

## Adapting on the move

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Climate change displacement and local solutions in coastal communities in Sindh, Pakistan

Dorien Braam, University of Cambridge / Praxis Labs

Love Kumar, University of Florida

### ABSTRACT

Coastal communities are increasingly at risk from the negative impacts of climate change, including more intense storms, floods, coastal erosion, and sea intrusion. Socioeconomic and political factors make people vulnerable to these hazards, with disasters causing significant land and livelihood loss, ultimately resulting in displacement. This paper presents some of the findings of a qualitative study conducted in 2019-2020 in Sindh province in southeast Pakistan, to better understand people's vulnerabilities, agency, and responses to the risks of climate change, disasters and displacement. We discuss the main determinants and pathways to climate change related displacement of coastal communities, and introduce some of the adaptive responses which strengthen displaced people's agency against ongoing threats.

Climate change displacement in Sindh's coastal zone is a gradual and complex process, consisting of a mix of temporary and permanent, forced and voluntary migration. A generation ago, the communities were displaced from locations now submerged by the sea. Further sea level rise and poor Indus river water management affect both the environment and the communities' main livelihoods of fishing and agriculture. Living on the margins, they have little influence on these high-level global and regional environmental and political processes.

Lacking basic infrastructure and schools in their current location, many services are currently provided by non-governmental organizations (NGOs), including through Community Based Organizations (CBOs), which were established to improve people's livelihoods, health and nutrition, and empowered communities to engage with authorities and institutions. Supported by sufficient resources, improved policies and institutional frameworks, these CBOs can play an important role in durable solutions to further climate change related displacement by enhancing adaptive capacity in current locations, as well as supporting safe onwards migration.

### INTRODUCTION

#### A Volatile Coast

South Asia is at high risk of climate change induced disasters and related displacement, in particular in coastal areas.<sup>1</sup> The World Bank estimates that by 2050 the slow onset impacts of climate change will have caused 40 million people in the region to leave their homes.<sup>2</sup> Pakistan currently ranks 5<sup>th</sup> on the Global Climate Risk Index, which captures to what extent countries have been affected by the impact of weather-related disasters.<sup>3</sup> Located in southeast Pakistan, Sindh is its third largest province in area and second largest province in population size, with over 48 million inhabitants in 2017,<sup>4</sup> of which about 53 percent live in rural areas.<sup>5</sup> The province consists of three geographically distinct zones, covering the Kirthar mountain range in the west, the central alluvial Indus river plain, and an eastern desert region, each with

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<sup>1</sup> World Bank, "Groundswell - preparing for internal climate migration". 2018. [Online](#).

<sup>2</sup> Ibid.

<sup>3</sup> Eckstein et al, "Global Climate Risk Index 2020". 2020. [Online](#)

<sup>4</sup> Pakistan Bureau of Statistics, "Population Census". 2017. [Online](#)

<sup>5</sup> Government of Pakistan, 2009.

their own environmental challenges. The province has a subtropical climate and experiences hot summers and cool winters, with increasingly unpredictable rain patterns during monsoon season in July and August.

Coastal communities in Pakistan are increasingly at risk from climate change related hazards, including more intense storms, floods, coastal erosion, and sea intrusion.<sup>6</sup> Environmental changes exacerbate the annual monsoon floods and droughts, while the effects of climate change are exacerbated by overexploitation of Indus river water for irrigation, resulting in riverbank and coastal erosion.<sup>7</sup> The coastal communities we interviewed were displaced over two decades ago, moving inland from their previous location in the delta, after losing land and water sources due to disasters and environmental degradation.<sup>8</sup> Respondents mentioned the sea level is continuously rising, further destroying mangrove forests and farmland, and affecting fisheries, requiring livelihood diversification strategies including labour migration. Displacement within these coastal communities is therefore a complex phenomenon, consisting of temporary and permanent migration of communities, households, and individuals, with regular on-migration and returns.<sup>9</sup>

This report aims to provide an overview of the vulnerabilities and coping mechanisms of displaced communities in the coastal areas of Sindh, which are at continuous risk of climate change and (further) displacement. We provide an overview of migration trajectories, putting these into their environmental and socio-economic context.<sup>10</sup> Subsequently, we present how communities cope and adapt to ongoing threats, and provide recommendations to strengthen people's agency.

### Methods and objectives

We used a case study approach, including a literature review of secondary qualitative and quantitative data, followed by semi-structured key informant expert interviews. Subsequently, Focus Group Discussions (FGDs) and observations were conducted in two displaced coastal communities of Mero Dabho and Haji Siddique Faqirani Jat villages in Keti Bandar sub-district (Taluka) of Thatta district in Sindh (Figure 1).



Figure 1: Study location in Sindh province, Pakistan (WWF-Pakistan, 2020)

<sup>6</sup> UNDRR, "Disaster Risk Reduction in Pakistan, Status Report 2019". 2019. [Online](#)

Asian Development Bank, "Climate Change Profile of Pakistan". 2017. [Online](#)

<sup>7</sup> Haines, D., "Building the Empire, Building the Nation: Development, Legitimacy, and Hydro-Politics in Sind, 1919–1969". 2013. Karachi: Oxford University Press

<sup>8</sup> Salik et al, "Climate change vulnerability and adaptation options for the coastal communities of Pakistan". 2015. [Online](#)

<sup>9</sup> ODI, "Climate change, migration and displacement". 2017. [Online](#)

<sup>10</sup> Islam and Winkel, "Climate Change and Social Inequality". 2017. [Online](#)

Semi-structured interview questionnaires included questions on demographic and socio-economic data, displacement experience, current livelihoods, and future plans. Participants were informed about the voluntary bases of participation at the start of data collection, with information and informed consent letters available in English and local languages. Interviews were conducted in Urdu and Sindhi, the local language of the affected communities, transcribed and translated into English. Fieldwork and secondary data were analyzed through a structured thematic analysis to identify themes and concepts, which were synthesized into evidence matrices.

**Community:** in this study: a group of people living in the same village as their primary residency.

**Displaced:** “persons who have been forced to leave their homes or places of habitual residence, as a result of or in order to avoid the effects of disasters or environmental degradation, and who have not crossed an internationally recognized state border” (adapted from the Guiding Principles on Internal Displacement).<sup>11</sup>

**Community Based Organization (CBO):** in this study: a group of people elected by the community to lead planning for, and improvement of, a community's socio-economic status, health, well-being, and overall functioning.

**Climate Change:** “a change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer.”<sup>12</sup>

**Disaster:** “severe alterations in the normal functioning of a community or a society due to hazardous physical events interacting with vulnerable social conditions, leading to widespread adverse human, material, economic, or environmental effects.”<sup>13</sup>

**Vulnerability:** “a function of exposure, sensitivity, and adaptive capacity: the propensity or predisposition to be adversely affected.”<sup>14</sup>

**Adaptation:** “the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities.”<sup>15</sup>

### Limitations

Our study was limited by gaps in comprehensive and structured quantitative demographic population data, a lack of environmental displacement data in Sindh at provincial and local level, and the lack of female interlocutors.

## CONTEXT: RISK AND VULNERABILITY

### Environmental degradation

The Indus river, after which the province is named, is central to Sindh culture and livelihoods, with over 70 percent of its average annual flow diverted for irrigated Kharif (summer) and Rabi (winter) crop cultivation.<sup>16</sup> According to the World Bank, irrigation has decreased annual Indus freshwater flow to the delta from 150 to less than 10 Million Acre Feet (MAF).<sup>17</sup> As a result, during summer months, the outflow of the Indus to the Arabian sea is practically non-existent, resulting in the loss of sediments and a decrease in the nutritional status of soil, as well as seawater intrusion into the delta. Sea intrusion may impact the

<sup>11</sup> UN OCHA, “Guiding Principles on Internal Displacement”. 1998. [Online](#)

<sup>12</sup> IPCC, “Glossary of terms. In: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation”. 2012. [Online](#)

<sup>13</sup> Ibid

<sup>14</sup> Thomas et al, “Explaining differential vulnerability to climate change: A social science review”. 2019. [Online](#)

<sup>15</sup> IPCC, “Glossary of terms. In: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation”. 2012. [Online](#)

<sup>16</sup> Laghari et al, "The Indus basin in the framework of current and future water resources management". 2012. [Online](#)

<sup>17</sup> World Bank, "Socioeconomic Study and Proposal for Livelihood Improvements: Badin and Thatta Districts, Sindh, Pakistan". 2005. [Online](#)

river up to 65 kilometers upstream, affecting 39 percent of total agricultural land, with 11 percent now unsuitable for further cultivation (Figure 2). Respondents reported that the coastline has shifted 22 kilometers inland since 1993, threatening their current lives and livelihoods. As there is no comprehensive demographic data available, and displacement data is only collected ad-hoc during disasters, it is unclear how many people and homes have been affected over the years.



Figure 2: Shelters and fishing nets in Kharo Chan on barren salinized land (photo: D. Braam)

Despite ongoing environmental degradation, the region still hosts one of the largest global mangrove forest tracts, which acts as a natural buffer against sea intrusion, and provides resources such as wood and fodder,<sup>18</sup> however the forest is greatly reduced due to the lack of fresh water and overexploitation.<sup>19</sup> This reduction has affected local wildlife, fisheries and increased seawater intrusion, which combined with waterlogging has further contributed to widespread soil salinization.<sup>20</sup> Sea intrusion and salinization is a major driver of displacement in the coastal areas, initially gradually as household members move for labour and livelihood purposes, eventually displacing entire communities.

### Livelihoods

Our fieldwork sites in rural Thatta district are amongst the least populated areas in Sindh, with almost half of the district's population living in the coastal areas.<sup>21</sup> Income levels and purchasing power in the district are very low, with an average of USD 21 in rural households (2005).<sup>22</sup> A longitudinal study by the International Food Policy Research Institute (IFPRI) found that households in Sindh became poorer between 1986 and 2005 due to disasters and increased household sizes.<sup>23</sup> Coastal communities traditionally depended on a diverse range of livelihood options including agriculture and livestock farming, however since becoming permanently displaced, they rely on fishing and daily wage labour. Fishing takes place in small wooden boats in small groups of up to ten people dividing the catch, with the largest share going to the owner of the boat.<sup>24</sup>

<sup>18</sup> Dehlavi, A. and Adil I.H., "Socioeconomic baseline study of Pakistan's Coastal Areas". 2012. [Online](#)

<sup>19</sup> World Bank, "Socioeconomic Study and Proposal for Livelihood Improvements: Badin and Thatta Districts, Sindh, Pakistan". 2005. [Online](#)

<sup>20</sup> Haines, D., "Building the Empire, Building the Nation: Development, Legitimacy, and Hydro-Politics in Sind, 1919–1969". 2013. Karachi: Oxford University Press

<sup>21</sup> Ibid

<sup>22</sup> World Bank, "Socioeconomic Study and Proposal for Livelihood Improvements: Badin and Thatta Districts, Sindh, Pakistan". 2005. [Online](#)

<sup>23</sup> Lohano H.R., "Poverty dynamics in rural Sindh, Pakistan". 2009. [Online](#)

<sup>24</sup> World Bank, "Socioeconomic Study and Proposal for Livelihood Improvements: Badin and Thatta Districts, Sindh, Pakistan". 2005. [Online](#)

The communities interviewed belonged to the Jat Baloch and Mallaah tribes, consisting of 60 households on average, with household sizes ranging from 6-12 people. Both tribes depend on fishing, their main distinction being their secondary livelihood: while the Jats traditionally own camels, the Mallaah raise cattle for milk consumption and monetary value.<sup>25</sup> As camels are more resilient to disasters such as floods and droughts, the tribal affiliation of a community influences their resilience.<sup>26</sup> As one of our respondents confirmed: '[during the 2008 cyclone] our camels were safe, as they can swim'.

Climate change continuously impacts people's livelihoods, through unpredictable Indus water flows, declining fish stocks and prices, exacerbated by increase in illegal fishing with fine-maze nets,<sup>27</sup> and licensing challenges favoring large commercial fisheries.<sup>28</sup> Meanwhile, disaster policies – such as the prohibition of fishing during cyclones, as we experienced during our fieldwork, greatly impacts the resilience of the coastal communities (Figure 3).



Figure 3: Idle fishing boats in Hajamro creek due to the threat of cyclone Kyarr in late 2019 (photo: D. Braam)

### Infrastructure and services

The destination locations where the displaced communities settled, are now called Miro Dablo and Haji Siddique Faqirani Jat villages. While initially connected to the electricity grid, they lost access during the 1999 cyclone disaster, and remain unconnected to surfaced roads and services: 'there are no schools, health facilities, dispensaries, there is no water or light'. The lack of fresh water supply primarily affects the poorest population.<sup>29</sup> A technical assessment conducted in 2010 showed that almost 60 percent of piped water supply schemes across districts malfunctioned, with much unsuitable for drinking purposes, and 47 percent of the population lacking access altogether, attributed to a lack of maintenance.<sup>30</sup> Fresh water of dubious quality is purchased from private water tankers at high cost, often consisting of untreated surface water brought to the village from creeks just a few miles up the road.

<sup>25</sup> IFAD, "Country Technical Note on Indigenous Peoples' Issues". 2012. [Online](#)

<sup>26</sup> Ganju G., "Kutch's Kharai breed, the world's only swimming camels, battle the tide of an uncertain future". 2019. [Online](#)

<sup>27</sup> WWF, "Study on Knowledge, Attitudes and Practices of Fisherfolk Communities about Fisheries and Mangrove Resources - Kalmat Khor". 2005. [Online](#)

<sup>28</sup> Ibid

<sup>29</sup> Ibid

<sup>30</sup> Tahir M.A. et al, "Technical Assessment Survey Report of Water Supply Schemes". 2010.

Over the past decades, the socio-economic status of households has deteriorated, including a generational fall in literacy, affecting livelihood diversification and future opportunities.<sup>31</sup> While the Sindh government has committed to provide free education, the availability of and access to schools in the coastal areas remains limited, particularly for girls.<sup>32</sup> In the communities visited, there was one madrassa – a religious school - for young boys in Miro Dablo, while none of the other children received any education, as schools were either destroyed during the 1999 disaster, or closed due to a lack of teachers. As a result, the elder generation in the Jati village can read and write, while none of the children can.

## MOVEMENT PATTERNS

### Disasters, climate change and displacement

Disasters are complex phenomena influenced by socio-economic and political factors, with resource-poor communities most at risk.<sup>33</sup> Studies show that the frequency of disasters in Sindh increased in the last century.<sup>34</sup> Respondents reported an increase in annual rainfall, regularly resulting in flooding of the villages and access routes. Increased glacier melt into Indus tributaries and water distribution mismanagement puts the region at further risk.<sup>35</sup> Climate change further exacerbates the scale of disasters, as sea intrusion and coastal erosion are accelerated by the impact of cyclones, increasingly leading to displacement.<sup>36</sup>

Over the past decades, Sindh’s coastal communities have gradually been forced to move further inland as livelihoods and land are lost due to seawater intrusion and salination, caused and/ or exacerbated by a series of cyclones, floods, and drought (Figure 4). Comprehensive displacement data due to climate change and environmental degradation within these populations is not available however. While ad-hoc disaster displacement data is recorded by authorities, climate change displacement is gradual, mixed, and primarily affects hard-to-reach populations.<sup>37</sup>

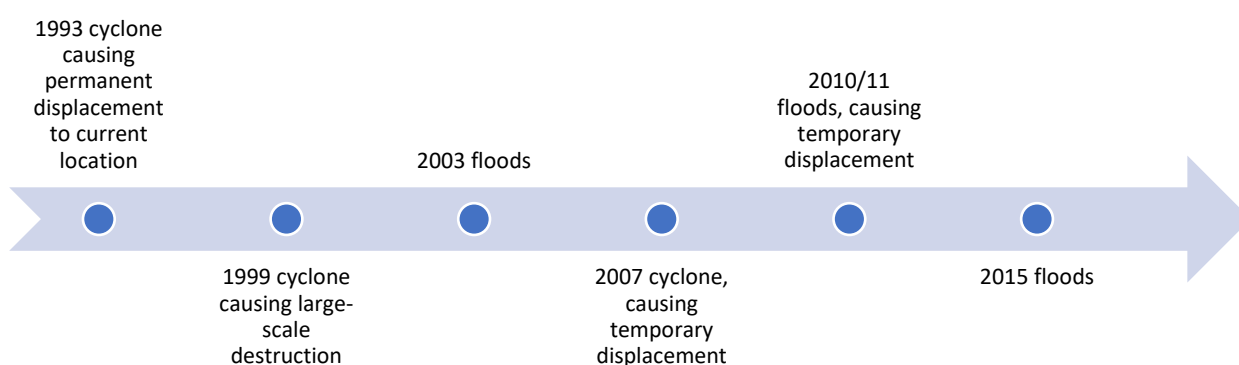


Figure 4: Timeline of major disasters and displacement affecting the Miro Dablo and Haji Siddique Faqirani Jat communities between 1990 and 2015 as remembered by the interlocutors.

While using displacement as an emergency adaptation mechanism, respondents did not phrase their displacement in the context of climate change, rather as a set of disasters, affecting each generation differently.<sup>38</sup>

<sup>31</sup> World Bank, "Socioeconomic Study and Proposal for Livelihood Improvements: Badin and Thatta Districts, Sindh, Pakistan". 2005. [Online](#)

<sup>32</sup> Ibid

<sup>33</sup> ODI, "Climate change, migration and displacement". 2017. [Online](#)

<sup>34</sup> Ahmed, "Disaster risks and disaster management policies and practices in Pakistan: A critical analysis of Disaster Management Act 2010 of Pakistan". 2013

<sup>35</sup> UNDRR, "Disaster Risk Reduction in Pakistan, Status Report 2019". 2019. [Online](#)

<sup>36</sup> Ibid

<sup>37</sup> PDMA, [Online](#)

<sup>38</sup> Salik et al, "Climate change vulnerability and adaptation options for the coastal communities of Pakistan". 2015. [Online](#)

## Permanent relocation and onwards migration

Displacement drivers are multiple and interlinked: for instance political choices regarding land and water management, as well as socio-economic factors determine the vulnerability and resilience of people to the effects of climate change and displacement.<sup>39</sup> While disasters may initially cause temporary displacement, this becomes permanent once agricultural land is lost for further cultivation. In addition, displacement is often mixed between forced and voluntary migration, with households or individuals opting to temporarily or permanently relocating to urban centers for livelihood opportunities, if limited natural resources are available. Most people are reluctant or unable to move however, especially when they lack pre-established connections in destination areas.<sup>40</sup>

Respondents reported how communities and households split up, either during, or as a result of displacement. Some people moved after losing their assets, others followed once they were confident that the destination area was secure. Displacement therefore causes the disintegration of social support networks, increasing protection risks, such as family separation, child protection challenges and gender-based violence.<sup>41</sup> Furthermore, displacement to new environments and host communities may put communities at increased risk of structural discrimination, and further social, economic, and natural shocks.<sup>42</sup>

**Hajamro creek:** The Haji Siddique Faqirani Jat community was permanently displaced to their current location in 1993, after a storm destroyed their houses further down Hajamro creek. The resulting sea intrusion split the community: while some moved inland to areas where freshwater was available for their livestock, moving their animals by foot during low tide, the majority of the community chose to move permanently to the location where they previously resided during high tide in winters, remaining close to the sea for fishing. Arriving only with moveable assets, they settled in their current location constructing basic shelters from wood and straw, with some building materials donated by NGOs (Figure 5). In 2008 the community was temporarily further displaced to the hilly areas during a cyclone, for which the government provided some transportation. One again the community split up, this time by individual household, each receiving assistance in separate relief camps, while camels were left on their grazing island - deemed safe as they can swim. During a major Indus flood in 2011, the community received a warning and moved once again, however returned after a few days. During the floods of 2010 and 2011 the fresh water level was very high, negatively affecting fisheries. At the time of research, yet another cyclone passed through, and the men were not allowed to take their boats out, directly impacting their livelihoods. Measures affecting fishing have long term impacts, including through displacement, if the community needs to seek new sources of income.<sup>43</sup>

<sup>39</sup> Thomas et al, "Explaining differential vulnerability to climate change: A social science review". 2019. [Online](#)  
Climate and Migration Coalition, "Moving Stories: Pakistan. The voices of people who moved during flooding". 2013. [Online](#)

<sup>40</sup> ODI, "Climate change, migration and displacement". 2017. [Online](#)

<sup>41</sup> Oxfam, "Uprooted by Climate Change, Responding to the growing risk of displacement". 2017. [Online](#)

<sup>42</sup> ODI, "Climate change, migration and displacement". 2017. [Online](#)

<sup>43</sup> Ary News, "Cyclone Kyarr: Three-day fishing ban imposed in Karachi". 2019. [Online](#)



Figure 5: Arriving after displacement, constructing a new home (photo: L. Kumar)

Due to the lack of formal resettlement schemes, displaced communities settled on either marginal land not under tenancy, land acquired during land reforms, or public land. As even ‘public’ land may remain under the control of powerful individuals, land ownership is difficult to obtain for the displaced, and their connection to the land remains limited.<sup>44</sup> These challenging environmental conditions puts them at risk of further displacement, occurring on a continuum of forced and voluntary migration.<sup>45</sup>

While most displaced are keen to remain in their current location, rural-urban migration has potential beneficial effects on household’s resilience.<sup>46</sup> Individuals may migrate to diversify income sources or reduce the strain on the household economy.<sup>47</sup> Respondents reported that labour migration is common, with individual household members – mostly young men - either temporary or (semi-)permanently migrating to urban centers, supporting their family through remittances. However, in urban centers, labour migrants are at further risk from shocks, including socio-economic challenges due to systemic discrimination, but also climate change impacts,<sup>48</sup> which was highlighted during the unprecedented 2020 monsoon rain, primarily affecting the poorest areas of Karachi where many migrants live.<sup>49</sup> Permanent returns occasionally occur if the migrant is unable to find work or struggles to access services.

### Institutional framework

There are significant political and institutional barriers to comprehensive climate change and displacement responses, including compartmentalization of climate change, disaster risk reduction and displacement departments, policies and responses.<sup>50</sup> As a federal democratic parliamentary republic, powers in Pakistan are shared between the federal government and the provinces.<sup>51</sup> Furthermore, disaster management

<sup>44</sup> World Bank, "Socioeconomic Study and Proposal for Livelihood Improvements: Badin and Thatta Districts, Sindh, Pakistan". 2005. [Online](#)

<sup>45</sup> IDMC, "Community resilience and disaster-related displacement in South Asia". 2015. [Online](#)

<sup>46</sup> Ishfaq S.M., "Rural-urban migration and climate change adaptation: policy implications for Pakistan". 2018. [Online](#)

<sup>47</sup> IOM, "Pakistan Migration Snapshot August 2019". 2019. [Online](#)

<sup>48</sup> Ishfaq S.M., "Rural-urban migration and climate change adaptation: policy implications for Pakistan". 2018. [Online](#)

<sup>49</sup> Ebrahim Z., "Karachi a victim of poor planning, bad governance – and floods".2020. [Online](#)

<sup>50</sup> Noshirwani M., "Climate Change Adaptation: Political and Institutional Analysis, Sindh". 2012. World Wide Fund for Nature – Pakistan

<sup>51</sup> Gazette of Pakistan, "Constitution 18<sup>th</sup> Amendment Act". 2010. [Online](#)



authority is split between civilian and military actors.<sup>52</sup> These divisions have contributed to isolated climate change and disaster response mechanisms, while displacement is only to a very limited extent addressed in regulatory frameworks.

The Federal Ministry of Climate Change developed its National Climate Change Policy in 2012.<sup>53</sup> The policy considers migration as one of the most important climate change threats to Pakistan, aiming to 'curb rural-to-urban migration, develop infrastructure and support facilities in smaller agro-based towns and periphery urban areas', without any provision for displacement.<sup>54</sup> This does not align with international instruments such as the 2015 Sendai Framework, or the 2018 Global Compacts on Migration and Refugees, which call for options for safe and orderly migration.<sup>55</sup>

The National Disaster Management Authority (NDMA) is headed by senior army personnel.<sup>56</sup> At provincial level, the Sindh Provincial Disaster Management Authority (PDMA) provides warnings and forecasts to better prepare communities. Civilian district level disaster authorities formally coordinate departments at district and local level, however these are currently only operational during disasters. While NDMA drafted a national disaster response plan, Sindh does not have any formal provincial disaster management legislation. Instead, PDMA uses ad-hoc contingency plans and standard operating procedures when a disaster is declared.<sup>57</sup> Vertical coordination and cooperation is limited, with PDMA collecting disaggregated data on loss and damage, displacement and relief assistance only during disasters, irregularly sharing these with NDMA.<sup>58</sup>

In Sindh, environmental management coordination is the responsibility of the Environment Section of the Planning and Development Division, while the management of Sindh's coastline falls under the Coastal Development Authority (CDA), both lacking resources for coordination capacity.<sup>59</sup> The public sector governance gaps in Sindh have resulted in one of the largest rural-urban social gaps in human development in Pakistan.<sup>60</sup>

## RESILIENCE AND ADAPTATION

According to the World Bank, successful adaptation strategies include 'investing in climate-smart infrastructure, diversifying income generating activities, building more responsive financial protection systems, and educating and empowering women'.<sup>61</sup> Respondents' adaptation mechanisms largely rely on income diversification through daily wage labour, borrowing money from other community members for livelihood investments such as microenterprises, livestock or fishing gear, and state insurance. The lack of educational opportunities has created a generational difference in people's agency, limiting future diversification opportunities for the community. Future permanent relocation to urban centers to obtain services and livelihood options is viewed as a viable adaptation option, once the effects of coastal erosion and salination become too hard to mitigate.

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<sup>52</sup> Madiwale and Virk, "Civil-military relations in natural disasters: a case study of the 2010 Pakistan floods". 2011. [Online](#)

<sup>53</sup> Government of Pakistan, "National Climate Change Policy". 2012. [Online](#)

<sup>54</sup> Ibid

<sup>55</sup> ODI, "Climate change, migration and displacement". 2017. [Online](#)

<sup>56</sup> Cochrane, H., "The role of the affected state in humanitarian action: A case study on Pakistan". 2008. [Online](#)

<sup>57</sup> PDMA, [Online](#)

<sup>58</sup> IDMC, "Internal Displacement Index Report". 2020. [Online](#)

<sup>59</sup> Sanchez-Triana E. et al, "Institutional Analysis of Sindh Province's Environmental Sector. 2015. World Bank [Online](#) Mahar and Solangi (ed), "Review of Sindh Coastal Development Authority Act 1994 and Sindh Coastal Development Plan". 2017. [Online](#)

<sup>60</sup> World Bank, "Socioeconomic Study and Proposal for Livelihood Improvements: Badin and Thatta Districts, Sindh, Pakistan". 2005. [Online](#)

<sup>61</sup> World Bank, "Groundswell - preparing for internal climate migration". 2018. [Online](#).

## Localizing responses

To increase communities' resilience to the effects of climate change and further displacement, Community Based Organizations (CBOs) have been established with the support of NGOs. CBOs are not-for-profit organizations, acting as community-centered voluntary organizations, facilitating participation in social and economic development programmes, ranging from infrastructure to (health) education, and microfinance support. The objective of CBOs is to improve livelihoods, health, nutrition and literacy status of the targeted populations to alleviate poverty and empower local communities.<sup>62</sup>

External organizations provide services through the CBOs, such as agricultural training to small farm holders by the UN Food and Agriculture Organization (FAO), and health clinics by People's Primary Healthcare Initiative (PPHI). Activities are conducted in public meeting rooms, built following a risk and responsibility sharing principle: materials for the rooms are donated by NGOs, while land is made available by the CBO members themselves, who are also in charge of ongoing operational and maintenance management and costs.<sup>63</sup>

CBOs contribute to disaster risk reduction through 'Participatory Mangroves Conservation Management Plans', disaster warning and preparedness mechanisms, and the planting of mangroves, which are used for livestock fodder (Figure 6). CBOs also assist women with small loans for home-based income-generating activities such as shops (Figure 7).<sup>64</sup>



Figure 6: housing and livestock in Miro Dablo village (photo D. Braam)

<sup>62</sup> Memon M., Mithani S., "Enhancing institutional capacity building of nongovernmental organizations (NGOs) and community based organizations (CBOs): Impact of an innovative initiative" 2003. [Online](#)

Hussain et al, "The role of community based organizations in rural development: a case study of selected CBOs in district SWAT". 2008. *Sarhad Journal of Agriculture* 24 (4) pp749-754

<sup>63</sup> WWF, "Establishment of Offices for the Cluster Mangroves Management Unit MMUs/CBOs".

<sup>64</sup> World Bank, "Socioeconomic Study and Proposal for Livelihood Improvements: Badin and Thatta Districts, Sindh, Pakistan". 2005. [Online](#)



Figure 7: Miro Dablo village shop run by women (photo D. Braam)

Researchers have pointed out that a lack of financial and human resources affects the effectiveness of CBOs, in particular their role in political decision making.<sup>65</sup> However, our respondents strongly felt that the CBO increased their input in relief agencies' responses, and empowered community leaders to connect with authorities. This was highlighted by a paper evaluating the 2010 superfloods response in Sindh, where communities without established CBO lacked leadership, representation and power to influence institutions working on prevention, rescue and recovery.<sup>66</sup> Faced with projected increases in internal displacement due to ongoing coastal erosion and sea intrusion, CBOs could play an important role in the provision of safe migration, facilitating communities, households and individuals.

## CONCLUSION

The negative effects of climate change and disasters exacerbate local environmental degradation in the coastal areas of Sindh in Pakistan. The lack of fresh water, fertile land, and resulting losses of livelihoods are key drivers for forced displacement. While preventing displacement remains the focus of (sub-)national disaster risk reduction and management policies, the adverse effects of climate change will further increase coastal erosion and sea intrusion, affecting communities' ability to remain in their current location, eventually forcing many to move on.

Communities therefore need to be supported both in-situ and during safe migration to more appropriate destinations. Some of this support can very well be provided by CBOs, given appropriate resources, supported by improved legal and institutional frameworks. The proposed recommendations below include short-, medium, and long-term solutions to be addressed at different governance levels, while prioritizing support to communities' agency (Figure 8).

### Recommendations

- Protection from climate change related displacement:
  - Strengthen contextualized data collection for policy and decision making, using local 'movement stories' to understand better the challenges and risks faced during (onward) migration;

<sup>65</sup> Rafique and Khoo,, "Role of community-based organizations (CBOs) in promoting citizen participation A survey study of local government institutions of Punjab, Pakistan". 2017. *International Journal of Sociology and Social Policy* 38 (3/4) pp 242-258

<sup>66</sup> Akbar Ali R. and Mannakkara S., "Factors affecting successful transition between post-disaster recovery phases: a case study of 2010 floods in Sindh, Pakistan". 2020. [Online](#)

- Localize responses by further strengthening communities' agency through CBOs, providing appropriate and sufficient training and resources to enable local disaster risk reduction and adaptation decision making and planning;
  - Support locally owned livelihood diversification and adaptive mechanisms to alleviate poverty, including small livelihood investments, marketing, seed variations, and insurance mechanisms suitable for rapid implementation, to align with international financial protection standards.
- Protection during displacement
    - Support safe land relocation for displaced communities, in collaboration with community representatives/ CBOs, based on historical ties and livelihood options.
    - Provide safe migration options to separate households and individuals, using CBOs for awareness and capacity building: develop legal and institutional frameworks to ensure migrants are included in public services in destination locations.

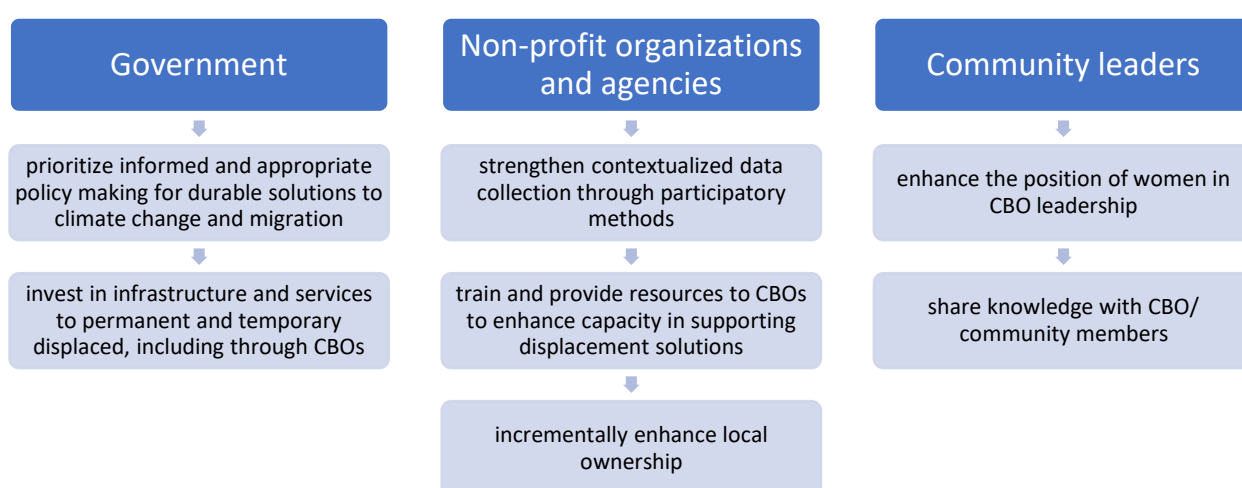


Figure 8: Proposed actions at government, agency and local level

## AUTHOR PROFILES

Dorien Braam is a PhD Gates Scholar researching zoonotic disease risks in conflict and disaster displaced populations at the Disease Dynamics Unit at the University of Cambridge. She previously worked for the UN, Netherlands Government and NGOs in Asia, Eastern Africa and Europe, and published research reports and policy papers on forced migration, community resilience and protection as Director of Praxis Labs, a global research consultancy.

Love Kumar is a PhD scholar at the University of Florida. At the time of research, he worked as Senior Officer Freshwater Programme at WWF Pakistan, supporting local communities and authorities in protecting the environment and livelihoods. He has worked extensively on freshwater related projects in Sindh and Balochistan province, and has been involved in climate change and cleaner production research studies in Pakistan.

## Ethics and funding

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