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Political and Economic Dimensions of Crisis-Responsive and Climate-Resilient Education Planning in Philippine Secondary Schools

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Abstract

This systematic literature review with conceptual mapping examined the political and economic dimensions of crisis-responsive and climate-resilient education planning in Philippine secondary schools. Guided by PRISMA-informed review procedures, the study re-screened an existing corpus of 100 references using a revised eligibility instrument that limited the evidence base to Philippine-focused sources published from 2010 to 2026 [1]. Thirty-three sources met the final criteria and were included in the thematic synthesis. The review focused on governance, policy implementation, leadership, stakeholder participation, financing, resource allocation, infrastructure investment, and disaster recovery funding. The results showed that resilience in Philippine secondary schools was shaped by a strong but unevenly implemented policy architecture in which national mandates, local government capacity, school leadership, community participation, fiscal capacity, infrastructure conditions, and funding arrangements interacted. Political factors shaped role clarity, coordination, accountability, and stakeholder ownership, while economic factors influenced the feasibility, timing, scale, and equity of preparedness, response, recovery, and learning-continuity measures. The synthesis indicated that resilience planning was more effective when School Improvement Planning, DRRM/CCA/EiE integration, learning-continuity planning, risk data, teacher capacity building, learner participation, psychosocial support, and resilient infrastructure were treated as connected planning mechanisms rather than separate compliance requirements. The study developed an integrated political-economic framework for secondary-school resilience and recommended future mixed-method, multi-site, and participatory research linking policy implementation, school finance, hazard exposure, and learning-continuity outcomes.

Keywords: Climate Resilience, Crisis Response, Educational Planning, Political Economy, Secondary Schools

1. Introduction

Philippine secondary schools operate in a policy environment where educational management is increasingly shaped by recurring disasters, climate-related disruptions, public finance constraints, decentralized governance, and the continuing demand to protect learning continuity. The Philippines is highly exposed to typhoons, floods, earthquakes, volcanic hazards, landslides, extreme heat, and health emergencies; these hazards affect not only school buildings but also instructional time, learner well-being, teacher workload, school-community coordination, and the capacity of schools to implement national reforms. In this setting, crisis-responsive and climate-resilient education planning cannot be treated as a technical planning exercise alone. It must be understood as a political and economic process in which authority, resources, policy priorities, institutional capacity, and local vulnerability interact to determine whether schools can prepare, respond, recover, and continue learning under stress.

The Philippine policy foundation for this topic is strong but complex. Republic Act No. 10121, or the Philippine Disaster Risk Reduction and Management Act of 2010, institutionalized a proactive, comprehensive, and community-based disaster risk reduction and management system. Its declaration of policy emphasizes strengthening institutional capacity, building local resilience, mainstreaming disaster risk reduction and climate change adaptation in planning and budgeting, and ensuring continuing budget appropriation from national to local levels [2]. Republic Act No. 10174, or the People's Survival Fund Act of 2012, further established a financing mechanism for climate adaptation initiatives. These laws show that education resilience in the Philippines is not merely a school-level concern. It is embedded in national development, local government planning, climate adaptation, infrastructure investment, and public budgeting [3].

Within the Department of Education, several policy issuances frame school-level planning for risk reduction and learning continuity. DepEd Order No. 21, s. 2015, established coordination and information-management protocols for schools, schools division offices, regional offices, and DRRM coordinators. The order emphasized role clarity, efficient information flow, and action before, during, and after disasters [4]. DepEd Order No. 37, s. 2015, adopted the Comprehensive Disaster Risk Reduction and Management in Basic Education Framework, which guides DRRM, climate change adaptation, and education in emergencies in the basic education sector [5]. DepEd's Disaster Risk Reduction and Management Service is the focal unit for DRRM, climate change adaptation, and education in emergencies, with a mandate to empower personnel, offices, schools, and learners; institutionalize DRRM, CCA, and EiE; and strengthen basic education resilience (Department of Education, n.d.). More recently, DepEd Order No. 014, s. 2026, introduced guidelines on learning continuity in emergencies and articulated the 4H framework, comprising Hinto, Hinga, Hinay, and Hayo, as a decision guide for school responses based on safety, well-being, and levels of disruption [6,7].

Global frameworks further support this direction. The Comprehensive School Safety Framework 2022–2030 adopts an all-hazards, all-risks approach and organizes school safety around enabling systems and policies, safer learning facilities, school safety and educational continuity management, and risk reduction and resilience education [8]. PRISMA and JBI guidance for evidence synthesis also show the importance of transparent, replicable, and conceptually rigorous reviews when research evidence is scattered across scholarly studies, policy documents, program reports, and grey literature [9,10]. For the present study, these global and national frameworks are useful because the topic cuts across curriculum, governance, school leadership, local participation, infrastructure, and financing.

The problem is urgent because climate and disaster risks are already affecting Philippine education outcomes and investments. UNICEF Philippines (2025) warned that climate-resilient schools are crucial to addressing the learning crisis and called for investment in infrastructure, curricula, learning materials, teacher training, and alternative delivery modes that can support flexible learning when classes are disrupted [11]. UNICEF also cited evidence that climate-related disruptions cause learners to lose substantial school days, that schools are often used as evacuation centers, and that hazard exposure contributes to annual losses in the education sector. At the same time, major public investments are being directed toward resilient school infrastructure. The World Bank approved a US\$500 million loan for the Infrastructure for Safer and Resilient Schools Project to support the repair, rehabilitation, retrofitting, reconstruction, and site improvement of disaster-affected schools (World Bank, 2024). The NEDA Board approved the PhP30.56-billion ISRS project, which is expected to benefit 1,282 schools, 4,756 school buildings, 13,101 classrooms, and 741,038 learners from 2025 to 2029 [12].

Despite these policy and investment efforts, the evidence base remains fragmented. Studies of school-level DRRM implementation in the Philippines generally report moderate to good implementation but also identify gaps in infrastructure resilience, financing, sustained risk reduction, capacity development, and implementation consistency. Daminar and Cabonce (2026), for example, found that DRRM implementation in public schools in Cabadbaran City was generally rated as good and that administrative capacity was positively associated with implementation, but gaps persisted in infrastructure resilience, financing, and sustained risk reduction [13]. Espinosa et al. (2026) likewise argued that climate change education in Philippine basic education is shaped by the home-school-community nexus and that strengthening intergenerational learning, community engagement, and governance continuity is essential for sustained climate action [14]. These findings suggest that school resilience depends not only on policies and programs but also on the political and economic conditions that enable or constrain implementation.

The political dimension concerns how decisions are made, who participates, how responsibilities are distributed, and how policies are interpreted and implemented across levels. In Philippine

secondary schools, political dimensions include national-local coordination, the authority of school heads, the role of DRRM coordinators, participation of learners and parents, coordination with local government units and barangays, accountability mechanisms, and the use of evidence in school improvement planning. Political dynamics also include policy coherence: school plans must align with national laws, DepEd orders, the Basic Education Development Plan 2030, regional and division education plans, local DRRM plans, local climate change action plans, and the School Improvement Plan. Where coordination is weak, school resilience may become compliance-driven rather than risk-informed and locally responsive.

The economic dimension concerns how schools and education agencies secure, allocate, and account for resources before, during, and after crises. This includes financing for safer classrooms, retrofitting, repairs, learning continuity materials, teacher training, emergency communication, psychosocial support, and alternative delivery modes. The Philippine Development Plan 2023–2028 recognizes that climate and disaster risk resilience require stronger governance, better convergence budgeting, and more support for LGUs, while also noting that budget allocation for climate and disaster resilience has been inadequate and that spending has been skewed toward post-disaster response, recovery, and rehabilitation [15]. The budgetary issue is therefore not only the availability of funds but also the timing, targeting, absorptive capacity, accountability, and equity of resource use.

Secondary schools deserve specific attention because they occupy a critical position in the basic education system. Junior high school and senior high school learners are expected to develop scientific literacy, civic responsibility, environmental awareness, employability skills, and community participation. They are also developmentally capable of participating in student-led hazard mapping, climate action, peer support, and school-community preparedness initiatives. Yet secondary schools often face complex facility needs, laboratory and technical-vocational equipment requirements, larger student populations, and stronger links to community mobility and local economic disruptions. A synthesis focused on secondary schools can therefore identify whether existing literature sufficiently addresses the governance and financing conditions that shape crisis-responsive and climate-resilient planning at this level.

This study was anchored in the view that education planning is a political economy process. Political economy analysis examines

how institutions, power relations, incentives, resource flows, and stakeholder interests influence policy choices and implementation. Applied to crisis-responsive and climate-resilient education planning, this lens explains why some policies are implemented effectively while others remain underfunded or fragmented, why some schools mobilize strong community support while others struggle, and how public budgets, infrastructure decisions, and local governance arrangements shape educational continuity. The study therefore moved beyond asking whether DRRM, CCA, and EiE were present in policy and examined how political and economic dimensions interacted in the planning and implementation of school resilience.

The study was also informed by multi-level governance, comprehensive school safety, and social-ecological resilience perspectives. Multi-level governance was relevant because school resilience depends on vertical coordination among the DepEd central, regional, division, and school levels, as well as horizontal coordination with LGUs, communities, civil society, and development partners. The Comprehensive School Safety Framework provided a structure for relating policies, facilities, continuity management, and risk reduction education. Social-ecological resilience emphasized adaptation, learning, feedback, and the capacity of institutions to absorb shocks while maintaining core functions. Together, these perspectives supported a conceptual mapping approach that organized the literature into political dimensions, economic dimensions, mediating planning mechanisms, and resilience outcomes.

The analytical framework used in this study was based on the assumption that crisis-responsive and climate-resilient education planning was shaped by two interacting domains. The political domain included governance arrangements, policy implementation, leadership, stakeholder participation, accountability, and decision-making authority. The economic domain included financing, resource allocation, infrastructure investment, recovery funding, and cost-related constraints. These domains influenced planning mechanisms such as risk-informed School Improvement Plans, learning-continuity plans, DRRM/CCA/EiE integration, data systems, capacity building, and monitoring. The expected outcomes included safer learning facilities, reduced learning disruption, equitable recovery, learner and teacher well-being, and adaptive school governance. Contextual moderators such as hazard exposure, poverty, geography, school size, local fiscal capacity, and data availability could strengthen or weaken these relationships.

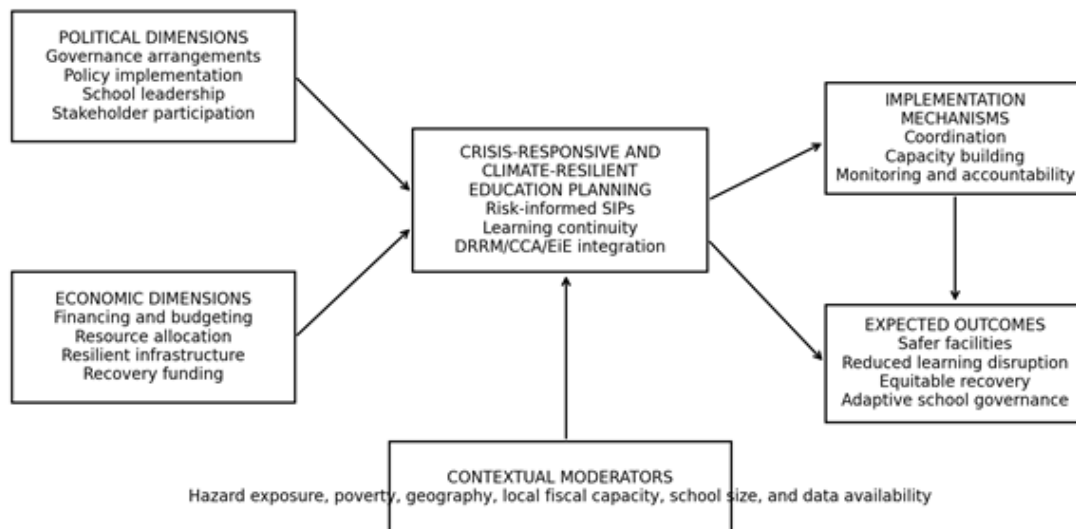


Figure 1: Conceptual Framework Showing the Interaction of Political and Economic Dimensions in Crisis-Responsive and Climate-Resilient Education Planning

The research gap addressed by this study was the absence of a systematic and conceptually mapped synthesis focused on the political and economic dimensions of crisis-responsive and climate-resilient education planning in Philippine secondary schools. Existing literature often examines DRRM implementation, climate change education, school preparedness, or infrastructure concerns separately. Policy documents, meanwhile, provide frameworks and mandates but do not always show how schools experience and negotiate political and economic constraints. A systematic literature review with conceptual mapping was therefore used to bring these strands together and provide an integrated framework for educational management, policy, and future research.

This study sought to synthesize and conceptually map the existing literature on the political and economic dimensions of crisis-responsive and climate-resilient education planning in Philippine secondary schools. Specifically, it addressed the following questions:

1. What political dimensions emerge in the literature on crisis-responsive and climate-resilient education planning in Philippine secondary schools, particularly in relation to governance, policy implementation, leadership, and stakeholder participation?
2. What economic dimensions emerge in the literature on crisis-responsive and climate-resilient education planning in Philippine secondary schools, particularly in relation to financing, resource allocation, infrastructure investment, and disaster recovery funding?
3. Based on the synthesized literature, what conceptual framework can be developed to explain the interaction of political and economic factors in shaping crisis-responsive and climate-resilient education planning in Philippine secondary schools?

2.Methodology

The study employed a systematic literature review with conceptual mapping. The systematic review approach was appropriate because the study sought to identify, screen, appraise, synthesize, and report existing evidence in a transparent and replicable manner. Conceptual mapping was used because the purpose was not to estimate a single effect size but to organize diverse Philippine evidence into a framework explaining the interaction of political and economic dimensions. The review was informed by PRISMA 2020 reporting principles for transparent identification, screening, eligibility assessment, and inclusion, together with relevant guidance on scoping and evidence synthesis [9,10,16].

The review proceeded through six major phases: protocol development, search and retrieval, deduplication and screening, eligibility review and quality appraisal, data extraction and coding, and synthesis and conceptual framework development. The evidence corpus was deliberately restricted to sources published from 2010 to 2026 that focused on the Philippines or presented direct evidence concerning Philippine education, schools, policies, institutions, or communities. International methodological and conceptual sources could be cited to justify the review procedure or framework but were not counted as evidence for answering the three research questions.

Meta-analysis was not conducted because the eligible Philippine evidence was heterogeneous in methods, outcomes, and document types. Instead, the review used thematic analysis and framework synthesis. Thematic analysis identified recurring patterns in the included sources, while framework synthesis organized those patterns under political dimensions, economic dimensions, planning and implementation mechanisms, contextual moderators, and resilience outcomes. The final framework was developed through iterative comparison of the extracted Philippine evidence.

3. Research Context

The study did not have a physical research site because it was literature-based. The research setting consisted of the body of scholarly and policy literature concerning Philippine secondary schools within the broader Philippine basic education system. The substantive setting was the Philippine secondary education sector, including junior high school and senior high school, particularly public secondary schools affected by disaster risk, climate change impacts, and educational continuity challenges. Literature discussing basic education, public schools, school DRRM, school safety, climate change education, education in emergencies, and resilient school infrastructure was considered when it contained insights applicable to secondary schools.

The Philippine context was central to the review. Eligible evidence had to examine Philippine education, schools, policies, institutions, or communities and be published from 2010 to 2026. The review prioritized sources such as DepEd orders, the Basic Education Development Plan 2030, the Philippine Development Plan 2023-2028, Republic Acts enacted within the review period, official DRRM and climate policies, Philippine school-based empirical studies, and Philippine-focused reports from UNICEF, the World Bank, the Asian Development Bank, and other credible institutions. Non-Philippine studies were excluded from the evidence synthesis, although selected methodological references were retained solely to explain the review process.

4. Units of Analysis, Data Sources, and Sampling

The unit of analysis was each eligible document. Eligible documents included peer-reviewed journal articles, relevant theses or dissertations where accessible, conference papers with sufficient information, DepEd orders, Philippine laws enacted from 2010 to 2026, government plans, official reports, policy briefs, development-partner reports focused on the Philippines, and other credible grey literature. The data source was the text of these documents, including findings, recommendations, policy provisions, implementation arrangements, financing information, reported challenges, and implications for Philippine secondary schools or basic education.

The sampling strategy involved comprehensive purposive sampling through systematic search and re-screening. The evidence corpus was limited to sources published from 2010 to 2026. The year 2010 was selected because it marked the enactment of Republic Act No. 10121, a major legal foundation for DRRM mainstreaming in the Philippines [2]. Sources had to focus on the Philippines or present direct Philippine evidence. Studies involving the wider basic education system were included only when their findings, provisions, or management implications were clearly applicable to junior or senior high schools. International methodological references were not counted among the included evidence sources.

Criterion	Inclusion	Exclusion
Time frame	2010-2026 only	Sources published before 2010, after 2026, or undated where temporal eligibility cannot be established
Geographic focus	Philippines; sources must focus on Philippine education, schools, policies, institutions, or communities	Non-Philippine studies without direct Philippine evidence
Education level	Secondary schools; basic education studies with clear relevance to junior or senior high school	Higher education-only or early childhood-only studies with no clear relevance to secondary education
Topic focus	DRRM, CCA, EiE, school safety, climate change education, resilient infrastructure, learning continuity, crisis-sensitive planning, governance, financing	Studies unrelated to crisis response, climate resilience, governance, economics, or education planning
Document type	Peer-reviewed studies, Philippine laws and policies, official reports, government plans, credible Philippine-focused development-partner reports, relevant theses/dissertations or substantial conference papers	Opinion pieces, blogs, social media posts, unverifiable material, or documents lacking sufficient evidence for appraisal
Language	English and accessible Filipino-language documents	Documents that cannot be interpreted reliably by the research team

Table 1: Inclusion and Exclusion Criteria

The search terms combined concepts related to the Philippine context, secondary or basic education, crisis response, climate resilience, and political-economic dimensions. Boolean strings were adapted to each database. Sample terms included (Philippines OR Philippine) AND ("secondary school" OR "high school" OR "junior high school" OR "senior high school" OR "basic education") AND ("climate-resilient education" OR "climate change education" OR "disaster risk reduction" OR DRRM OR "education in emergencies" OR "learning continuity") AND

(governance OR "policy implementation" OR leadership OR "stakeholder participation" OR financing OR budget OR "resource allocation" OR infrastructure OR "disaster recovery"). Publication-year limits were set from 2010 through 2026.

5.Data Collection and Instrumentation

Data collection began with protocol preparation. The protocol specified the research questions, publication period, Philippine geographic restriction, databases and repositories, search strings,

inclusion and exclusion criteria, screening procedures, data extraction fields, quality and relevance appraisal criteria, and synthesis approach. The previously assembled corpus of 100 references was then re-screened using the revised Screening Form. Duplicate checking was performed, eligibility decisions were documented, and reasons for exclusion were recorded. A PRISMA-style flow summary was used to report the numbers identified, screened, excluded, assessed for contextual eligibility, and included.

Three principal instruments were used. Instrument 1, the Screening Form, tested publication period, Philippine focus, relevance to secondary or basic education, substantive relevance to crisis response or climate resilience, and contribution to political or economic dimensions. Instrument 2, the Data Extraction Matrix, captured citation details, document type, Philippine context, purpose, method or basis, political dimensions, economic dimensions, planning mechanisms, key findings, gaps, implications, and SOP alignment. Instrument 3, the Quality and Relevance Appraisal Guide, assessed authority, purpose and relevance, method or policy basis, evidence support, contextual fit, currency, and contribution. These instruments created a transparent audit trail from screening to synthesis.

Coding was conducted in two cycles. The first cycle used deductive codes derived from the SOPs: governance, policy implementation, leadership, stakeholder participation, financing, resource allocation, infrastructure investment, and disaster recovery funding. The second cycle used inductive coding to capture recurring Philippine-context themes such as local capacity, school autonomy, data systems, accountability, equity, learner participation, psychosocial support, learning continuity, hazard mapping, local fiscal capacity, and implementation barriers. Coding followed an iterative process of open coding, category development, theme consolidation, and conceptual mapping.

5.1. Ethical Considerations

Because this was a literature-based study, it did not involve human participants, direct data collection from learners or teachers, or access to confidential school records. Ethical standards nevertheless applied. The study ensured accurate citation, fair representation of authors' arguments, avoidance of plagiarism, and careful treatment of copyrighted material. It distinguished among official policy provisions, empirical findings, institutional reports, and the researchers' interpretations.

The study also addressed researcher bias. Because the review involved interpretive synthesis, the researchers maintained an audit trail of search decisions, screening reasons, appraisal judgments, coding definitions, and framework development. Records marked unclear during screening were retained for closer assessment rather than automatically excluded. Conflicting evidence was not suppressed. Where possible, screening and coding decisions were

discussed within the research team to improve dependability.

5.2. Data Processing

Data processing proceeded in seven steps. First, the 100-reference corpus was checked for duplicates. Second, all records were screened for the 2010-2026 publication period, and undated records were excluded because temporal eligibility could not be established. Third, the remaining records were assessed for direct Philippine focus and relevance to secondary or basic education planning. Fourth, eligible documents were appraised using the Quality and Relevance Appraisal Guide. Fifth, information was extracted using the Data Extraction Matrix. Sixth, deductive and inductive coding was performed. Seventh, the coded evidence was synthesized into themes and mapped into an integrated conceptual framework.

The synthesis was organized according to the three SOPs. For SOP 1, political dimensions were synthesized around governance coordination, policy implementation, school leadership, and stakeholder participation. For SOP 2, economic dimensions were synthesized around financing, resource allocation, infrastructure investment, and disaster recovery funding. For SOP 3, relationships between political and economic factors were mapped through contextual risk conditions, political-economic inputs, planning and implementation mechanisms, and resilience outcomes. Only the 33 Philippine-focused sources that passed the revised screening criteria were used to answer the research questions.

The trustworthiness of the synthesis was strengthened through transparency, triangulation, and reflexivity. Transparency was supported by the revised screening criteria, PRISMA-style re-screening counts, extraction matrix, appraisal guide, and coding framework. Triangulation was achieved by comparing Philippine empirical studies, laws, DepEd policies, national plans, climate and disaster-risk documents, and Philippine-focused development-partner reports. Reflexivity was supported by documenting how the educational management and political-economic lens influenced interpretation and by explicitly reporting areas of convergence, divergence, and evidence scarcity.

6. Results and Discussion

Overview of the reviewed evidence

The revised screening procedure retained 33 Philippine-focused sources published from 2010 to 2026 for the evidence synthesis. The re-screening began with the existing corpus of 100 unique references. Twenty-three sources published before 2010 were excluded, and one undated source was excluded because temporal eligibility could not be established. The remaining 76 records were assessed for Philippine focus and direct contextual relevance. Forty-three non-Philippine sources were excluded from the evidence synthesis, leaving 33 sources for thematic analysis and conceptual mapping.

Screening stage	Number of records
Records in the existing reference corpus	100
Duplicate records removed	0
Records screened for publication period	100
Records excluded for pre-2010 publication or undated status	24
Records assessed for Philippine focus and contextual eligibility	76
Records excluded for lack of direct Philippine focus	43
Sources included in the final evidence synthesis	33

Table 2: PRISMA-Style Re-Screening Summary of the Revised 2010-2026 Philippine Evidence Corpus

The final evidence corpus comprised seven empirical or school-based studies, six Department of Education policies or sector planning documents, eight national climate, disaster-risk, and development-planning documents, four Philippine laws enacted within the review period, five Philippine-focused reports from development partners, and three official government communications concerning resilient learning, learning continuity, and school infrastructure investment. This mix was necessary because crisis-responsive and climate-resilient education planning is shaped simultaneously by school practice, national policy, disaster-risk governance, public finance, climate information, and infrastructure decisions.

Across the 33 included sources, a consistent pattern emerged: the Philippines has a substantial legal and policy architecture for disaster risk reduction and management, climate adaptation, education in emergencies, school safety, and learning continuity, yet implementation remains uneven across schools and localities. The major gap lies in translating national mandates into risk-informed school plans, clear local coordination, teacher and leadership capacity, adequate financing, resilient facilities, reliable data, and continuity measures that function before, during, and after disruption. Secondary schools face an especially complex planning burden because they commonly manage larger learner populations, specialized laboratories and technical-vocational facilities, adolescent psychosocial needs, and stronger links to transport, household livelihoods, and local economic disruption.

Research question	Major themes	Synthesis of findings	Main implication
SOP 1: Political dimensions	Governance coordination; policy implementation; leadership; stakeholder participation	Formal mandates are extensive, but implementation depends on role clarity, vertical and horizontal coordination, local capacity, leadership support, accountability, and meaningful participation.	Resilience requires governance arrangements that convert policy into coordinated school-level action.
SOP 2: Economic dimensions	Financing; resource allocation; infrastructure investment; disaster recovery funding	Preparedness and continuity compete with routine needs. Resources are often uneven, infrastructure support is costly and slow, and post-disaster spending can outweigh anticipatory investment.	Funding should be risk-sensitive, timely, preventive, transparent, and linked to learning continuity.
SOP 3: Political-economic interaction	Policy-budget alignment; governance-finance nexus; leadership-resource mobilization; integrated planning mechanisms	Political authority determines priorities and access, while economic capacity determines feasibility and timing. Their interaction shapes plans, facilities, continuity measures, recovery, and equity.	Political and economic factors should be planned as one integrated resilience system rather than separate domains.

Table 3: Thematic Synthesis Aligned with the Three Research Questions

6.1. SOP 1: Political Dimensions of Crisis-Responsive and Climate-Resilient Education Planning

Four political dimensions emerged from the Philippine evidence: governance coordination, policy implementation, school leadership, and stakeholder participation. These dimensions showed that resilience was shaped by the distribution of authority, the interpretation of policy, the movement of information, the quality of decision-making, and the degree to which learners, families, communities, and local institutions could influence school priorities. This pattern was evident across Republic Act No. 10121, DepEd's DRRM coordination and comprehensive framework issuances, the National DRRM Plan 2020-2030, and Philippine school-based implementation studies [2,4,5,13,17,18].

6.1.1. Governance Coordination and Institutional Arrangements

Governance coordination emerged as the foundational political condition of resilience. Philippine secondary schools operate within a vertical administrative chain linking the DepEd central office, regional offices, school's division offices, and schools, while also depending on horizontal coordination with local government units, barangays, local DRRM councils, health and social welfare offices, families, civil society, and development partners. DepEd's coordination and information-management protocol recognizes that school safety and educational continuity require role clarity and reliable information flow across levels [4]. The National DRRM Plan likewise places resilience within a multi-agency system in

which preparedness, response, recovery, and prevention depend on coordinated responsibilities [18]. The Philippine evidence indicated that coordination quality varied according to local capacity, geography, available risk information, fiscal conditions, and the strength of relationships among schools, divisions, and LGUs. Different actors operated under separate mandates, budget calendars, reporting systems, and operational constraints. This could produce delayed responses, inconsistent messages, duplicated activities, or unfunded expectations at the school level. The problem was especially significant in island, mountainous, flood-prone, remote, and resource-constrained communities. Clear protocols, regular inter-agency coordination, shared risk data, and agreed continuity arrangements were therefore essential to reducing uncertainty and improving anticipatory action [4,15,18].

6.1.2. Policy Implementation and the Gap Between Mandate and Practice

The second political theme concerned policy implementation. The Philippine legal and administrative environment was comparatively rich in mandates, yet policy presence did not ensure operational readiness. Implementation quality depended on whether school personnel understood their responsibilities, had sufficient training, could access current hazard information, received timely technical support, and were able to convert policy requirements into usable plans, drills, communication systems, continuity arrangements, and monitoring routines. Philippine studies reported generally positive levels of DRRM implementation while also identifying persistent gaps in training, infrastructure resilience, financing, sustained risk reduction, and implementation consistency [13,17,19,20].

The implementation gap was best understood through the Philippine evidence itself. Daminar and Cabonce (2026) found that administrative capacity was positively associated with DRRM implementation in Cabadbaran City schools, while gaps remained in infrastructure resilience, financing, and sustained risk reduction [13]. Firmo (2024) reported that many respondents in Region VIII had not received relevant training even though DRRM, climate change adaptation, and education in emergencies were perceived to be implemented [17]. Baluran (2023) likewise found variation in preparedness across school districts in South Cotabato [19]. These findings indicated that implementation support should be treated as a continuing educational management function rather than as a one-time dissemination activity.

6.1.3. School Leadership and Adaptive Decision-Making

The third political dimension is leadership. School heads, DRRM coordinators, department heads, and teacher leaders translate broad policy into local priorities and routines. Their responsibilities include interpreting hazard information, deciding on continuity arrangements, coordinating personnel, communicating with families, organizing preparedness activities, linking with LGUs, and aligning school plans with DepEd requirements. Recent learning-continuity guidance reinforces the need for school decisions to respond to safety, well-being, and the actual level of disruption rather than to uniform assumptions [6,7].

The synthesis indicated, however, that leadership quality could not compensate for persistent system weaknesses. A committed school head still required structural assessments, reliable hazard information, communication access, psychosocial referral mechanisms, teacher preparation, and timely financing. Philippine evidence from Cabadbaran City and Region VIII showed that administrative capacity and training conditions influenced the depth of DRRM, CCA, and EiE implementation [13,17]. Resilience therefore depended on supported leadership rather than heroic individual action.

6.1.4. Stakeholder Participation, Legitimacy, and Local Knowledge

The fourth political dimension was stakeholder participation. The included evidence supported the value of involving learners, parents, teachers, non-teaching personnel, school governing bodies, barangay officials, LGUs, and community organizations in resilience planning. Stakeholders provided local knowledge about transport barriers, household constraints, evacuation issues, communication gaps, and vulnerable learners that formal plans might miss. Participation also strengthened legitimacy and ownership because school decisions during crises directly affected families and communities. Philippine evidence on the home-school-community nexus emphasized the importance of intergenerational learning, youth agency, and community engagement in sustaining climate action [14]. Secondary learners deserved particular attention because adolescents could participate in peer communication, school safety audits, hazard mapping, climate action, preparedness campaigns, and community learning. Philippine evidence demonstrated that young people could contribute meaningfully to disaster and climate action when participation was structured and connected to real school or community decisions [14,21,22]. The synthesis therefore showed that token consultation was insufficient. Participation improved resilience when stakeholder inputs influenced priorities, budgets, protocols, monitoring, and learning activities.

6.2. Synthesis for SOP 1

Taken together, the political dimensions showed that crisis-responsive and climate-resilient education planning depended on institutional capability. Governance had to connect national policy with local action, implementation had to be supported and monitored, leadership had to be backed by systems and resources, and participation had to influence real decisions. The Philippine evidence indicated that formal policy architecture was necessary but insufficient. Resilience became operational only when authority, coordination, information, leadership, accountability, and community participation were translated into practical school routines.

6.3. SOP 2: Economic Dimensions of Crisis-Responsive and Climate-Resilient Education Planning

The second research question examined financing, resource allocation, infrastructure investment, and disaster recovery funding. The Philippine evidence showed that these economic dimensions determined the feasibility, timing, scale, and equity

of resilience measures. They also revealed a persistent tension between preventive investment and post-disaster expenditure. The Philippine Development Plan 2023-2028 noted inadequacies in climate and disaster resilience financing and the need for stronger governance and convergence in budgeting, while recent infrastructure investments demonstrated the substantial fiscal requirements of safer schools [12,15,23,24].

6.3.1. Financing and the Cost of Preparedness

Financing emerged as a persistent constraint. School resilience requires expenditure for drills, warning and communication systems, first-aid supplies, hazard signage, teacher training, psychosocial support, learning-continuity materials, temporary learning spaces, repairs, retrofitting, and safer facilities. These needs compete with routine maintenance and instructional priorities. School-level funds are rarely sufficient for major structural risks, while larger national or local funds may depend on project cycles, documentary requirements, procurement procedures, damage validation, or fiscal space. The result is a recurring gap between identified risk and the timing of available resources [13,15,25].

This mismatch creates a timing problem. School planning follows annual cycles, while hazards occur irregularly and often require immediate action. Delayed releases or narrowly defined expenditure rules can leave schools aware of risks but unable to act. The economic issue is therefore not only the total amount of funding. It also concerns predictability, flexibility, release timing, absorptive capacity, procurement, and accountability. Republic Act No. 10121 and the People's Survival Fund Act provide broader public financing foundations for disaster risk reduction and climate adaptation, but school-level resilience still depends on whether resources reach local priorities in usable form [2,3].

6.3.2. Resource Allocation and Resilience Equity

Resource allocation emerged as an equity issue. Schools faced different combinations of hazard exposure, poverty, remoteness, road accessibility, infrastructure age, enrollment pressure, disability-related needs, and local fiscal capacity. Equal distribution of inputs could therefore reproduce inequality because equally funded schools could face very unequal levels of risk. Philippine climate-risk profiles and national development-planning documents supported the need to differentiate assistance according to exposure and vulnerability [15,26,27]. The synthesis supported a shift toward risk-sensitive and vulnerability-sensitive allocation. Such an approach considered hazard exposure, frequency of class disruption, condition of buildings, poverty indicators, school size, remoteness, capacity for alternative delivery, and local fiscal support. In practice, this meant that schools repeatedly affected by typhoons, flooding, landslides, extreme heat, earthquakes, or access disruptions should receive differentiated assistance. Equity in resilience planning was achieved when support was proportionate to risk and vulnerability rather than simply identical across schools.

6.3.3. Infrastructure Investment and Continuity of Learning

Infrastructure investment is the most visible economic dimension

because unsafe facilities directly threaten learners and teachers. National investments such as the Infrastructure for Safer and Resilient Schools Project reflect the scale of the problem and the need for repair, rehabilitation, retrofitting, reconstruction, and site improvement. The approved project targets thousands of classrooms and hundreds of thousands of learners, underscoring that school resilience requires long-term capital investment rather than short-term emergency repair alone [12,23,24].

The synthesis nevertheless indicated that resilient infrastructure had to be connected to maintenance, site safety, WASH, accessibility, heat management, energy reliability, communication systems, temporary learning arrangements, and teaching capacity. A strengthened building did not automatically protect learning if teachers lacked continuity materials, learners could not be reached, or schools did not have workable protocols for staged return and recovery. Infrastructure should therefore be judged by its contribution to safe and continuous education, not merely by project completion.

6.3.4. Disaster Recovery Funding and the Prevention-Recovery Imbalance

Disaster recovery funding revealed a recurring imbalance between visible post-disaster expenditure and less visible preventive investment. Repair and rehabilitation were essential, but repeated dependence on post-disaster financing could normalize recurring damage and learning loss. The Philippine Development Plan identified the need to strengthen climate and disaster-risk resilience financing, while recent government allocations demonstrated the continuing scale of post-disaster and resilience-related school needs [15,23,25]. The review supported anticipatory financing, preventive maintenance, risk-informed capital planning, and readiness measures that could reduce future disruption.

Educational recovery extends beyond physical repair. Disasters create costs through lost instructional time, teacher workload, psychosocial stress, household expenses, absenteeism, displacement, delayed assessment, and unequal access to alternative learning. These costs are less visible than damaged classrooms but are central to education outcomes. Recovery funding should therefore support learning recovery, communication, teacher readiness, psychosocial well-being, and alternative delivery alongside reconstruction. The latest learning-continuity guidance reflects this broader understanding of recovery and continuity [6,7].

6.4. Synthesis for SOP 2

The economic findings indicated that resilience depended on sufficient, timely, flexible, transparent, and equitable financing. Preparedness required front-loaded investment, allocation had to reflect risk and vulnerability, infrastructure had to be linked to learning continuity, and recovery financing had to address both physical and educational losses. The strongest conclusion from SOP 2 was that funding was not a background variable. It was an active mechanism that shaped whether resilience policy could be implemented at the school level.

6.5. SOP 3: Integrated Political-Economic Conceptual Framework

The third research question sought a conceptual framework explaining how political and economic factors interacted in shaping crisis-responsive and climate-resilient education planning. The synthesis of the 33 Philippine-focused sources supported an integrated framework composed of four interacting layers: contextual risk conditions, political-economic inputs, planning and implementation mechanisms, and resilience outcomes. The framework explains why formal policy alone cannot guarantee resilience and why funding alone cannot produce durable results without governance, leadership, participation, and accountability.

6.5.1. Layer 1: Contextual Moderators

Contextual moderators included hazard exposure, climate trends, geography, poverty, accessibility, school size, building condition, data availability, and local fiscal capacity. These conditions shaped the intensity of risk and the options available to schools. They did not determine outcomes automatically. Two schools with similar hazard exposure could experience different levels of disruption because governance quality, leadership, funding, infrastructure, and partnerships varied. Philippine climate-risk and development-planning evidence showed that exposure, vulnerability, local capacity, and uneven resource conditions had to be considered in education resilience planning [15,26,27].

6.5.2. Layer 2: Political and Economic Inputs

Political inputs include governance authority, policy coherence, implementation capacity, leadership, stakeholder participation, accountability, and decision-making arrangements. Economic inputs include financing, resource allocation, infrastructure investment, recovery funding, and local fiscal capacity. The two sets of inputs are mutually dependent. Political choices determine priorities, eligibility, coordination, and accountability, while economic capacity determines which priorities can be implemented, how quickly action can occur, and whether support reaches the most vulnerable schools.

6.5.3. Layer 3: Planning and Implementation Mechanisms

The interaction of political and economic inputs becomes visible through concrete planning mechanisms. These include risk-informed School Improvement Plans, school DRRM plans, learning-continuity plans, hazard mapping, climate and risk data, teacher training, early warning and communication, psychosocial support, learner participation, alternative delivery modes, monitoring, and formal school-LGU coordination. These mechanisms are the operational bridge between policy and outcomes. When they remain fragmented or compliance-driven, resilience is weak. When they are integrated into routine educational management and budgeting, schools are more capable of anticipating risk, adapting to disruption, and protecting learning continuity.

6.5.4. Layer 4: Resilience Outcomes

Expected outcomes include safer learning environments, fewer and shorter instructional disruptions, more equitable access to

continuity support, faster recovery, stronger learner and teacher well-being, improved preparedness, and more adaptive school governance. The framework also includes a feedback process. Experience from each crisis should generate new data, after-action learning, revised plans, changed budgets, and better coordination. This feedback logic is consistent with Philippine DRRM planning and current learning-continuity guidance, both of which require institutions to adjust action to evolving risk and disruption conditions [6,18].

6.5.5. The Political-Economic Nexus

The central finding of the conceptual synthesis is that political and economic factors should be analyzed together. Governance without adequate resources produces symbolic compliance and unmet expectations. Resources without governance can become fragmented projects disconnected from school priorities. Leadership without institutional support becomes personality-dependent. Accountability without adequate financing can become punitive rather than developmental. Infrastructure without continuity planning can protect buildings without protecting learning. Conversely, policy coherence, participatory planning, transparent budgeting, risk-sensitive allocation, resilient infrastructure, and reliable monitoring can reinforce one another and create a stronger cycle of preparedness, continuity, recovery, and institutional learning.

6.5.6. Integrative discussion

The first broad insight was that Philippine education resilience was policy-enabled but unevenly system-enabled. The country has a substantial legal and administrative foundation for DRRM, climate adaptation, education in emergencies, school safety, and learning continuity. The 33-source synthesis nevertheless showed that effective implementation depended on the operational depth of that foundation: whether responsibilities were clear, policies were funded, risk data were current, school plans guided actual expenditures, teachers were prepared, families understood continuity decisions, and recovery was monitored in educational as well as physical terms.

The second insight was that resilience had to be integrated into mainstream educational management. School DRRM plans, School Improvement Plans, learning-continuity plans, curriculum implementation, teacher development, maintenance, and partnership building were often treated as separate requirements. The Philippine evidence suggested that this separation weakened implementation. Resilience became more durable when risk indicators, continuity needs, infrastructure priorities, stakeholder participation, and financing were embedded in routine planning, budgeting, monitoring, and performance conversations.

The third insight was that secondary learners had to be recognized as planning participants. Adolescents could understand risk, communicate with peers, support household preparedness, contribute to climate action, and help monitor school conditions. Philippine evidence on youth agency, climate education, and DRRM preparedness supported this direction [14,20,21,22]. Secondary-

school subjects, student organizations, research activities, and community projects could therefore serve as practical channels for resilience participation. The fourth insight was that financing had to be studied as an active mechanism of resilience. Philippine school studies often identified a lack of funds as a constraint, but the 33-source corpus also pointed to wider issues of fund timing, project eligibility, procurement, local fiscal capacity, infrastructure priorities, and the imbalance between preventive and post-disaster expenditure. A political-economic approach was therefore useful because it asked not only whether funding existed, but also who controlled it, how priorities were set, how quickly resources moved, which schools benefited, and whether spending reduced educational disruption.

6.6. Limitations of the synthesis

Three limitations should be acknowledged. First, the final evidence corpus was deliberately narrow: only 33 Philippine-focused sources published from 2010 to 2026 were included. This improves contextual relevance but limits the use of international empirical comparisons within the evidence synthesis. Second, the corpus combined empirical studies, laws, policies, government plans, official communications, and development-partner reports. These sources differ in methodological rigor and evidentiary purpose, although the Quality and Relevance Appraisal Guide was used to assess their authority and contribution. Third, Philippine research that directly links governance, financing, hazard exposure, and measurable learning-continuity outcomes remains limited, especially for secondary schools. The conceptual framework should therefore be treated as an evidence-informed synthesis requiring empirical validation rather than as a final causal model.

7. Conclusions

This study concludes that crisis-responsive and climate-resilient education planning in Philippine secondary schools is fundamentally a political-economic process. The re-screened evidence bases of 33 Philippine-focused sources published from 2010 to 2026 confirms that Philippine basic education has a substantial legal and policy foundation for DRRM, climate adaptation, education in emergencies, school safety, and learning continuity. However, the effectiveness of this foundation depends on how mandates are translated into school-level authority, coordination, leadership, participation, financing, infrastructure, capacity building, and accountability. For the first research question, four political dimensions emerged: governance coordination, policy implementation, school leadership, and stakeholder participation. These dimensions determine role clarity, legitimacy, accountability, information flow, stakeholder ownership, and the ability of schools to convert national mandates into locally workable action. The Philippine evidence indicates that resilience is strongest when multi-level coordination is routine, implementation support is sustained, school leaders are institutionally backed, and learners, families, communities, and LGUs participate in decisions that affect continuity and safety.

For the second research question, four economic dimensions emerged: financing, resource allocation, infrastructure investment,

and disaster recovery funding. These dimensions determine whether preparedness and continuity measures are feasible, timely, preventive, and equitable. The review shows that equal allocation is not necessarily equitable where schools face unequal hazard exposure, poverty, remoteness, building vulnerability, and local fiscal capacity. Resilience financing should therefore be risk-sensitive, predictable, transparent, and linked to both physical safety and educational continuity. For the third research question, the synthesized literature supports an integrated framework in which contextual risk conditions interact with political and economic inputs, which then shape planning and implementation mechanisms and ultimately influence resilience outcomes. Contextual conditions include hazard exposure, geography, poverty, accessibility, school size, infrastructure condition, data availability, and local fiscal capacity. Political-economic inputs include governance, policy implementation, leadership, participation, financing, allocation, infrastructure investment, and recovery funding. These inputs become effective through mechanisms such as risk-informed School Improvement Plans, DRRM plans, learning-continuity plans, hazard mapping, teacher preparation, psychosocial support, learner participation, data systems, monitoring, and school-LGU coordination.

The overarching conclusion is that a secondary school becomes resilient through the combined strength of governance, resources, learning systems, infrastructure, and community relationships. A DRRM plan alone is insufficient. A repaired building alone is insufficient. A strong school head alone is insufficient. Resilience is produced when political authority and economic capacity are aligned through risk-informed planning, supported implementation, equitable financing, stakeholder participation, and continuous institutional learning [28-42].

Recommendations

1. Institutionalize risk-informed School Improvement Planning. DepEd, regional and division offices, and school heads should integrate hazard exposure, class-disruption history, building condition, learner vulnerability, continuity capacity, psychosocial support, and local partnership strength into the main School Improvement Plan and annual budgeting cycle. DRRM, climate adaptation, education in emergencies, and learning-continuity requirements should be connected to routine school planning instead of being managed as separate compliance documents.
2. Strengthen multi-level governance and clarify operational roles. DepEd offices and LGUs should establish regular coordination protocols that specify responsibilities for hazard information, class suspension or continuity decisions, evacuation-center use, transport concerns, facility protection, emergency communication, temporary learning arrangements, and post-disaster recovery. Agreements should be tested through simulations and reviewed after major disruptions.
3. Adopt risk-sensitive and equity-sensitive resource allocation. Resilience funding should consider hazard exposure, frequency of disruption, poverty, school size, remoteness, accessibility, infrastructure condition, disability-related needs,

and local fiscal capacity. A transparent scoring approach can help regions and divisions prioritize schools with the greatest vulnerability and weakest local resource base.

4. Shift financing toward prevention and continuity. Government and education authorities should strengthen predictable funding for preparedness, preventive maintenance, teacher readiness, continuity materials, communication, psychosocial support, and contingency arrangements. Post-disaster rehabilitation remains necessary, but preventive investment should reduce repeated damage and avoidable learning loss.
5. Link resilient infrastructure with educational operations. Repair, retrofitting, reconstruction, WASH, accessibility, heat management, and site improvement should be planned together with temporary learning arrangements, alternative delivery resources, teacher training, and communication systems. Infrastructure projects should be evaluated partly by their contribution to safe and continuous learning.
6. Develop a structured secondary-learner participation model. Secondary learners should have age-appropriate opportunities to contribute to hazard mapping, school safety audits, peer communication, climate action, preparedness campaigns, and after-action reviews. These activities can be linked to science, social studies, research, values education, technical-vocational learning, and student organizations.
7. Establish an integrated resilience monitoring dashboard. Schools and divisions should track disrupted school days, causes of disruption, learner reach during alternative delivery, teacher readiness, psychosocial check-ins, infrastructure risks, fund release and utilization, repair progress, stakeholder participation, and recovery time. Monitoring should support annual planning and after-action learning.
8. Expand empirical research on the political economy of school resilience. Future studies should trace how policy, authority, budgets, procurement, local political support, school leadership, infrastructure conditions, and household vulnerability influence actual continuity outcomes. Priority should be given to multi-site studies in typhoon-prone, island, flood-prone, mountainous, and resource-constrained Philippine secondary-school contexts. Such research should test the framework developed in this review and establish whether particular combinations of governance and financing conditions are associated with fewer disrupted school days, faster recovery, stronger learner reach, and better well-being outcomes.

Recommended direction for future research

The next stage of research should move from conceptual synthesis to empirical political-economic analysis of resilience implementation in Philippine secondary schools. A promising design is a sequential explanatory mixed-method multiple-case study involving high-risk divisions. The quantitative phase could examine governance quality, DRRM and continuity planning, budget adequacy and timing, infrastructure vulnerability, class-disruption frequency, teacher readiness, learner reach, and stakeholder participation. The qualitative phase could then explain variation through interviews, focus group discussions, budget

tracing, document analysis, school safety walks, and school-LGU coordination mapping. A final expert-validation phase could refine a Philippine secondary-school resilience planning index and test the conceptual framework developed from the 33-source evidence corpus.

Author Contributions

The authors declared that they had no conflict of interest.

Author 1 conducted the literature review for legal bases in the Philippines.

Author 2 and Author 3 conducted the literature review for other references, polished the methodology section and carried out data entry.

Author 4 conducted the literature review for other references and conducted the analysis and interpreted the findings.

Author 5 conducted the analysis and interpreted the findings and oversaw the preparation of the manuscript. **Author 6** provided input on how to go on with the study, reviewed and edited the whole manuscript.

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RESEARCH INSTRUMENTS USED IN THE STUDY

Question	Response
Was the document published from 2010 to 2026?	Yes / No / Unclear
Does the document focus on the Philippines or present direct evidence concerning Philippine education, schools, policies, institutions, or communities?	Yes / No / Unclear
Is the document relevant to secondary schools or to basic education planning with clear applicability to junior or senior high school?	Yes / No / Unclear
Does it address crisis response, climate resilience, DRRM, CCA, EiE, school safety, resilient infrastructure, or learning continuity?	Yes / No / Unclear
Does it contain political dimensions such as governance, policy implementation, leadership, accountability, coordination, or stakeholder participation?	Yes / No / Unclear
Does it contain economic dimensions such as financing, budgeting, resource allocation, infrastructure investment, recovery funding, or cost constraints?	Yes / No / Unclear
Decision	Include / Exclude / Seek full text / Discuss

Instrument 1. Screening Form

Field	Information to be extracted
Citation	Author(s), year, title, source, DOI/URL
Document type	Empirical study, review, policy document, report, framework, thesis, conference paper
Context	Location, education level, school type, hazard/climate issue
Purpose or aim	Main objective of the document
Method or design	Research design, data source, participants, or policy basis
Political dimensions	Governance, implementation, leadership, stakeholder participation, accountability, coordination
Economic dimensions	Financing, budget, resource allocation, infrastructure, recovery funding, cost constraints
Planning mechanisms	SIP, DRRM plan, learning continuity plan, hazard mapping, monitoring, data systems
Key findings	Major results, provisions, or arguments
Gaps or limitations	Evidence gaps, implementation gaps, equity issues, methodological limits
Implications	Policy, management, research, or conceptual implications
SOP alignment	SOP 1, SOP 2, SOP 3, or a combination of these

SOP alignment SOP 1, SOP 2, SOP 3, or a combination of these

Instrument 2. Data Extraction Matrix

Appraisal area	Guide questions
Authority	Is the author, institution, journal, or issuing agency credible and identifiable?
Purpose and relevance	Is the purpose clear and directly related to crisis-responsive or climate-resilient education planning?
Method or basis	For empirical work, are methods appropriate and transparent? For policy documents, is the legal or institutional basis clear?
Evidence support	Are findings, claims, and recommendations supported by data, policy provisions, or documented experience?
Contextual fit	Does the document provide insights applicable to Philippine secondary schools or basic education?
Currency	Was the source published from 2010 to 2026 and is it sufficiently current for the policy, planning, management, or practice question it addresses?
Contribution	Does the document contribute to political dimensions, economic dimensions, planning mechanisms, or framework development?

Instrument 3. Quality and Relevance Appraisal Guide

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