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Building A Safer Future: A Holistic Disaster Risk Reduction Management Plan for Typhoon-Impacted Communities of Abra De Ilog

Fabic, Reinhard B., Matibag, Redentor E.
*(CABHEIM, Batangas State University, Batangas City, Philippines
Email: rbfabic0325@gmail.com)
** (CABHEIM, Batangas State University, Batangas City, Philippines
Email : Red.matibag@gmail.com

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I.ABSTRACT AND CONTEXT

This action plan addresses the recurring threats posed by typhoons in the coastal and upland barangays of Abra de Ilog, Occidental Mindoro. The municipality is regularly affected by intense tropical cyclones that trigger flooding, landslides, and infrastructure damage, undermining local livelihoods and displacing vulnerable families. Using a risk-informed and community-based approach, this plan integrates the four thematic areas of Disaster Risk Reduction and Management (DRRM): prevention and mitigation, preparedness, response, and recovery. Through surveys, hazard mapping, and consultation with local officials and residents, the plan identifies vulnerabilities and recommends actionable, sustainable interventions. It aims to build long-term resilience through early warning systems, community education, sustainable livelihood restoration, and multi-stakeholder coordination.

II. OBJECTIVES OF THE ACTION PLAN

The core objective of the plan is to strengthen disaster resilience in five coastal barangays of Abra de Ilog through localized, evidence-based disaster risk reduction and management (DRRM) strategies. The plan aims to address gaps in land-use planning, early warning systems, infrastructure, and community preparedness. Specifically, it calls for the integration of updated hazard maps into the Comprehensive Land Use Plan (CLUP), the installation of reliable multi-hazard early warning systems, the development of climate-resilient infrastructure, and the promotion of participatory, community-based disaster risk reduction approaches. These objectives are aligned with the thematic areas identified in the National Disaster Risk Reduction and Management Framework.

III. RISK AND HAZARD PROFILE

Abra de Ilog experiences a multi-hazard environment characterized by flooding, storm surges, and landslides. Barangays like Wawa, Lumangbayan, Tibag, Udalo, and Santa Maria are especially vulnerable due to their proximity to riverbanks, coastal areas, and steep slopes. The municipality's risks are aggravated by human-induced factors such as deforestation, unregulated quarrying, poor construction practices, and unplanned settlements in hazard-prone areas. Past disasters have revealed weaknesses in evacuation planning, early warning dissemination, and the structural resilience of both homes and public facilities. These findings underscore the need for a comprehensive DRRM strategy tailored to the municipality's unique physical and social context.

IV. POPULATION AND SOCIOECONOMIC CONTEXT

Over the last two decades, Abra de Ilog's population has increased by over 58%, rising from 22,212 in 2000 to 35,316 in 2020. This growth has put pressure on infrastructure, services, and disaster preparedness systems. Rapidly expanding barangays like Lumangbayan and San Vicente require targeted support due to their high population densities and exposure to hazards. The economy, largely reliant on rice farming, coconut production, and fishing, is highly sensitive to climate disturbances. Additionally, the existing evacuation centers, though numbering 17 across six barangays, are often overcrowded and lack adequate sanitation and water supply. These conditions pose serious challenges during emergency response.

V. THEMATIC DRRM GOALS

The action plan is organized into four thematic areas: prevention and mitigation, preparedness, response, and rehabilitation and recovery. Under prevention and mitigation, the plan proposes reforestation, enforcement of zoning laws, and flood control projects. Preparedness strategies include community drills, barangay-based contingency planning, and the installation of early warning systems such as SMS alerts and radios. The disaster response component emphasizes equipping local emergency response teams, setting up centralized emergency operations centers, and ensuring swift evacuation. For rehabilitation and recovery, the plan includes building resilient homes, restoring infrastructure, and supporting livelihoods to promote long-term recovery and reduce future vulnerability.

VI. STRATEGIC ACTION PLAN COMPONENTS

Each goal is supported by specific programs, projects, and activities (PPAs) presented in matrix form. These include designated agencies, timelines, funding sources, and performance indicators. For example, the installation of early warning devices is paired with regular community training and system maintenance. Infrastructure projects are matched with technical assessments and budget allocations. Livelihood programs focus on diversification for farmers and fisherfolk to ensure economic stability post-disaster. These matrices provide a detailed and structured implementation roadmap, ensuring that each activity contributes to overall disaster resilience and aligns with the municipality's capacity and resources.

VII. SCOPE AND LIMITATION

The plan focuses on five coastal and hazard-prone barangays: Wawa, Lumangbayan, Tibag, Udalo, and Santa Maria. These areas were among the most affected by recent typhoons, particularly Carina and Kristine in 2024, experiencing displacement, infrastructure damage, and post-disaster disease outbreaks. While the action plan addresses municipal-level policy and infrastructure, it places emphasis on barangay-based responses and aims to be operational within a two- to three-year period. Limitations include funding constraints, incomplete geohazard data in some sitios, and the limited availability of trained DRRM personnel in remote areas.

The action plan assumes stable funding from national sources like the National Tax Allocation (NTA), political continuity, and consistent policy support. It also presumes the availability of trained personnel, functional communication tools, and cooperation among stakeholders. However, several limitations exist. There may be delays in funding, low public trust in evacuation orders, and difficulty enforcing land-use regulations. Additionally, local capacity gaps and the unpredictable nature of climate change may undermine certain interventions. The plan emphasizes adaptive strategies, flexible timelines, and contingency budgeting to overcome these uncertainties and promote long-term disaster resilience.

VIII. SITUATION ANALYSIS

Abra de Ilog faces frequent exposure to typhoon-related hazards, particularly flooding and landslides. Coastal barangays often endure storm surges, while upland communities are susceptible to soil erosion and landslides. In addition, improper waste disposal and deforestation amplify the impacts of these hazards. Many communities lack flood-resistant infrastructure, drainage systems, and resilient evacuation centers. Economic activities such as fishing and farming are easily disrupted, increasing food insecurity and poverty post-disaster. The repeated nature of these events calls for localized and adaptive DRRM interventions that reflect actual risks on the ground

IX. RESEARCH DESIGN AND DATA COLLECTION

A mixed-methods approach was adopted, including barangay-level surveys, interviews with local officials, and the analysis of secondary data from PHIVOLCS, PAGASA, and DOH. Thirty respondents from high-risk barangays provided insights on risk awareness, early warning practices, and disaster response experiences. Most residents demonstrated awareness of storm signals and DRRM alerts, with barangay leaders and radio/TV cited as the most trusted sources of information. However, there were gaps in understanding of evacuation plans and limited engagement in community drills or dengue prevention efforts. The plan also incorporates community inputs on environmental priorities and proposed livelihood projects.

X. SURVEY FINDINGS AND RISK PERCEPTION

Survey data revealed that while most residents are aware of early warnings and typhoon alerts, there is inconsistent access to warnings in remote sitios. Evacuation plans are often poorly communicated or not practiced, leaving residents unsure of next steps during emergencies. Communities also reported post-typhoon water contamination and increased vector-borne diseases, especially dengue. Respondents emphasized the need for better sanitation, clean-up campaigns, and the availability of mobile health teams during disasters. These findings underscore the importance of embedding public health and risk communication in DRRM plans.

XI. SWOC AND PESTEL ANALYSIS

The plan uses both PESTEL (Political, Economic, Social, Technological, Environmental, and Legal) and SWOC (Strengths, Weaknesses, Opportunities, and Challenges) analyses to understand internal and external factors. Political will and a recently installed weather station are considered strengths. However, weaknesses include limited technical capacity and low local revenue. Opportunities lie in engaging NGOs and utilizing national support programs. Meanwhile, challenges such as climate unpredictability, limited trained personnel, and poor enforcement of environmental laws highlight areas where sustained effort is needed. The plan also incorporates updated flood, storm surge, and landslide hazard maps to guide zoning, infrastructure, and evacuation planning.

The SWOC analysis identified strengths such as strong barangay leadership and community willingness to participate in DRRM initiatives. Weaknesses include limited medical personnel (only one municipal doctor), aging emergency equipment, and underfunded BDRRM councils. Opportunities include potential support from regional agencies and NGOs, as well as previous LGU partnerships with external donors. Challenges remain in enforcing zoning regulations, coordinating logistics across dispersed barangays, and dealing with weak internet and mobile signal in remote areas. The PESTEL analysis reinforced these findings, showing political support and legal frameworks in place, but with technology, economic capacity, and environmental management as continuing concerns.

XII. ACTION PLAN: GOALS 1 AND 2

The action plan outlines five main goals. Goal 1 focuses on building resilient communities through multi-hazard education, early warning ordinance creation, and dengue prevention campaigns. This includes KAP (knowledge-attitudes-practices) surveys, clean-up drives, and community recycling programs.

Goal 2 aims to enhance disaster preparedness through DRRM training for barangay officials, simulation drills, and the proposal of mobile health units. Barangay Health Workers will be trained as frontliners for health promotion during emergencies. These activities aim to empower local actors to take leadership in pre-disaster planning and response.

XIII. ACTION PLAN: GOALS 3 AND 4

Goal 3 seeks to improve the municipality's response capacity. Key activities include the creation of a disaster information database, the procurement of response tools, and partnerships with local industries for debris-clearing operations. Emergency cash-for-work programs will be implemented immediately after disasters to support livelihoods and clean-up.

Goal 4 targets swift life-saving responses, including the deployment of mobile medical tents in evacuation centers. Within 24 hours of disaster onset, the plan envisions affected families receiving basic medical care, food, and sanitation support—minimizing mortality and post-disaster disease spread.

XIV. ACTION PLAN: GOAL 5

Goal 5 centers on sustainable recovery. Programs under this goal include the formation of savings cooperatives, microfinance support for women-led enterprises, and barangay-based income-generating projects like soap-making and hydroponic farming. These projects are designed not just for economic stability, but also to address health and sanitation gaps in post-disaster settings.

XV. MONITORING AND EVALUATION

The action plan includes a robust monitoring and evaluation framework using outcome indicators such as household participation rates, equipment usage logs, and pre-/post-drill assessments. Periodic reviews and stakeholder forums will allow adaptation of strategies based on feedback and changing risks. To ensure the effectiveness of the action plan, a monitoring and evaluation (M&E) system is embedded within each PPA. This system includes measurable indicators, target outcomes, schedules, and responsible implementing bodies. The M&E framework enables the tracking of progress in real-time and allows for corrective actions if implementation veers off course. Barangay officials, the Municipal Disaster Risk Reduction and Management Office (MDRRMO), and civil society partners are tasked with regular data collection and reporting. Through this system, the local government ensures transparency, accountability, and adaptability in disaster management operations

XVI. CONCLUSION AND POLICY INTEGRATION

This DRRM plan provides a comprehensive, multi-sectoral, and community-led framework to address the persistent impacts of typhoons in Abra de Ilog. It places communities at the center of disaster resilience, empowering them through education, planning, and inclusive governance. The plan calls for the institutionalization of key policies—such as early warning ordinances and resilient infrastructure zoning—and promotes stakeholder coordination across local government, barangays, civil society, and national agencies. If fully supported and implemented, this plan will transform vulnerability into resilience, ensuring that the communities of Abra de Ilog are better prepared for future disasters and can build back stronger after every storm.

This action plan presents a localized, integrated, and forward-looking framework for disaster risk reduction in Abra de Ilog. It combines technology-based tools, ecological approaches, and strong community participation to protect vulnerable populations. Recommendations include regularly updating the CLUP using hazard data, integrating DRR into education and livelihood programs, and strengthening public-private partnerships. Ultimately, the success of this plan depends on collaboration among LGUs, barangay councils, civil society, and residents. With committed implementation, Abra de Ilog can transition from reactive disaster response to proactive resilience-building, securing the safety and sustainability of its communities for the years ahead.

