Similarly, the current adaptation scenario of the country clearly portrays the disconnect between the governing bodies at various levels of administration.

In addition to the lack of adaptive capacity and capability of the government in Pakistan, the national climate policy also needs a comprehensive review and amendment. The primary policy document on Climate Change in Pakistan is, the National Climate Change Policy (NCCP) (GoP, 2012). The document has mentioned climate change adaptation several times, and covered the sectors such as gender, nature, urban planning, livestock, fisheries, and adaptation funding, all as part of the national level broad interests. However, the policy does not clearly define the proactive adaptation measures which are required, or the actions which should be taken in the post disaster scenarios, especially for the vulnerable local populations. So, the national level policy has yet to evolve and understand the needs to develop a comprehensive strategy towards the adaptation (MoCC, 2012). In continuation of the National Climate Change Policy (NCCP), another governmental initiative was introduced in the form of a Framework for Implementation of Climate Change Policy (2014-2030). This document entails how the policy will actually be executed. It is again surprising to note that although the document mentions the losses due to climate impacts, as well as the needs for adaptation and mitigation, it does not provide any solid grounds or instruments through which the indicators can be identified for adaptation and the

requirements of financial resources or their organized allocation for adaptation funding (MoCC, 2014).

The National Climate Change Policy (NCCP), is expected to play an important role for the donors, investor, and implementers, towards taking adaptation related initiatives in Pakistan, as suggested by the study respondents. In the given context, respondents from the Ministry of Climate Change (MoCC) explained that the current NCCP in relation to adaptation shows commitment of the national government, and highlights national priorities that contribute to international commitments. Such as, the setting up of a Pakistan Climate Change Fund (PCCF), which further improved the country's credibility to attract international funding. However, it should be noted that, the climate change policy of Pakistan was developed before the remarkable 18th amendment of the national constitution, with this constitutional amendment in 2010; the provinces gained more administrative power. One of the unexpected challenges facing the climate change adaptation implementation therefore was the aftermath of this 18th constitutional amendment. This 18th amendment entails that authority of the ministries will be devolved into the provinces, where the decision making authority will rest with the provinces, and not the federal ministries (GoP, 2010).

After the passing of 18th amendment, cities and municipalities were given authority to decide development projects and manage the crisis. Even after the constitutional amendment, the legal systems around climate change did not come into action. The issues were not recognized, and no activity was initiated towards climate change adaptation. Therefore, the aftermath of constitutional amendment has led the policy to become weaker in implementation. Most part of the policy is still in the form of a draft, as well as the national level approaches are different from the provincial approaches. In addition, adaptation has a very negligible value in National Climate Change Policy (NCCP) of Pakistan, and the policy makers are not able to differentiate between the adaptation and mitigation. Here, adaptation is almost a new subject for the implementers in Pakistan (Shah, 2012).

Similarly, there is also a huge difference of agendas between the funding agencies and the government bodies in terms of adaptation funding. Every stakeholder who deals with the adaptation funding, has a different agenda, which is aligned with their organizational interest. For instance, the government bodies will have different priorities for adaptation needs based upon the public sector issues, while the funding agencies such as United Nations Development Program (UNDP), World Bank (WB), Global Environmental Facility (GEF) and others, might be carrying the international agendas behind the projects they offer funding for. In addition to the diverging interests, funding agencies may focus only on a few sectors while allocating funds such as water and sanitation, or environmental issues, whereas the government has the obligation to consider all the public sectors (Parry, 2016). Whereas, according to the study findings, the funding agencies may also have the scope to show flexibility and align with the interests of the government, as well as furnish their targets. For instance, according to the respondent from UNDP, the agency is assisting the government of Pakistan and three other agencies, in reviewing various public sectors. This is to set priorities for the climate change adaptation through cross cutting sectors of health, education, water, and food. While, the main focus for the funding agency is to invest in energy access, efficiency, and renewable technologies. In the given context, UNDP does not provide funds, but offers grants in the form of soft loans, through the government of Pakistan. Similarly, the UNDP also has an inclination to assist the government in revisiting and updating the climate change policy, besides working on the provincial actions plans aligned with the NDC targets for adaptation (Respondent #1, 4.6.20).

4.2 Adaptation Funding and National Climate Change Policy of Pakistan (NCCP)

The National Climate Change Policy of Pakistan (NCCP), has been developed in accordance with a number of external influencers, primarily the funding agencies, who have supported the formulation of the policy through funding as well as, technical support, as suggested by the respondents. Respondent from Sustainable Development Policy Institute (SDPI), National Environmental Consultants (NEC), and Hashu

Foundation Pakistan (HFP), suggested that the government of Pakistan does not even possess the required technical capacity to draft a viable policy document (Respondents #9, #13 and #15). Responded from Center for Disaster Protection (CPD), also stated that the National Climate Change Policy (NCCP) was written with funds provided by UNDP, while the Provincial Climate Change Policies (PCCP) are drafted with the help of Oxford Committee for Famine Relief (OXFAM) funding (Respondent #7, 16.06.20). According to respondents from Concern Worldwide and UK's Department For International Development (DFID), the funding mechanism is also designed for the funding agencies in a certain way. The international funding bodies allocate their funds to other locally based international agencies, which are responsible for implementing the projects through those funds. The technical aspect involved here is that the agencies which receive those funds from the international sources such as Green Climate Fund (GCF), Global Environmental Facility (GEF), and World Bank (WB), are very few. The reason is that these agencies such as United Nations Development Program (UNDP), World Wildlife Fund (WWF), Oxford Committee for Famine Relief (OXFAM), Asian Development Bank (ADB), United Nations Food and Agriculture Organization (UNFAO), and a few others, must be accredited according to the funding resource standards, in order to receive the funds for the implementing country (Respondents #4 and #10, 4.06.20, 16.06.20).

In addition, according to the findings, there are two categories of funding sources, including, those who invest their climate change adaptation funds through the government, and those who invest their funds, based upon their own funding priorities, and possess their own implementing channels, without engaging the government. The matter of policy-tradeoffs, is in principle dealt differently by the government and the different funding agencies. Some of the funding agencies consider the government of Pakistan to be their 'client', as explained by the respondent from the World Bank and consider aligning their funding interests with the governmental priorities. In the given context, according to the respondent from the World Bank office in the country, the government of Pakistan has already received around 40 billion dollars, from funding

agencies to tackle the environmental issues including climate change (Respondent #18, 26.7.20).

According to the respondents from Sustainable Development Policy Institute (SDPI), Climate Reality Project- Pakistan (CRP), and World Wildlife Fund Pakistan (WWF), some funding agencies would consider their pre-designed agenda for making adaptation investments, and also set up their own channels to regulate the flow of adaptation funds into actions. They have their defined routes and interests and related internal policies (Respondents #9, 16.06.20; #14, 04.06.20; and #17, 15.06.20). Respondent #7 added that the funding agencies are bound to invest their funds which have been allocated to them for the year, therefore according to respondent #16, it depends upon the funding priorities and the extent to which the funding agency deviates from government's priorities. Respondent #2 added that the major reason behind non-coherence of agencies and the government, is the non-availability of data and records, needed by the funding agencies to design their adaptation actions. She explained that the data provided by the government is outdated and non-validated through the required check and balance systems (Respondent #2, 16.06.20). Similarly, the respondents from CRP, added that the government is not even sure about what it wants, and the government agenda does not coincide with the public needs (Respondent #14, 04.06.20). The Ministry of Climate Change (MoCC) does not intend to create any synergies between the policies and the adaptation needs at the public level. He concluded that the lack of integrated policies and interest by the government leads the funding agencies to further deviate from the public interests and focus their organizational interests instead (Respondent #14, 4.6.20). The respondent from the World Bank provided another example about the government's ongoing inclination towards planting the ten billion tree tsunami campaign. The campaign has been launched by the running government to fight deforestation and climate change, through planting maximum number of trees as possible (MoCC (a), 2018). Here she suggested that, although it is a good initiative, yet the government needs to prioritize the actions which can go besides the other adaptation needs, and may prove to be more beneficial for the affected people, such as water and food security related adaptation

actions. However, it is important that the funding and investment for climate change adaptation should be prioritized based upon the risks and their intensity of impacts in the affected areas, and not based upon any vested agendas of the funding agencies.

Similarly, according to respondent from World Bank, although the current policy suggests the good practices in comparison to the neighboring countries, yet the government does not possess the capacity to implement it (Respondent #18, 26.06.20). According to the respondent from GIZ, the national policy is quite comprehensive; however, there is no national action plan on climate change, for providing a roadmap to follow, especially for adaptation actions. With reference to the implementation of the policy, the governance structure, which is designed as a hierarchy of scales at the international, national, provincial and local levels, forms the basis for implementing the actions around climate change adaptation policy (Respondent #6, 04.06.20). However, there seems to be a disconnect in this basic structure in the context of Pakistan, as explained by the respondents. Another connected issue is explained by respondent #6, who said that the ministries have a working style to stay inside the silos. This resists the need for inter-coordination, and intra-coordination of the national ministries and departments. In addition, this also prevents the public sector from reaching out to the private sector, and the stakeholder cannot be brought on the same page. For instance, according to respondent from Snow Leopard Foundation and Accountability Lab, the overall political will is absent, in implementing the climate change adaptation policy, which is the primary disabling factor. The government has only invested in small level actions such as planting trees, but there is no focus on large scale interventions and planning. Also, there is a lack of lobbying at the management level, for prioritizing the adaptation needs of the country (#8 and #12). As the respondent from Hum Pakistan, and the news Journalist, explained, that the bureaucracy at the national level, besides politics at United Nations Framework Convention on Climate Change (UNFCCC), attribution uncertainties, non-economic versus economic damage debates, transparency in decision making and financial spending, and legal ramifications are all disabling factors (Respondents #16, 22.06.20 and #19, 20.06.20). However, the major dilemma is the organized utilization of the adaptation funds, and prioritizing climate

change adaptation, through efficient use of financial, policy, and technical support (Respondent #2, 16.6.20). According to respondent #9 from SDPI, inefficient handling of the funds by the government is another major issue behind climate related funding, due to the lack of an organized policy on climate change. The governmental organizations and state departments, at various levels may have the capacity to attract funds, but end up losing the money. This happens when the available funds are mismanaged, deliverables are not prioritized according to the funding agendas, or the funds are simply not planned against the project activities in an organized manner.

The point to note here, according to respondents from Zizak Private Limited (ZPL) and Accountability Lab Pakistan (ALP), is that the aid received through the funding agencies is generally small; they have small goals for every country as well (Respondents #11 and #12). According to respondent from Alliance for Water Stewardship (AWS), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), and OXFAM America, Pakistan Office, these funding agencies have small funds to invest, therefore they plan only small scale projects (Respondents #2, 16.06.20; #6, 04.06.20; #22, 06,04,20). Such agencies also have clear policies of working independently, through the local level community-based organizations (CBOs). These local CBOs help the funding agencies for conducting vocational training, data collection, small scale reporting, and assessments about the impact and outreach of the planned projects. Therefore, the government should ensure that the aid is being used within the laid down limits set for the public sector. For example, according to respondent from National Environmental Consultants (NEC), if the government has a plan to open a river corridor, but the funding agency plans to build a school at the same spot, then it should not be given the permission to do so as the government's plan is more important and needed for the locals. It should be a decision of the government to see what should be done first, the influence should not be coming from the donors, but the government itself (Respondent #13, 12.6.20).

4.3 Adaptation Funding Priorities, Needs, and Adaptive Capacity

Amongst the climate change related Impacts, which require the rapid adaptation measures, supported through financial aid, the priorities vary from region to region, based upon their spatial situations and weather conditions (EU, 2019). At the same time, according to the study respondents, in a broader perspective, the priorities at the international level are also different from the priorities at the national level for Pakistan. As one of the officials, from the Pakistan Ministry of Climate Change (MoCC) suggested that, "*every country and region has its own circumstances. Some are Greenhouse Gas (GHG) producers while some are just bearing the burden of changing climate* (Respondents #21, 25.6.20)." Keeping the above under consideration, it is also worthwhile to mention here that most of the national level priorities for Pakistan are also in line with most of the international priorities for climate change. While explaining the climate change adaptation priorities, at the international and global level, the respondent from UK government's Department of International Development (DFID) in Pakistan, summarized the situation into five basic dimensions. She explained that the areas which need immediate focus for adaptation at the national level in Pakistan include, a) early warning systems, b) climate resilient infrastructure, c) food system d) agricultural production e) sea level rise (Respondent #10, 16.6.20).

While elaborating the risks, an NGO representative from LEAD Pakistan suggested that, risks cannot be prioritized at the regional or global scales, unless we conduct a region specific prioritization, through research and assessment of the climate impacts (Respondent #3, 21.06.20). Yet, some of the tentative priority areas in the context of Pakistan have been listed by various experts. For Instance, **as** scarcity of water and declining of water tables is already leading to the bigger challenges of food security and drought (Payus et al., 2020), according to respondents #2 and #20, considered that the water sector should be prioritized especially in the national context. While, according to the respondent who is a journalist, the rural areas are at high risk of famine, besides floods and destruction, due to the inability of the local people to deal with the unprecedented events of rainfalls including either heavy rains or no rains at all

(Respondent #19, 20.06.2020). On this he provided the example from the Hunza Valley towards the hilly northern areas of Pakistan. This respondent indicated that the water released from the rapidly melting glaciers is causing the destruction of homes and loss of livelihoods in the valley (see also Farhan et al., 2020). Therefore, in his view, the glacial waters need to be channeled into dams as part of proactive adaptation (Respondent #19, 20.6.20). Similarly, respondents from Accountability Lab Pakistan and Halcrow Pakistan, two major NGOs, further added that major agricultural areas of the country are witnessing serious droughts with the changing climatic conditions (Ali et al., 2020); therefore there is a subsequent need for the large scale investments and projects to tackle the issue (Respondent #12, 05.06.20 and #20, 25.06.20). Along with the loss of farming opportunities, the major connected impact can be seen as the loss of livelihoods for the farming communities, as described by SLF (Respondent #8, 18.06.20). This further enters into another challenge for the country which is increased poverty. In addition, the respondent from the Ministry of Climate Change (MoCC) considers that human health is yet another significant sector which faces direct impacts of climate change, and must be provided by the necessary adaptation funding, to prevent outbreak of diseases and deaths during the disasters.

At the National level, the majority of the respondents considered imbalanced hydrological cycle (and resulting floods), to be the primary climate impacts, which set up the priority for adaptation of flood related impacts. Floods are one of the most crucial impacts of climate change in Pakistan (Ali et al., 2020). According to respondents, "*The large scale floods in the country, affect the people on a larger scale every year.*" (Respondents #11, 9.06.20 and #12, 05.06.20) These incidents are not new, but have increased in frequency since the climate change began to happen.' The floods are not only limited to the flow of large amounts of water in smaller water bodies, but they also have several connected impacts including landslides, creation of temporary lakes, and loss of assets and properties for the downstream communities, as described by respondent from NEC (Respondent #13, 12.06.20). The imbalance of the hydrological cycle under extreme weather conditions, also leads to severe droughts and famine in some areas of Pakistan. For instance, the respondent from the Accountability Lab

quoted that the wheat crop suffered badly in the running year, as most of it was destroyed by heavy hail storms, where the size of the hails was exceptionally big. The provinces of Sindh and Punjab, suffered the most during these unprecedented hail storm events, while the province of Baluchistan is now facing the same trend of crop damages (Respondent #12 5.6.20) (Dawn, 2020).

The second most significant climate impact in Pakistan is droughts as explained by the study respondents, leading to famine in several water stressed areas of the country. As Pakistan has heavily an agricultural economy, a major portion of the country's GDP comes from agriculture (Respondent #20, 25.06.20). As the climate disaster events are increasing, the country's agriculture dominated GDP is declining, and the trends can be followed through the past couple of decades, said respondent from the Climate Reality Project Pakistan (Respondent #14, 4.6.2020). One of the examples is the prolonged winters of 2019-20, which lead to an abrupt transitioning from winter to summer, skipping the spring. This event impacted the major export crops of Pakistan, such as Mangoes (The News, 2019). The crops lost their nutritional values, besides their quantity and quality (Muhammad, 2020). The respondent, who is a journalist, also quoted that a considerable decrease has been observed in the cotton and wheat crops (Respondent 19, 20.06.20). Respondent from HFP also added another perspective, that the people living in coastal areas have also begun to lose their livelihoods, and began to switch their professions from farming to fishing, as the fresh water is becoming unavailable with a decreasing water table (Respondent #15, 25.06.20). However, there is no contingency planning to encounter the disasters, and Pakistan stands at the frontline of climate change (Eckstein et al., 2019). This brings forth the adaptation for food scarcity, as the next priority.

Further to the floods and droughts, water scarcity which is a common urban development challenge in developing countries, is further compounded by climate induced glacial loss and unpredictable and changing weather patterns, (Respondent #16, 22.06.20). Similarly, according to respondent #9, the water stressed areas in Pakistan are facing major consequences of losing access to drinking or potable water.

Respondent from CRP highlighted that Pakistan consists of five major rivers, out of which 3 rivers are almost under dry conditions, while except for river Sindh, all the rivers are under massive stress, leading to incidents of drought and lowered agricultural yields (Dawn, 2020, Respondent #14, 04.06.20).

Moreover, respondent from NEC and WWF mentioned that, just like the oceans around the globe, Pakistan is also facing a serious issue of glacier melt, leading to another calamity termed as Glacial Lake Outburst Flood (GLOF) (Respondents #13,12.06.20 and #17, 15.06.20). The respondent who is a journalist, referred to the report from Asian Development Bank (ADB), that in the next two decades, the melting of glaciers will increase, but afterwards, eventually, the amount of melted water will decrease, as the glaciers would already be melted, without being frozen back to their original sizes (Chen et al., 2013, Respondent #19,20.06.20). Similarly, according to the respondent from MoCC the rise of sea level is impacting the coastal communities of Pakistan in a devastating manner (Respondent #21, 25.6.20). Yet, it stands as a neglected factor while counting the major impacts of climate change in Pakistan. According to the respondent from CRP, in the provinces of Sindh and Baluchistan, most of the coastal areas are now under the sea level, but this is not under consideration by the government (Respondent #14, 04.06.20).

The next challenge faced by Pakistan, after water stress, floods and droughts is the heat waves resulting from extreme temperatures, especially during the summer months which affect the health and mortality of a large set of population every year (Respondent #16, 22.6.20). Heat wave is a constant spell of humid, hot, or else dry and hot condition which persists in a particular region (Raei et al., 2018). Some of the major cities of Pakistan such as Karachi, Lahore, Faisalabad, are facing severe incidents of heat waves every year, killing hundreds of people across the country (Hanif, 2017). As respondent from Climate Reality Project, suggested that the 2015 heat wave in Karachi brought serious consequences, such as over hundred deaths, especially within the poor communities, who could not afford to have air conditioners or other provisions to save themselves from the heat wave. Another alarming impact of climate change in Pakistan

is the outbreak of contagious disease, with every climate related calamity that takes place (Respondent 14, 4.6.20). For instance, respondents from CRP and WWF, mentioned that the diseases including dengue, malaria, typhoid, pneumonia, and others, which spread after every flood event, or under extreme heat waves have increased (Hussain, 2016) (Respondents #14, 04.06.20 and #17, 15.06.20). They added that these diseases were once only associated with the plain areas of the country, but with the changing spatial occurrence of the climate events, these diseases are now becoming prevalent in the upper northern areas of the country as well, which are witnessing hotter temperatures as the climate changes. Moreover, the government bodies such as National Disaster Management Authority (NDMA), Provincial Disaster Management Authority (PDMA), or even the government hospitals, were least prepared for this climate induced emergency (Asian Development Bank, 2017).

The findings of the study also suggest that there is an increasing frequency of the climate impacts and annual ratio of disasters, in the presence of a weak disaster management capacity and untrustworthy early warning response system in the country. This makes the communities to become vulnerable to climate disasters and losses, without a reliable adaptive capacity. According to the respondents from Alliance for Water Stewardship, and Concern Worldwide, there is poor adaptive capacity in the country, especially the conservative adaptation approaches of the policy makers. The communities at the grassroots level do not have any training or funding opportunities for climate change adaptation, even though they are the first ones to respond (Respondents #2, 16.06.20 and #4, 04.06.20). According to respondent from Alliance for Water Stewardship (AWS), the local consumers should be the first ones to be supported, especially the rural and urban centers, for capacity building against climate impacts adaptation (Respondent #2, 16.06.20). In addition, respondent from Zizak Pvt Ltd (ZPL) suggested that youth should be prioritized for sensitizing about climate change adaptation needs, as the older generations are more rigid while adhering to the existing actions and values (Respondent #11, 09.06.20). In the opinion of respondent from HFP, females living in the rural environment are also extremely vulnerable, as they lack political voice and learning opportunity, besides they have no economic autonomy

over their own earned money. Traditionally, it's only the male populations who are educated and incapacitated, but at the end it's the women who work in the fields and suffer impacts of climate change (Respondent #15, 26.06.20). Similarly, there are other hidden issues, which are not brought up under regular circumstances. These may include the restrictions for capacity building due to religious and cultural boundaries. In addition the country is now having climate migrants, as the people suffer from the permanent loss of farmlands. Respondent from the World Bank suggested that it is mostly the small and medium scale farmers who bear the losses at a large extent (Respondent #18, 26.06.20).

The respondent from Center for Disaster Protection (CDP), discussed the adaptation status against all the climate change impacts, faced by Pakistan, and explained that adaptation is a neglected topic for the majority of the vulnerable groups. The main causes behind lack of the will to adapt include non-availability of the required funds, and weakened policy to set the basis for adaptation plans. Depending upon the climate change impacts, the climate change adaptation needs depend upon the communities of different regions as suggested (Respondent #7, 16.06.20). Each community has a different capacity to deal with a climate risk. Adaptation prioritizing local knowledge and understanding the local context is absolutely crucial, and the already marginalized communities need to be dealt more carefully. At a broader scale although, regardless of the lack of facilities for capacity building and proactive adaptation, the rural communities are still aware of the emergency responses, as they are the front line fighters, such as the farmers (Respondents #9, 16.06.20 and #10,16.10.20). These communities are also quite flexible and willing to understand the adaptation techniques. In addition, the small scale farming communities also have a few limited funds to deal with the disasters, unless the damages are worse. The above has been summarized most appropriately by the respondent from Hum Pakistan, in a precise manner when she said that prioritizing one risk over the other or one sector over the other does not work. Every country needs a tailored approach that suits their context and set of challenges, so it is up to the governments to put forth the investment support they require the most. While nationally, governments should prioritize risks based on the

likelihood of climate impacts and the threats they pose to human lives, health, natural resources, geopolitical governance and long term national economic development (Respondent #16, 22.06.20).

4.4 The Question of Scales and Adaptation Approaches

Once the risks of climate change are assessed, defined, and prioritized, the next level approach which takes place is implementation of adaptation actions. With reference to implementation, climate change adaptation is a function of organized approaches, strategies, and implementation framework, which leads to the sustainable adaptation in any country, suggested the study findings. Although Pakistan's climate policy does not have much focus on adaptation and related funding, it seems that it is also a similar trend internationally. The adaptation funding is primarily not even a global priority, as the German Watch report for 2017 (Kreft et al., 2016), quoted that Green Climate Fund (GCF) only allocated 19% funds towards adaptation actions as compared to mitigation globally. Whereas, the adaptation funding needs for Pakistan only, range between 7-14 billion Dollars annually. However, the government of Pakistan has no organized policy or the Nationally Determined Contribution (NDC) on this matter, as mentioned by the respondent from CRP (Respondent #14, 4.6.20).

While analyzing the emerging themes from expert interviews, three primary approaches have been identified as suggested by the respondents. The first one is soft adaptation approach, which includes policy reforms, legislative amendments, social acceptance, and management of the adaptation actions, that needs to be prioritized, as recorded by the respondents from LEAD, SLF, SDPI, DFID, and ZPL. These respondents suggested that Pakistan has functional policies, but their implementation is not in effect. In the given situation, the country is unable to capitalize on some of the policies, because the country lacks a comprehensive governance mechanism. Even though the country is equipped with sufficient technologies, the lack of governance puts hurdles in the way of up scaling the hard adaptation techniques (Respondent #3,21.06.20; #8,18.06.20; #9,16.06.20; #10,16.06.20 and #11,09.06.20). Similarly, respondent from SDPI added

that the soft adaptation should set the baseline for hard (technology intervention) adaptation, especially the National Climate Change Policy (NCCP), which is weak in all perspectives (Respondent #9,16.06.20). Respondents also emphasized that if the policies are to be strengthened, there is a need to create a balance between the institutions who formulate the policies, through coordinated approaches. Such measures can bring revolution in both technology and infrastructure (Respondents #3,21.06.20; #7,16.06.20; #11,09.06.20 and #19,20.06.20). Respondent from SDPI shared an example that an effective policy can enable the right environment for construction of dams, bridges, and water infiltration systems, for adapting the climate induced floods (Respondent #9,16.06.20). Another angle to soft adaptation is the legislation. According to respondent from Halcrow Pakistan, adaptation can be localized and done in different ways, but the first step is to institutionalize the regulations, such as environmental regulations. In Pakistan regulations are only in the documents. Regulations should begin at the grassroots levels. There is no legislative responsibility and ownership towards adaptation in the country on ground, but only stays in advisory documents (Respondent #20, 25.06.20).

A few respondents also held the stance that Pakistan already has enough policies to set the stage for hard adaptation, which includes technical interventions. Pakistan has more policies than what is needed. Several policies can be connected to climate change which the government was already implementing through conducting several activities on climate change adaptation. Similarly, there are multiple studies which have been produced and audited, concerning how much funds have been allocated, what projects have been completed and which actions are on the ground. There is only a need to review these existing policies around the public sector, and align them to enable the adaptation actions (Respondents #8,18.06.20 and #15,26.06.20). In addition, respondent from CDP quoted that soft adaptations have limited impact in developing countries where policies and legal structures lack compliance and accountability. In countries like Pakistan that are extremely vulnerable to climate impacts, and will continue to observe intensified impacts over the coming years, soft adaptations will not be sufficient on their own (Respondent #16, 22.06.20). Keeping in view the above

challenges, the international funding agencies like to focus on hard infrastructure and technology based interventions. Soft interventions are more inclined towards internal development e.g. talks by experts, and mainstreaming the interventions within the ongoing world bank projects, however, these processes take too long due to the irrelevant issues, and unnecessary interventions (Respondent #18,26.06.20). Soft adaptations are needed with reference to capacity building; however the legal structure keeps on changing. The survey respondents suggested that hard measures for instance building dykes, or dams, or engineering efforts that curtail glacial loss or evade heating, are needed to ensure prevention of climate induced loss and damage. These will not only benefit one country, the outcomes from having these hard measures in place would have a regional effect, as well as a global effect, depending on the scale of measure adopted.

The third set of respondents considered taking both soft and hard adaptation approaches together. The inclination towards one of the two approaches will not lead to any substantial and ground results. Such as if the policies do set the surface for introducing technology interventions and infrastructural modifications, the soft adaptation stays redundant. Similarly, technology advancement without the policy guideline can instead become a waste of resources and finances (Respondent #4,05.06.20; #6,04.06.20; #9,16.06.20 and #14,04.06.20). Both soft and hard adaptation solutions should be planned to support each other. For example, infrastructural changes can be brought about through a soft adaptation perspective. The need is to adopt a mind shift. The policies should govern the government and funding agencies while settling down for technologies which are brought or bought from the developed states. Here, it is more sensible to set off with the technological interventions, before the infrastructural interventions, for gaining beneficial outcomes (Respondent #2, 16.06.20). According to the respondent from UNDP, an ongoing example can be quoted where UNDP is assisting the government of Pakistan in leveraging the National Action Plans (NAPs), setting up a technical committee on adaptation management, and establishing the advisory committee for the political

ownership of projects on adaptation. So, the soft interventions enable the hard interventions, and both should be worked together upon (Respondent #1, 04.06.20).

Chapter 5: Analysis

This study's findings point out some of the most crucial issues, which may hinder the effective use of adaptation funding in Pakistan, in accordance with the National Climate Change Policy of Pakistan (NCCP). These findings also give rise to a number of policy related recommendations, which can lead to the implementation of adaptation. An analysis of the National Climate Change Policy (NCCP) of Pakistan, in relation to the adaptation funding, primarily suggests that, the governance structure should be made more facilitative through eliminating the least important departments from the funding channels. Respondents from DFID and US-OXFAM suggested that the climate change Policy needs to stand as the guiding document on providing the strategic direction. The policy should pave the path for the international funding agencies and implementing national level departments, about where and how to spend the funds. In addition there is a need to develop national action plans on climate change adaptation. The national policy should also establish a systematic approach, where powers are delegated to the provinces and the sub-provincial departments, yet this should follow a bottom up approach, anchoring to the federal Ministry of Climate Change (MoCC). In addition, keeping in view the layered approach, the authority should trickle down to the grassroots level, up to the small units called union councils.

The current climate change policy is quite ambitious. The translation of policy to actions is required, and needs good projects and good institutional arrangement to implement the projects (Respondent #13, 12.06.20). The respondents from SLF, DFID, and Journalism suggested that there is a need to strengthen the policy through revision, and the policy should provide the grounds for sensitizing the funding sources including banking and private sector, besides the international funding agencies (Respondent #8,18.06.20; #10,16.06.20 and #19,20.06.20). There are several policies and plans

which are only inside the reports, but not on the ground. There is a significant gap of the government's interest.

As climate change is a devolved subject to the provinces, a coordinated approach should be adopted, for incorporating both policy and technology, as part of the infrastructure (Respondent #7,16.06.20). According to respondent from LEAD, German Red Cross, DFID and the Journalist from print media, there is an opportunity for the government to incorporate climate change adaptation into the ongoing government activities. In addition, the government should not consider adaptation being a global agenda, and merely a responsibility of the funding agencies to invest funds into it. Instead, the government of Pakistan should take the ownership itself, and formulate models of public and private partnerships to channel the adaptation actions (Respondents #3,21.06.20; #5,12.06.20; #10,16.06.20 and #19,20.06.20).

In the context of 18th amendment which yielded more power to the local authorities, the government needs to create the synergies between the adaptation actions (respondent #6, 04.06.20; #7,16.06.20; #14,04.06.20 #22,03.07.20). The current policy shows a disconnect between the data available, the capacity of the implementing agencies, the funds available, and the government priorities in adaptation. The policy can be improvised, if an adaptation plan is provided, and designed through research based sectorial data of the background. Another neglected aspect of adaptation is the disconnect between the academia and the policy makers. Due to the lack of government interests, the academia is also not motivated to invest in research about adaptation. Through involvement of the academia, there is a need to develop a database about the extreme events. Based upon the verified data, adaptation should be channeled into the national action plan for Pakistan (Respondent #6,04.06.20). Respondent from German Red Cross, CDP, CRP, Halcrow, and MoCC, suggested that monitoring and evaluation should be implemented here, to ensure the transparency. This is needed to cater different areas and communities. So, relevant experts should be engaged for making assessments (Respondents #5,12.06.20; #7,16.06.20; #14,04.06.20; #20,25.06.20 and #21,25.06.20). There should also be efficient data

collection, for assessing the vulnerability and risks of climate induced disasters, and connected proactive adaptation. There is not a need to reinvent the wheel, but only to assess how the conventional methods could be better utilized to achieve adaptation (Respondent #3, 21.06.20; #4,05.06.20).

In the above context, the respondents explained that the main reason here is the gap of intentions. While the ruling governments have their vested agenda during their reigns, the international organizations and funding agencies also do business on adaptation funds. They do not realize that the priority should be to address the public needs through the funding incentives. In the similar context, he added that the INGOs are inclined towards becoming more powerful than the government and have their writ. Here, a win-win situation can be achieved if the public interest is kept first, with the help of equity and justice. To summarize the above, it was suggested by the respondents that the policy document needs to be updated. It should be a living document. It needs to become alive every time there is a need to self-mobilize the funding resources. The revised policy should highlight the issues of climate change, and related adaptation needs in Pakistan. It should be inclusive and include all the relevant stakeholders such as government departments, funding agencies, private sector, and vulnerable or affected communities. Therefore, the local actors who are deeply rooted in the local community should be enabled for the accreditation as well (Respondents #17, 15.06.20 and #19,20.06.20).

Once a policy is refined and the governance structure is reorganized, the national ministry should hold the steering, and coordinate with the provinces and local bodies, at the national scale, while initiating and promoting collaborations at the international scale (Respondent #10,16.06.20 and #22, 03.07.20). To channel this scheme, there is a need to adopt a participatory approach. There should be well thought planning, and the plans should be people centric. The adaptation planning should be based upon the public-private participatory partnerships (PPP), for better coordination and trust building (Respondent #5,12.06.20 #8,18.06.20 and #13,12.06.20). The government should take the lead at the provincial and district levels, and design the channels through which the

funds are received, distributed, and implemented at the grassroots level. The government should also create awareness while playing a facilitative role, at the broader level, where climate change adaptation should be prioritized (Responded #8, 18.06.20; #10,16.06.20 and #14,04.06.20). Similarly, the international funding agencies should be allowed to be reached directly by the community based organizations of the affected regions, and this should also be facilitated by the federal ministry. A political voice is needed through the local bodies. A local councilor, or 'Nazim' should come forth and take the lead to communicate the needs to the government (Respondent #14,04.06.20; and #15,26.06.20).

The lack of coordination, authority and justice trickles down to the sufferings of the locals (Respondents #6,04.06.20; #8,18.06.20; #19,20.06.20; #20,25.06.20). The government needs to take ownership of adaptation activities at the national level. Climate change adaptation should be put in top ten priorities of the public sector, instead of need based adaptation. It should also be integrated into urban and rural planning (Respondent #8,18.06.20). Responded from LEAD Pakistan, also added that local adaptation planning is required at the community level. There is a need to find the data and create concrete data sets. The local adaptation planning depends upon the locally adapted data, capacity building, and emergency preparedness (Respondent #3, 21.06.20). According to the respondents, since the 18th constitutional amendment brought a huge political shift, several administrative issues also emerged in relation to climate change adaptation implementation, which are required to be addressed. Although a federal ministry is present at the national level, yet there is a need for establishing the provincial ministries on climate changes. Similarly, there is also the need to delegate more powers to the district level governments, so that they can coordinate and collaborate with the Provincial Disaster Management Authority (PDMA)s and National Disaster Management Authority (NDMA), for adaptation actions. In addition to this, the national policy should also be embedded in a communication strategy between local and national communication. The issue of climate change should be divided into sub issues and sectors, and must be dealt separately by the designated

departments, for efficient resource allocation and building adaptive capacity of the affected (Respondents #3,21.06.20; #4,05.06.20; #15,26.06.20 and #19,20.06.20).

Further, it is also important that capacity of the vulnerable populations needs to be built. In a climate prone country like Pakistan, there is always an ongoing debate about if the water management should come first or the food security. However, as a matter of fact, it is the kind of a specific disaster, which determines what should come first. A disaster weakens the overall socio-economic system, and impacts the resilience of the vulnerable groups, while affecting the country's GDP. Water and agricultural sectors stand as the two major drivers of the country's economy, while at the same time; these are the two most vulnerable sectors to the climate crisis. In this context, while acting upon the principle of corrective justice, it becomes the right of the farmers and the front line crisis bearers to receive sufficient support through policy and funding for proactive adaptation implementation. They require financial and technical assistance from the government to incapacitate themselves against the climate happenings which could impact their crops and villages. At the same time it is also true that all the important sectors need to be kept under consideration for providing adaptation support, because singling out one sector out of all, will not lead to reaching the required outcomes. Therefore, a holistic and integrative approach to adaptation needs to be adopted.

Currently, the technical capacity of the government in Pakistan is very low, which further deviates it from fulfilling its role as a facilitator for climate change adaptation. For now, the government is only inclined towards the low hanging fruits, when it comes to investments and adaptation implementation. Also, the private sector in Pakistan, does not want to invest in the adaptation needs which should help to build capacity and resilience of the vulnerable groups. Instead, the private business and corporate community is mostly interested in small scale opportunities of Corporate Social Responsibility (CSR). This implies that there is neither any fair distribution of responsibilities, nor the required information sharing between the public and private platforms. The government of Pakistan should provide the platform for the neighboring countries, to develop strategies and plans, which should enable a sustainable

adaptation approach. Moreover, the government should understand and open its eyes to the reality that the internationally funded campaigns only focus on small issues of climate change, and even smaller focus is inclined on adaptation. Therefore, the federal Ministry of Climate Change (MoCC) should take a lead on providing an enabling environment for the experts to develop local resource synergies.

In order to fulfill the responsibilities and maintain justice between various scales of power, towards handling of the climate change extremes in Pakistan, it is important to first understand the priorities for adaptation in Pakistan. In connection to a disaster several issues emerge including heat waves, floods, droughts, and resulting water and food shortage. In the given scenario the most urgent need for Pakistan is to understand and adapt proactively, while investing in smart strategies for adaptation needs. In addition to the above, it is evident that Pakistan is facing a serious climate challenge, and the most prominent impact is in the form of floods. However, regardless of how much the policy document has emphasized on efficient water management, there is no positive development on the ground, such as building of dams, or refilling the aquifers. This shows that policy making is not the problem, but strategizing the implementation of the policy is a major challenge. Such a challenge requires the will of the policy implementers besides preparedness of the affected population to cooperate with and prepare for the necessary training and guidelines for better adaptation. This process should be ultimately supported by funding to enable the actions.

Here, the third focused area that the thesis literature has discussed was in connection to Maladaptation. Maladaptation is generally an outcome of unorganized adaptation mechanism, irresponsible implementing authorities, and mishandling of adaptation funds. The overall findings of the study show that, although the National Climate Change Policy (NCCP) of Pakistan seems to portray a powerful picture of what the country intends on doing towards climate change adaptation, yet there are some major areas which seem to be neglected. At the national level, the most important actor is the federal government in Pakistan, somewhat, unsurprisingly. However, it is apparent that national level policy is not open to accommodating the international issues

pertaining to climate change and its adaptation. In addition, the policy also appears to be an over ambitious document in the light of the current capacity of the country to achieve the goals which have been set up by the policy. Also, it does not mention any connections to the monetary aspects of implementing the climate change adaptation plans. This is one aspect which serves as a backbone for any plan, which needs to be put into action. It is therefore quite significant to ensure a stable flow of funds to fuel the adaptation actions, which must be planned under the climate change policy.

In addition to these, according to study findings, another extremely vital area connected to the credibility and efficiency of the climate change adaptation in the case of a developing country like Pakistan is the availability of authentic data. Approximately hundred percent of the respondents of the survey highlighted that, there are neither any available organized records, nor any efforts in place for collecting the background data, regarding what has been done, and what needs to be done, to channel adaptation actions. There is no inclination especially from the government to set up any data collection units, at any scale. This situation raises the questions on the government's will towards implementing any effective adaptation projects, to encounter the climate crisis in practice. Having the relevant sources of data, databases, and verifying the authenticity of the data through monitoring and evaluation, can enable the implementing bodies to assess the scale of impact. Similarly, the data can also help to categorize the biggest climate impacts, which may require adaptation, such as which of the Greenhouse Gases is more prevalent, what are the sources, and what adaptation measures could be most beneficial. Having sufficient data will also enable the relevant departments to assess the parameters which need to be considered while planning for adaptation actions. For example, which of the biggest sectors of the country out of agriculture, transport, or industry, produces the most greenhouse gasses? And what adaptation measures can be adopted based upon the impacts of these sectors?

Chapter 6: Discussion and Conclusion

The literature on climate change adaptation, reviewed in the context of this thesis, suggests that in order to foster the determined actions, which can help to address climate change adaptation needs; we have the responsibility to primarily re-imagine our place in the world. We need to realize that any kind of social or technical processes that we adopt, should be in line with the natural environment. As the novelist Amitav Ghosh (2016), suggests, the global adaptation management systems are built upon two separate concepts, the first is the social systems supported by technical solutions besides practice, and the other one is the environmental systems, which may not coincide with the man-made technical fixes. He calls it, the "Great Derangement" (Fibisan, 2019). To elaborate this idea, it is important that we let our thinking process to explore how the new possibilities for action can be opened up through rethinking of the climate change problem itself. The socially-just pathways are needed to be carved out through adopting a critical approach towards knowledge. Such a way of thinking enables us to realize that the problems that we are trying to resolve, have been actually generated due to the way they were initially framed, in relation to the power and policy structure which they reflect (Nightingale et al., 2020).

The economic and political systems, in relation to the injustice that our societies face, aggravate the process of climate change vulnerability. This process is pushed further with the uneven power relations i.e. global inequalities and lack of knowledge in the area of climate change adaptation (Scoones, 2016). This argument leads us to claim that the co-production of climate change with the society, generates its co-production with the object of social justice at the same time (Ziervogel et al., 2017). Therefore, in order to challenge the needs for climate change adaptation, the first step is to address the fundamental global inequalities, along with their design and implementation. Similarly, with reference to the overarching climate change policy and adaptation funding mechanism in Pakistan, the first relevant concept discussed in the literature was corrective Justice, which entails that the ones who are responsible for climate change should bear the burden for its adaptation and mitigation as well. However, in the context

of Pakistan, the cause of climate change impacts is not Pakistan itself, but the neighboring countries of the region. They may include countries like China and India that are on the top of the polluters list for the world as well. Therefore, Pakistan is only bearing the burden of what others are doing, which depicts a clear picture of environmental injustice. Hence, the country has no other choice but to strengthen upon its adaptation policy and furnish domestic adaptation actions.

Through an in-depth analysis of the thesis literature and thesis findings, another area of discussion arises, where the corrective justice blurs into the differential responsibilities at various scales of adaptation implementation. Therefore, the second concept which was discussed in the literature on adaptation governance was differential responsibility, which entails distribution of responsibilities between different scales, in addition to communication of informational in a transparent manner, at different scales. In the context of Pakistan, the poorly coordinated political structure of the ministries, and local governments, complicate the division of responsibilities. The most common practice of the governing bodies is to shift the load of responsibilities on others, which creates additional issues of vulnerability and reduced capacity for the marginalized groups.

Here, it will not be wrong to consider adaptation as politics, which is surrounded by the factors including power, conflicting policies at various scales, resource allocation, and the administrative problems. The perceptions of climate risks, vulnerability and adaptation management, differs at all scales of hierarchy (Dolšak & Prakash, 2018). The politicizing of climate change adaption can have several degenerating impacts on the overall system which revolves around the fighting back of climate change. The politics free implementation of adaptation measures can help the communities to build capacity, prepare for the disasters management, and learn to adopt best practices for responding to the climate induced calamities, as long as they receive a smooth flow of funds, and accessibility to the relevant disaster management authorities. Whereas, in a politicized environment for adaptation, the public services become hardly accessible as the interests of the ruling parties lay with what benefits their political mandate. Such a situation deviate the governance interests of the implementers from national or people

centric, to power centric approaches. This scenario leads to increased vulnerability of the marginalized communities as a result of power inequalities, where rulers have the powers to do their will, while the public suffers with no power to raise a voice at all.

Moreover, the governing bodies with power and influence are mainly driven by their political goals. These goals vary for governing bodies at different scales of hierarchy. The similar is true in relation to the flow of adaptation funds and their flows in developing countries. The Oxfam briefing paper (2011) provided an insightful analysis on the topic. According to the report, at the international scale, the adaptation funding is channeled into the states in an uncoordinated manner, through multiple channels. This practice is independent of national adaptation or development plans of the country. The flow of funds is not aligned with any investments aimed at enhancing national capacity. Similarly, at the national level, the political goals of the leadership lack coordination and coherence across the government. The federal government is indifferent to the provincial governments and likewise. This situation further hampers the efforts towards capacity building of the communities. Moreover, at the local scale, the political will of the communities, particularly women is unaddressed, as their participation and rights are yet to be defined in most developing states (Mostafa et al., 2016).

To adopt a holistic approach, the primary focus should be to identify the core issues of equity and justice, which influence the transformative development. Similarly, the principle of sustainability also relies upon how the approach to transformation influences the actions which delegate responsibilities to the stakeholders of climate change adaptation management. This process entails rethinking investments, planning and behavior (Schipper et al., 2020). The nexus of adaptation and development has several loopholes which need to be unveiled for reaching the win-win situation. For instance the issue of victimization of the marginal communities needs to be addressed through promoting inclusiveness. This can be achieved through providing designated roles to the members of the communities, within the organizational structures which deal with the local level issues of adaptation. Similarly, establishing tribunals can have a remarkable impact on the overall management of adaptation funds, and implementation

of focused and localized adaptation related projects. This measure will be further coupled accountability through the tribunals. The world that we live in, is actually without the global inclination for development, instead to only develop in the regions where it is possible. For instance, the fast paced development of the first world countries, overlooks the impacts and risks of climate change besides the resulting socio-economic losses, in the developing and under developed states (Shackleton et al., 2015). Hence, the question raised here is whether the global development is adapting to climate change or redistributing the burden? The efforts for adaptation at one part of the globe, can instead lead to an unexpected climate disaster on the other end. To encounter the issue, the role of funding agencies is vital to the areas and countries where they invest in adaptation. The solution to the issue is the incorporation of funding agencies and their interests into the governmental structure of the given state. For instance, in case of Pakistan, the agencies such as World Bank, GEF, or GCF, primarily align with the government ministries to find the areas where investments can support adaptation. However, their accredited agencies such as UNDP, WWF, UN Environment and others, which receive funding from the given three sources, may or may not become part of the government schemes. They would instead follow their organizational mandates. In the given scenario, it is the government's responsibility to design a structure, where all the relevant agencies become inclusive to the system. This is the only way; the funding agencies can be aligned in their aims with the national government to channelize adaptation.

Recommendations

In order to effectively channel the adaptation and build capacity for the affected groups, different respondents provided different suggestions. For instance, the government of Pakistan needs to invest time, resources, and efforts towards building the adaptive capacity of the front line communities, who bear the impacts of climate disasters. There is a need to enhance the awareness rising amongst the vulnerable, so that the disaster impacts are prevented from increasing many folds. In the given context increasing the adaptation capacity will not only facilitate the efficient response towards the current disasters induced by climate, but also benefit the communities in the long run through

making them self-sufficient, without the need for external funding (Respondent #4,05.06.20). The soft loans can be provided to invest in projects such as solar panels at the local level, and the government needs to incapacitate the local people to invest in local capacity building. Suburban areas can be made self-sufficient and independently sustainable in promoting adaptation actions if they are provided the opportunity. There is a need to focus on domestic users of the resources first. The dependence of the country's GDP on the agricultural production, organically sets forth the grounds for adapting in the farming sector on an urgent basis (Respondent #2,16.10.20). The training of the farmers for dealing with climate risks and upcoming disasters should be prioritized. In addition, there is an urgent need for a rapid and proactive adaptation for floods in Pakistan (Respondents #8,18.06.20 and #9,16.06.20). For instance respondent from ZPL suggested that, "The floods should be adapted in a way that they should become a blessing for the country instead of a calamity." He added that, "the country is already facing unprecedented rains, such as the onset of rains during October and November months is unusual." Hence there are more than the average rains in a row since the past decade. Similarly, adaptation plans should be more exhaustive and include the socio-local, and socio-cultural impacts of the climate disasters (Respondent #11, 09.06.20). Respondent from DFID suggested that "there is a need to create models of adaptation, based upon both soft and hard adaptation approaches." (Respondent #10,16.06.20). The primary steps should be to establish early warning systems, create awareness and build resilience through training and funds (Respondent #8, 18.06.20). In addition, there is a need for the professionals to take the lead in providing disaster management support against floods and droughts (Respondent #11, 9.6.20).

International Adaptation Funding in Pakistan: The Way Forward

Economy is the only factor that enables and disables. Whenever you think of an intervention, there is an economic factor pulling or pushing it. An unusual angle to the international funding coming to a developing country like Pakistan is, whether the country needs to have this funding or not. Even though the country receives millions of dollars in funds from the international funding sources such as Green Climate Fund (GCF), Global Environmental Facility (GEF), and World Bank (WB), yet does this dependency further put the country's policy and governance on a dormant mode or provides it a motivation? It is a learning from the past events that the country, though receives huge funds in the name of climate change, yet these funds are neither enough, nor much beneficial unless the affectees are motivated and equipped with the sufficient knowledge and training to implement adaptation measures on their own. The vulnerable and affected populations already have their developed procedures and understanding of the issues related to annual climate disasters faced by them, as suggested by the respondents. The need for them is a strong policy which should help these communities to reach the relevant authorities through a proper channel, when the disaster hits. Instead of receiving the excessive financial aid from the funding agencies, the government should be investing more time and efforts in designing the early warning systems, and risk preparedness techniques. These are the only ways in which the adaptation can be ensured and channeled in the country, besides creating a sustainable system. These measures will not only create local capacity, but also prevent the public money to be paid in taxes, against the returnable funding aid.

This thesis has argued that the climate change adaptation relies upon three important factors, including a strong and influential adaptation policy; stable adaptation funding and implementation mechanism; and optimization of effective administrative channels especially the government departments, to rebuild their trust with the international funding agencies in Pakistan. Based on 23 in-depth interviews with key stakeholders involved with the Pakistan's adaptation efforts, the findings here suggest that due to the lack of research and maintenance of authentic data base for recording the climate

change adaptation funding and implementation efforts, the priorities in adaptation are vague. This prevents setting up of the baseline to launch effective adaptation guidelines in Pakistan. Similarly, the actors involved in the process are also not defined in relation to the specific roles that they should play, based upon their level of vulnerability, adaptive capacity, and need to react towards any climate extreme. There is a list of various focused groups, government bodies, and local level organizations who are involved with climate change adaptation projects, but they do not work in coherent directions. Similarly, their actions are directed by the interests of the funding agencies, and not the public sector needs. In addition, another important shortcoming of the system is the lack of efficient coordination between various scales of hierarchy which include; the policy makers, implementers, and beneficiaries. The major disconnect between the scales regarding the information on needs for adaptation for the effected and vulnerable communities exists. The reason is the under established channel for information dissemination and coordination of national, regional and local scales. Building on the research findings, more research is needed in the areas of priorities and needs for adaptation funding; requirement for an organized system of funding sources and the actors who are responsible for the handling, implementation, and monitoring of those funds; and finally how the adaptive capacity of the affected can be increased by providing them with the sufficient support through technological and policy fixes.

The study also concludes that the actions, measures and the steps towards adaptation at the global level have the capacity to manifest the local scales. This implies that there should be a pragmatic approach behind every action and related funding towards adaptation. Since the needs and priorities for adaptation at the global scale are well thought for action, they directly impact the local scales either positively or negatively. If the global interest of adaptation priorities do not align with the local needs, especially for the marginal and vulnerable communities of the underdeveloped and developing countries, the whole idea of adaptation becomes a failure. Likewise, unless the adaptation is implemented and achieved in all aspects by the vulnerable local communities at the frontline, a bottom up effect of adaptation cannot be felt at the global

level. Therefore, the adaptation efforts should become a function of global to local and local to global climate change adaptation action scheme.

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Annex 1: Interview Guideline - Questions

Priorities in adaptation policy

1. What climate impacts do you consider being the most urgent and significant that require rapid adaptation measures, supported through financial aid, at global and national level?
2. How should the international funding agencies, and government bodies, rank the climate risks in the order of priority, for planning the adaptation related investments?
3. In the context of Pakistan, which adaptation approach would facilitate better? Soft adaptations (policy, legal, social, management) only, or is there a need for hard adaptation (technology and infrastructure) as well, through financial aids?
4. The adaptation funding priorities of the donor agencies are liable to deviate from the policy priorities of the Public sector, and may incline them to compromise the major goals such as economic growth, inclusion, and poverty reduction. How should such policy trade-offs be assessed?

Actors of adaptation / L&D policy

5. Which actors play a vital role and are held responsible, at the international, national and local levels, in decision making, and are held to account for lack of or failure of adaptation?
6. What steps can be beneficial in building locally affected citizens' capacity in adapting climate change impacts? Which sectors and societal groups should be prioritized and why?

The question of scale (international-national-local)

7. How do you define the role of national level policy (in the context of receiving international funding/aid), in climate change adaptation?
8. What strategies can be adopted to eliminate the disconnect between the local and national scales, to ensure climate change adaptation is compensated? What are the enabling and disabling factors?
9. What steps are required to be taken to mobilize policy reforms in Pakistan towards climate change adaptation? And how can the donor funding be directed towards the locally affected areas, instead of being inefficiently handled and distributed amongst the upper strata/ government departments?
10. How does your organization view the success or failure of internationally funded adaptation actions, based upon the national adaptation policies? How should this loophole be filled to ensure the accurate use of the adaptation aid?

Vulnerability / adaptive capacity

11. In view of your organization's funding/research interests, how do you see the adaptive capacity of the locally affected people, in responding to climate disasters and resulting damages?
12. In your opinion, does the Loss and Damage (L&D) impacts of the climate crisis require a supportive and enabling adaptation platform, which is different from the existing disaster management approaches, at the national and sub-national level?

Annex 2: List of Interviewees

Respondent Nr.	Expert Designation	Institution	Date of Interview
1.	Programme Officer- Environment and Climate Change Unit	United Nations Development Program Pakistan (UNDP), Pakistan	04.06.2020
2.	Director Environmental Standards and Implementation	Alliance for Water Stewardship (AWS)	16.06.2020
3.	Research Coordinator	Leadership for Environment and Development (LEAD) Pakistan	21.06.2020
4.	Gender and Climate Change Specialist for Disaster Resilience Program	Concern Worldwide (CW)	05.06.2020.
5.	Climate Change Research and Climate Smart Agriculture and water Consultant	German RED Cross, World Wild Fund (WWF), and World Bank	12.06.2020
6.	Technical Advisor - Climate Change	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)	04.06.2020
7.	Independent consultant on Climate Change Adaptation	Center for Disaster Protection (CDP)	16.06.2020

	and Disaster Risk Management		
8.	Consultant on Institutional Development, Community Partnerships & Livelihood	Snow Leopard Foundation (SLF)	18.06.2020
9.	Senior Research Fellow	Sustainable Development Policy Institute (SDPI), Pakistan	16.06.2020
10.	Advisor on Climate Change and Resilience	Department For International Development (DFID)	16.06.2020
11.	Chairman and Founder	Zizak Private Limited (ZPL)	9.06.2020
12.	Director Programs	Accountability Lab - Pakistan	05.06.2020
13.	Managing Director	National Environmental Consultants (NEC)	12.06.2020
14.A	Country Manager	Climate Reality Project-Pakistan (CRP)	04.06.2020
15.	Director Programs	Hashoo Foundation Pakistan (HFP)	26.06.2020
16.	Climate Change Consultant	Hum Pakistan, United National Development Program (UNDP)	22.06.2020
17.	Senior Program Officer,	World Wildlife Fund (WWF)	15.06.2020

	Climate Change Adaptation		
18.	Research Associate- Climate	World Bank (WB)	26.06.2020
19.	Environmental Journalist	Reuters, The Third Pole, Dawn, The News International	20.06.2020
20.	Team Lead-Environment	Halcrow Pakistan	25.06.2020
21.	Urban Climate Change Specialist	Ministry of Climate Change (MoCC), Pakistan	25.06.2020
22.	Regional Program Manager	OXFAM America, Pakistan Office	03.07.2020
23.	Landowner and Agriculturalist	Ahmed Yar Farms, Pakpattan, Punjab, Pakistan.	03.07.2020

