

Climate, Peace and Security

MINDANAO, PHILIPPINES

SUMMARY FOR POLICYMAKERS

Mindanao, the second largest island in the Philippines, is a region marked by decades of armed conflict, particularly between the government and the Moro Islamic Liberation Front (MILF), culminating in a historic peace agreement and the creation of the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM). While the region is undergoing a fragile transition toward peace, it remains highly vulnerable to climate change impacts such as flooding, droughts, and extreme weather events, which disproportionately affect its agriculture-dependent communities and risk exacerbating existing tensions. In this post-conflict setting, integrating climate risk management and resilience-building strategies into peacebuilding and development efforts is essential to securing a durable peace. By addressing climate-related vulnerabilities and promoting sustainable livelihoods, interventions can strengthen social cohesion, reduce the likelihood of resource-based conflicts, and support inclusive and equitable recovery for communities still navigating the legacies of violence and marginalization.



The CSO is an online decision-making platform for policymakers, researchers, and practitioners who are working at the intersection of climate and conflict, peace and security. Using science on land, water and food systems, it addresses the root causes of conflict.



We are using a mixed-method approach to give answers to four lead questions:

- HOW** does climate worsen the root causes of conflict?
- WHERE** are the most vulnerable areas to climate induced insecurities and risks?
- WHO** are the vulnerable groups to climate and security risks that should be targeted?
- WHAT** needs to be done to break the cycle between climate and conflict?



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Key messages

Climate, peace and security linkages in Mindanao

1. **Climate impacts in Mindanao are worsening already dire conditions for Muslim and Indigenous populations, heightening the risk of recruitment into violent insurgencies.** Extreme weather damages crops, eroding livelihoods and trust in government due to delayed disaster responses. Historical grievances over land and resource exploitation persist, now intensified by climate change. Failed state support, corruption, and unmet promises from the BARMM transition fuel disillusionment. Non-state armed groups often appear more reliable than formal institutions.
2. **Mindanao's decades of conflict have caused repeated displacement, damaged infrastructure, and eroded livelihoods, weakening adaptive capacities in the face of climate threats.** Weak institutions, fragmented governance, and security threats limit access to public services and reduce adaptive capacity. Climate change compounds these challenges by disrupting farming and intensifying vulnerabilities, especially for women, who face entrenched socio-economic and political exclusion. Conflict also marginalizes former combatants and fuels stigma against Muslim communities, deterring economic investment. Displacement, land disputes, and unequal access to resources deepen poverty and food insecurity. As a result, the region suffers from both human and capital loss, weakening community resilience to future crises.
3. **Resource and land conflicts remain central to instability in Mindanao, fueled by weak governance, overlapping tenurial claims, unsustainable extraction and increasingly by climate change.** Disputes over land, particularly affecting Indigenous Peoples, have escalated post-BARMM implementation. Climate change worsens tensions, as degraded ecosystems and scarce resources intensify competition. Militarized responses and fragmented authority deepen mistrust, while insurgent groups exploit local grievances to gain influence. Legal pluralism and poorly implemented policies further complicate land rights. Though community co-management efforts show potential, they're undermined by economic hardship and institutional weaknesses. These dynamics hinder both environmental governance and peacebuilding, reinforcing cycles of violence and exclusion across conflict-affected areas.
4. **Inequitable distribution of development funds and revenues from extractive industries fuels political exclusion and weakens social cohesion, hindering climate adaptation.** Municipal governments often centralize control over resources, using aid and disaster relief to reward loyalty and punish dissent. Clientelist practices and surveillance foster mistrust, while corruption entrenched through political bargains undermines equitable resilience-building. Mining revenues follow similar patterns; mandated community reinvestment is distributed unevenly, with minimal support for essential services. Local elites often divert funds for personal or political gain, intensifying grievances and divisions. These dynamics reinforce exclusion, deepen vulnerability, and obstruct inclusive, community-driven efforts to adapt to climate and conflict pressures.
5. **Rebel groups play a critical role in disaster contexts, influencing aid access and governance.** When hostility with the state is low or when strong social contracts exist, NSAGs may support or hinder disaster relief. In governance vacuums, NSAGs often enforce rules and manage resources, creating parallel authority structures. Where both state and rebel presence is weak, informal leaders—like elders or religious figures—may maintain order and broker humanitarian access. However, in fragmented conflict zones, competing armed groups create instability, obstructing aid efforts and forcing humanitarian actors to withdraw due to security risks.

Recommendations for sustainable peacebuilding through climate resilience

1 Increase equitable access to and distribution of benefits from high-value natural resources

Increase the equitable redistribution of and access to land, forests, minerals, and other natural resources and their revenues and indirect benefits, then the risk of new and renewed conflict is minimized because the drivers of conflict that arise from competition and grievances over scarce resources would be addressed, and the opportunity costs of future conflict would be increased. If women are provided safety, security and representation in natural resource access and management, then gender-based violence will decrease because this will reduce vulnerability to structural inequalities and the risk of them being attacked or harmed. Also, the involvement of women in resource management can increase their influence over and the effectiveness of conflict resolution processes.

2 Leverage environmental cooperation as a peacebuilding mechanism

Use the management of natural resources and of climate threats to foster inter-group collaboration and engagement, so as to foster trust or challenge prejudices and grievances. Parties in conflict can potentially mitigate the occurrence of conflict and/or promote the establishment of culture of peace and trust by utilizing the management of environmental issues as a platform for engagement.

3 Advise decision-making through the intangible valuation of the environment

Incorporate non-material or intangible assessments of the environment and natural resources into efforts aimed at enhancing the inclusion of local populations in the policy-making process. Numerous factors contribute to identity conflicts, including historical disenfranchisement, discontent, discrimination, and power disparities. To address these concerns, it is imperative to not only focus on achieving a more equitable distribution of economic gains derived from natural resources but also to acknowledge and consider the emotional, cultural, and identity aspects in the valuation of natural resources, in conjunction with the intangible assessment of land and territories.

4 Strengthen the resilience of conflict-affected populations

Enhance the resilience of rural communities to climate-related challenges by bolstering their agricultural livelihoods through a multifaceted approach encompassing Climate-Smart Agriculture (CSA), value addition, financial services, and improved access to markets, among other measures. This initiative places particular emphasis on supporting former combatants and populations impacted by conflict. By doing so, this aims to elevate the opportunity cost associated with engaging in conflict.

5 Foster the equitable distribution of support for development and resilience building

Increase the participation and agency of local communities in the allocation of funds and benefits designated for enhancing resilience, thereby diminishing the influence of local politicians in serving as intermediaries for development and in leveraging public resources for electoral backing. This can reduce the capacity of local elites to use resilience funds as a means for political violence and constituent control.

6 Facilitate collective action for disaster risk reduction

Foster the development of early warning systems that serve to effectively identify and respond to environmental, fragility, and conflict risks before they escalate. This can support populations in taking the steps to increase their resilience and avoid conflict because a collaborative early warning system provides timely information to support coordination and collective action at different scales to mitigate or otherwise address risks. Community networks for disaster risk reduction can also serve as social protection mechanisms in the face of climate and conflict risks, as well as to support reconstruction and recovery efforts through collective action.

7 Increase political legitimacy through good governance of natural resources and environmental risk

Build political legitimacy by reinforcing accountability, transparency, and representation within institutions responsible for the management of natural resources. Enhance institutional capacities to uphold good governance principles in natural resource management. This includes the incorporation of mechanisms to facilitate constituent engagement in the decision-making process and the devolution of authority for the management of ecosystems. This fortifies the foundations of governance, fostering trust, and participation in natural resource management. Enhance the capabilities of public institutions and community-driven networks to sustainably manage natural resources. This strategic move aims to secure the continued availability of resources that local populations depend upon, thus diminishing conflicts related to resource competition. Simultaneously, it seeks to promote the stability of livelihoods by ensuring responsible resource utilization.

8 Formalize land management and clarify resource tenure with communities

Formalize commercial arrangements around natural resources and land. This will reduce the influence of political and customary elites in the shadow economy of natural resources in Mindanao, which could increase people's trust in formal institutions, their willingness to pay taxes, and strengthen government capacities through higher revenues. Strengthen agrarian reform through the recognition of traditional land management systems, while undermining the influence of local elites over land distribution.

9 Increase the harmonization of policy mechanism for resource tenure

Enhance Natural Resource Management systems through the formulation of inclusive policy frameworks that mitigate the existence of overlapping and conflicting resource tenure mechanisms. These endeavors have the potential to prevent conflicts arising from ambiguous tenure rights over natural resources and establish the necessary frameworks for the peaceful resolution of resource-related disputes. It is also necessary to increase the capacity of governance systems, whether statutory or customary or a mix, to respond and effectively resolve conflicts that emerge over land and natural resources.

10 Enhance access to public services and government support

Enhance the delivery of basic services -with a focus on former combatants, conflict-affected populations or populations at risk of being recruited- through sustainable natural resource management, agricultural extension services, and the prioritization of local and traditional knowledges. This can increase stability and state legitimacy because constituents enhance their trust in government and the peace process to represent their preferences in terms of development.

AN INTRODUCTION TO CLIMATE, PEACE AND SECURITY

Climate security explores whether climate change increases the risk of armed conflict and, if so, under which circumstances this relationship occurs. People in fragile and conflict-affected areas are also among the most vulnerable to climate change, making it vital to understand the climate-conflict interplay for resilience and peacebuilding. One key concept in this field is climate change as a “threat multiplier,” which suggests that its effects can exacerbate existing social, economic, and political tensions, especially in unstable regions.

According to this view, climate change may interact with pre-existing factors contributing to hostility or hinder peacebuilding efforts. Non-legitimate resource management regimes can worsen grievances with diminishing resources. Disrupted livelihoods may lower the opportunity cost of violence. Disasters might either create opportunities or barriers for security forces and non-state armed groups. Climate effects can force communities to change migration patterns, cross borders, or even shift border locations, raising the risk of violence.

Institutions play a crucial role in mediating the climate-conflict relationship. Their capacity to manage resources, provide services, and resolve disputes influences whether climate change leads to conflict or cooperation. Effective institutions can mitigate climate impacts by fostering resilience, while weak institutions may heighten vulnerabilities and contribute to conflict. This understanding has led to a growing emphasis on inclusive, collaborative governance structures as essential for climate security.

Recently, the discourse has begun recognizing climate change not only as a challenge but also as an opportunity for peace. Inclusive climate action can serve as a “peace multiplier” by addressing root causes of conflict, such as grievances, corruption, inequality, and marginalization. Even when climate change is linked to conflict, it can prompt societies to tackle underlying vulnerabilities, driving positive change. Climate change can thus promote “climate-resilient peace” by fostering cooperation, building interdependencies, and encouraging social action for justice.

A major challenge for governments in vulnerable, fragile, and conflict-affected regions is managing these complex interactions. Currently, they lack effective tools to implement climate strategies that address social grievances driving conflict and adapt to changing dynamics. In response, conflict-sensitive approaches to climate action are gaining support as mechanisms to ensure transitions to carbon-neutral economies and climate-resilient societies are equitable and aligned with peacebuilding goals.

Armed conflict and natural resources in Mindanao

The prolonged conflict in Mindanao, marked by multiple insurgency movements and localized inter-community violence, is often oversimplified by the international community as a religious strife between Muslims and Christians. This framing tends to emphasize religious factors while overlooking important conflict drivers, such as issues related to the unequal access to land and natural resources. The agrarian roots of conflict in Mindanao are better understood when traced back to historical processes of displacement and exclusion from the colonial and post-colonial periods, the political manipulation of local elites striving to retain power, and the pervasive management of land through Mindanao's "shadow economy" (Vellema et al., 2011).

During American colonialism, there was a deliberate effort by the government to systematize land administration in Muslim Mindanao with the goal to optimize natural resource exploitation and establish economic connections with American markets. This initiative implied an increased military presence in the southern areas of Mindanao, primarily inhabited by Muslim populations. Concurrently, the government fostered interactions with *Datus* -a nobility title in Muslim Mindanao-, to cultivate an extractive paradigm for resource utilization and agricultural productivity. Many *Datus* emerged from this process as influential elites negotiating land-use policies dictated by the colonial administration (Lara, 2014).

During and after the American colonial period, land policies were structured to encourage a substantial influx of Christian settlers into the northern and western regions of Mindanao. Under the American land-use policy, Philippine citizens from the more densely populated islands to the north were eligible to apply for lots of up to 24 hectares, with the condition that they would cultivate the land. In contrast, local Muslim populations were granted only a fraction of the land allocated to these settlers. The formalization of land ownership was more readily accessible to newcomers than to the populations already established in the land before the colonial era (Gowing, 1988). This pattern of policies that incentivized northern populations to expand the agrarian frontier in Mindanao persisted even after the Philippines gained independence (Abinales, 2000).

This massive migration, coupled with policies aimed at rationalizing land use, brought about significant changes in traditional agrarian structures across Muslim Mindanao. Notably, land privatization emerged as the primary formal mechanism for land tenure. All legally unclaimed land became the property of the state, open for allocation to settlers, agribusinesses, logging, or mining. Consequently, the traditional authority of *Datus* in allocating and disposing of land was challenged, reflecting a shift in the dynamics of land ownership and distribution in the region. Traditional clan authorities, thereby, acted to reinforce their power over land and resources through formal political structures. This process laid the foundation for institutional multiplicity in land management within Muslim Mindanao and the emergence of "political dynasties" that continue to dominate regional politics (Lara, 2014).

After Philippine independence, resistance from Muslim clans hindered the government's attempt to impose taxation in Mindanao. In fact, until martial law in the 1970s, Mindanao remained outside central state regulation and taxation, becoming a haven for tax evaders. The underground economy thrived, involving smuggling, arms trading, illegal gambling, narcotics production, and unregulated land transfers. Powerful clans controlled local enclaves, engaging in various illicit activities, such as trading gems and natural resources. Participation in the informal economy met household needs and economically empowered the clans.

With the onset of the Moro insurgency, widespread armed conflict further hindered tax collection, instead diverting local levying to fund armed groups. This facilitated the growth of illegal trade, particularly in narcotics, leading to the expansion of agricultural production into illicit crops. Armed conflict provided an opportunity for clans to thrive amid violence, with local businesses growing in the absence of taxation. Socio-economic practices in Mindanao hence became intertwined and dependent on armed conflict.

Strongly related to insurgency movements and as a result of power-struggles between clans, Muslim populations in the region have also grappled with the persistent menace of local violence, predominantly manifested as inter-clan feuds, or "rido." These feuds, which involve the most influential clans, have had far-reaching consequences for local populations. They have hindered mobility, obstructed access to essential public services, discouraged investment in the region, and permeated formal policy systems through clientelist political alliances in municipal and regional governance structures. These conflicts typically revolve around disputes related to land ownership, political power, and matters of clan honor and pride.

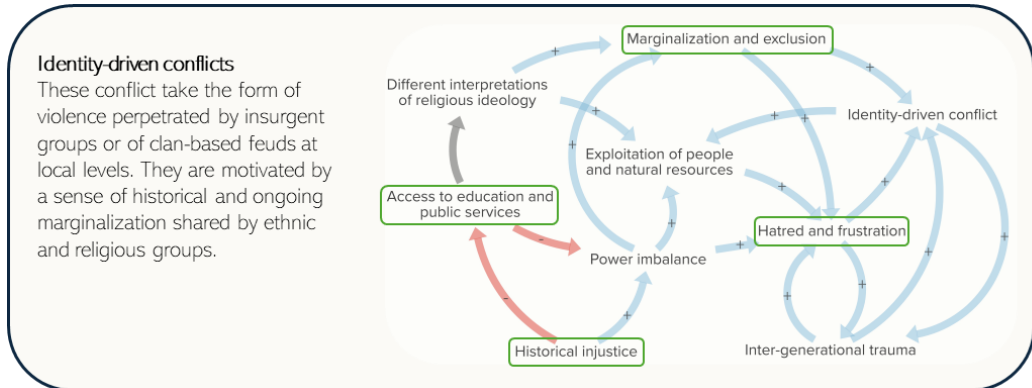
Land-related conflicts often have a direct connection to rido due to the substantial economic, social, and symbolic value that land ownership holds. In Mindanao, as well as other parts of the Philippines, disputes often arise due to unclear land titles and the absence of a comprehensive land use policy, which can lead to disagreements over land boundaries and rights. According to Gulane (2022), there has been a concerning increase in the proportion of conflict incidents related to land, rising from 19% in 2011 to 35% in 2020. Particularly, there were spikes in fatalities resulting from land-related conflicts during the years 2016-2017. The author suggests that these disputes over land frequently trigger political violence, a situation further exacerbated by the widespread availability of illegal weapons.

The Comprehensive Agreement signed by the Government of the Philippines and the Moro Islamic Liberation Front led to the cessation of decades-old violent conflict and the creation of the Bangsamoro Autonomous Region of Muslim Mindanao (BARMM). Despite significant progress in peace negotiations, the reintegration of former combatants, and the management of inter-community feuds over the past decade, Mindanao continues to face numerous challenges in its journey toward stability, and the cessation of the cycle of violence that has afflicted the region for half a century.

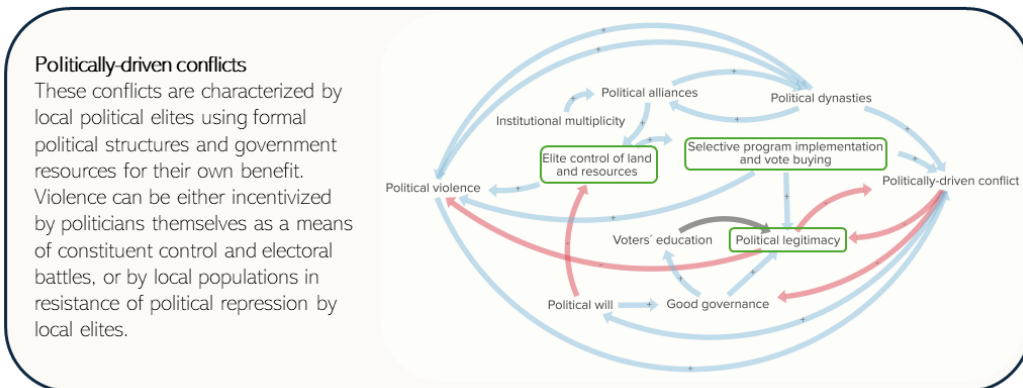
The persistent threats of violence over identity, politics, land, and natural resources across Mindanao necessitate the establishment of structures for early warning and prevention. Concurrently, the positive developments for peacebuilding in the region since 2014 present an opportunity for policymakers to embrace sustainable development as a strategy. This approach aims to safeguard people's livelihoods, enhance the representation of local constituents in political structures, increase legitimacy, address historical grievances, and acknowledge the imperative for retribution and justice.

Drivers of conflict in Mindanao

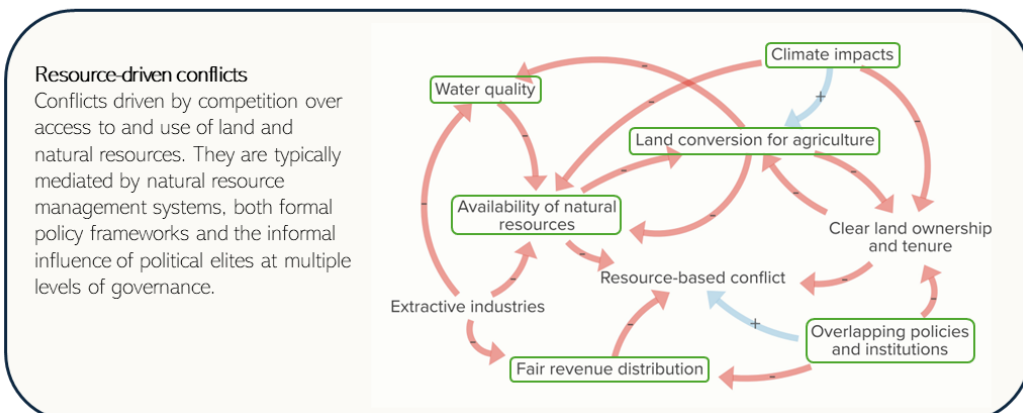
In October 2023, a workshop in Butuan, Mindanao, brought together experts from government, international organizations, civil society, and academia to discuss the role of climate action in contributing to ongoing peacekeeping and peacebuilding efforts in Mindanao. Workshop participants recognized that violent conflict in the region is a long-lasting issue marked by various interconnected drivers, including a complex web of ethnic, political, economic, and historical factors that contribute to its protracted and cyclic nature. In order to better understand this complexity, participants categorized armed conflict in Mindanao through three main conflict lines, identified the main drivers for each category and highlighted drivers which could be mitigated through climate action strategies (in green):



Power imbalances and marginalization lead to politically-driven conflicts



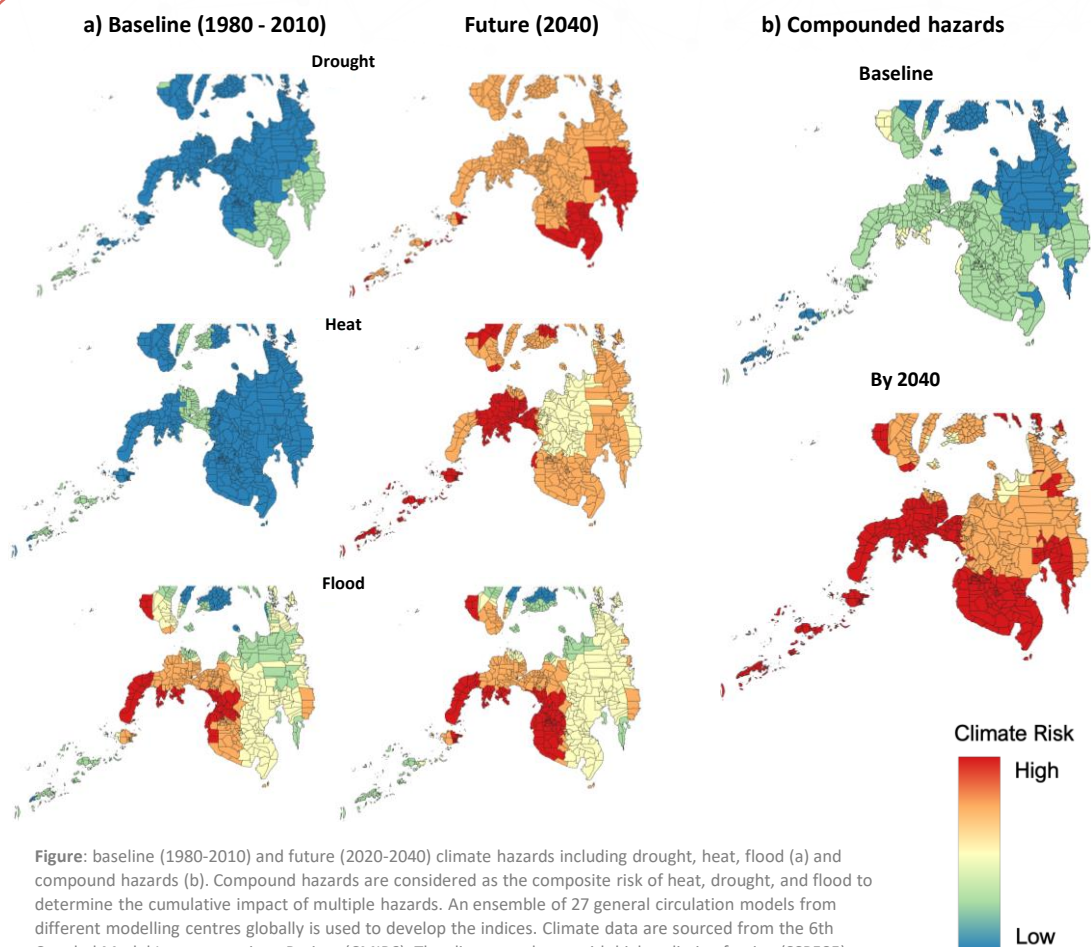
Unequal and illegitimate control of natural resources leads to resource-related conflicts



Climate effects and projections

Between 1951 and 2010, annual rainfall trends in Mindanao have shown a decline in the central and western areas but an increase of up to 40mm/decade in the northeast (PAGASA, 2018). Populations across the region are highly exposed to climate shocks, including typhoons, flooding, landslides, and drought (Cruz et al., 2017). With only 43% of the island's irrigable land under irrigation (Giles et al., 2019), the heavy reliance on rain-fed agriculture exacerbates the vulnerability of the agricultural sector to both erratic rainfall and extreme weather events. The changing climate, especially unpredictable rainfall patterns, poses a serious threat to crop planning and productivity.

Mindanao is particularly prone to drought, with El Niño events significantly heightening risks. For instance, the 2015/2016 drought resulted in losses exceeding USD 325 million (FAO, 2020), and the 2016 Cotabato drought led to a state of calamity across several provinces. Such events are expected to increase in frequency due to climate change (IPCC, 2022), disproportionately affecting small-scale farmers. Historically, Mindanao has been less impacted by typhoons due to its southern location. However, recent data indicate a southward shift in typhoon landfall patterns, suggesting an increased risk of tropical cyclones, particularly in northern Mindanao (David et al., 2013). This shift has significant implications for disaster preparedness and response in the region.



In Mindanao, baseline conditions indicate a greater occurrence of drought events to the South and East (Figure 4a, drought). Future projections suggest a similar distribution of hazard exposure, however more extreme than baseline conditions. Caraga, Davao, and SOCCSKSARGEN regions are expected to see the largest drought hazard in the future. Extreme heat is represented by the NOAA heat index, which counts number of days above a real feel of 41°C, equivalent to a category with potentially lethal effects on the human body (Figure 4a, heat). Therefore, although baseline conditions are within the low and moderate category, the region would still have been exposed to severe heat. In the future scenario, all areas see a drastic increase in heat exposure and severity, with the Zamboanga Peninsula region seeing the greatest impacts. Additionally, flood events are projected to intensify along the West of Mindanao, shifting the region to a higher hazard class (Figure 4a, flood). Importantly, flood hazard is calculated using intensity of heavy precipitation events leading to flash floods, not just relying on riverine and coastal flooding. Therefore, there is likely an ever-greater risk of coastal flooding from storm surge, which is not captured here.

The compounded impact of simultaneous climate-related hazards, such as concurrent droughts and heatwaves or floods, can lead to considerable loss and damage. Presently, the South of Mindanao is most exposed to compound hazards, and this pattern remains in future (Figure 4b). Across the region, however, there is an expected increase in compound hazards, with a particular focus on the South and West (Figure 4). By 2040, the regions of Zamboanga Peninsula, SOCCSKSARGEN, Davao and BARMM will be exposed to the highest compound risk class. Northern Mindanao and Caraga Region are also projected to face a medium to high risk in the future, with several locations shifting from a prior low-risk status under baseline conditions.



Mapping the policy landscape on climate, peace and security

Achieving strategic and operational coherence across sectoral policies is essential to effectively address the complex interactions between climate change, human security, and conflict. To assess the current level of integration, we analyzed 41 policies and strategic frameworks from the Philippine national government and regional bodies using an automated content analysis approach¹. Our findings highlight key gaps and opportunities for strengthening policy alignment in this critical nexus.

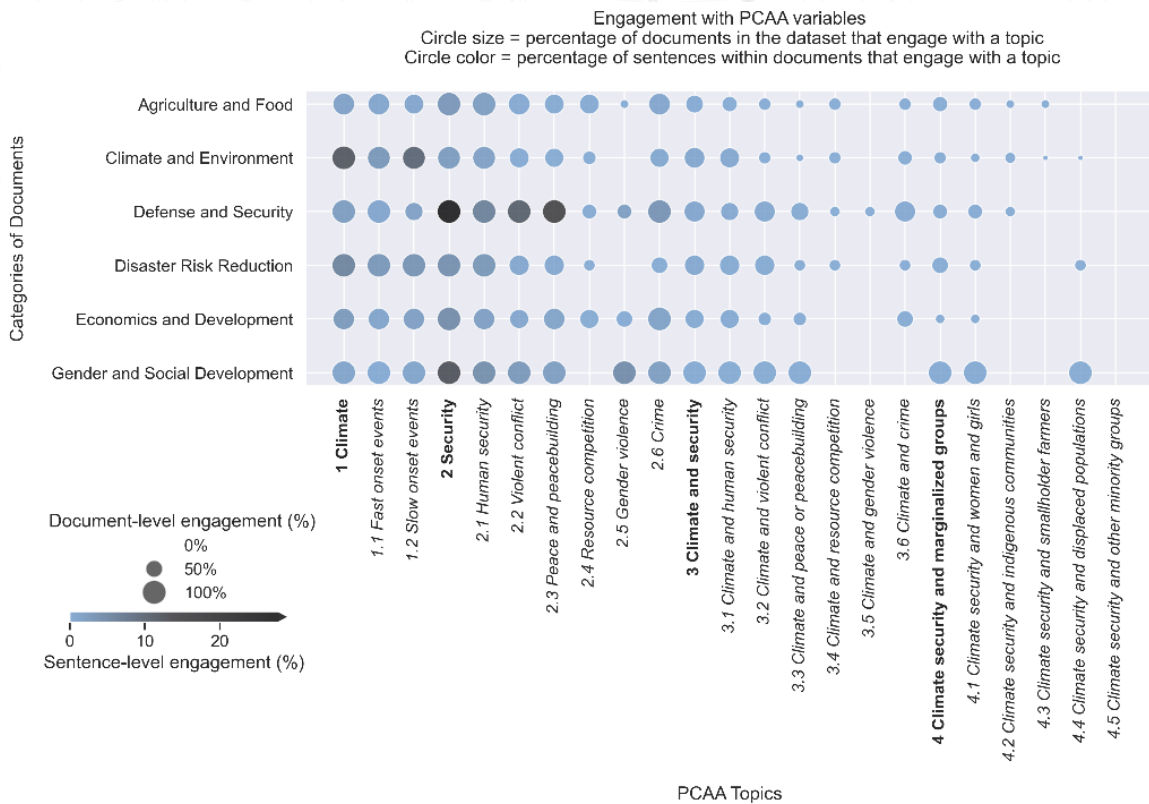


Figure: Analysis results, showing the degree to which policy documents pertained to specific policy sectors (Y axis), discuss the thematic areas of focus (X axis).

Key Findings:

- Limited Integration of Climate, Peace, and Security Considerations:** While climate change and security are recognized as important topics in Philippine policies, their interconnections remain underdeveloped. Climate change is widely acknowledged as a driver of human security risks, such as livelihood and food insecurity. However, the ways these risks contribute to conflict, competition, or increased vulnerability to violence are not sufficiently emphasized. Similarly, few policies highlight potential synergies between climate action and peacebuilding, limiting opportunities for integrated solutions.

¹ Schapendonk, F.; Scartozzi, C.M.; Meddings, G.; Melgar, A.; Laderach, P.; Pacillo, G. (2024) Climate Security Policy Coherence and Awareness Analysis: Philippines. 40 p. <https://hdl.handle.net/10568/141520>

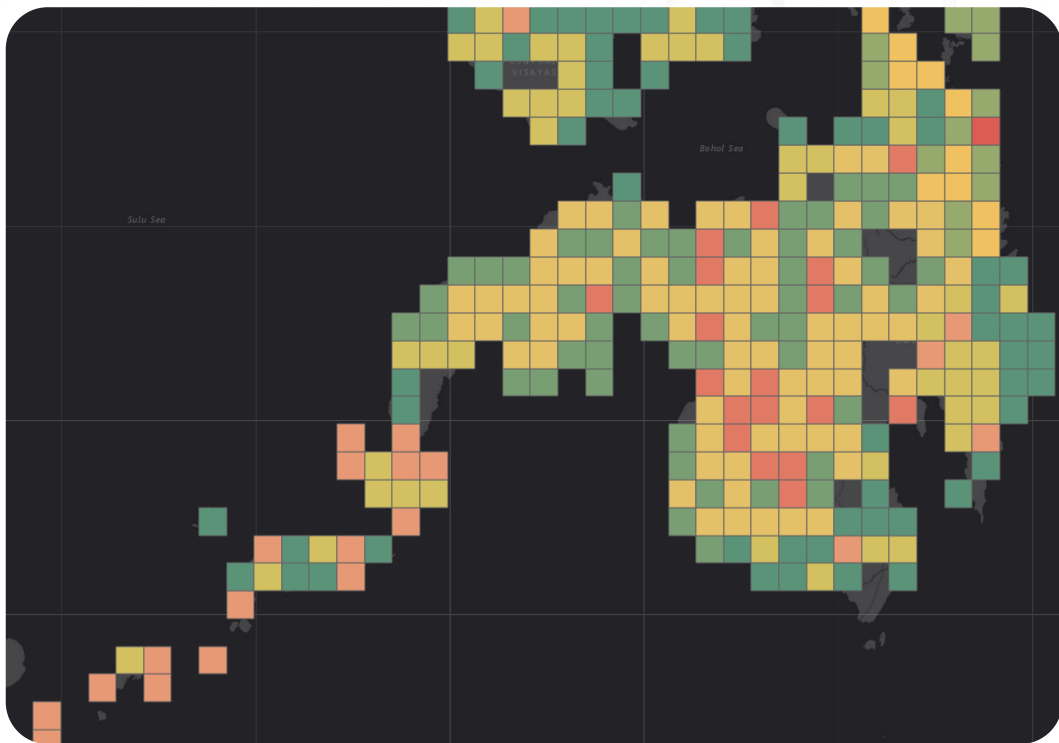
2. **Uneven Prioritization Across Sectors:** Climate security considerations are present in some sectoral policies but tend to be overshadowed by other strategic priorities. The discourse primarily links climate risks to sudden-onset natural disasters rather than long-term climate change impacts. Additionally, while environmental crime, such as illegal logging and poaching, is a well-documented concern, issues like climate-induced resource competition and gender-specific vulnerabilities receive limited attention.
3. **Inconsistent Identification of Vulnerable Populations:** Women and girls are the most frequently identified groups facing climate-related security risks, but other vulnerable communities, such as indigenous populations and smallholder farmers, remain underrepresented in policy discussions. Strengthening intersectional analysis in policymaking is crucial to ensure inclusive climate adaptation and security strategies.
4. **Fragmented Cross-Sectoral Coordination:** There are notable gaps in coordination between sectors. While climate and development policies are relatively well integrated, the defense and security sector remains largely disconnected from climate change and disaster risk reduction (DRR) policies. This misalignment is reflected in weak institutional linkages, where agencies responsible for climate and security agendas have limited opportunities to collaborate and identify synergies.
5. **Limited Local Government Engagement:** Our analysis found minimal evidence of integration between climate and security planning at the local government unit (LGU) level. Strengthening vertical policy coherence and ensuring LGUs have the necessary guidance and resources to integrate these considerations into local planning frameworks will be essential for effective implementation.



A spatial analysis of conflict and climate risks

A spatial hotspots analysis was undertaken to identify geographic areas where conflict incidents, adverse climate conditions, and socio-economic vulnerabilities co-occur². The results indicate a pronounced convergence of conflict and drought-related stressors across the regions of the BARMM, SOCCSKSARGEN, and the Zamboanga Peninsula. Within the Sulu Archipelago, provinces exhibit a high incidence of conflict events, spatially overlapping with areas of elevated flood risk. Major urban centers—such as Iligan City, Cotabato City, Kidapawan, Davao City, and General Santos—are characterized by high exposure to both drought and flood hazards, alongside relatively elevated levels of violence compared to other locations.

The analysis further highlights significant co-occurrence of conflict and climate risks in areas surrounding Lake Lanao, particularly in Lanao del Sur, as well as across various municipalities in Maguindanao del Norte, Maguindanao del Sur, and Cotabato provinces. Finally, the entire Sulu Archipelago—including Basilan, Sulu, and Tawi-Tawi—is underscored as a critical hotspot of intersecting climate and conflict vulnerabilities, meriting urgent and integrated policy attention to address compound risks in these fragile contexts.



Methodology. The hotspots analysis develops four steps: 1) determination of conflict clusters, 2) determination of climate clusters, 3) identification and mapping of conflict-climate interactions, and 4) identification of socio-economic vulnerabilities. The conflict and climate clusters are determined through pattern based spatial cluster analysis using a regular grid of 30 km² of resolution. The labels for the resulting groups are defined by a conflict or climate gradient from descriptive statistics. The socio-economic vulnerability conditions are determined by extreme percentiles (10% or 90%, depending on the variable), based on the assumption that the most extreme conditions (in either tail of the probability distribution) are the most likely spots for urgent intervention. Conflict data are from ACLED; climate data are from CHIRPS, TerraClimate, and AgERA5; and socio-economic variables are from the Institute for Health Metrics and Evaluation (IHME), Facebook's wealth maps, amongst others. Most of these data are directly available through Google Earth Engine.

² Climate Security Observatory. Where are the most vulnerable areas to climate induced insecurities and risks?
<https://cso.cgiar.org/#/Information/Philippines>

Climate, Peace and Security linkages in Mindanao

The following intersections between climate, peace and security in Kenya were developed through a multiple-methods approach combining a systematic literature review³, stakeholder consultations⁴, and participatory assessments at the community level⁵.

Specially in settings characterized by perceptions of illegitimacy and poor representation, the effects of climate change over livelihoods increases the risk of insurgency and conflict.

Livelihood threats stemming from climate impacts worsen the already comparatively dire socio-economic conditions faced by Muslim populations and Indigenous Peoples (IPs) in Mindanao. The worsening of socioeconomic conditions may in turn elevate the risk of recruitment into violent insurgencies. Research by Crost et al. (2018) highlights the influence of climate patterns on conflict dynamics, noting that favorable rainfall during dry seasons can boost agricultural productivity and reduce conflict, while excessive rainfall during wet seasons can damage crops and heighten the risk of violence. As climate projections indicate more extreme weather patterns—wetter wet seasons and drier dry seasons—the potential for conflict escalation due to failed harvests is likely to increase, particularly in this region where peace continues to be fragile.

Historically, insurgent groups have capitalized on local grievances such as land grabbing, environmental exploitation, and inadequate government services to recruit marginalized individuals (Abinales, 2000). Resource extraction by logging and mining companies, particularly in Indigenous territories, has also fueled support for insurgencies (Oki, 2014). For example, the Moro secessionist movements gained momentum due to exclusive land management policies established during and after American colonization (Vellema et al., 2011). These longstanding grievances are expected to be further aggravated by climate change, with insufficient government responses to climate-induced disasters exacerbating frustration, especially in rural communities.

A recent case in a Lanao del Sur municipality illustrates the severe consequences of an inadequate government response to climate-related disasters (Medina et al., 2024). After heavy rainfall in 2023 destroyed a key irrigation channel, farmers were left unable to sustain their agricultural production, reducing rice harvests from three cycles to just one. Slow responses from municipal towards disaster recovery increases the vulnerability of local populations and erodes trust in formal institutions. Research in Mindanao indicates that such distrust is closely linked to a higher likelihood of engaging in violence (Delina et al., 2024). Droughts are particularly devastating, leading to severe crop failures, food shortages, and economic instability. For instance, the 2015-2016 El Niño event caused widespread damage to rice and corn harvests, triggering farmer protests in Kidapawan due to delayed government assistance. These protests escalated into violent confrontations with security forces, demonstrating how climate-induced agricultural crises can escalate into broader social unrest.

This growing mistrust, combined with the marginalization of local populations, increases the risk of recruitment into non-state armed groups (NSAGs). These groups often viewed as a reliable source of support and protection in the face of social and environmental threats, such as climate-related disasters, a perception fueled by prevalent allegations of corruption and political violence within local

³ Ferré García, T.; Madurga Lopez, I.; Medina, L.; Carneiro, B.; Liebig, T.; Pacillo, G.; Läderach, P. (2023) How does climate exacerbate root causes of conflict in the Philippines? Climate security pathway analysis. Climate Security Observatory Series. Factsheet 2023/09. 19 p. <https://hdl.handle.net/10568/137184>

⁴ Medina L., Savelli A., Jaquet S., Torres M., Arcede J., Hellin J., Pacillo G., 2023. Towards a Community of Practice for Climate Security and Environmental Peacebuilding in Mindanao: Workshop Report. International Center for Tropical Agriculture. Manila, Philippines <https://hdl.handle.net/10568/135792>

⁵ Medina, L.; Savelli, A.; Souza de Matos, V.; Kizilkaya, S.; Torres, M.A.; Arcede, J.; Jaquet, S.; Sabugaa, M.; Hellin, J.; Sieber, S.; Bonatti, M.; Pacillo, G. (2024) Community voices on climate, peace, and security: Mindanao, Philippines. 54 p. <https://hdl.handle.net/10568/163070>

governments (Walch, 2018). The persistence of clan-based political dominance, entrenched since the colonial era, continues to undermine local political legitimacy and hinder effective governance (Lara, 2014).

Moreover, unmet expectations from the transition processes towards the establishment of the Bangsamoro Autonomous Region of Muslim Mindanao (BARMM) have fuelled deep-seated mistrust and resentment towards authorities. The normalization process of former Moro Islamic Liberation Front (MILF) combatants, while a key component of the Comprehensive Agreement on the Bangsamoro (CAB), has not fully provided the livelihood training and housing which were pledged. These unfulfilled promises reinforce perceptions that state benefits are allocated based on clan loyalties rather than actual need, further intensifying anti-government sentiments.

Voices from the field Testimony from elder farmer and former combatant in Lanao del Sur



“Before I was part of the Dawlah, my family members were captured, and all my family was scared. They decided that the best thing I can do is to do amnesty. My relatives called me all the time to pressure me to do amnesty. During the amnesty, other members of Dawlah were facilitating, so when I saw that most of my family was depressed, I decided to do amnesty. Everything was offered to me, even to visit Malaysia, and provide me with a shelter. And none of those promises have been implemented. I actually regret that I took myself into amnesty, because none of those promises actually happened. Now I do not know who is my enemy, is it my family, the community or the government?”

In the face of challenges arising from low political legitimacy, initiatives for environmental management and resilience can deliberately concentrate on enhancing state-society relations and bolstering trust in the government among local constituents (Trajano, 2020). A key strategy in this context is to enhance political legitimacy by reinforcing accountability, transparency, and representation within institutions responsible for natural resource management and rural development. This involves integrating mechanisms to facilitate constituent engagement in decision-making processes and devolving authority for ecosystem management.





A community-led network for disaster risk reduction and peacebuilding

The Munai Alliance, initiated in 2019 as part of a program by the Mayor, is a remarkable community network comprising approximately 25% of the population living in Munai. This alliance plays a crucial role in early warning and response efforts for various risks and challenges faced by the community. Specifically, the Munai Alliance uses its two-way radios to report instances of animal theft, cattle rustling, natural hazards like fires and floods, as well as outbreaks of localized clan-based conflicts, rido. The association is registered under the National Network of Telecommunications, ensuring the legality and uniqueness of their frequency. Importantly, the Alliance has established connections with public service entities to enable swift responses to disasters.

The Munai Alliance functions as a collaborative social protection network, particularly in providing support to those most affected in the aftermath of disasters. This network leverages local cultural structures, known among Maranao populations as "maratabat," to mobilize the community in offering relief and assistance to households facing adversity. Maratabat, which can be roughly translated as "honor," represents a complex concept in resilience-building. On one hand, it can be harnessed to enhance cooperation and protection within clan members. However, on the other hand, Maratabat can also be invoked to justify violent retaliation in response to perceived offences against one's household. It can even be used to mobilize other clan households into small-scale conflicts that have the potential to escalate into widespread violence at the local level.

One of the most significant impacts of the Munai Alliance is its contribution to mitigating rido conflicts. It enables real-time reporting of conflict incidents to the mayor, facilitating early responses to potential violence. Members of the Alliance also serve as conflict mediators, employing traditional knowledge-based skills. Instances of conflict mediation are documented, serving as valuable training material for other mediators. To facilitate this, there is a Committee on Amicable Settlement, consisting of Local Government Unit (LGU) counselors and responsible for organizing mediators and documenting resolution processes. The Committee encompasses members from the LGU, traditional and religious leaders, as well as representatives from the MILF and BARMM.

Protracted conflict and marginalization act as a barrier to resilience in Mindanao.

Decades of violence across Mindanao have triggered cycles of displacement, loss of livelihoods—particularly in agriculture—and widespread destruction of property and infrastructure. The region's turbulent history is marked by recurring, high-intensity conflicts and widespread forced displacement. These conflicts have persisted for decades, with notable violence in the mid-1970s, throughout the 1980s, and again in the early 2000s, with escalated clashes in 2008 and from 2015 to 2017. The security situation is further complicated by low-intensity and localized political violence, clan-based skirmishes and resource-related conflicts (Pergis-Lozada et al., 2022). This prolonged instability has hindered the development of effective public service institutions and the ability of people to develop a sustainable livelihood, severely diminishing adaptive capacities across the region (Menz et al., 2022). As a result, Mindanao populations continue to face multiple compounding challenges, including low levels of development, marginalization, limited employment opportunities, weak institutional capacities, and a heavy dependence on natural resources that are increasingly threatened by climate change.

Fragmented governance structures in this post-conflict setting undermine institutional capacities for peace and resilience - when violence escalates, government extension services are often the first to be withdrawn, as agricultural officers fear for their safety and government resources are redirected to security operations. Many areas affected by conflict experience a complete absence of state presence, with local government offices either closed or functioning at reduced capacity. This leaves farmers without access to essential agricultural inputs such as seeds, fertilizers, and technical training. Additionally, national and international development agencies often find it difficult to operate in these zones, further limiting farmers' options for assistance.

Voices from the field Testimony from displaced elder man in Lanao del Norte



“During the time of the all-out war, it was the rainy season. It was very difficult for us to evacuate to Lanao del Sur. We made use of a livestock carriage. There were many women giving birth at that time. Many women gave early births. It was very difficult for us to evacuate. When we came back, we lost our appliances and farmed animals, including cows and goats. Our houses were burned. We do not know yet who committed these crimes.”

Prolonged conflict in Mindanao has contributed to a widespread sense of hopelessness among affected populations, often accompanied by high levels of post-traumatic stress. Many communities have experienced significant displacement, with residents forced to leave their homes in search of safety, leading to sharp declines in local populations. This large-scale movement has eroded social cohesion and reduced the collective capacity to absorb economic shocks. For example, rising climate stresses and agricultural input costs—such as fertilizer—have strained already fragile livelihoods, limiting the ability of farmers to sustain productive activities like rice cultivation.

Climate change significantly disrupts agricultural productivity, causing losses in crops, livestock, and household incomes. Among the key climate risks reported by farmers are prolonged droughts, shifting rainfall patterns, and increased incidence of pest infestations. These challenges are compounded by ongoing conflicts, which result in forced displacements, restricted access to farming land, and disruptions in agricultural markets. Women farmers, in particular, bear the brunt of these disruptions due to pre-existing socio-economic inequalities. They tend to have smaller landholdings, fewer financial assets, and limited access to agricultural extension services, which makes them more vulnerable to climate shocks. Furthermore, traditional gender roles often confine women to unpaid domestic and agricultural labor, limiting their opportunities for economic independence (Chandra et al., 2017).

Gendered experiences of climate and conflict risks extend beyond economic impacts to include social and political exclusion. Women often lack decision-making power in local governance structures, which affects their ability to influence policies on land tenure, climate adaptation, and disaster response. Additionally, land disputes and violent clan feuds (rido) further marginalize women, as customary laws often favor male land inheritance. In some cases, women-headed households—particularly those of widows or conflict-displaced women—face discrimination when claiming land rights, pushing them deeper into poverty and food insecurity.



Furthermore, many former combatants face significant obstacles in reintegrating into society, with limited access to income, public services, and social protection (Medina et al., 2024). The historical stigma associated with Muslim Mindanao due to its long-standing reputation for insurgency, especially where former MILF strongholds are located, poses additional barriers for individuals seeking alternative livelihoods outside the region. The region's history in public imaginaries reinforces negative perceptions that discourage external businesses from engaging with local communities and limit economic opportunities both within and beyond conflict-affected zones. This stigma also hinders residents from securing employment outside their home localities, as biases against former rebel populations persist. Those with greater adaptive capacities often leave in search of better opportunities, leading to a "brain drain" that further weakens communities' resilience and capacity to recover from conflict- and climate-related disasters.

Members of a rural community in Lanao del Sur, recently affected by armed conflict, discussed marginalization as the main driver of insurgency in their region. They reflected on dynamics of conflict, impacts, direct causes and underlying causes.



An econometric analysis of climate, food security and conflict in the Philippines.

An econometric analysis employed a causal mediation model to explore the pathways through which climate variability influences food insecurity and the risk of violent conflict⁶. Specifically, the analysis investigates whether and how changes in climate conditions, such as temperature anomalies, indirectly affect conflict through the intermediary channel of food insecurity. The analysis refers to the Philippines as a whole, not only Mindanao.

The findings indicate that regions experiencing six-month periods of above-average temperatures see an increase in maize prices compared to other regions. This suggests that elevated temperatures negatively impact maize yields, driving up prices and exacerbating food insecurity. In turn, food insecurity is shown to have a statistically significant effect on future conflict risk. This effects, however, is relatively small when compared with other predictors.

The model especially underscores the path-dependent nature of conflict: an increase in the present incidence conflict levels is associated with a significant increase in future conflict at lower geographic levels. This persistence highlights the importance of addressing ongoing violence to prevent escalation over time. Importantly, the analysis reveals that higher levels of female-headed employment are correlated with a reduction in future conflict. An increase in employment among female household heads corresponds with a significant decrease in the likelihood of future violent conflict, emphasizing the role of inclusive economic opportunities in fostering resilience and peace.

Overall, the results indicate that climate is a significant, albeit indirect, driver of conflict through its impact on food prices. However, other factors, such as the history of previous conflicts, are much stronger predictors. Additionally, the analysis suggests that improving economic inclusion—especially for women—can play a crucial role in reducing the risks of conflict.

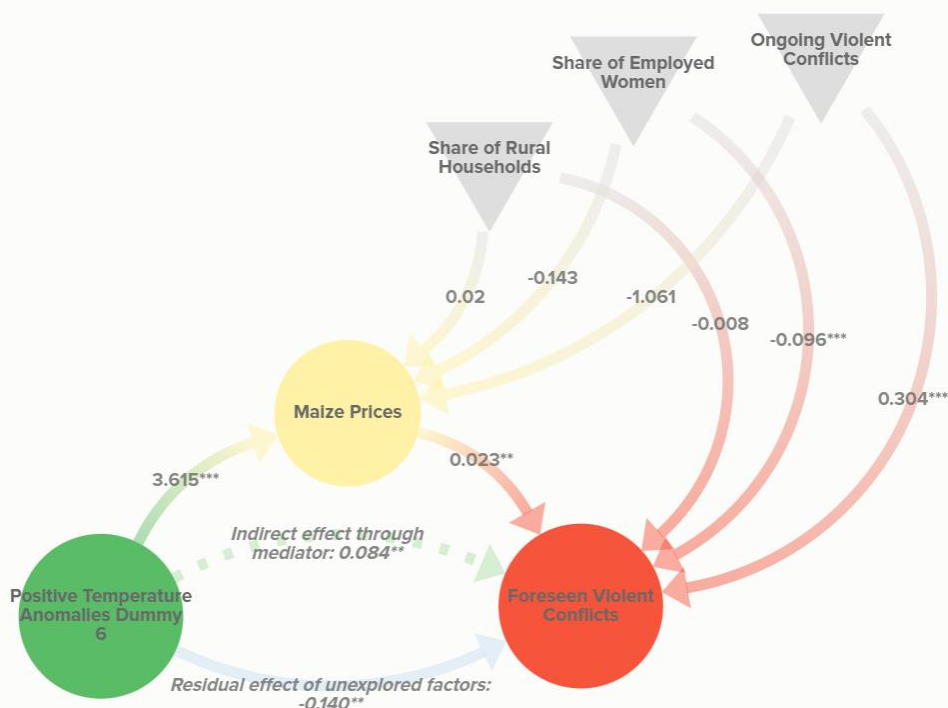


Figure. Participatory problem tree analysis of marginalization as a main driver of conflict in Lanao del Sur.

⁶ Climate Security Observatory. <https://cso.cgiar.org/#/Information/Philippines>

Resource Scarcity, Institutional Overlaps, and Conflict Risks in Mindanao

Land- and resource-related conflicts remain a critical challenge in conflict-affected areas of Mindanao, particularly as competition intensifies amid overlapping institutional mandates, ambiguous tenure systems, and unsustainable resource extraction. Disputes over land ownership and access have long been drivers of tension, often escalating into violent confrontations such as clan feuds or localized armed conflicts. Weak land governance, limited enforcement, and the widespread availability of illegal firearms have transformed many of these disputes from localized disagreements into broader sources of political and social instability. Especially in the aftermath of the BARMM implementation, conflicts over land, particularly affecting Indigenous Peoples, have seen a significant increase (Gulane, 2022).

Resource management regimes create unequal access to metallic and non-metallic mineral deposits, forests, and agricultural land, influencing patterns of violence. Oki (2014) finds that resource disputes are most intense in Maguindanao, Lanao del Sur, and Cotabato, regions where both insurgent and government forces vie for control. The study argues that the geographic dispersion of resources contributes to fragmented authority, where multiple armed actors—including state-backed paramilitary groups—compete for influence. The paper also critiques state responses to natural resource conflicts, arguing that government interventions have often worsened the situation. Policies such as the Indigenous Peoples' Rights Act (IPRA) and the Bangsamoro Organic Law have attempted to address ancestral domain claims, but weak implementation and bureaucratic inefficiencies have led to further disillusionment among marginalized communities. Moreover, militarized responses—such as the use of Civilian Armed Forces Geographical Units (CAFGUs) and paramilitary groups—have reinforced violence rather than resolving underlying land disputes.

Climate change and the degradation of natural resources further compound these dynamics. As livelihoods dependent on land and aquatic ecosystems become increasingly vulnerable, competition over access to farmland, fishing areas, and other vital resources has intensified. In communities marked by deep-seated political, ethnic, or religious divisions, this has led to a rise in inter- and intra-communal disputes over land, coastal zones, and agricultural territories. The scarcity of viable economic opportunities also contributes to the growth of shadow economies, including illegal extraction, trafficking, and other illicit activities that undermine peacebuilding and state legitimacy.

Vulnerable households, particularly those reliant on small-scale agriculture or fisheries, face growing financial insecurity. This has, in some cases, led to intra-household tensions and conflict within extended families and beyond. Communal conflicts over land frequently escalate into insurgency due to the involvement of armed groups. Clan feuds initially begin as localized disputes over land access, inheritance, or political rivalry. However, these feuds often attract the support of major insurgent groups with vested interests in territorial control. Oki (2014) highlights cases where insurgent groups provide financial support, weapons, or personnel to feuding clans, effectively transforming small-scale disputes into larger, more violent engagements.

Environmental governance presents both opportunities and risks. Shared natural resources often span multiple administrative boundaries, requiring coordinated management. However, institutional fragmentation, unclear roles, and competing claims frequently lead to governance failures. Climate-induced disruptions—such as erratic weather patterns or altered species migration in fisheries—further strain cooperation, as resource users are forced to traverse territorial boundaries in search of sustenance, occasionally igniting tensions between different communities, including Indigenous and migrant groups.

While local conservation and co-management initiatives have shown promise in building community engagement and reducing illegal practices, they remain vulnerable to the pressures of economic hardship and weak institutional support. In some cases, those tasked with enforcement find themselves drawn into the very activities they are meant to prevent, illustrating the fragile balance between livelihood survival and environmental stewardship.

Overall, resource-related conflict in Mindanao is shaped by a complex interplay of legal pluralism, overlapping tenurial arrangements, and misaligned policy frameworks. Formal governance systems often conflict with customary Indigenous and Muslim land practices, creating legal ambiguities and exacerbating existing grievances. In key river basins and resource corridors, unregulated industrial activities continue to degrade vital ecosystems, generating resentment among local populations and impeding efforts toward inclusive climate adaptation and sustainable peace.



The Bantay Danao program in Agusan Marsh Wildlife Sanctuary, Agusan del Sur

The Agusan Marsh, spanning across six municipalities in the Philippines, presents both opportunities and challenges in terms of governance and resource management. The involvement of multiple LGUs in managing the marsh can provide more human and financial resources for its conservation and sustainable management. However, overlapping municipal boundaries could also lead to disputes among political entities. The establishment of the Agusan Marsh Wildlife Sanctuary marked a significant turning point in the region's conservation and sustainable resource management efforts. It brought about a notable shift in the mindset of local communities, fostering a greater commitment to environmental preservation.

Central to these transformative changes is the Bantay Danao (River Rangers) program, a community-driven initiative implemented in collaboration with governmental bodies and local residents. This community-based conservation effort hinges on the active participation of residents, particularly voluntary fishermen and farmers from the Manobo Indigenous Peoples community, some of whom had been violators of fishing regulations. One of the program's achievements is its capacity to identify instances of illegal fishing effectively, with a particular focus on curtailing the use of electrofishing. Bantay Danao volunteers are the frontline defenders of the marsh's natural resources, continuously monitoring compliance within the protected area. Moreover, these volunteers also engage in trans-boundary patrolling to ensure that regulations are enforced even across municipal boundaries. This is especially critical given the tendency of fishers to cross political borders when fishing in the marsh. In addition to enforcement activities, the program plays a multifaceted role in conservation. Volunteers are actively involved in restoration efforts, conduct awareness campaigns, participate in wildlife rescue operations, and contribute to conflict management and resolution within marsh communities.

The unequal distribution of benefits from development and resilience building efforts undermines social cohesion, decreases the political legitimacy of local-level institutions, and drives exclusion from disaster recovery efforts.

Unequal distribution of investments from extractive industries, government agencies, and international development initiatives exacerbates political exclusion, weakening social cohesion and limiting communities' ability to adapt to climate change. In many cases, municipal governments control external funds, such as those from the Internal Revenue Allotment (IRA), leading to centralized decision-making that often overlooks marginalized populations. This uneven allocation reinforces existing power structures, undermining collective resilience efforts.

In politically unstable areas, the selective allocation of development funds deepens existing vulnerabilities. Political leaders use development aid and social protection programs as tools of control, rewarding loyal supporters while punishing perceived opponents. Local communities report that political parties engage in surveillance to ensure loyalty, excluding opposition supporters from government relief efforts (Medina et al., 2024). Recovery support from climate-related disasters are particularly prone to clientelism, as housing materials and other forms of support are denied to community members dissenting from local authorities. Collective mobilization in protest further risks exacerbating exclusion and politically-driven violence. Municipal and barangay leaders exploit these dynamics by withholding development funds and using intimidation tactics to maintain control. The local mayor's tolerance of corruption in exchange for electoral support further entrenches these patterns, preventing equitable resilience-building.

Mining revenue distribution across Mindanao mirrors these inequalities. In a specific community receiving revenues from a near-by gold extraction project, the company's Social Development and Management Program (SDMP) required at least 1% of the project's gross income to be reinvested in the community. However, funds are distributed unevenly—with the host barangay receiving 50%, another barangay 10%, and the remaining eight barangays splitting 40%. Within an individual barangay, only 15% of funds support essential public services like healthcare and education, another 10% is allocated to customary security forces and, while another 10% funds the council of elders' travel allowances. Some elders receive additional discretionary funds, but this does not always translate into broader community benefits, further exacerbating local grievances and deepening political divides.

Voices from the field Testimony from elder farmer in Lanao del Sur

"In my own experience, we don't see any support coming from BARMM. Considering that my parents have been supporting BARMM from the beginning, and those commanders that died during the war, their families have received no support from BARMM. There is no support or opportunities coming from them. If there is an opportunity that BARMM provides to the Barangays, only 10% goes to us and 80% goes to the privileged people and those in charge."



Non-State Armed Groups may facilitate or hinder disaster response and relief and recovery efforts after an extreme event.

In disaster contexts, rebel groups are crucial stakeholders. They control territory, influence security conditions, and determine the extent to which civilians can access aid. Their behavior can therefore either enable or obstruct humanitarian efforts. Walch (2018) introduces two key propositions in this regard: first, when hostility between a rebel group and the state is low, cooperation in disaster relief becomes more feasible; second, when a rebel group maintains a strong social contract with the local population, it is more likely to engage in relief efforts, either independently or in coordination with state actors.

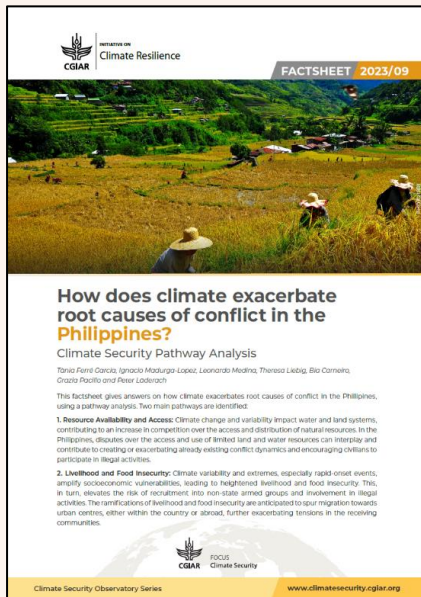
In some conflict-affected regions, non-state armed groups (NSAGs) step into governance vacuums by enforcing local rules on agriculture or managing the distribution of resources. These interventions create parallel systems of authority that often place farmers in complex positions, caught between competing governance regimes and further complicating their ability to engage with state-sponsored extension services. Where rebel groups hold stable territorial control and have built strong relationships with local communities, they may assume governance functions that support disaster risk reduction (DRR). In these cases, service provision—including disaster preparedness and response—becomes a strategy to legitimize their authority.

Even in the absence of a strong state or rebel presence, informal institutions such as religious leaders, tribal councils, and local elders can take on stabilizing governance roles. When these actors possess legitimacy and social authority, they help mediate conflicts, coordinate disaster responses, and maintain a degree of social cohesion. The study highlights the emergence of peace zones in the Philippines, where local religious and community leaders have successfully brokered temporary ceasefires to allow humanitarian access—demonstrating the critical role informal governance can play in crisis settings.

In contexts of conflict where neither a dominant rebel group nor strong informal institutions exist, the absence of clear and effective governance structures often leads to unpredictable violence, criminality, and instability. This makes coordinated disaster response nearly impossible. The Sulu Archipelago in the Philippines illustrates such a scenario: multiple armed factions compete for influence without providing any consistent form of governance. As a result, humanitarian organizations face severe security risks, and even established actors like the International Committee of the Red Cross (ICRC) have been forced to withdraw from certain areas.



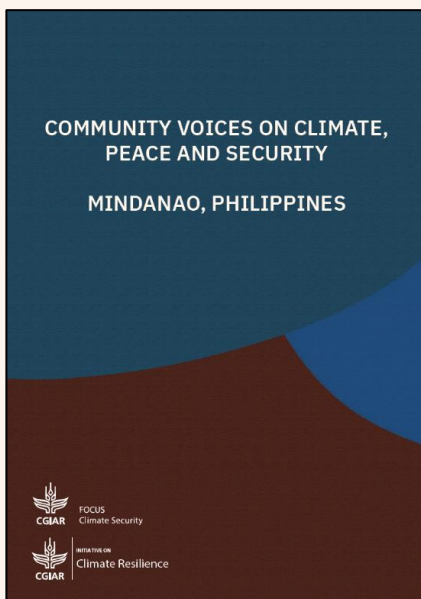
Analyses of Climate, Peace and Security in the Philippines by CGIAR Focus Climate Security



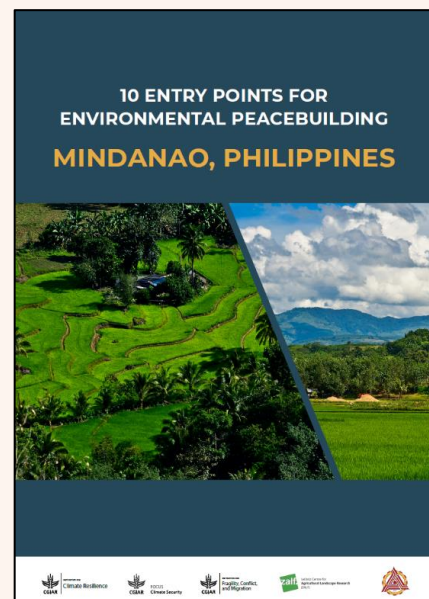
Scoping review of climate and conflict linkages ([here](#))



Policy coherence and awareness analysis ([here](#))



Participatory community assessment of climate, peace and security ([here](#))



Programming strategies for peace-positive resilience building ([here](#))

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