International Journal of Social Science and Education Research Studies

ISSN(print): 2770-2782, ISSN(online): 2770-2790

Volume 05 Issue 07 July 2025

DOI: https://doi.org/10.55677/ijssers/V05I07Y2025-11, Impact Factor: 7.573

Page No : 761-768

Strategic Resilience in the Subnational (Municipal) Border-Community along the *Bislak* River: Exploring Opportunities for Inter-local Climate Change Governance in the Philippines

Weena G. Franco[1], Leslie Kay R. Corpuz[2], Marjorie P. Garcia[3], Reindel Owen E. Salvador[4], Rommel John G. Obena[5], Rommel M. Dascil[6]

[1,2,3,4,6]Faculty, Department of Sociology, Mariano Marcos State University, Philippines

[6]ORCID ID: https://orcid.org/0009-0002-0757-9193

[5]Faculty, Department of Social Sciences, Mariano Marcos State University, Philippines

ABSTRACT

This paper discusses part of the results of a research and development project funded by the Philippine Department of Interior and Local Government (DILG) through its Technical Assistance Project for Local Resource Institute (TA for LRIs), and implemented by the Department of Sociology, Mariano Marcos State University. Guided by the Subaltern Climate Change Adaptation model developed by Dascil, the project explored the shared climate vulnerabilities and possible collaborative adaptation strategy among local institutions in a subnational border-community in the Philippines. Through key informant interviews, community focus group discussions, and document analysis, the variously limited adaptive capacity of local institutions is found to be embedded in their administrative structure, and institutional fund, program, social capital, among others. Moreover, despite municipal Local Government Unit (LGU)-sanctioned jurisdictional constraints, a common willingness is apparent among local institutions to partner with other institutions across the local border to address shared climate change vulnerability issues. While its result affirms the need to rethink adaptation as a function and fusion of institutional strategy, inter-institutional partnership, and linked ecological and demographic realities, the project concludes that an interlocal transborder climate governance strategy is instrumental for sustainable and community-driven public service delivery—a fundamental prerequisite for climate-resilient local communities.

Published Online: July 18, 2025

KEYWORDS:

Interlocal Transborder Climate Change Governance, Strategic Resilience, Subnational Border-Community, Subaltern Climate Change Adaptation

1. INTRODUCTION

Since 2009, the Philippines has consistently topped the World Risk Index (WRI) in terms of exposure and capacity to respond to natural disasters (BusinessWorld, 2024; Bündnis Entwicklung Hilft/IFHV, 2024). The country continues to be highly exposed to natural hazards (cyclones, landslides, floods, droughts), due to its dependence on climate-sensitive natural resources, and vast coastlines where all major cities and much of the population reside, and the sectors worst affected by such exposure are and will be that of agriculture, water resource, energy and infrastructure (USAID, 2024; World Bank Group, 2024; Cruz et. al., 2017; Global Climate Risk, n.d.; UNDRR, 2019).

In 2024, the country experienced unprecedented heat index and extraordinary cluster of supercharged typhoons that adversely affected millions of people and destroyed livelihoods and infrastructures (World Weather Attribution, 2024).

Based on its climate history, the Philippines will continue to experience the following climate patterns and risks: increased temperatures of 1.8°–2.2°C; reduced rainfall from March to May in most areas—making the dry season drier; increased heavy and extreme rainfall in Luzon and Visayas during the southwest monsoon—making the wet season wetter but decreasing rainfall trends for most of Mindanao; increased

Corresponding Author: Rommel M. Dascil

Cite this Article: Weena G. Franco, Leslie Kay R. Corpuz, Marjorie P. Garcia, Reindel Owen E. Salvador, Rommel John G. Obena, Rommel M. Dascil (2025). Strategic Resilience in the Subnational (Municipal) Border-Community along the Bislak River: Exploring Opportunities for Inter-local Climate Change Governance in the Philippines. International Journal of Social Science and Education Research Studies, 5(7), 761-768

frequency of extreme weather event—including days exceeding 35°C, days with less than 2.5 mm of rain, and days exceeding 300 mm of rain; and, rising sea levels of 0.48–0.65 meters by 2100 (UNDRR, 2019; Ge et, 2019).

In response to the climate crisis, the Philippine government enacted the Climate Change Act (Republic Act 9729). The act provides the policy framework that establishes the Climate Change Commission, and allocates budgetary resources for its important functions, which includes the formulation of a framework strategy and program, mainstreaming of climate risk reduction into national, sectoral, and local development plans and programs, recommendation of policies and key development investments in climate-sensitive sectors, and assessments of vulnerability and facilitation of capacity building (Climate Change Commission, 2010).

Adopted in April 2010, the National Framework Strategy on Climate Change (NFSCC) envisions a climate risk-resilient Philippines with healthy, safe, prosperous, and self-reliant communities, and thriving and productive ecosystems. The goal is to build the adaptive capacity of communities and increase the resilience of natural ecosystems to climate change, and optimize mitigation opportunities towards sustainable development, with focus on food security, water sufficiency, ecosystem and environmental stability, human security, climate-smart Industries and services, sustainable energy, and knowledge and capacity development (Climate Change Commission, 2010).

The adoption of the framework led to the formulation of the National Climate Change Action Plan (NCCAP) which outlines the country's agenda for adaptation and mitigation from 2011 to 2028. The comprehensive plan provides key actions on the enhancement of adaptive capacity and resilience of communities and natural ecosystems to climate change, adoption of the total economic valuation of natural resources while ensuring biodiversity conservation, and recognition of the competitive advantage of putting value on the direct use, indirect use, option to use and non-use of environment and natural resources, as short and long-term sustainable development goal (Climate Change Commission, 2010). The framework has also guided the creation of the El Nino National Action Plan in 2023 that aims to bolster resilient management of natural resources, food security, infrastructure and public health (World Bank Group, 2024), as well as the strengthening of its institutional and financial capacity to manage climate risks (UNDRR, 2019).

Various studies conducted in the present decade show that while climate change actions are being tackled and negotiated in various international and national fora, as discussed above, the Philippines will continue to reel from climate-related hazards, primarily due to the country's being geographically located in the Pacific typhoon belt and its economic dependence on agricultural and marine resources. These physical and economic features make the country at high risk from unpredictable precipitation, floods, landslides, sea level rise and high incidence of disasters, increased threat of physical danger and exposure to various cardio-respiratory and water-borne diseases such as pneumonia, dengue, and malaria resulting from changing weather (Cruz et. al., 2017). While this extremely challenging scenario increases the vulnerability of the country to the impact of the changing climate, it also places high premium on the necessity of immediate and effective climate change adaptation strategies that can significantly reduce the impacts of climate hazard, lower vulnerability, and consequently increase the country's resilience to climate change (IPCC, 2007; Climate Change Commission, 2010).

Like most (if not all) parts of the country, the Ilocos region (Region 1) is highly vulnerable to drought and heavy precipitation, even as its coastal communities are vulnerable to flooding due to sea level rise and possible subsidence due to groundwater extraction. As indicated by Greenpeace and other international agencies, 48 of Region 1's coastal municipalities are highly prone to sea level and is vulnerable to a 1-meter sea level rise (PAGASA, 2018; The World Bank Group and the Asian Development Bank, 2021). This climate change scenario resonates with what the Intergovernmental Panel on Climate Change (IPCC) warns relative to sea level rise resulting in water encroaching on dry land and providing a higher base for storm surges due to typhoons, increasing the destructiveness of floods and storms to coastal and inland settlements, physical infrastructure, economic and other systems (IPCC, 2007).

Ilocos Norte, where the study was conducted, is considered one of the country's climate hotspots, but where climate change awareness is slowly gaining ground. With the province's high vulnerability to tropical storm and typhoon, drought and heavy precipitation, it is considered one of the 24 provinces in the country that are highly vulnerable to unpredictable climate changes (SEPO, 2014; PAGASA, 2018). A case in point is the province-wide havoc brought about by Typhoon Ineng, which occurred in August 2015 and caused a total damage estimate of P1,066,022,035.55 in agricultural resources and infrastructures, flooded 17,287 and isolated 3,855 households, sent 448 families to 34 evacuation centers, claimed 3 human lives, and injured 9 others (Province of Ilocos Norte, 2015). All these happened in the wake of a typhoon previously predicted to neither make landfall nor cause significant damage. Moreover, with El Nino previously predicted by PAGASA to continue to occur in the coming years, Ilocos Norte braces for a long period of severe drought that may adversely affect water supply for household, business, and agriculture (PAGASA, 2018; Climate Change Commission, 2023).

II. THE PROJECT

Objectives

The research and community engagement project aimed to help guide the development, implementation, and evaluation of inter-local climate change governance strategy of Barangay LGUs along the *Bislak* River, a tributary that plies along the municipalities of Vintar and Bacarra . Ultimately, it was intended to:

- help address the limitations of current mainstream and state-centric adaptation strategies, policies and practices;
- encourage functional transborder synergies between and among local institutions to create enabling environments for subnational adaptation;
- enhance the adaptive capacity of social and natural systems in various ecological settings through inter-institutional transborder adaptation; and,
- contribute to the ongoing knowledge production on adaptive capacity analysis and response based on the knowledge, experience and practice shared by local institutions across subnational borders.

The project focused on capacitating local institutions (public, private civic) towards developing a community-level strategic framework on inter-local, transborder climate governance along the Bislak River.

Locale and participants/stakeholders

The project engaged various local (public, private, and civic) institutions in an agricultural border-community—Barangay Tambidao, Bacarra and Barangay Abkir, Vintar. For this border-community, the *Bislak* River is often the center of both increased and shared vulnerability and opportunities for adaptation, as the local institutions in both barangays rely heavily on the river for livelihood, food, and water. Due to increased climate hazards, the community has become prone to flooding and riverbank erosion that affect socio-economic and cultural activities, hence the need for collaborative transborder adaptation strategies.

Theoretical and conceptual frameworks

The project adopted the Subaltern Climate Change Adaptation Model developed by Dascil (2025a; 2025b). The model's theoretical framework illustrates that while adaptation strategies are considered significant and important, these are mostly subsumed within comprehensive and broad policies created from international and national perspectives, resulting in large-scale models prescribed for national governments and implemented from the top. While there are community-level adaptation options, these are strictly bounded by and within state-centric platforms like the local government units (province, municipality, and barangay) (Dascil, 2025a). The said model reimagines the "community" as a historical and social space within a specific ecological zone, rather than just a state-defined entity. It emphasizes the need for a pluralist and critical approach to climate change adaptation, acknowledging the diverse perspectives and experiences of local communities (Dascil, 2025a).

Moreover, while adaptation is addressed at the community-level, the idea of 'community' is politically framed within the bounds of the barangay, which is assumed as basis and unit for measuring the vulnerability of the community. While the common top-down, vertical and centralized approach is plausible and laudable considering the weight of the challenges of climate change, however, it fails to consider the fact that the causes and features of vulnerability, *e.g.*, ecological and social, can extend beyond centralized local jurisdictional boundaries, in such a way that two or three barangays bordering each would share similar vulnerability that requires integrated or unified adaptation strategies. This is problematic in the case of border-barangays belonging to two or three different municipalities that differ in administrative and financial capacities to implement adaptation programs (Dascil 2025a).

The conceptual framework of the Subaltern Climate Change Adaptation Model is also used in the study (Dascil, 2025b). Based on said framework, the project worked on two phases: (1) transborder adaptive capacity assessment and (2) transborder adaptive capacity enhancement. Phase 1 or transborder adaptive capacity assessment mapped the community-level vulnerability of Barangay Abkir and Tambidao that vary according to (a) hazards shared resulting from climate variability, (b) common geo-spatial and ecological realities, and (c) perennial socio-demographic features, resulting from social, economic and political structures, and institutional structures and arrangements that shape said features. Phase 2 focused on the development of possible inter-local adaptation strategies between the two barangays through the formulation of inter-local adaptation program that is coherent with the local institutions' coping and adaptation practices, policies, adaptive capacity, and inter-institutional arrangements, integration of institutional development programs, interlocal policies and plans for adaptation, and alignment of transborder adaptation strategies with existing national policies and plans for broader adaptation options and wider inter-institutional partnerships (Dascil, 2025b).

In a nutshell, the adoption of the above theoretical and conceptual frameworks denotes the project's focus on marginalized local actors whose lived knowledge and practices shape adaptation methods beyond state-defined jurisdictions (subaltern), and the capacity of local institutions to anticipate, absorb, and transform shared risks through planned cross-border strategies, as measured by joint planning processes, pooled resources, and adaptive policy mechanisms (strategic resilience). This further illustrates the necessity of the formal and informal, multi-level and horizontal, and pluralist and politicized coordination of public, civic, and private institutions across adjacent

administrative borders to manage shared socio-ecological systems (transborder governance).

III. HIGHLIGHTS OF THE PROJECT

Mapping of local institutions' adaptive capacity and vulnerability through key informant interviews and focused group discussions

The project team mapped local institutions and their typologies, institutional adaptive capacity, and institutional network and interoperability. It then considered the viability of inter-institutional transborder partnership to help address the hazard and vulnerability experienced by local institutions in the border-community.

With the local institutions' typology, their administrative structure (vision, mission, goals, among others), access and control over resources (material resource, and financial resource and fund allocation), programs of the institution related to the goals and outcomes of the National Climate Change Adaptation Plan 2011-2028 (food security, water sufficiency, ecosystem and environmental stability, human security, climate-smart Industries and services, sustainable energy, and knowledge and capacity development) and issues/problems encountered by the institution related to the above programs, and how these are resolved, were also explored. Informed by the foregoing mapping activity, the institutional network and interoperability mapping provided substantial data for cross-sectional and cross-scalar comparative analysis on institutional articulation (public-public, public-civic, public-private, civic-civic, civic-private, private-private), access and benefit (financial, technical, regulatory, conduit to other institutions, learning opportunities). Institutional articulation and access and benefit showed how the institution interact with other institutions.

The mapping of hazard and vulnerability focused on the local institutions' historical memory of hazards, specifically on typhoon, prolonged precipitation, drought, pest infestation, the period of the hazards' occurrence, as well as the border-community systems that were affected by said hazards such as natural system, physical infrastructure, economic system, and cultural system. This part also covered the local institution's perception of future climate-induced hazards and recommended actions (e.g., institutional organization and/or inter-institutional linkaging) for coping with future hazards (Dascil 2025b).

Through focus group discussions with heads and members of the local institutions, the project team also mapped the viability of inter-institutional transborder partnership/ networking/ linkaging for climate governance between typologically similar institutions in the border-community, in terms of knowledge about the other institution and willingness to partner/network/link with the other institution. The data on the viability of inter-institutional transborder partnership is essential in understanding how local institutions prefer to help or are likely to shape community-level adaptation practices and responses, and why and how institutions may engage in inter-institutional transborder synergy.

The research and development project brought out various illustrations of institutional adaptive capacity through actual instances of local institutions' indicators of administrative structure, access and control over material and financial resources, institutional programs, and inter-institutional partnerships. More importantly, the local institutions expressed interest in inter-institutional collaborations and interlocal partnerships through collaborations with similar institutions. All local institutions involved in the project were willing to engage in a transborder partnership with similar institutions in the barangay bordering theirs. Their reasons for possible partnership ranged from learning opportunity and co-management of projects to technical support, regulatory purposes, conduit to other external institutions, and financial support.

Inter-institutional transborder dialogue and planning, and partnership agreement towards interlocal climate change governance

The project team facilitated an inter-institutional transborder strategy planning workshop sessions and the signing of partnership agreement among the local institutions. Below is the agreed initial inter-institutional transborder climate change governance strategy plan:

- **Barangay LGUs**. Collaborations between border barangays belonging to different municipalities are usually informal and sporadic since their function and compliance with policies and practices are restricted within what is sanctioned by the municipality in which they belong. However, since barangays that border each other are indiscriminately and homogenously impacted by climate hazards, addressing shared risks through formal and regular collaboration becomes necessary.

  The Barangay Councils of both barangays agreed to review their individual policies and issues that impact the bordering barangay and lead the conduct of transborder strategic planning regarding sharing of resources, information, and best practices. Among their top collaborative agenda shall be the sharing of manpower, evacuation centers, transportation, and coordinated response strategy during disasters, waste management, river clean-up and management, hazards mapping, crime prevention, and review/updating of citizen registration for security and social service purposes.
- **Health and education institutions**. The institutions agreed on coordinated health protocol management, review of school children census, malnutrition management, and security of school children crossing the border. While climate change results in

rising vector-borne and waterborne diseases and exacerbates existing health issues like respiratory and cardiovascular problems, the institutions acknowledged that diseases in one barangay, as well as their causes, can easily migrate beyond the border, hence the need for coordinated response to health issues. Moreover, the agreements on census updating and securing school children are significant because there are children who go to school in the other barangay, because it is closer to where they live.

- **Youth sector**. The youth organizations in both barangays agreed to have collaborative and synchronized tree planting and caring activities, sharing of skills training opportunities, inter-local sports and cultural events, and regular discussion and resolution of issues affecting the youth.

  On tree planting and caring, the youth have seen the need to be more aggressive and strategic. They agreed to collaborate in re-foresting open public spaces and develop a green wall along riverbanks and denuded hills in the area. Since they have no formal events for social exchange, they also agreed to develop collaborative programs that can create spaces for shared learning opportunities and further enhance their social capital.
- **Zanjera (farmers' cooperative and association) and Overseas Filipino Workers (OFW) association.** Both barangays have informal economic ties through shared resources including labor. These institutions agreed to enhance this by training together on sustainable farming and alternative livelihood opportunities, establish Barangay Animal Health Worker (BAHW) unit in Tambidao through the assistance of BAHW-Abkir, organize OFW association in Tambidao with the help of Abkir OFW Association, manage the shared public cattle pasture areas (near river banks), coordinate animal health and quarantine activities, and share resources and information on farming challenges and opportunities.
- **Women's group, Pantawid Pamilyang Pilipio Program (4Ps) beneficiaries**. The institutions agreed to have synchronized and coordinated clean and grean activities, joint Violence againts Women and Children (VAWC) seminars and situation analysis, and collaborative feeding program.

All the institutions agreed to collaboratively seek assistance and support from their individual municipal LGU and the Provicial Government departments. They will also seek the support of the Department of Education and higher education institutions in the province, Deparment of Health, Department of Interior and Local Government, Department of Agriculture, and non-government organizations.

IV. PROJECT OUTCOMES

Target beneficiaries. Bringing together the local institutions in the border-community to take a collective and closer look at their shared vulnerability issues has brought about among them sense of political empowerment through direct involvement in the discussion and resolution of issues concerning shared risk and possible adaptation strategies, economic empowerment through negotiated utilization of shared and common-pool resources between bordering barangays as adaptation strategy, and cultural empowerment through shared community imaginary resulting in inclusive appreciation of commonalities, collaborative production, reproduction and utilization of knowledge related to shared climate change vulnerability and risk governance. Through the project, particularly during the focus group discussions, the local institutions had, in a way, reframed their thinking about their administrative borders and acknowledged their shared communal life. They need to develop and sustain such as one community, not two separate barangays,

Local Government Units. While the project intended to help capacitate local institutions towards inter-institutional transborder climate risk governance and adaptation, this brought out practicable approaches that support the mandates of the Barangay LGUs particularly on local development, risk management, and adaptation. Ultimately, the project brought about leadership opportunities for collaborative public service delivery towards systematically addressing the vulnerability issues of the border-community.

National Government. Through new insights from the project, the national government agencies are given the privileged position towards informed review and amendment of policies or the enactment of new policies related to local climate change adaptation and risk governance. National agencies are given a framework to explore the possibility of reframing current border concepts to advance, rather than restrict, local climate adaptation by improving connections between communities and enhancing inter-institutional ability to respond to climate change at the local level.

Academic community and its stakeholders. The project's outcome in relation to the academic community is varied and encouraging. On the one hand, the outputs of the project can inform the formulation of climate change-relevant policies and instructional modules that can help create new patterns of behavior towards climate change risk and adaptation. Moreover, the involvement of faculty-researchers in the project deepened the academic appreciation of contemporary issues and may inspire other faculty-researchers and institutions to conscientiously frame their research and development endeavors along innovative framing to strategically achieve greater relevance in the world of research and policy on climate and social change.

On the other hand, while the drivers of community adaptive capacity that the project intended were local institutions, such adaptive capacity will translate to families being able to address their household vulnerabilities in the long run. Inclusive decision-making and resource-pooling in the border-communities can increase the capacity of families to send their kids to school and sustain their education.

CONCLUSIONS

Indeed, looking for alternative to the current and mainstream adaptation strategy requires a radical social imagination—an endeavor that can allow transformative adaptation, both in theory and practice. The interlocal transborder climate change governance strategy is promising but challenging. It is promising because it goes beyond the usual climate change-local institution dynamics and places adaptation along the almost invisible issues of vulnerability and adaptive capacities shared and experienced by different institutions across and beyond subnational state-defined borders. It is challenging, too, because it brings to fore the limitations of state-centric scales and strongly proposes a method of transformation for local institutions that are literally vulnerable to climate risk into becoming the decision-makers of their own lives—a more politicized and radical process of social change.

The need for interlocal transborder climate change governance that this project promotes, together with its promise and challenge, is affirmed by the data on the local institutions' adaptive capacity and the shared vulnerability of both barangays in the border-community. Despite of, or due to, their variously limited adaptive capacity, the local institutions are universally willing to partner with other institutions in the other barangays in the border-community to address shared climate-induced vulnerability issues. This common willingness to address shared needs upholds and supports what this project has endeavored to contribute to climate change adaptation theoretical discourse and practice.

While the result of project affirms the need to rethink adaptation in development context and refocus the adaptation/development lens on local institutions, it provides solid ground to the project's assumption that climate change and development governance is a function and fusion of institutional strategy, inter-institutional partnership, and linked ecological and demographic realities. As such, it confirms the theoretical constructs that see border as an evolving construct, not a fixed construct; a habitat, not a state-defined administrative space—one that mandates a productive ethic that re-frames the politico-ecological discourses in terms of the impacts that borders have on people in an unpredictably changing climate.

The interlocal transborder climate-governance strategy that the project promotes, as well as the theoretical and conceptual frameworks it is anchored, offers a wide-ranging strategy for community-driven, contextual transborder resilience facilitated through inter-institutional synergy. Wide-ranging as it is, it fashions the complex and fundamental relationships between climate change, environment and society into evolving issues of social transformation, and offers a methodical strategy, a horizontal strategy, that can guide interinstitutional, transborder or cross-scalar adaptation. Indeed, the interlocal transborder climate-governance strategy can be instrumental for sustainable collaborative public service delivery—a fundamental prerequisite for climate resilient local communities.

RECOMMENDATIONS

With the foregoing, the project team strongly recommends the following:

A follow-through on the project. While it has helped reveal the invisible truth of shared vulnerability in the border-community, the result of the project certainly offers more for continuing research and development that will help provide data for replication and scaling-up of the interlocal transborder climate governance strategy. Such will further contribute to informing the need for the support of other agencies in the short run and enhance the relevance of the DILG TA Program to public service and sustainable development in the long run.

The next phase of the project should focus on (a) regular monthly monitoring of implementation, outputs and outcomes of agreed interlocal plans; (b) inter-agency collaborative discussions on the project's sustainability particularly with provincial and municipal DILG officials on the result of monitoring and continuing research; and (c) writing of policy brief and recommendation.

Sincere implementation of the agreed interlocal strategic resiliency plan by the local institutions. Together, the local institutions on both sides of the border can learn, unlearn and relearn both the vagaries of the changing climate and the opportunities that this brings. Climate change is here to stay and makes everyone and everything differently vulnerable, but the success of adaptation depends fully on how local institutions understand and address the hazards that it brings, along with local adaptive capacity, which local institutions have and can work on.

Sustained support of national government agencies and non-government institutions. While interlocal adaptation is empowering, independent, and sustainable, it needs the support of national government agencies and NGOs. Indeed, there are good national adaptation plans implemented as top-down adaptation strategies—however, despite the good intentions from the top, adaptation is always local; hence, local institutions should be assisted and allowed to plan and execute adaptation strategies based on their appreciation of their social and ecological realities.

Scaling to other border-communities. Multi-site pilot projects may be carried out in other riverine and coastal

border barangays in the province and neighboring regions using identical sampling and research protocols for comparability. Regular transborder forum among interlocal LGU councils may also be conducted with different LGUs rotating hosting responsibilities; the DILG may provide grant for secretariat functions.

PROJECT LIMITATIONS

The project team acknowledges some limitations in the conduct of the study, as follows:

Time-bound engagement. A few months of fieldwork limited the team's ability to observe long-term institutionalization of project outcomes;

Single-site focus. Focusing on two barangays restricts generalizability. Other border-community contexts with different hazard profiles may yield distinct interlocal partnership dynamics.

Institutionalization challenges. It is possible that the formal agreements between the two barangays can stall at municipal level due to shifting political priorities. Embedding interlocal transborder MOAs into provincial codes that advocate a province-wide ordinance mandating inter-barangay coordination on shared hazards, may help address this issue.

REFERENCES

1. Bündnis Entwicklung Hilft/IFHV. 2024: WordRiskReport 2024. Berlin: Bündnis Entwicklung Hilft.
2. BusinessWorld. 2024. World Risk Index 2024: Philippines still the most at-risk country for 16th straight year. https://www.bworldonline.com/infographics/2024/09/10/620250/world-risk-index-2024-philippines-still-the-most-at-risk-country-for-16th-straight-year/.
3. Climate Change Commission. 2010. National Climate Change Action Plan 2011-2028. https://climate.gov.ph/our-programs/national-climate-change-action-plan
4. Climate Change Commission. 2023. CCC meets Batac farmers to discuss climate risks for agri sector. https://www.climate.gov.ph/news/739
5. Cruz, R. V. O., Aliño, P. M., Cabrera O. C., David, C. P. C., David, L. T., Lansigan, F. P., Lasco, R. D., Licuanan, W. R. Y., Lorenzo, F. M., Mamauag, S. S., Peñaflor, E. L., Perez, R. T., Pulhin, J. M., Rollon, R. N., Samson, M. S., Siringan, F. P., Tibig, L. V., Uy, N. M., Villanoy, C. L. (2017). 2017 Philippine Climate Change Assessment: Impacts, Vulnerabilities and Adaptation. The Oscar M. Lopez Center for Climate Change Adaptation and Disaster Risk Management Foundation, Inc. and Climate Change Commission.
6. Dascil, R. M. (2025a). Subaltern Climate Change Adaptation: A Theoretical Framework on Strategic Resilience in Subnational Border-communities. International Journal of Social Science and Education Research Studies, 5(4), 355-362. https://doi.org/10.55677/ijssers/V05I04Y2025-01
7. Dascil, R. M. (2025b). Strategy Framework on Inter-Institutional Transborder Adaptation in Subnational Border-Communities: A Conceptual and Practical Adoption of the Subaltern Climate Change Adaptation Theoretical Model. International Journal of Multidisciplinary Research and Analysis, 08(04), 1975–1982. https://doi.org/10.47191/ijmra/v8-i04-51
8. Ge, M., K. Lebling, K. Levin, and J. Friedrich (2019). "Tracking Progress of the 2020 Climate Turning Point." Working Paper. Washington, DC: World Resources Institute.
9. Global Climate Risk (n.d.). SDGs on thin ice: Arctic warming and climate crisis in the Philippines. https://globalclimaterisks.org/insights/sdgs-on-thin-ice-blogs/insights-philippines/
10. IPCC. (2007). Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland, 104 pp.
11. PAGASA (2018). Observed and projected climate change in the Philippines. Philippine Atmospheric, Geophysical and Astronomical Services Administration. Quezon City, Philippines. https://icsc.ngo/wp-content/uploads/2019/07/PAGASA_Observed_Climate_Trends_Projected_Climate_Change_PH_2018.pdf
12. SEPO. (2010). Improving Resiliency: Addressing the Threat of Climate Change. Senate Economic Planning Office, Philippines.
13. The World Bank Group and the Asian Development Bank. 2021. Climate Risk Country Profile: Philippines.
14. UNDRR. (2019). Disaster Risk Reduction in the Philippines: Status Report 2019. Bangkok, Thailand, United Nations Office for Disaster Risk Reduction (UNDRR) Regional Office for Asia and the Pacific.
15. USAID. (2024). Climate Risk Profile Philippines. https://www.preventionweb.net/media/102961/download?startDownload=20250704
16. World Bank Group. (2024). Philippines: Bolstering Resilience Against Climate Change Key to Sustaining Inclusive Growth. https://www.worldbank.org/en/news/press-release/2024/06/04/philippines-bolstering-resilience-against-climate-change-key-to-sustaining-inclusive-growth

17. World Weather Attribution. (2024). Climate change supercharged late typhoon season in the Philippines, highlighting the need for resilience to consecutive events. https://www.worldweatherattribution.org/climate-change-supercharged-late-typhoon-season-in-the-philippines-highlighting-the-need-for-resilience-to-consecutive-events/