

Vulnerabilities Associated with Slow-onset Events (SoEs) of Climate Change:**Multi-level Vulnerabilities in the Context of Pakistan**Gulnaz Anjum¹ & Arabella Fraser²**Abstract**

This paper explores physical, psychological, social, and institutional vulnerabilities associated with slow-onset events (SoEs) of climate change. Based on review of interdisciplinary research in Pakistani context, this paper reviews the relevance of physical, psychological, social, and institutional vulnerabilities and how they exacerbate impacts of SoEs of climate change. The physical vulnerabilities have been relatively well researched; however, research on the psychological, social, and institutional vulnerabilities and their intersectional associations with SoEs have been rare. Therefore, this review highlights the need for understanding multi-level vulnerabilities of high-risk groups in Pakistan. This paper emphasizes the need to work with an integrated approach for vulnerabilities of marginalized subgroups such as gender (women's marginalized status), socio-economic status (lower SES), and displacement and migration background. Finally, we propose the need for inclusive policy building sensitive to the demands of vulnerable groups in Karachi and elsewhere in Pakistan. We hope that this multilevel and inclusive framework has the potential to guide practitioners, and especially those who are least prepared for the slow-onset events.

Keywords:

Slow-onset Events (SoEs); Multilevel vulnerabilities; Marginalized groups; Gender; Women's issues; Social Vulnerabilities; Physical Vulnerabilities; Psychological Vulnerabilities; Heatwaves; Pakistan.

Introduction

Climate change induced slow-onset events such as rising temperatures, glacial retreat, rising sea levels, desertification, and land degradation are becoming more visible than ever before. These events are slow enough to let us socially and psychologically adapt to their gradual appearance, and dissolute enough to have damaging impacts. Slow-onset events (SoEs) are complex because of the problem of detectability which can be associated with significant difficulties in perception, preparedness, adaptability, and coping compared to hyper-visible extreme events which are given more attention in terms of policy, perception and preparedness. A lower perception can explain this lack of discernibility compared to rapid onset hazards. The prolonged temporal exposure of SoEs leads to a more complex interaction between various forms of vulnerability at different spatial scales (Aleksandrova, 2019). SoEs, therefore, become essential to understanding the risks they pose for our populations because of their potent hazards and vulnerabilities. Therefore, there is also an acute need for recognizing and building adaptive capacities linked to slow-onset events.

The lack of perceived urgency has been a key reason that prevents detection of slow onset events which further compounds lower discernibility and heightened vulnerability. This research review aims to fill this gap by offering a multilevel framework that incorporates physical, psychological, social, and institutional vulnerabilities for coping and adaptability against SoEs of climate change. The current research also fills another gap on SoEs by providing an integrated model that accounts for most prominent forms of vulnerabilities. We emphasize on working with differentiated micro and macro level vulnerabilities for marginalized groups i.e. women, lower socio-economic status, migrants, and internally displaced populations (Amiera, et al., 2020; Anjum, 2019). Research is scarce on exploring slow-onset events. Even when research has been done on SoEs,

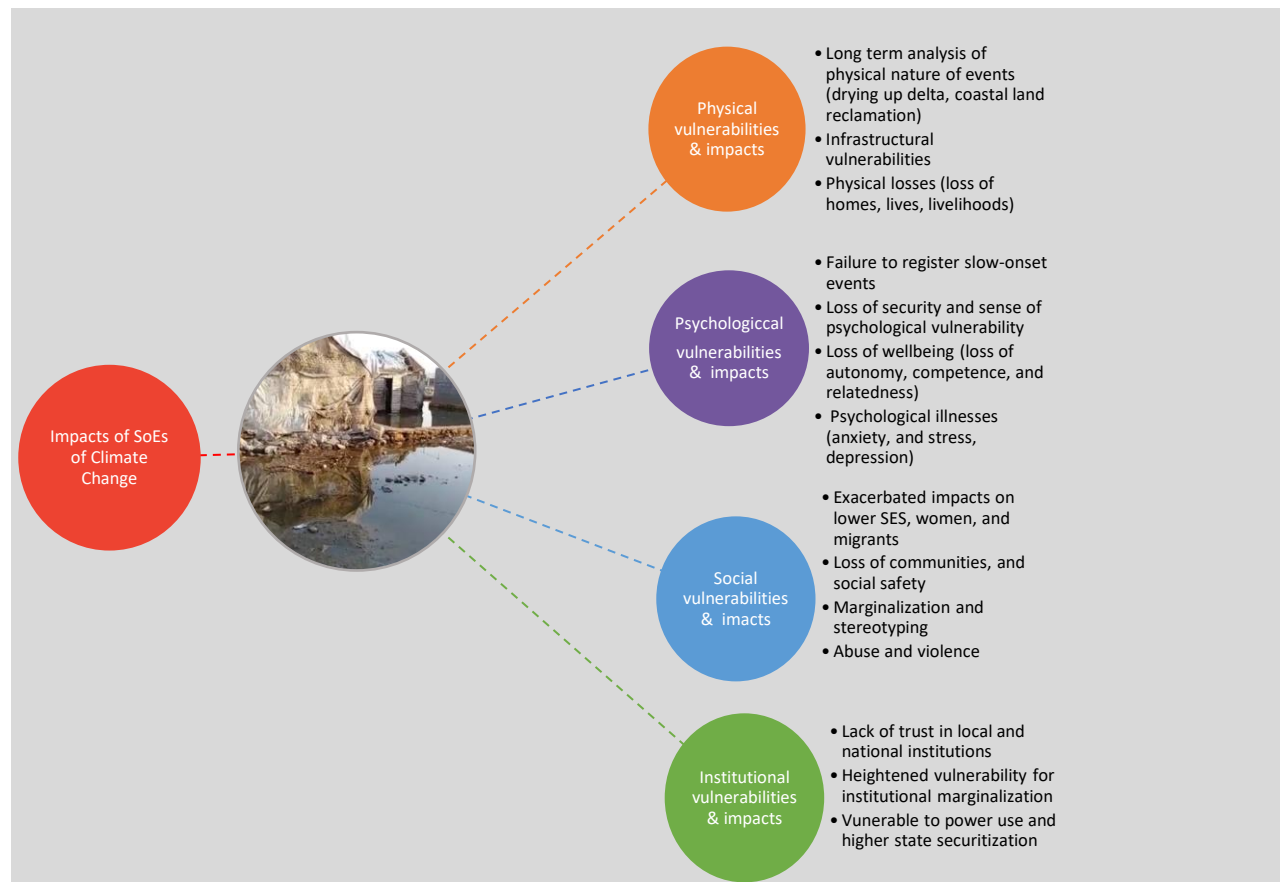
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it has often focused on developed world leading to a dearth in the understanding within developing countries. This gap exists despite many vulnerable countries' higher proneness to both slow and fast onset events. Most studies have focused on North America and Europe, whereas the countries in the global south face an added stress of slow-onset events. These events are likely to dismantle the developmental progress made in the last few decades (Matias, 2017). Therefore, this ongoing failure to manage slow onset climate change risks can offset social and economic development and put further pressure on resource-stressed countries like Pakistan.

According to GermanWatch's 2020 report, Pakistan is world's 5th most climate vulnerable country (Eckstein, et al., 2020). The report has further stressed that Pakistan is among the countries that have continuously ranked high in the long-term risk index. Long term impacts indicate that Pakistan might be more prone to SoEs of climate change. Therefore, this paper has focused on on the SoEs in Pakistan; in doing so, we specifically focus on the multidimensional vulnerabilities and how they are associated impacts of SoEs and the way forward. In what follows, we present some concrete examples from Pakistan to illustrate that multidimensional vulnerability. We argue that this multi-faceted vulnerability leads to exacerbated impacts of SoEs of climate change for the most fragile populations.

In what follows, we organize the impacts of SoEs of climate change into four facets: physical, psychological, social, and institutional. Furthermore, we make the case that looking at a single aspect at a time is not enough. We close our argument with the suggestion that intersectionality of different vulnerabilities provides a better understanding of these impacts. Figure 1 provides an aggregate model that represents multidimensional impacts of SoEs of climate change in Pakistan. **Figure 1 - Aggregate Model on the Multilevel Impacts of SoEs**



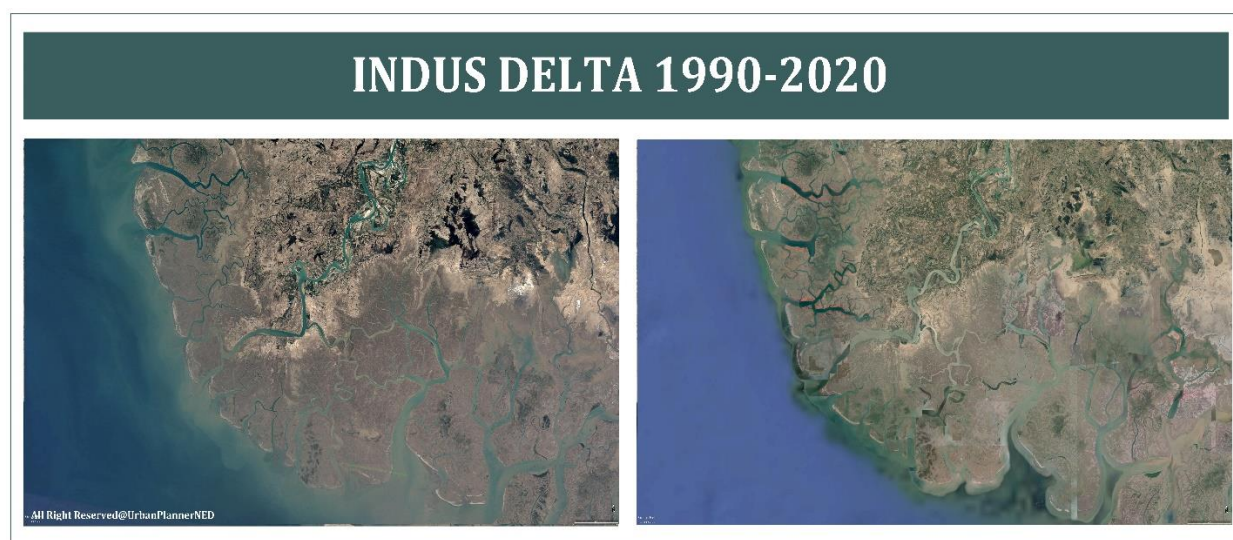
Vulnerability to SoEs of climate change may consist of many facets such as: physical, psychological, social, and institutional aspects. Only when seen in a complex intersection, these facets can highlight disproportionate risks for vulnerable groups. This more nuanced understanding of associated impacts may have

the potential to move forward to sustainable solutions for SoEs of climate change. Therefore, this review proposes the need for intersectional and inclusive solutions, and vulnerability sensitive policy building. This inclusive understanding and policy building should focus on resilience building and be sensitive to the demands of highly vulnerable groups residing in Karachi and elsewhere in Pakistan.

Physical Vulnerabilities and Associated Impacts of SoEs

Climate researchers in Pakistan have shown that Pakistan is highly vulnerable to climate change related disasters. Not only the country is increasingly exposed to SoEs, such as floods and droughts because of the high variation within the country, but there is also a regional contrast in terms of geology, topography, and meteorology (Ullah, 2016). About 80% of the land is arid or semi-arid, leaving it vulnerable to desertification; extreme dependence on the Indus river water system which covers 60% of the river and water reservoirs. Over past 30 years, the Indus Delta which used to be one of the world's most fertile costal ecosystem with 17 creeks has now shrunk to 2 creeks. Fallen ground water, and rising sea level, losing soil fertility, and degraded mangrove forests are further adding up to the slowly adding up negative impacts of climate change. We can see some of the most visible physical SoEs on the Indus Delta in Map 1; on the left side of the map, there are several creeks and visible water flow in delta in 1990, whereas on the right side, most of water flow, creeks and channels have dried up (map by Karachi Urban Lab).

Map 1 – Shrinking Indus Delta



Another important contributor to the slow but eminent loss of costal ecosystem is the process of coastal land reclamation. Over the decades, property developers have reclaimed hundred of acres of the peri-urban land for infrastructural and developmental projects. The costal mega city of Karachi itself offers a glaring example of infrastructure based SoEs. As seen in Map 2, there are massive encroachment into the costal ecosystem of Karachi by developers through land reclamation. The map on the left shows the natural coastline of Karachi 30 years ago and the map on the right shows recent land reclamation (map by Karachi Urban Lab) Over the last 3 decades, extensive land reclamation projects have costed livelihoods and sustenance to fisher communities. Filling up the costal land has made the city more vulnerable to urban and costal flooding because of continued interference and clogging of the costal water flow.

Map 2 – Costal Land Reclamation in Karachi

While the physical vulnerabilities may include infrastructural vulnerabilities that people are able to spot after a sometime but the physical appearance of events themselves are so slow that their impacts are hard to trace and associate with disasters, and loss of livelihoods. SoEs of floods and heat waves and their physical impacts are significant for Pakistan, and over time they are becoming more vivid. People are likely to see recent floods in Karachi or heatwaves as quick disasters, but it is hard to associate these outcomes with SoEs that are causing many changes. According to the two recent estimates based on historical analysis and predictive modeling of climate trends in Pakistan by Khan et al., (2019) and Nasim et al., (2018), provincial level climate trends for the central province of Punjab and Southern province of Sindh are unprecedentedly prone to extreme heat waves. Furthermore, there is an estimated annual heat accumulation which is projected to increase by up to 32% by 2030, and temperature rise is continuing to go higher. These studies have predicted that physical outcomes of these heatwaves will further exacerbate slowly accumulated but extreme weather changes, more frequent droughts, and flooding (Ahmed et al, 2019; Nasim et al., 2018). Another example of slow onset events is the rising sea levels along the coastal areas of Pakistan. The data recorded at the coast of Karachi for the period for over 110 years (from 1906 to 2016) a rise at the rate of 220.24 centimeters (7.97 inches, see Sathar, 2019). These changes have brought significantly alarming impacts on the lives and livelihoods of coastal communities, but their slow onset and aggregation hinders our perception and urgency in climate action and adaptation (Sathar, 2019).

Psychological Vulnerabilities Associated with SoEs

Research on the psychological vulnerabilities of SoEs is scarce. However, some extant research shows that SoEs may negatively affect people on a psychological level. Most visible impacts associated with climate change are related to stress and anxiety because of most visible climate related events. The more people are exposed to climate related stressors, the more anxious, depressed, and hopeless they feel (Anjum, 2019). However, in the SoEs, many people are likely to slowly adapt to the physical changes as they are slow in their manifestation – they possibly undergo psychological adaptation to slow changes. People are likely to overlook these impacts due to gradual changes, but when their impacts unfold, their psychological impacts can still distress the affectees. A recent study on such linkages in Tharparkar was conducted by LEAD-Pakistan which showed that 67% of the respondents claimed that droughts had negatively affected them psychologically, and socially; 31% of the respondents suffered from extreme depression and felt a sense of helplessness (Saeed, 2017). Most of the draughts in the province of Sindh are because of the drying up of the Indus Delta, but more importantly, the physical impacts interact with the psychological and social impacts in challenging the wellbeing

of people. Residents of these areas are not only prone to the slow onset of these events because they are hard to perceive due to slow accumulation, but they also hamper their coping of these events after they have occurred. Hence, perception, coping, responding, or adapting to the hazards of climate change depends on the availability of social and psychological resources needed to recognize the SoEs as soon as possible.

Recent research and policy debates have also shown that climate change is closely associated with security in multiple ways, especially in fragile contexts. Communities are already inside fragile contexts, the impacts of climate change are likely to exacerbate security concerns related to livelihoods, peace, and community resilience. Faced with lower psychological resilience, people may not bear with or adapt to the slowly congregating impacts of climate change in the face of pre-existing fragilities. Climate psychologists also argue that the nature of climate change events impacts people's belief systems and action tendencies (Lyons et al., 2018). For instance, when people experience drought and heat waves, they are more likely to change their belief systems for climate action compared to floods (Lyons et al., 2018). This sends a warning that the underlying mechanism of how humans make schemas of different SoEs is likely to vary and this variance needs to be explored for understanding their own belief systems and climate action. In addition to the physical nature of the event, more recent research shows that the perceived significance, psychological adaptation, and personal experience with the climate change events collectively impacts how humans engage with climate action and behavioural components (Reser et al., 2020).

Another significant association with climate change related psychological vulnerabilities has been the fear loaded eco-anxiety or eco-stress. More popular terms like these have meaning that climate change is associated with negative emotions and lower wellbeing. Psychologists have found that eco-stress and negative emotional states result from knowledge of deteriorating environmental conditions but more so because of the lack of agency and knowledge to make individual level changes. Eco-stress is certainly more common among people who are directly impacted by climate changes in their immediate environment or are expecting that their near future will have negative consequences (Gillespie 2016; Moser 2013).

Psychologists also argue that the fear narratives of climate change effects such as the stress and loss of wellbeing are not leading to behavioral change (Anjum 2019). There is a growing emphasis on the need to be combined these indirect outcomes with positive engagements such as hope and resilience building of people and communities on a psychological and social levels (Pihkala 2017; Pihkala, 2018). Many psychologists now emphasize that while wellbeing and stress are the outcomes, so it is important to work on the antecedents and moderators or these negative impacts. Some emerging scholarship agrees that using an integrated and interdisciplinary approach, we should focus more on hope. They argue that by framing the climate message in terms of hope is likely to initiate some resilience and possibility of change (Hall, 2014; Anjum 2019). They support the use of hope in climate change messages because it is a key emotion for our survival and resilience. By using terminology related to hope and resilience, it is possible to show that humans have the agency and autonomy to act upon and make a positive change to adapt to whatever climate change will bring in the future (Anjum 2019).

Socio-economic Status (lower) and Gendered (women's) Vulnerabilities

In addition to physical and psychological vulnerabilities there are certain social demographics that make certain groups more vulnerable. The brunt of social burden is largely faced by the those who are from lower socio-economic class, as they are far more exposed to the hazardous effects of gradual desertification and have the lowest capacity to respond or adapt to the slowly changing environment. Socially more vulnerable include those are landless, agricultural workers, female-headed households, large households in informal settlements, and zakat recipients. The intersection of lower socio-economic status and being a woman leads to higher risk for vulnerabilities within the Pakistani population. Here when we refer to gender, we specifically mean that how women's marginalized social status and social norms make them more vulnerable.

It therefore becomes important to provide a differentiated socio economic and gendered perspective to our analysis on slow-onset events. As a result of these risks, men often must leave their hometown, leaving women to take on their responsibilities leading to new vulnerabilities for women (Nizami et al, 2017). This

includes greater risk of sexual harassment, requiring elders to help in conflict resolution, and lack of access to facilities in the absence of men. A case study from Chitral (Northern Pakistan) explores the impact of men's migration on women's vulnerability (Nizami et al, 2017). This propelled another chain of vulnerabilities for the women of the households because of a change of social fabric and changing responsibilities which sometimes can result in social and psychological violence for women. Despite women's increased role in adapting to climate change threats, they have limited access to resources, preparedness, rights, mobility and voice in community and household decision making. Education, however, was a mediating factor that could improve adaptability of women. However, in the highland area of Chitral, only 37.8% have a primary level education, possibility related to increasing their vulnerability to climate change impacts (Nizami et al, 2017).

Batool and colleagues have shown that in the face of these vulnerabilities, it is important to make sure that rural women are not sidelined as they have been in much of the research on vulnerability (Batool et al., 20018). It is essential to understand their current perceptions and coping tools with regards to climate change. A study of rural women showed that about 93% were able to perceive climate-related threats. Their adaptation strategies included reduced buying of clothes, sold large livestock, sought help from relatives, reduced proportion of meals, migrated to work for wages, and supported by district/local government. This study, like the study in Chitral, finds that education increases perception and adaptability of rural women but notes a discouraging drop-out of females following climate-related disasters.

Gendered approaches become even more important when we see their vulnerability in fragile social demographic contexts. Mustafa and colleagues found that single mothers, widows, and divorcees had a very high rate of fragile livelihoods (Mustafa et al., 2018). Similarly, the qualitative data explains that SoEs have caused the men in Main Nara Valley to migrate, resulting in the same negative impacts as observed in Chitral. The women had higher levels of workloads including the burden of fetching water causing strong negative effects on gender relations and disrupting communities. In addition, their qualitative analysis showed that they often do not receive information about climate hazards that men often have access to. Moreover, in such patriarchal contexts, gendered power dynamic become so internalized that women often justify the injustice against themselves. These narratives also explain how access to healthcare is restricted with the absence of males, even in case of gynecological problems. Furthermore, due to growing Islamization in the Northern areas more and more women are not allowed to work, nor are they to move around, or engage in the opposite gender's sector. According to Mustafa et al. (2018), *pardah* becomes a form of social status and honor (Mustafa and that imposes further restrictions on women despite their abilities to positively contribute to changing climate. This argument is further supported by Pamuk (2020) as suggests that when people are strongly entangled in cultural and religious beliefs and practice then it becomes hard for them to participate in constructive approaches to reduce vulnerabilities. Therefore, it is possible that patriarchal and religious norms in countries like Pakistan become a hinderance in resolving social and institutional vulnerabilities of women.

Edgar et al., (2012), also highlight that cultural values play a significant role in how people perceive and react to climate related threats. Research on cultural perspectives shows that information about climate change does not influence all cultures same way. In some societies that follow collectivistic and especially conservative norms produce their own selective view on climate change (Edgar et al., 2012). In a country like Pakistan, the religious ideals and fatalism in attitude and approach can act as a further barrier to understanding and acting on the stereotypical notion of religious fatalism (Pamuk, 2020). According to Pamuk, religious nations may hold fatal beliefs because of historical developments and build a notion of resistance toward accepting and understanding reality. They cite faith and place the onus of all existence on belief which may have an impact on social vulnerabilities. These values could further contribute to the problem and lack of realization leading to denial further adds to the impacts of psychological vulnerabilities which influences how they interpret and respond to risk. It is important to understand and meaningfully consider the role of gender and socioeconomic status which is situated in religious and cultural values of people for sustainable solutions for climate resilience and peace building. Therefore, a culturally sensitive and religiously independent approach that is gender and SES sensitive will keep the most vulnerable populations in the safety loop. Otherwise, we might be entrenching more inequality, vulnerability, and exclusion.

Institutional Vulnerabilities and Associated Impacts

In addition to the individual and social level factors, institutions in transitional democracies such as Pakistan play a key role in making its citizens more vulnerable (Anjum, et al., 2020). We speculate that these institutional and structural disadvantages further complicate climate change related impacts, particularly SoEs may be further exacerbated. In cities like Karachi where more than 60% of city's population lives in informal settlements and highly vulnerable to violent tenure insecurity and threat of eviction by government institutions and institutionalized developers. The nature of institutions and citizens' lack of trust in governmental institutions also effects how citizens of different backgrounds are treated by their institutions. The state machinery fails to provide psychological and social security to its citizens in general, but it especially fails to provide any support to the most vulnerable groups, i.e. residents of informal settlements, women, migrants (Anwar et al., 2020). These issues are further complicated by citizenship issues in the case of Afghans, Rohingyas, and Bengalis, who experience even higher vulnerability and violence at the hands of government officials, developers, and institutions. Residents of cities, towns, and rural hinterlands are not only experiencing direct climate impacts, but they are also undergoing persistent and slow onset events that are adding up to their stress.

Various developmental projects that are leading to displacements of fisher communities and generations old residents of the coastal lines are another major concern. In recent years institutionally backed developers have been engaged in coastal land reclamation including reclaimed land for various housing projects. Not only these projects are serving the upper middle and upper class of the metropolis, but many are making the poor of the city more vulnerable. The displacement and dispossession of poor is exacerbated by use of power and legitimacy of institutional backing which upper class can accrue and deploy. These institutional leakages and use of power continue to unfold into disproportionately devastating impacts on the lives, livelihoods, and communities that belong to lower socio-economic status. These groups are left displaced and dispossessed, tossed around the city to face stronger impacts of SoEs. For instance, many displaced families were living on the rubble since 2019 and they have faced scorching heatwaves of 2019 and 2020 and devastating floods of 2020.

In addition to socio-economic and gendered vulnerabilities, the lack of institutional level management of constant migration from provincial villages and towns to the megacities like Karachi, Lahore, and Islamabad adds additional stress on these mega cities and their weak institutions. These cities already struggle due to weak infrastructures, especially Karachi which is already struggling with high density and rising sea levels at an unprecedented rate. Due to the lower threat perception of the slow onset event of rising sea level, residents belonging to the lower socio-economic status are further distressed amidst scarcity of housing and pressure on their livelihoods. While many rural residents continue to migrate to the cities in search of better lives, the poor of the city are rapidly marginalized and punished despite living in the informal settlements which are also vulnerable to anti-encroachment drives (Anwar, et al., 2020). Despite knowing that the stay in these cities might be difficult and stressful, migrants with lower socio-economic status are particularly hit by lack of community support in urban centers. In addition, expanding high-rise buildings for the sprawling middle class drives up land value and creates further exclusion of the incoming migrants. People are losing their livelihoods due to shrinking usable land, but also, they face discrimination, social exclusion amidst depleting infrastructures.

Beyond clear socio-economic differences, sharp gap in services by urban and municipal institutions in low-income neighborhoods are important features of daily life in several urban pockets; these gaps interact with gender, often producing violent outcomes. According to Anwar et al. (2016), the lack of access to services is an element of vulnerability which is further compounded in the case of women. The poor and particularly migrants are denied access to their citizenship rights, to infrastructure and basic services, public health, food and livelihood, and safety from environmental dangers. These vulnerabilities characterize the lives of the urban poor producing more frustration and anxiety, and propagation of violence. Lack of physical resources like water issues are made worse by electricity issues leading to numerous quarrels between neighbors who share a water connection and creates a lot of conflict and tension, particularly during the summer when it is unbearably hot. When family members, particularly women, forget to start the water pump, the patriarch of the family often becomes angry at them for their careless behavior which might translate into physical or psychological violence.

Another source of anxiety is the payment of government bills; the amount that residents are required to pay continuously rise for no explicable reason. The residents continue to pay these bills, creating a financial strain and putting them in debt, yet the services they are provided in exchange are inconsistent and unreliable (Anwar et al., 2016). These incidents indicate for the pervasiveness of complex institutional vulnerabilities that disproportionately impact poor residents.

Overall, our analysis suggests that impacts of SoEs need to be explored using an intersectional lens where the practitioners and policy makers see these impacts in an integrated way. There is a need to account for physical, psychological, social, and institutional vulnerabilities to meaningfully understand and prepare for SoEs of climate change. Therefore, it is vital to observe, register and mitigate SoEs of climate change. Seen and resolved with one dimensional lens, SoEs can exacerbate vulnerabilities and violence in Pakistani communities. It is also important to highlight the pre-existing vulnerabilities such as unequal access to urban resources by women and those who belong to lower socio-economic class lead to more drastic impacts to their lives and wellbeing. Institutions need to address the needs of most vulnerable on priority basis and stop use of power against fragile communities.

Way Forward - Need of More intersectional Research

Based on the research and discussion above, it can be suggested that an integrated inter-disciplinary research can play an important role in dealing with vulnerabilities head on. Isolated studies on singular dimensions of climate science and particularly on slow-onset events cannot tackle the multilevel and complex nature of the phenomenon. An intersectional approach allows a more nuanced understanding on these affects, vulnerabilities and adaptability related to these events. Researchers have urged for more inter-disciplinary cooperation, and dialogue between civil society, researchers, and policymakers to develop awareness and programs for risk-management for slow-onset events (Matias, 2017; Ravankhah, et al., 2019).

One such approach that underpins vulnerability in a multidimensional framework in Pakistani context is the study conducted on social vulnerability in Sindh (Mustafa et al., 2018). The researchers understand vulnerability as more than the outcome of a biophysical threat. They added a socio-political and economic dimension in their operationalization of vulnerability. They argued that social vulnerability is manifested in class, ethnicity, gender, and the social context. The study concludes that fishermen in Sindh are the most vulnerable group among all agricultural zones in Sindh; it cautions that this is not a result of the technological advancement of canals but an outcome of deliberate social engineering undertaken by socio-cultural and colonial forces disrupting fisherfolk in Sindh (Mustafa et al., 2018). This study hence supports the use of intersectional approach for studying the effects of climate change related household and community-level vulnerability because only an integrated approach to understanding has the potential to provide specific resources, and interventions.

Another case for SoEs that has multidimensional impacts is the occurrence of persistent heatwaves in Pakistan since 2015. These heat waves have not appeared suddenly, they are outcomes of human made changes that span over decades including degradation of urban green belts, loss open spaces and unbuilt land, and most importantly the conglomeration of concrete that has been leading to heat island effect and heatwaves. Impacts of these heatwaves are exacerbated by high urban densities and are a major risk for the urban populations. In a recent study conducted in Karachi and Islamabad by Anjum between 2016 and 2019 (Anjum, 2019), in Karachi and showed that people in all walks of life perceived that rising numbers of heatwaves were associated with climate change and rising levels of violence. However, more importantly, the perception and reporting of these impacts was more closely intersection with gender and socio-economic status such that the impacts were stronger among women and people from lower socio-economic class. These already highly vulnerable groups reported higher levels of road rage, stress, aggression, and violence on hotter days compared to the colder days. Such negative outcomes were not only behavioral, but participants also expressed psychological low affect such as lower agency, efficacy, hope, and empathy. Furthermore, women were also subject to higher domestic violence on the hotter days due to lower availability of water. This study indicates that SoEs may be slow in unfolding but their effects are more devastating for vulnerable populations, and the effects may even be longer

lasting because people have the tendency to become psychologically desensitized or lack autonomy to take action. This study indicated an inevitable need for an intersectional exploration of these effects for vulnerable populations in Pakistan.

Another research that provides a recent example of social, gendered, and institutional intersections illustrated that women faced higher patriarchal and structural oppression because of climate impacts. Anwar et al (2019) found that women in cities like Karachi were expected to manage the household water and chores without problems, even during droughts. Even though over time the water supply from the aquifers that supply drinking water to Karachi are impacted by climate change and poor water governance, resulting in drastic impacts on household water security. The impacts of poor institutional management and climate change are not similar for all, women are at the heart of these impacts as a water infrastructure in the city and the household water supply has waned. This reduced water supply has increased pressure on women because most of them are supposed to observe purdah and stay in private space due to social norms of honor and family reputation. These social, infrastructural, and poor institutional practices put more women through 'psychological violence' due to this water insecurity. These outcomes are further complicated due to exacerbated violence against women inside the homes and their restricted social safety nets and mobilities outside the house. These antecedents further increase psychological violence against women as they fail to satisfy their caretaking roles such as dealing with sick elderly and children with no resources, disappointing their families for failing to manage the existing water, being subject to physical violence and assaults (Anwar et al., 2019).

In slow onset events, however, the picture is further complicated where social and political and economic systems are weak making it difficult to single out climate change as the key driver of migration (Maharjan, et al., 2020). But research still shows that it is a problem big enough to be considered. According to a recent World Bank report, "Groundswell - Preparing for Internal Climate Migration", by 2050 only in Sub-Saharan Africa, South Asia, and Latin America there could be as many as 140 million internal migrants (Rigaud, et al., 2018). In the Pakistani context, migration has received limited policy attention (Ishfaq, 2019). Although policy statements address the problems and solutions of international migration, they often neglect internal migration, especially intersectional issues associated with migration. Although the differential vulnerability and potential to adapt to climate change is talked about by Pakistani government regarding rural women, this is not fleshed out further to actions (Ishfaq, 2019). This neglect is problematic because even when men can use migration as an adaption tool, women, poor households, and those out of reach of governmental support are unable to reap these benefits.

Other interdisciplinary research has also indicated that we need integrated frameworks for securing our cities in the face of climate change (Fraser et al., 2020). In this research they refer to research from Central American, African, Middle Eastern and Asian cities, which demonstrate the global interlinkages inherent urban climate security risks. They argue for the need to integrate climate security into urban planning to tackle food insecurity, livelihoods failure, and migration. There is a stronger need for public security initiatives to address the drivers of climate change that create mutually constituted vulnerabilities at the individual, household, and community scales. These interactions have been poorly considered in both policy and research, but potentially undermine urban security and adaptation. Therefore, interdisciplinary solutions for unmet urban development are needed to address urban security and climate risks together through institutional and urban planning initiatives. Hence, besides providing physical and institutional support it is vital that wellbeing and hope of people is sustained so they have psychological resilience to stay strong during extreme conditions. Furthermore, with psychological wellbeing ensured, people have a higher likelihood of bouncing back from long term slow onset impacts and they can keep their communities hopeful, resilient, and positively engaged.

More specifically we have following recommendations for tackling with multidimensional vulnerabilities and SoEs of Climate change in Pakistan:

1. We need to highlight the physical components of SoEs in the ongoing climate action campaigns. There is a need to emphasize on temporally long-term changes in the physical nature of events. For instance, temporally cumulated impacts of SoEs on drying up delta over the span of decades, and coastal land reclamation can have stronger impacts in climate awareness campaigns. Only

when seen in comparison over decades, public and policy makers can predict and prepare for these physical vulnerabilities that might be slowly accumulating. These accumulated impacts are more impactful and can steer local groups for activism and demands from their communities and governments. In the urban mega-centers such as Karachi, infrastructural vulnerabilities are also seen in individual pockets such as formal neighborhoods and informal neighborhoods. There is a need to look at the accumulated impacts of all forms of settlements (formal and informal) to see how infrastructural vulnerabilities are associated with losses of homes and livelihoods.

2. The knowledge and tools from social psychology can help overcome the failure to register slow-onset events by recognizing psychological vulnerabilities that hinder our understanding and action orientations towards SoEs. Researchers and policy makers should consider that the loss of security and sense of emotional vulnerability can lead to loss of wellbeing. Therefore, while we focus on the awareness campaigns about understanding physical vulnerabilities, we also need to provide wellbeing counseling, and social support to those who are most at risk for anxiety, and stress, and depression.
3. Some groups are at higher risk, and these should be highlighted through sensitive conversations and social activism. For instance, women and people from the lower socio-economic status are more prone to social and psychological vulnerability so their needs should be considered. Similarly, there are exacerbated impacts on lower internally displaced individuals and migrants. They have already lost their communities, social safety, face violence and marginalization so these groups need special support and care because they do not have access to information about how climate change generally and SoEs particularly impact them after migration.
4. One of the key blockages to slow progress on climate action and lower discernibility to SoEs is attributed to the lack of trust in local and national institutions and their use of to power and securitization. This might be the hardest goal to achieve but from individuals need to demand transparent data and effective policies so that the government on the local and national level can be held accountable for the lag in transparency.
5. On individual and institutional levels, we need to implement integrated awareness building for group sensitive and inclusive policies that have the potential to guide practitioners with a hope that no one is left behind. Especially those who are vulnerable and are least prepared for the impacts of slow-onset events. Governments can facilitate by providing help with safe migrations, financial aid, focus on resilience and community support, and early warning systems for safety and capacity building.
6. Organizations and institutions working on climate change should provide important regional profiles that share facts and figures about multi-faceted vulnerabilities. This will facilitate in promoting understanding among public, and show which regions are more vulnerable on which dimensions so that they get proportionate and specifies support. While doing so they also need to consider the socio-cultural and religious practices and limitations of regional populations.

Lastly, like other frameworks, there is a potent hinderance to the use of multilevel and intersectional recommendations which is Pakistani government's willingness. The use of intersectionality to analyze various facets of vulnerabilities and the need for public policy to be made in tandem with it, government and institutions in Pakistan often opt for traditional ways. Compared with the existing approaches of public policy making, the efforts required, and costs involved, the governments may find intersectionality to not be the kind of liner focus they look for ergo. Therefore, this irreconciliation although not definite between the two could present itself as a limitation.

Conclusion

In conclusion, in the context of Pakistan, SoEs are associated with a range of physical, psychological, social, and institutional vulnerabilities. Researchers and practitioners have looked at them independently in different fields but as suggested in this review, in order to have a better preparedness, adaptation and effective mitigation,

impacts of SoEs of climate change need to be understood through an integrated intersectional framework. Policy making requires not only management of the physical impacts, but it also needs strong psychological, social, and institutional programs (Ulrichs et al, 2019). We need inclusion of multi-level perspectives that can account for exacerbated vulnerabilities to allow for a more nuanced understanding on slow-onset events. We argue that an integrated approach that incorporates trans-disciplinary learning have potential for a richer understanding of vulnerabilities and coping related to slow onset events. Perception and preparedness are harder for such events, but with sensitive programs, inclusion of vulnerable groups can be ensured, and they can be protected through enhanced community engagement and structural changes to build resilience. As each country's challenges, priorities, and emergency issues related to slow onset processes are context specific, and area dependent (Pereira et al, 2019); so, it is essential to build and apply these debates, narratives, and insights that are sensitive to the local context.

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* This is an important article for climate extremes and slow onset events. It provides principals for mainstreaming climate change risks into national social protection frameworks in developing countries. It also sheds light on how these events undermine the efforts of developing countries to eradicate poverty and promote social equity.

** This is a significant prediction modeling-based paper on climate impacts in arid regions of Pakistan.

*** This policy brief offers a much-needed intersection of urbanisation and climate security by providing an integrated framework for cities of the Global South. This brief was prepared and presented for The Planetary Security Initiative.

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