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Proposed Disaster Risk Reduction Management Project for Coastal Areas

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ABSTRACT

Background: School disaster risk reduction and management (DRRM) requires coordinated action before, during, and after emergencies. Coastal schools need locally informed measures that protect learners and sustain education. **Objective:** To assess DRRM implementation in coastal schools in Batangas City and develop a proposed capacity-building project. **Methods:** A descriptive study during School Year 2019-2020 involved 33 school heads, 33 school DRRM coordinators, and 180 teaching and non-teaching personnel from 33 schools in four districts. The personnel sample was determined using Slovin's formula and selected through stratified random sampling. A researcher-developed questionnaire and interviews were used. Data were analyzed using weighted means, standard deviations, analysis of variance, and Scheffe's test. **Results:** Overall composite means were 3.40 for prevention and mitigation, 3.55 for preparedness, 3.52 for response, and 3.52 for recovery and rehabilitation. Prevention and mitigation was assessed as moderate extent; the other areas were assessed as great extent. Reported between-group differences were significant for prevention and mitigation ($F = 3.32, p = 0.04$) and recovery and rehabilitation ($F = 4.09, p = 0.02$), but not for preparedness or response. Typhoon, earthquake, and flood received the highest risk ratings. Duties and functions were greatly manifested overall (3.62), while capacity building and pre-identification of temporary learning spaces were moderately manifested. Training and earthquake-drill equipment were the highest-rated implementation challenges. **Conclusion:** The assessments supported the development of Project CARED, a proposed capacity-building initiative addressing lower-rated practices and implementation concerns. Its effectiveness was not evaluated.

KEYWORDS Batangas City | capacity building | coastal schools | disaster preparedness | school safety | survey research.

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1 Introduction

Disasters can disrupt access to education by damaging school facilities, displacing learners and personnel, and interrupting routine services. School disaster risk reduction and management (DRRM) therefore concerns both the protection of people and the continuity of learning. The framework used in this study organized school activities into prevention and mitigation, preparedness, response, and recovery and rehabilitation. These areas provided a basis for examining how schools translated disaster policies into practice (National Disaster Risk Reduction and Management Council [NDRRMC], 2011; Department of Education [DepEd], 2015b).

Coastal locations give this work a particular setting. Schools situated along or near the coast may need to plan for hazards affecting buildings, access routes, surrounding communities, and the delivery of education. The literature reviewed for the study described coastal exposure to large-scale events and smaller-scale environmental threats, while the Philippine status report situated disaster risk reduction within national and local capacity-building concerns (Clark-Ginsberg, 2015; United Nations Office for Disaster Risk Reduction [UNDRR], 2019). Understanding the hazards recognized by school personnel was consequently relevant to selecting school-level activities and training priorities.

The education policies considered in the dissertation emphasized preparedness measures and the organization of school responsibilities. DepEd Order No. 83, s. 2011 addressed disaster preparedness measures for schools, while DepEd Order No. 21, s. 2015 specified DRRM coordination and information-management functions. Regional Memorandum No. 14, s. 2015 provided a standardized division- and school-level DRRM organization. Together, these documents situated school heads, coordinators, and other personnel within a coordinated approach to school safety (DepEd, 2011, 2015a; DepEd CALABARZON, 2015).

The availability of policies, however, did not itself establish the extent to which activities were performed in particular schools. The local research problem concerned uneven understanding and implementation of DRRM responsibilities, the preparation of school personnel, and the management of schools when used as evacuation centers. It also emphasized that school heads were responsible for translating plans into action, while coordinators, teachers, and non-teaching personnel participated in implementation. Assessments from these groups could therefore reveal both shared concerns and differences in how school practices were perceived.

Related studies reviewed in the dissertation identified implementation difficulties beyond the presence of formal plans. Kanyasan et al. (2018) described unclear mandates, insufficient personnel, weak monitoring, and limited partnerships in the implementation of school DRRM policies in Lao PDR. The dissertation's review of Tumanog (2017) identified teaching workload, limited expertise and materials, unsafe drill areas, and insufficient time for DRRM activities as concerns in another Philippine school setting. These studies directed attention to the organizational conditions needed to sustain implementation rather than treating policy issuance as evidence of effective practice.

Within Batangas, Ginete (2017) examined drills, capability building, partnerships, hazard mapping, and related implementation concerns. The present study retained attention to these practices but assessed them within the four DRRM thematic areas and focused on schools located along or near coastal areas of Batangas City. It also considered the risks commonly experienced, the manifestation of school heads' and coordinators' duties, and the issues encountered by implementers. This locally defined focus provided the basis for a project responsive to the schools included in the assessment, without assuming that findings from other school systems applied unchanged.

The study addressed this need through a descriptive assessment in 33 coastal schools. Its intended contribution was to identify practices to sustain, lower-rated activities requiring attention, and implementation concerns that could inform a proposed capacity-building project. The project was developed from the findings; the study did not test whether it reduced disaster losses or improved school resilience.

1.1 Objectives of the Study

The study aimed to assess DRRM implementation in coastal schools in the Schools Division of Batangas City as a basis for a proposed disaster risk reduction management project. Specifically, it examined performance in prevention and mitigation, preparedness, response, and recovery and rehabilitation; compared the assessments of school heads, school DRRM coordinators, and teaching and non-teaching personnel; identified commonly experienced risks; assessed the manifestation of school heads' and coordinators' duties and functions; and identified implementation issues and challenges.

The null hypothesis stated that the three respondent groups did not differ significantly in their assessments of the four thematic areas.

1.2 Theoretical and Conceptual Framework

The study drew on four perspectives. The Theory of Planned Behavior, discussed in relation to disaster preparedness by Najafi et al. (2017), linked intention with attitudes, subjective norms, and perceived behavioral control. Lewin's change model, presented by Morrison (2014), framed improvement as unfreezing existing practices, introducing change, and sustaining a new state. These perspectives emphasized personnel motivation, participation, and support for changes in school DRRM practices.

The reciprocal safety culture model connected psychological factors, safety-related behavior, and organizational conditions (Cooper, 2017). Quarantelli's (1984) discussion of disaster planning emphasized coordinated preparation, training, simulations, communication, resources, and continuing revision of plans. In the school setting, these perspectives directed attention to how leadership, personnel duties, and organizational arrangements supported safety.

The conceptual sequence linked four inputs: DRRM thematic-area performance, risks experienced in coastal areas, duties and functions, and implementation issues and challenges. Questionnaire and interview data formed the assessment process, and the proposed DRRM project was the output. This condenses the dissertation's research paradigm into text. The theories guided the assessment and project rationale; their constructs were not reported as separately measured variables or tested causal relationships.

2 Materials and Methods

2.1 Research Design and Setting

The study used a descriptive research design supported by a questionnaire and interviews. It was conducted during School Year 2019-2020 in the Schools Division of Batangas City, Philippines. The setting comprised 33 schools situated along or near coastal areas in Districts II, IV, IX, and X. Six of the 10 schools in District II were included. Its four non-coastal schools and Districts I, III, V, VI, VII, and VIII were outside the study's scope.

2.2 Participants and Sampling

Respondents were 33 school heads, 33 school DRRM coordinators, and 180 teaching and non-teaching personnel. Table 1 presents the district distribution. The sampling table listed 33 school heads and 33 coordinators and included all of them; 180 personnel were selected from a listed population of 536 teaching and non-teaching personnel. The dissertation reported use of Slovin's formula to determine the sample size and stratified random sampling. It did not state the margin of error, random-selection procedure, or separate numbers of teaching and non-teaching personnel.

Table 1. Respondents and personnel population by district

District	School heads n	Coordinators n	Personnel population	Personnel sample
District II	6	6	153	51
District IV	5	5	154	52
District IX	13	13	155	53
District X	9	9	74	24
Total	33	33	536	180

Note. Personnel refers to the combined teaching and non-teaching group. Counts reproduce dissertation Table 1. Inclusion of all listed school heads and coordinators does not establish the recruitment or response rate.

2.3 Instrumentation

The researcher developed one questionnaire for the three respondent groups. It contained four parts: performance in the four DRRM thematic areas; risks commonly experienced in coastal areas; manifestation of duties and functions; and implementation issues and challenges. The reported thematic-area tables contained 12 prevention-and-mitigation items, 12 preparedness items, 10 response items, and 10 recovery-and-rehabilitation items. The duties/functions and challenges tables each contained 12 items.

Questionnaire development involved review of relevant materials, adviser checking, revision, and submission to the Schools Division Office DRRM focal person and other experts for validation. The dissertation did not report a pilot-test sample, a content-validity coefficient, or a reliability coefficient.

Responses used a four-point scale. Scores of 3.50-4.00 were interpreted as great extent, greatly manifest, or strongly agree; 2.50-3.49 as moderate extent, moderately manifest, or agree; 1.50-2.49 as slight extent, slightly manifest, or disagree; and 1.00-1.49 as least extent, least manifest, or strongly disagree. The relevant interpretation depended on whether an item concerned performance, duties/functions, or agreement with risk and challenge statements.

Interviews with internal and external stakeholders used five open-ended questions to clarify experiences, risks, and implementation concerns. They supplemented the survey findings. The study is therefore described as a descriptive assessment supported by interviews, rather than as a fully documented mixed-methods design.

2.4 Data-Gathering Procedure

After approval of the questionnaire, the researcher requested permission from the Schools Division Superintendent and secured consent from district supervisors and school heads. She explained the research purpose to the heads of participating schools and distributed questionnaires to the target respondents. Completed questionnaires were retrieved, and responses were tallied, tabulated, analyzed, and interpreted. Interview questions were used to clarify information and support the interpretation of implementation experiences.

2.5 Ethical Considerations

The researcher explained the academic purpose of the study, requested respondents' permission and time, informed them that participation was voluntary, and assured them of confidentiality. The dissertation stated that full participant consent was obtained.

2.6 Data Analysis

Weighted means and standard deviations summarized assessments. Analysis of variance (ANOVA) compared the three respondent groups across the four thematic areas, and Scheffe's test was used for multiple comparisons. The reported significance threshold was 0.05. The numerical results below reproduce the dissertation's tables; conflicting narrative values are identified in the relevant notes.

3 Results and Discussion

3.1 Results

3.1.1 Performance Across the Four DRRM Areas

The three groups' composite assessments are presented in Table 2. Prevention and mitigation had an overall weighted mean of 3.40 (SD = 0.39), interpreted as moderate extent. Preparedness obtained 3.55 (SD = 0.37), response 3.52 (SD = 0.41), and recovery and rehabilitation 3.52 (SD = 0.43), each interpreted as great extent. The group-level results were not uniformly classified: coordinators rated preparedness as moderate extent, while coordinators and school heads rated recovery and rehabilitation as moderate extent.

Table 2. Composite assessments of DRRM performance

Thematic area	Coordinators WM (SD)	School heads WM (SD)	Personnel WM (SD)	Overall WM (SD)	Overall interpretation
Prevention and mitigation	3.25 (0.28)	3.36 (0.37)	3.44 (0.41)	3.40 (0.39)	Moderate extent
Preparedness	3.49 (0.29)	3.54 (0.38)	3.57 (0.39)	3.55 (0.37)	Great extent
Response	3.51 (0.32)	3.51 (0.38)	3.52 (0.43)	3.52 (0.41)	Great extent
Recovery and rehabilitation	3.41 (0.32)	3.38 (0.35)	3.57 (0.46)	3.52 (0.43)	Great extent

Note. WM = weighted mean; SD = standard deviation; personnel = teaching/non-teaching personnel. Values reproduce dissertation Tables 2-5.

Prevention and mitigation. Safe site selection and ecological solid waste management shared the highest overall mean of 3.59, with SDs of 0.51 and 0.53, respectively. Reporting condemnable buildings followed at 3.57 (SD = 0.54). The

lowest-rated activities were installing proper drainage and canals, 2.93 (SD = 0.84); planting trees to prevent soil erosion, 3.17 (SD = 0.70); and regularly inspecting electrical and water supplies, 3.24 (SD = 0.67). All three were interpreted as moderate extent.

Preparedness. Responding to the national simultaneous earthquake drill obtained the highest mean, 3.83 (SD = 0.39), followed by organizing the school DRRM team, 3.76 (SD = 0.44), and posting emergency hotlines, 3.67 (SD = 0.53). Installation of visible fire alarms was lowest at 3.20 (SD = 0.78). Training on disaster preparedness and provision of early-warning devices both obtained 3.41, with SDs of 0.62 and 0.60, respectively. These lower-rated activities were assessed as moderate extent.

Response. Informing barangay and local government officials of school status and facilitating immediate resumption of classes both obtained 3.64, with SDs of 0.48 and 0.54, respectively. Provision of basic health and hygiene kits received 3.61 (SD = 0.53). Makeshift classrooms had the lowest mean, 3.22 (SD = 0.68), followed by child-friendly spaces for psychological support, 3.43 (SD = 0.63). Soliciting community support for rescue and other operations obtained 3.48 (SD = 0.60), interpreted as moderate extent.

Recovery and rehabilitation. Safekeeping school records, 3.68 (SD = 0.49), preparing reports of damaged facilities, 3.66 (SD = 0.52), and coordinating with concerned authorities for support, 3.62 (SD = 0.52), received the highest means. Psychosocial first aid/support services received the lowest, 3.22 (SD = 0.75). Soliciting support from other sources obtained 3.42 (SD = 0.59), and both alternative learning delivery and cordoning/signage for unsafe facilities obtained 3.43. These lower-rated practices were interpreted as moderate extent.

3.1.2 Comparisons Among Respondent Groups

ANOVA identified statistically significant differences for prevention and mitigation ($F = 3.32$, $p = 0.04$) and recovery and rehabilitation ($F = 4.09$, $p = 0.02$). No significant differences were reported for preparedness ($F = 0.62$, $p = 0.54$) or response ($F = 0.03$, $p = 0.97$). Table 3 retains the reported Scheffe comparisons between teaching and non-teaching personnel and school heads. The prevention-and-mitigation comparison requires verification because its reported difference does not correspond to the displayed group composite means.

Table 3. Reported between-group differences in DRRM assessments

Thematic area	F	ANOVA p	Reported ANOVA result	Scheffe mean difference	Scheffe p
Prevention and mitigation	3.32	0.04	Significant	0.18	0.045
Preparedness	0.62	0.54	Not significant	-	-
Response	0.03	0.97	Not significant	-	-
Recovery and rehabilitation	4.09	0.02	Significant	0.19	0.05

Note. Values reproduce dissertation Table 6. Scheffe contrasts are personnel minus school heads; both are labeled significant.

3.1.3 Risks Commonly Experienced in Coastal Areas

Typhoon (3.59, SD = 0.58), earthquake (3.54, SD = 0.76), and flood (3.52, SD = 0.68) received the highest overall ratings and were interpreted as strongly agree. Thunderstorm and seawall destruction followed at 3.41 and 2.65, respectively. The overall risk composite was 2.72 (SD = 0.40), interpreted as agree. Table 4 presents all risk indicators reported in the source table. These are agreement ratings for the questionnaire statements, not measured frequencies, probabilities, or verified counts of disaster events.

Table 4. Ratings of risk indicators in coastal areas

Risk indicator	WM	SD	Interpretation
Typhoon	3.59	0.58	Strongly agree
Earthquake	3.54	0.76	Strongly agree
Flood	3.52	0.68	Strongly agree
Thunderstorm	3.41	0.76	Agree
Seawall destruction	2.65	0.87	Agree

Risk indicator	WM	SD	Interpretation
Tsunami	2.54	0.94	Agree
Storm surge	2.26	0.99	Disagree
Landslide	2.11	0.62	Disagree
Cyclone	1.83	0.39	Disagree
Tornado	1.75	0.46	Disagree
Composite mean	2.72	0.40	Agree

3.1.4 Duties, Functions, and Implementation Challenges

Duties and functions were greatly manifested overall, with a composite mean of 3.62 (SD = 0.37). Organizing the DRRM team and preparing/submitting hazard reports received the highest means. The lowest were prioritizing capacity building, 3.46 (SD = 0.55), and pre-identifying temporary learning spaces and alternative delivery modes, 3.49 (SD = 0.53), both moderately manifest. Updated baseline education data obtained 3.56 (SD = 0.54), which remained greatly manifest despite its lower relative ranking. The challenges composite was 3.44 (SD = 0.38), interpreted as agree. Training, drill equipment, time, stakeholder involvement, and funds were the highest-rated concerns (Table 5).

Table 5. Selected duties/functions and leading implementation challenges

Selected indicator	WM	SD	Interpretation
Duties and functions			
Organize the school DRRM team	3.78	0.43	Greatly manifest
Prepare and submit hazard-effect reports	3.72	0.47	Greatly manifest
Implement class-suspension guidelines	3.69	0.47	Greatly manifest
Ensure updated baseline education data	3.56	0.54	Greatly manifest
Pre-identify temporary learning spaces and alternative delivery modes	3.49	0.53	Moderately manifest
Prioritize capacity building	3.46	0.55	Moderately manifest
Duties/functions composite	3.62	0.37	Greatly manifest
Implementation challenges			
Training/seminars for school heads and teachers	3.66	0.51	Strongly agree
Equipment for earthquake drills	3.63	0.53	Strongly agree
Time for DRRM tasks	3.59	0.57	Strongly agree
Involvement of parents and stakeholders	3.59	0.55	Strongly agree
Funds to address mapped hazards	3.58	0.53	Strongly agree
Challenges composite	3.44	0.38	Agree

3.1.5 Interview Context and Proposed Output

Interview material reported that training had principally reached coordinators, with wider preparation needed for teachers and school heads, including psychosocial support. Respondents also expressed a need for training when schools served as evacuation centers. Comments about typhoon experiences included detached roofs, uprooted trees, and damaged garden plants. These accounts contextualized the survey findings; no coded themes or participant frequencies were reported. The assessment informed the proposed Project CARED, described below. No implementation or effectiveness results for that project were presented.

3.2 Discussion

3.2.1 Overall Implementation and Lower-Rated Practices

The findings describe generally favorable assessments of preparedness, response, and recovery and rehabilitation alongside a more moderate assessment of prevention and mitigation. They do not indicate uniformly strong performance

in every activity. Lower ratings for drainage, routine utility inspection, fire alarms, temporary classrooms, and psychosocial support identify specific priorities that would be obscured by reporting only the composite means. The practical implication is to sustain well-rated routines while directing attention to the activities that respondents assessed less favorably.

The strong rating for earthquake-drill participation is consistent with the emphasis on school-based earthquake and fire drills in the policies reviewed for the study (DepEd, 2012a). Nevertheless, participation in drills coexisted with concern about equipment and with moderate ratings for warning devices and staff training. These findings suggest that an established activity schedule and the resources needed to support that activity should be considered separately. The assessment did not establish that drill participation alone produced effective responses during actual disasters.

Prevention and mitigation involved both environmental practices and physical conditions. Safe site selection, solid waste management, and reporting condemnable facilities received favorable assessments, but drainage and utility inspection were weaker. The Educational Facilities Manual discussed in the dissertation placed importance on suitability, access, site conditions, and disaster risk reduction in school facilities (DepEd, 2010). The present findings support attention to these practical school conditions, while the questionnaire cannot substitute for an engineering inspection or certify that a school site is safe.

3.2.2 Learning Continuity and Personnel Capacity

A similar distinction appeared in response and recovery. Reporting school status, resuming classes, and safeguarding records were rated more highly than makeshift classrooms, alternative delivery arrangements, and psychosocial first aid. These results suggest that continuity planning should extend beyond administrative reporting to the arrangements needed when learners cannot return to ordinary classroom conditions. The reviewed policy on alternative delivery modes provides a relevant connection to this concern (DepEd, 2012b).

The lower assessment of psychosocial support also aligns with the interview-based concern that relevant preparation had not reached all personnel. Schreiber et al. (2006), cited in the dissertation, described psychological first aid for students and teachers as support after a school crisis or disaster. Here, however, the evidence concerns perceived implementation, not the clinical effectiveness of a support intervention. The results provide a rationale for personnel preparation without demonstrating the adequacy or outcomes of the services already available.

Capacity building was a recurring concern across the preparedness ratings, duties/functions scale, and challenges scale. This convergence helps explain why a capacity-building project was selected as the study output. It also resembles the concerns about training, materials, and equipment identified in the dissertation's review of Ginete (2017) and the workload and expertise concerns described by Tumanog (2017). Training alone would not resolve every reported issue: time, funding, equipment, and stakeholder participation were also prominent and would require coordinated organizational support.

3.2.3 Role-Based Assessments and Coastal Priorities

The reported differences in prevention and mitigation and recovery and rehabilitation indicate that the respondent groups did not assess all areas in the same way. The dissertation suggested that differing responsibilities and exposure to implementation might help explain these patterns. That explanation remains an interpretation, not a tested mechanism. Moreover, the inconsistent prevention-and-mitigation contrast prevents a secure interpretation of the reported pairwise difference until the original statistical output is checked. Non-significant results for preparedness and response should not be interpreted as proof that the groups were equivalent.

The risk ratings identify typhoon, earthquake, and flood as prominent concerns in the assessment. Thunderstorm and seawall destruction add locally relevant considerations. These priorities can inform the scenarios used in school planning and proposed exercises, but they should not be treated as a complete hazard assessment or as evidence that lower-rated hazards can be disregarded. Because the instrument asked for agreement with descriptions of risks and consequences, the results characterize respondents' assessments rather than a measured disaster-event distribution.

3.2.4 Organizational Implications

The four conceptual perspectives help organize these implications without establishing causation. Personnel motivation and perceived capacity relate to participation; planned change concerns revising routines; reciprocal safety culture concerns the interaction of personnel, behavior, and organizational conditions; and disaster planning requires coordinated

preparation beyond routine operations (Najafi et al., 2017; Morrison, 2014; Cooper, 2017; Quarantelli, 1984). The findings are compatible with these perspectives, but the study did not test their explanatory power.

The emphasis on leadership, roles, and partnerships also corresponds to the implementation concerns discussed by Kanyasan et al. (2018). Project CARED consequently combines policy review, practice-based activities, and interagency coordination rather than proposing a lecture-only response. Its relevance follows from the identified needs. Whether the proposed activities improve implementation, continuity of learning, or resilience remains an empirical question that was not answered by this descriptive study.

3.3 Practical Implications and Proposed Project CARED

3.3.1 Purpose and Intended Deliverables

Project CARED, or Coastal Areas Resilient Endeavors in Disaster, was proposed to strengthen the knowledge and skills of school heads, coordinators, and teaching and non-teaching personnel in the four DRRM areas. Its objectives were to revisit relevant policies and guidelines, use knowledge and innovative skills to build a culture of safety, strengthen preparedness and response alongside prevention and recovery, develop stakeholder partnerships, and encourage learners to apply disaster-related learning at home and in the community. These were intended objectives, not evaluated outcomes.

The proposed scope comprised policy review linked to lower-rated activities; facilitated tabletop exercises using locally experienced hazard scenarios; walkthroughs, simulation, and role play for duties requiring improvement; group discussion, brainstorming, think-pair-share, and workshops on implementation issues; and application of learning through a school innovation to be presented at the end of the project period. Interactive lectures, carousel activities, demonstrations, and simulation were the proposed delivery strategies. Coordination was planned with the City Disaster Risk Reduction and Management Council and the Schools Division DRRM focal person.

3.3.2 Participants, Resources, and Proposed Schedule

The proposal specified 210 participants: six resource persons, six training-team members, 33 school heads, 33 school DRRM coordinators, and 132 teaching and non-teaching personnel. Each school was expected to send four teaching/non-teaching personnel serving as committee chairpersons or co-chairpersons. This proposed training cohort is distinct from the study's survey respondents. The Special Education Fund or Schools Division Office DRRM resources were identified as possible sources for food and supplies.

The original schedule proposed implementation during the 2020 In-Service Training week, with presentation of school DRRM implementation results at the Division Continuous Improvement Project colloquium by April 2021. These dates describe the historical proposal, not confirmed activities. The proposed risk-management response was close coordination with the division focal person and concerned officials so that participation would be compatible with school responsibilities and instructional time.

3.3.3 Monitoring, Evaluation, and Sustainability

The proposed monitoring arrangements included daily Google Forms during capacity building, coordination with the Schools Division Office Monitoring and Evaluation Section for standard tools, and school-level reporting after training. Monthly accomplishment reports and sharing of completed activities were suggested. The proposal also envisaged a school innovation, presentation of implementation results, and possible recognition of a best DRRM school implementer. No completed monitoring records or project outcome data were included in the study.

For sustainability, the proposal identified inclusion of drainage and canals in the Annual Implementation Plan, stakeholder support for resources, mapping community planting areas where school space was unavailable, partnerships for electrical and water-supply inspection, coordination on unsafe facilities, and identification of accessible alternate evacuation routes. These actions connect the capacity-building proposal with the lower-rated prevention-and-mitigation practices.

3.4 Limitations

The study was limited to 33 coastal schools in four districts of Batangas City. Its findings should not be generalized to the excluded districts or to other coastal school systems without considering differences in setting and implementation. The assessments were based on personnel reports rather than independent observations of facilities, measured disaster losses, or verified educational outcomes. Agreement-scale risk statements also do not establish hazard occurrence rates. These are constraints on interpretation arising from the reported design.

Incomplete reporting of the sampling calculation, instrument validation and reliability, response rates, missing-data handling, and interview procedures limits assessment of reproducibility and potential bias. The analysis did not document how the grouping of respondents within schools was addressed. Several numerical or interpretive inconsistencies remain unresolved, including the prevention-and-mitigation composite and pairwise comparison. The project was proposed but not evaluated; its effectiveness, feasibility, and sustainability cannot be concluded from the survey results.

4 Conclusion

Respondents assessed preparedness, response, and recovery and rehabilitation as performed to a great extent overall, while prevention and mitigation was assessed to a moderate extent. The reported analyses identified differences among respondent groups in prevention and mitigation and recovery and rehabilitation, subject to verification of inconsistent reporting. Typhoon, earthquake, flood, thunderstorm, and seawall destruction were the leading risk concerns. Although duties and functions were greatly manifested overall, capacity building and pre-identification of temporary learning spaces and alternative delivery modes received lower ratings. Training and earthquake-drill equipment were the most prominent implementation challenges. These findings provided a basis for Project CARED, but did not demonstrate its effectiveness.

4.1 Recommendations

Consistent with the dissertation's recommendations, Project CARED should be submitted to the Division DRRM focal person for validation and to the concerned Schools Division Office officials for approval. Camp management training should be considered to prepare personnel when schools are used as evacuation centers. Further studies should examine DRRM implementation and the proposed project in relevant school settings. Validation, approval, and any later implementation or evaluation must be documented separately from the findings reported here.

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