



Linking adaptive social protection and multi-scale conservation: Policy integration pathways for climate-resilient communities

Latika Putri Barliani^{1,*}

¹ Independent Researcher, Bandung, West Java 40215, Indonesia.

*Correspondence: latikabarliani.p@gmail.com

Received Date: June 20, 2025

Revised Date: July 23, 2025

Accepted Date: August 31, 2025

ABSTRACT

Background: Indonesia faces escalating climate-induced disasters that exacerbate both environmental degradation and social vulnerability. While Adaptive Social Protection (ASP) has emerged globally as a framework integrating Social Protection (SP), Disaster Risk Reduction (DRR), and Climate Change Adaptation (CCA) to strengthen household resilience, it remains primarily socio-economic in focus and seldom incorporates ecological considerations. This study conceptualizes an ASP-conservation integration framework designed to link social protection and multi-scale conservation within Indonesia's policy architecture. **Methods:** Using a qualitative, conceptual approach based on literature synthesis and policy analysis, the research identifies fragmentation across key ministries, Social Affairs, Environment, Finance, Disaster Management, and Meteorology, each addressing elements of resilience in isolation. **Findings:** The proposed framework introduces four interlinked dimensions: policy and institutional integration, multi-scale governance and community interface, financing and sustainability mechanisms, and socio-ecological framing and system dynamics. These dimensions collectively position ASP as a meta-framework for socio-ecological resilience that aligns institutions, empowers communities, and embeds sustainability within national adaptation strategies. The paper further proposes a phased governance roadmap, short-term (2025–2027) pilot coordination and data integration, medium-term (2028–2030) policy institutionalization and financing innovation, and long-term (2030+) system-wide embedding of ASP into climate-resilient development. The findings contribute to policy integration theory by framing ASP as a boundary-spanning governance mechanism that bridges sectoral silos and fosters adaptive learning. **Conclusion:** Ultimately, institutionalizing ASP as an integrated socio-ecological system would enable Indonesia to advance its Sustainable Development Goals and Paris Agreement commitments while enhancing the resilience of both communities and ecosystems. **Novelty/Originality of this article:** The novelty lies in conceptualizing ASP-conservation integration as a meta-framework for socio-ecological resilience and proposing a phased governance roadmap that bridges institutional fragmentation within Indonesia's policy system.

KEYWORDS: adaptive social protection; climate resilience; conservation governance; policy integration; socio-ecological systems.

1. Introduction

According to the National Agency for Disaster Countermeasure (*Badan Nasional Penanggulangan Bencana* (BNPB), 2025), Indonesia recorded 2,726 disasters between January and November 2025, dominated by floods (1,340 events) and extreme weather (582). This trend underscores Indonesia's growing exposure to climate-induced hazards, which are expected to intensify as global warming accelerates. Globally, climate change is driving humanitarian crises through heatwaves, floods, wildfires, and storms. The World

Cite This Article:

Barliani, L. P. (2025). Linking adaptive social protection and multi-scale conservation: Policy integration pathways for climate-resilient communities. *Environment Education and Conservation*, 2(2), 99-115. <https://doi.org/10.61511/educov2i2.2025.3184>

Copyright: © 2025 by the author. This article is distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).



Health Organization (2023) estimates that 3.6 billion people live in highly vulnerable areas and projects approximately 250,000 additional deaths annually between 2030 and 2050 due to climate-related causes. These impacts demonstrate that climate change is not merely an environmental concern but a multidimensional crisis affecting health, economic stability, and social welfare.

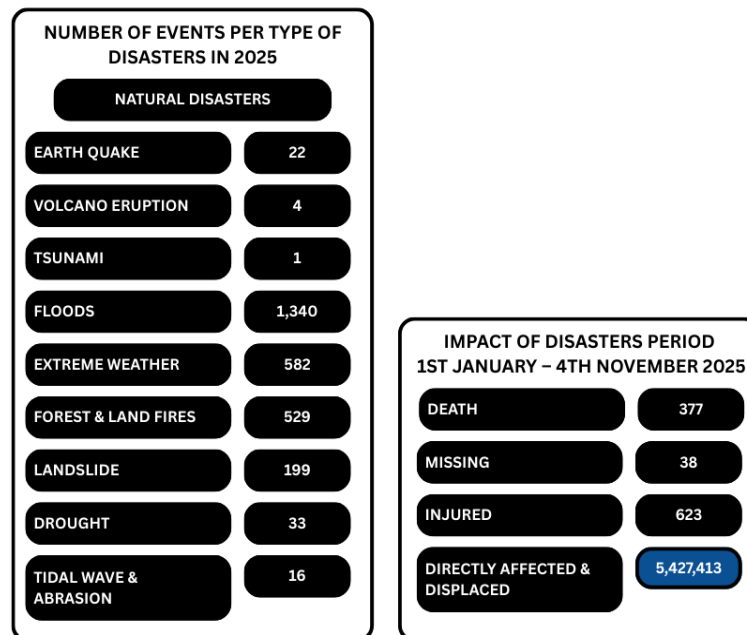


Fig. 1. Number of disasters in Indonesia 2025 (BNPB, 2025)

Environmental degradation and social vulnerability reinforce one another, creating a cycle of ecological fragility and human insecurity. Deforestation, soil erosion, and pollution erode livelihood assets, particularly among resource-dependent communities, while poverty drives unsustainable coping strategies such as illegal logging and land clearing. This “poverty–environment trap” illustrates the interdependence of environmental decline and poverty (Ssekibaala & Kasule, 2023; Ismail & Sidek, 2025). Breaking this cycle requires integrated policies linking poverty reduction, environmental management, and climate adaptation within a unified resilience framework. Adaptive Social Protection (ASP) has emerged as a global framework for strengthening the resilience of poor and vulnerable households to shocks, including disasters, climate impacts, and economic crises. Conceptualized by the World Bank, ASP integrates Social Protection (SP), Disaster Risk Reduction (DRR), and Climate Change Adaptation (CCA) to enhance adaptive capacity through strengthened programs, data systems, financing mechanisms, and institutional coordination (Bowen et al., 2020).

However, ASP frameworks primarily emphasize socioeconomic resilience, while environmental sustainability and conservation outcomes remain peripheral. Although the literature advances integration among SP, DRR, and CCA (Bowen et al., 2020; Davies et al., 2008), ecosystem health, biodiversity, and natural resource management are seldom embedded within ASP design. Tenzing (2019) notes that ASP contributes to climate adaptation but rarely sustains ecological systems. Recent Indonesian studies similarly observe that national ASP discourse prioritizes institutional coordination and financing without explicit linkage to environmental sustainability or ecosystem-based approaches (Paramitasari et al., 2025). Integrating multi-scale conservation, from household livelihood decisions to landscape governance, offers an underdeveloped opportunity to strengthen adaptive capacity (Sun et al., 2025; Nixon et al., 2022). Conservation initiatives such as reforestation and sustainable land use reinforce ecosystem services that underpin livelihoods, while ASP can reduce reliance on environmentally destructive coping strategies

through stable income support and shock-responsive financing. In Indonesia, responsibilities relevant to ASP are distributed across multiple ministries. Ministry of Social Affairs (*Kementerian Sosial/Kemensos*) oversees major social protection programs; BNPB coordinates disaster management; Ministry of Environment (*Kementerian Lingkungan Hidup/KLH*) manages environmental protection and climate adaptation; Ministry of Finance (*Kementerian Keuangan/Kemenkeu*) governs fiscal policy and contingency financing; and Meteorology, Climatology, and Geophysics Agency (*Badan Meteorologi, Klimatologi, dan Geofisika/BMKG*) provides climate and early-warning data. Despite shared objectives of resilience, coordination remains weak, with overlapping mandates and fragmented data systems limiting adaptive, shock-responsive, and environmentally informed interventions.

This study is grounded in policy integration theory and socio-ecological resilience thinking. Policy integration theory emphasizes horizontal coherence across sectors and vertical coordination across governance levels in addressing cross-cutting challenges (Jordan & Lenschow, 2010). Resilience thinking frames adaptive capacity as an emergent property of interconnected social and ecological systems characterized by feedback loops and learning (Folke et al., 2010). Combining these perspectives, ASP is conceptualized here as a boundary-spanning governance mechanism linking welfare policy, environmental management, and fiscal preparedness within a unified socio-ecological framework. Guided by this framing, the study addresses three research questions: How can ASP be conceptually aligned with multi-scale conservation within a socio-ecological resilience framework? What institutional and policy gaps constrain such integration in Indonesia's governance architecture? What governance and financing mechanisms would enable ASP to function as an integrated socio-ecological resilience system? By reconceptualizing ASP beyond its conventional socio-economic focus, this study contributes to policy integration scholarship and positions ASP as a boundary-spanning instrument for socio-ecological governance in climate-vulnerable and decentralized contexts.

2. Methods

This study adopts a conceptual policy research design employing qualitative synthesis and framework construction. It draws on an integrative literature review and comparative policy analysis to examine linkages between ASP and multi-scale conservation.

2.1 Data sources

The study relies on secondary sources spanning global and national levels. Global ASP literature was reviewed from leading institutions, including the World Bank, Institute of Development Studies (IDS), Organisation for Economic Co-operation and Development (OECD), Food and Agriculture Organization (FAO), and United Nations Development Programme (UNDP). These sources provide normative frameworks, operational principles, and case evidence of ASP implementation in developing contexts. At the national level, key Indonesian policy documents were analyzed, including the National Medium-Term Development Plan (RPJMN) 2025–2029, the National Long-Term Development Plan (RPJPN) 2025–2045, as well as policy and planning frameworks from Kemensos, BNPB, and KLH. These documents illuminate institutional mandates, coordination mechanisms, and gaps in adaptive and environmental governance.

The literature synthesis was guided by five analytical themes: governance, integration, resilience, fiscal preparedness, and community inclusion. These themes served as anchors for identifying conceptual patterns and institutional linkages across academic and policy sources. Literature selection followed three criteria relevance to ASP, climate adaptation, disaster risk reduction, or conservation governance, conceptual or policy contributions addressing institutional integration, financing mechanisms, or resilience frameworks and publication in peer-reviewed journals, official policy documents, or recognized multilateral reports between 2008 and 2025. Foundational theoretical works were included

irrespective of publication year due to their enduring conceptual significance. This approach ensured coverage of both normative ASP frameworks and applied governance analyses relevant to Indonesia.

2.2 Analytical process

The analysis followed a four-step process moving from thematic exploration to conceptual integration. First, thematic coding was conducted to identify core operational pillars of ASP, including program delivery, data systems, financing, institutional arrangements, and partnerships. These pillars capture the components shaping ASP's capacity to anticipate and respond to shocks. Second, Indonesian policy instruments and institutional mandates were mapped against these pillars to identify areas of alignment and fragmentation. This comparative mapping examined how Kemensos, BNPB, and KLH frameworks intersect with global ASP principles. Third, a gap analysis assessed where social protection, environmental management, and conservation governance remain disconnected, identifying structural, fiscal, and coordination barriers to integration. Finally, insights from these stages were synthesized into the ASP–multi-scale conservation integration model, a conceptual framework outlining pathways for policy coherence, institutional collaboration, and adaptive financing.

The coding combined inductive and deductive approaches. Inductively, recurring governance challenges and operational patterns were identified across global ASP literature and Indonesian policy documents. Deductively, these themes were examined through policy integration theory and socio-ecological resilience thinking. Comparative matrix mapping aligned global ASP components with Indonesian institutional mandates to detect fragmentation and integration gaps. The four framework dimensions Policy and Institutional Integration, Multi-Scale Governance and Community Interface, Financing and Sustainability Mechanisms, and Socio-Ecological Framing and System Dynamics, emerged through iterative synthesis of thematic clusters. Each dimension corresponds to a distinct integration function: institutional coordination, national–local alignment, fiscal preparedness, and socio-ecological linkage. Categories were refined until analytical overlap was minimized.

2.3 Theoretical framing

This study is anchored in two complementary perspectives: policy integration theory and resilience thinking, which together frame ASP as a socio-ecological governance mechanism. Policy integration theory (Jordan & Lenschow, 2010) conceptualizes integration as deliberate horizontal and vertical coordination across sectoral domains to address complex, cross-cutting challenges. It emphasizes coherence among social, economic, and environmental policies through institutional alignment and shared governance frameworks. Within this lens, ASP can function as a boundary instrument that bridges sectoral divides and aligns diverse policy objectives under a unified resilience agenda. Resilience thinking Folke et al. (2010) views adaptive capacity as an emergent property of interconnected socio-ecological systems. It highlights feedback loops, learning processes, and cross-scale interactions that enable systems to persist, adapt, and transform under conditions of uncertainty. Together, these perspectives position ASP not merely as a social protection program but as a boundary-spanning governance mechanism linking welfare policy, environmental management, and fiscal preparedness within an integrated socio-ecological system.

3. Results and Discussion

3.1 Global conceptual landscape of adaptive social protection

Globally, ASP has evolved as a systems-based framework integrating Social Protection

(SP), Disaster Risk Reduction (DRR), and Climate Change Adaptation (CCA) to strengthen households' capacity to anticipate, absorb, and adapt to shocks. It operates through four interlinked pillars: institutional coordination, scalable program delivery, risk-layered financing, and integrated data systems linking social registries with early-warning analytics (Bowen et al., 2020). Together, these pillars shift social protection from reactive assistance toward proactive, risk-informed resilience, as illustrated in figure 2 (a), (b).

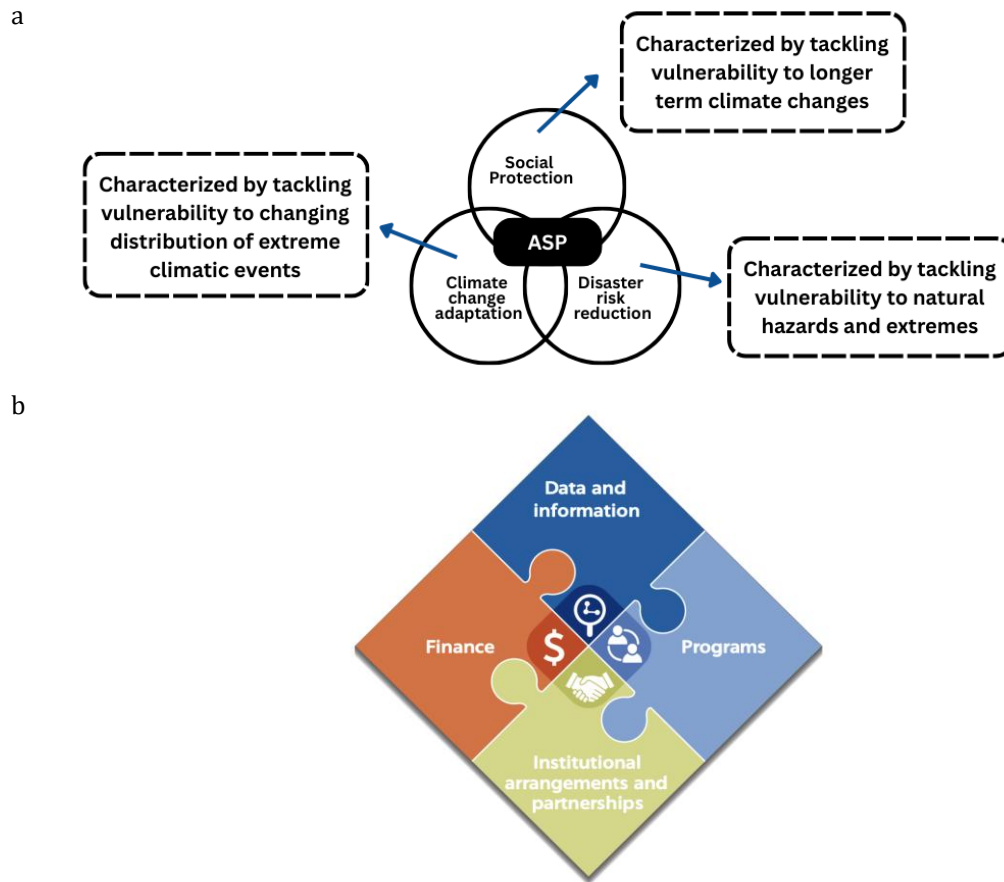


Fig. 2. (a) Framework for ASP; (b) Four Pillars of ASP (Tenzing, 2019; Bowen et al., 2020)

In Indonesia, effective ASP requires coordination among Kemensos, National Development Planning Agency (*Badan Perencanaan Pembangunan Nasional/Bappenas*), BNPB, and local governments responsible for targeting and delivery. Evidence from East Sumba (Paramitasari et al., 2025; Sagala et al., 2024) shows that fragmented data systems and unclear mandates constrained drought-response scaling. Social assistance operated separately from conservation initiatives such as Climate Village Program (*Program Kampung Iklim/ProKlim*), producing parallel rather than integrated interventions. These findings empirically reinforce the governance gaps identified in the preceding analysis. Despite global advances, ASP frameworks rarely incorporate environmental outcomes. While they strengthen livelihood security, ecosystem health and biodiversity conservation remain peripheral. This omission limits long-term sustainability, as degraded ecosystems undermine the livelihoods ASP seeks to protect. Embedding environmental indicators within ASP planning, financing, and evaluation would extend its scope toward a holistic socio-ecological resilience model.

3.2 Indonesia's fragmented policy architecture

Indonesia's institutional landscape reveals that responsibilities central to ASP are

distributed across multiple ministries, each addressing discrete components of the national resilience agenda. Kemensos manages major social protection programs and poverty data systems, yet its flagship initiatives, such as Family Hope Program (*Program Keluarga Harapan*/PKH), Non-Cash Food Assistance (*Bantuan Pangan Non Tunai*/BPNT), Archipelago Economic Heroes Program (Program Pahlawan Ekonomi Nusantara/PENA), and Joint Business Group (*Kelompok Usaha Bersama*/KUBE), remain oriented toward chronic poverty reduction with limited adaptability to climate-induced or covariate shocks. BNPB coordinates disaster management but operates largely in a reactive mode, emphasizing post-disaster relief over anticipatory preparedness. KLH oversees environmental protection and climate adaptation but functions separately from social protection systems, limiting integration between ecosystem resilience and household vulnerability reduction. Meanwhile, Kemenkeu governs fiscal and risk-financing instruments without systematic linkages to social and environmental programming, and BMKG provides early-warning data that is not structurally embedded within social assistance delivery.

These institutional silos result in parallel rather than synergistic action across social, disaster, fiscal, and environmental domains. Although programs such as Kemensos' livelihood initiatives, BNPB's Disaster Resilient Village (*Desa Tangguh Bencana*/Destana), and KLH's ProKlim share resilience objectives, they operate without shared risk-assessment frameworks, coordinated early-warning triggers, or integrated monitoring systems. Each ministry maintains distinct data platforms, National Integrated Socioeconomic Data (*Data Terpadu Sosial Ekonomi Nasional*/DTSEN), InaRisk, and National Registry System (*Sistem Registri Nasional* - Climate Registry System/SRN), without interoperability or unified targeting standards. Consequently, risk information remains compartmentalized, constraining anticipatory and adaptive policymaking. National analyses consistently identify overlapping mandates, fragmented data ecosystems, and weak central-local coordination as persistent barriers to integrated resilience governance (Sagala et al., 2024; Talan et al., 2024; Fanggidae et al., 2024; Paramitasari et al., 2025).

Table 1. Indonesia fragmented adaptive social protection landscape

Institution	Primary role	Key program	Data system	Coordination linkages	Gaps/silos
Kemensos	Social Protection	PKH, BPNT, PENA, KUBE	DTSEN	BNPB (post-shock aid)	Lacks early-warning triggers
BNPB	Disaster management	Destana	InaRisk	Kemensos (Assistance), BMKG (Data)	Reactive orientation
KLH	Environment & Climate adaptation	ProKlim	SRN	BNPB (Ecosystem DRR)	Not linked to SP system
Kemenkeu	Fiscal policy & Financing	Disaster fund & Special allocation fund	N/A	Funding for the ministries	No ASP earmarking
BMKG	Early warning & Climate data	Meteorological services	BMKG open data	Kemensos, BNPB (Alerts)	Not embedded in SP system

Recognizing these constraints, the RPJMN 2025–2029 prioritizes adaptive and inclusive social protection and promotes Socioeconomic Registration (*Registrasi Sosial Ekonomi*/Regsosek) to strengthen socioeconomic data integration. However, fragmentation reflects deeper structural challenges rooted in decentralized governance and bureaucratic silos. While decentralization enables local adaptation, limited coordination mechanisms, separate data registries, and program-based management practices hinder system-wide integration. Transforming ASP into an adaptive socio-ecological system therefore requires both technical interoperability and institutional reforms that incentivize collaboration,

shared accountability, and outcome-oriented governance. These institutional roles, coordination patterns, and integration gaps are summarized in Table 1 to provide a structured overview of Indonesia's fragmented adaptive social protection landscape.

3.3 Conceptual framework: Linking ASP and multi-scale conservation

The proposed ASP-conservation integration framework bridges social protection, disaster risk reduction, and environmental governance through a multi-dimensional, multi-scalar design. It comprises four interlinked dimensions policy and institutional integration, multi-scale governance and community interface, financing and sustainability mechanisms, and socio-ecological framing and system dynamics. Together, these position ASP not merely as a safety net but as a meta-framework for socio-ecological resilience. The dimensions emerged from the study's analytical process, particularly thematic coding, policy mapping, and gap analysis, which identified four core integration deficits in Indonesia's ASP landscape: institutional misalignment, national-local disconnection, absence of adaptive financing instruments, and conceptual separation between social and ecological resilience. Each dimension addresses one of these governance gaps, forming a comprehensive integration architecture.

The framework is theoretically grounded. Policy and institutional integration reflects horizontal and vertical coherence central to policy integration theory (Jordan & Lenschow, 2010). Multi-scale governance aligns with polycentric and adaptive co-management principles (Ostrom, 2010; Folke et al., 2010). Financing mechanisms operationalize anticipatory and risk-layered resilience emphasized in ASP scholarship (Bowen et al., 2020). Socio-ecological framing incorporates feedback loops and adaptive cycles central to resilience thinking. The model operates through dynamic feedback among institutions, local governance, and financing. Policy integration establishes enabling coordination structures; multi-scale governance translates them into context-specific action; and financing sustains adaptive implementation. These relationships are circular rather than linear: institutional coherence mobilizes finance, community participation strengthens accountability, and ecological outcomes reinforce policy legitimacy, reflecting iterative learning processes fundamental to resilience governance.

3.3.1 Policy and institutional integration

At the national level, policy coherence and institutional alignment are essential to embed ASP within broader resilience and conservation agendas. Currently, social protection, disaster management, and environmental governance operate under separate mandates, generating duplication and inefficiencies. Drawing on global experience (Perezniето & Holmes, 2020; Igbatayo et al., 2022; World Bank Group, 2022), this dimension calls for formal coordination mechanisms, such as inter-ministerial task forces or memoranda of understanding, supported by shared data and risk assessment platforms. Interoperability among DTSEN, InaRisk, and the SRN would enable synchronized targeting, anticipatory triggers, and evidence-based decision-making.

Comparative experience demonstrates the feasibility of such integration. In the Philippines, the Adaptive and Shock-Responsive Social Protection Framework institutionalized coordination among social welfare, disaster management, and environmental agencies, linking data systems to enable anticipatory cash transfers (Department of Social Welfare and Development & National Disaster Risk Reduction and Management Council, 2021). Bangladesh's National Social Security Strategy similarly integrates disaster management and safety nets under centralized oversight (Hebbbar & Shehab, 2020). These cases show that legal mandates and shared data platforms can enhance response timeliness and fiscal accountability, lessons relevant to Indonesia's fragmented governance structure. Positioning ASP as a meta-framework would allow Indonesia to harmonize SP-DRR-CCA policies within a unified adaptive governance model emphasizing prevention and anticipatory action. Such alignment resonates with the Sendai

Framework and the Paris Agreement, which advocate cross-sectoral, risk-informed coordination. Conceptually, this advances policy integration theory by strengthening both horizontal and vertical coherence in resilience governance.

3.3.2 Multi-scale governance and community interface

For ASP to be adaptive and legitimate, it must operate across governance scales, linking national ministries with local communities. Embedding ASP within customary villages (*Desa Adat*) and community-based conservation groups enables bottom-up participation and integration of indigenous knowledge into resilience planning. Adaptive governance research shows that decentralized and participatory systems enhance legitimacy and effectiveness in managing social–ecological complexity (Folke et al., 2010; Nixon et al., 2022).

Integrating traditional coping mechanisms, such as customary land-use practices, collective resource management, and local early-warning systems, into formal ASP design ensures culturally grounded and socially inclusive interventions. This polycentric model (Ostrom, 2010) facilitates coordination across multiple centers of authority while strengthening local ownership. Participatory risk mapping, community-based monitoring, and feedback learning can help identify intersecting social and environmental vulnerabilities. The Nature-based Solutions (NbS) approach (Martinez et al., 2023) complements this framework by framing conservation as a source of livelihood co-benefits and resilience enhancement rather than protection alone.

3.3.3 Financing and sustainability mechanisms

The third dimension concerns the financial architecture required to sustain adaptive and environmentally inclusive ASP systems. Traditional ASP financing relies on contingent credit lines and budget reserves for rapid response (Bowen et al., 2020). Integrating environmental financing instruments, such as climate finance, ecological trust funds, and green budget tagging, would diversify resilience funding and align social protection with conservation objectives. Kemenkeu's existing fiscal and disaster contingency mechanisms provide an institutional entry point for linking social protection disbursement with climate-triggered financing based on BMKG indices.

Parametric instruments, including forecast-based financing and catastrophe bonds, could release funds automatically when predefined environmental thresholds are met (Hallegatte et al., 2016), ensuring timely and predictable support. Green and social budget tagging can further institutionalize ASP–conservation linkages by tracking expenditures that generate both social and environmental co-benefits. Financial integration also strengthens institutional coordination and accountability. When financing is tied to joint social and ecological outcomes, ministries and local governments must align program design and monitoring systems. Comparative experiences, including Mexico's Natural Disaster Fund (FONDEN) and Kenya's Hunger Safety Net Programme (HSNP), demonstrate how trigger-based financing linked to environmental indicators can enhance fiscal efficiency while supporting resilience (World Bank, 2012; Binci et al., 2019). These examples illustrate pathways for embedding similar instruments within Indonesia's fiscal architecture.

3.3.4 Socio-ecological framing and system dynamics

The ASP–conservation integration framework is grounded in resilience thinking, which views social and ecological systems as interdependent. Feedback loops among policy, governance, and financing mirror the adaptive cycles described in socio-ecological systems theory (Folke et al., 2010): policy reform stimulates institutional learning, local feedback informs national adaptation, and financing enables iterative adjustment. In this way, ASP operates as a learning system that evolves rather than responding episodically to crises.

When integrated, ASP and conservation policies generate mutually reinforcing outcomes. Adaptive cash transfers, public works, and livelihood diversification can reduce reliance on environmentally harmful coping strategies while enabling transitions toward sustainable activities such as agroforestry and eco-tourism (Gai et al., 2025; Food and Agriculture Organization of the United Nations, 2024). Conversely, conservation initiatives—including watershed restoration and mangrove rehabilitation, strengthen ecosystem services that sustain agricultural productivity, water security, and climate regulation (Dhungana et al., 2025). In Indonesia, these synergies require coordinated program design, where social protection, environmental policy, and fiscal instruments are aligned to support both livelihood resilience and ecosystem integrity.

Operationally, socio-ecological resilience is advanced through three mechanisms anticipatory targeting using integrated social and climate risk data, alignment of livelihood assistance with conservation-compatible activities and climate-triggered financing that protects incomes while incentivizing ecosystem stewardship. These mechanisms translate resilience principles into actionable governance tools linking households, institutions, and ecosystems. The relationships among these four dimensions and their iterative feedback processes are illustrated in Figure 3 to visualize how adaptive governance and learning operate across policy, governance, and financing levels.

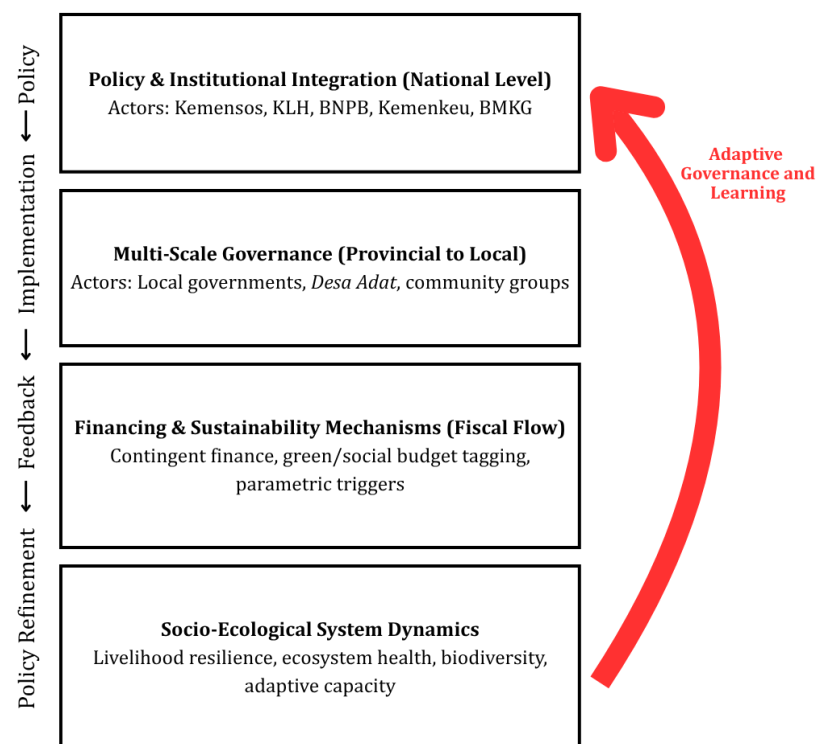


Fig. 3. Layered representation of the ASP-conservation integration framework

3.4 Governance pathways and policy recommendations

Transitioning toward an integrated ASP-conservation framework in Indonesia requires a phased governance strategy that strengthens institutional coordination, fiscal readiness, and policy coherence over time. The proposed roadmap aligns with the RPJMN 2025–2029 and RPJPN 2025–2045, positioning ASP as a core instrument in Indonesia's transition toward climate-resilient and sustainable development.

3.4.1 Short term (2025–2027): Coordination and data integration

In the short term, Indonesia should prioritize pilot initiatives that operationalize ASP–

conservation linkages through joint Standard Operating Procedures (SOPs) among Kemensos, KLH, and BNPB. These pilots could focus on climate-vulnerable districts such as East Sumba, Central Sulawesi, and North Kalimantan, where social protection and environmental programs already intersect. Joint SOPs would clarify institutional roles, standardize early-response protocols, and strengthen cross-sector accountability during climate-related shocks.

BNPB could lead operational coordination, with Kemensos responsible for beneficiary targeting and KLH for conservation-linked interventions. Local governments and community-based organizations would translate national guidance into community-level action. Capacity gaps in cross-sector coordination, data integration, and anticipatory financing should be addressed through joint training and local resilience task forces. Data interoperability is equally critical. Integrating DTSEN, InaRisk, and SRN into a unified resilience platform would enable automatic scaling of ASP programs when early-warning thresholds are triggered. Similar approaches in the Philippines link social registries with risk analytics to activate anticipatory cash transfers. Progress should be measured through indicators of data interoperability, response speed, and household coverage.

3.4.2 Medium term (2028–2030): Policy formulation and financing innovation

In the medium term, Indonesia should move from ASP recognition under the RPJMN 2025–2029 toward formal institutionalization through a dedicated regulatory and programmatic framework. This framework would integrate social protection, disaster risk reduction, climate adaptation, and conservation objectives under a unified resilience agenda, translating political commitment into coordinated budgeting, programming, and performance measurement. Bappenas should lead framework formulation, supported by Kemensos, KLH, BNPB, and Kemenkeu. Kemensos would guide social protection reform and targeting; KLH would align conservation initiatives; BNPB would provide risk modeling inputs; and Kemenkeu would design adaptive financing instruments. Establishing a National ASP Technical Secretariat within Bappenas could strengthen analytical support, monitoring, and cross-ministerial learning.

In parallel, Kemenkeu should develop a contingency financing mechanism integrating green and social budget tagging to track expenditures generating social and environmental co-benefits. This mechanism could pool fiscal reserves, contingent credit, and climate finance (e.g., Green Climate Fund, Environmental Fund Management Agency) to support interventions triggered by climatic thresholds. Forecast-based financing, for example, could release funds automatically when rainfall or temperature indicators exceed predefined levels. Monitoring should include periodic performance reviews assessing fiscal responsiveness, cross-sector budget alignment, and environmental outcomes of ASP interventions.

3.4.3 Long term (2030 and Beyond): Institutionalizing ASP in climate-resilient development

In the long term, ASP should become a core pillar of Indonesia's climate-resilient development strategy, integrating social inclusion, conservation, and fiscal preparedness within a whole-of-government adaptive governance system. Oversight could be anchored in a dedicated coordination body under Bappenas or an equivalent national climate authority to ensure coherence across social, environmental, disaster, fiscal, and climate institutions. This body would oversee policy harmonization, monitoring, and international engagement, while local governments manage implementation. Capacity building should prioritize adaptive management, policy learning, and data-driven decision-making. Embedding resilience indicators within long-term development planning, covering household welfare, fiscal readiness, and ecosystem health, would strengthen accountability across planning cycles.

A drought-prone district in East Nusa Tenggara illustrates potential application. Climate forecasts would activate contingency financing; social protection systems would

scale up targeted assistance using integrated risk data; and conservation programs would align ecosystem restoration with climate-resilient livelihoods. Such coordination would operationalize socio-ecological resilience by simultaneously protecting incomes and sustaining ecosystem services. The phased governance strategy and corresponding institutional responsibilities are summarized in Table 2 to clarify implementation priorities, lead actors, and expected outcomes across time horizons.

Table 2. Indonesia governance pathways

Timeline	Key actions	Lead institutions	Expected outcomes
2025–2027	Pilot ASP-conservation coordination through BNPB-Kemensos-KLH joint SOP's; Build data interoperability (DTSEN+InaRisk+climate risk data)	BNPB, BMKG, KLH, Kemensos, Bappenas,	Operational ASP-conservation pilots; improved coordination; integrated data systems for early warning and adaptive targeting
2028–2030	Establish ASP policy framework under the mid-term national development plan 2025–2029; Develop ASP contingency financing mechanism with green and social budget tagging	Kemensos, Kemenkeu, Bappenas, BNPB, KLH,	Formalised ASP policy framework in national planning; established financing mechanism linking fiscal and environmental resilience.
2030 and Beyond	Institutionalize ASP as part of climate-resilient development integrating social inclusion, conservation, and fiscal preparedness; Embed ASP in the long term national development plan 2025–2045 with legal indicators for resilience and ecosystem health.	Bappenas, Kemenkeu, Kemensos, BNPB, KLH,	Fully institutionalized ASP within climate-resilient governance; enhanced social, ecological, and fiscal resilience across scales.

3.5 Strategic alignment with global commitments

This phased roadmap supports Indonesia's commitments under the Sustainable Development Goals (SDGs), particularly SDG 1 (No Poverty), SDG 13 (Climate Action), and SDG 15 (Life on Land), as well as its Nationally Determined Contributions (NDCs) under the Paris Agreement. By linking social protection, conservation, and climate resilience, the framework advances national efforts to reduce vulnerability and strengthen adaptive capacity among at-risk populations. Embedding ASP within long-term development planning also reinforces coherence with the Association of Southeast Asian Nations (ASEAN) Framework on Social Protection (2018) and the Global Shield against Climate Risks (2023), positioning Indonesia within emerging regional and global resilience initiatives. More broadly, this approach reframes ASP from a short-term poverty instrument into an integrated socio-ecological governance system. Through coordinated institutions, adaptive financing, and community participation, Indonesia can develop a governance model capable of learning, evolving, and sustaining resilience outcomes beyond 2045.

3.6 Implications for policy integration theory

From a policy integration perspective, ASP can be understood as a boundary object linking domains traditionally treated separately—social welfare, disaster management, and

environmental governance. By aligning these sectors around shared principles of resilience and risk management, ASP advances horizontal coherence while preserving sectoral differentiation, reflecting Jordan & Lenschow's (2010) argument that effective integration depends on coordination without erasing functional autonomy. At the same time, ASP embodies adaptive governance principles (Folke et al., 2010), emphasizing flexibility, feedback learning, and iterative adjustment in responding to shocks. In this sense, ASP extends policy integration theory by illustrating how boundary frameworks can enable system-wide adaptability within complex, multi-level governance systems.

Earth system governance theory (Biermann et al., 2012) offers complementary insights into scale-linking and reflexive coordination across actors. While policy integration focuses on cross-sector coherence, earth system governance highlights accountability, reflexivity, and institutional linkages across levels. The ASP-conservation framework draws on both perspectives, combining sectoral alignment with multi-level adaptability. Similarly, transformative adaptation scholarship (Pelling et al., 2014) emphasizes restructuring governance arrangements that reproduce vulnerability. By reframing social protection as a dynamic instrument of socio-ecological transformation rather than a static safety net, the proposed framework aligns with this transformative perspective.

In Indonesia, these theoretical insights reveal both opportunity and constraint. Community-based initiatives such as Desa Adat and Destana demonstrate participatory and locally adaptive governance traditions that can support socio-ecological integration. However, weak cross-ministerial coordination, fragmented data systems, and bureaucratic silos continue to inhibit interdependence among Kemensos, BNPB, KLH, and Kemenkeu. Strengthening ASP as a boundary-spanning governance system therefore requires formal coordination mechanisms, interoperable data platforms, and institutionalized feedback loops linking local implementation with national policy refinement. Such reflexive learning processes, central to earth system governance and resilience thinking, are essential for sustaining long-term socio-ecological resilience in decentralized contexts.

3.7 Comparative insights and implementation challenges

A comparative perspective clarifies both the opportunities and constraints of implementing the proposed framework in Indonesia. In the Philippines, the Adaptive and Shock-Responsive Social Protection Framework institutionalized early-warning triggers within the Department of Social Welfare and Development, supported by centralized data integration and executive coordination. Bangladesh's National Social Security Strategy similarly benefits from centralized oversight under the Prime Minister's Office, facilitating vertical alignment between national and local authorities.

Indonesia's decentralized governance structure presents a different institutional landscape. While decentralization enables contextual adaptation and community participation, it also generates variability in administrative capacity, fiscal space, and data interoperability across regions. Unlike more centralized systems, Indonesia must balance inter-ministerial coordination with provincial and district autonomy, increasing the complexity of institutional alignment. Integrated conservation-linked social protection may also face political economy constraints, including sectoral budget competition, divergent performance metrics, and resistance to cross-sector accountability mechanisms. These comparisons suggest that although international ASP models demonstrate feasibility, successful adaptation in Indonesia requires clear institutional incentives, interoperable data systems, and phased implementation tailored to decentralized governance realities.

3.8 Limitations and implementation uncertainties

While the proposed framework offers a structured pathway for integrating ASP and conservation governance, several limitations warrant acknowledgement. First, as a conceptual synthesis based on secondary literature and policy analysis, the framework has not been empirically tested. Its effectiveness ultimately depends on political commitment,

bureaucratic incentives, and inter-ministerial trust, which may constrain implementation. Second, Indonesia's decentralized governance structure introduces substantial variation in local capacity, fiscal autonomy, and institutional readiness. The feasibility of integrated data systems and joint financing mechanisms will likely differ across provinces and districts.

Third, linking social protection with conservation objectives entails potential trade-offs, including risks of over-conditionality or elite capture. Poorly designed green conditionalities could unintentionally exclude vulnerable groups. Finally, fiscal uncertainties, such as climate finance volatility and competing national priorities, may affect the long-term sustainability of adaptive financing instruments. Future research should prioritize pilot testing, political economy analysis, and evaluation of socio-ecological outcomes to refine and validate the framework in practice.

4. Conclusions

This study argues that advancing ASP in Indonesia requires moving beyond a purely socioeconomic focus toward an integrated socio-ecological approach. By linking ASP with multi-scale conservation, it demonstrates that social and environmental resilience are interdependent foundations of sustainable development. ASP can stabilize livelihoods and enhance institutional responsiveness, while conservation sustains the ecological systems that underpin adaptive capacity. Indonesia's fragmented institutional landscape, spanning Kemensos, BNPB, KLH, Kemenkeu, and BMKG, continues to constrain policy coherence and adaptive governance. The proposed ASP-conservation integration framework addresses these gaps through four reform dimensions: policy and institutional integration, multi-scale governance, adaptive financing, and socio-ecological system dynamics.

A phased governance roadmap outlines short-term coordination through joint SOPs and data interoperability, medium-term institutionalization within the RPJMN 2025–2029, and long-term embedding within the RPJPN 2025–2045. Conceptually, ASP functions as a boundary framework linking social, fiscal, and environmental governance. When operationalized, it can evolve from a safety net into a transformative instrument for climate-resilient and inclusive development. This study remains conceptual and does not empirically test the proposed framework. Its effectiveness depends on political commitment, fiscal capacity, administrative readiness, and inter-ministerial coordination, which may vary across regions. Implementation may also encounter institutional resistance and capacity constraints, particularly in data interoperability and cross-sector collaboration. Future research should prioritize pilot testing in climate-vulnerable districts, multi-stakeholder evaluation, and longitudinal assessment of socio-ecological outcomes. Comparative studies across decentralized governance systems could further clarify institutional incentives and coordination strategies necessary to operationalize integrated ASP frameworks.

Acknowledgement

The author gratefully acknowledges the institutions, researchers, and policy sources that provided valuable information and insights supporting the development of this conceptual framework on adaptive social protection and conservation.

Author Contribution

The author solely contributed to all aspects of this research, including conceptualization, methodology, formal analysis, investigation, data curation, writing, original draft preparation, writing, review and editing, visualization, and project administration. No external supervision, collaboration, or funding was involved in the completion of this study.

Funding

This research received no external funding.

Ethical Review Board Statement

This study did not involve human participants, animals, or any data requiring ethical approval.

Informed Consent Statement

This study did not involve human participants or the collection of personal data requiring informed consent.

Data Availability Statement

No new data were created or analyzed in this study. Data supporting the findings of this research are available from publicly accessible sources cited within the manuscript.

Conflicts of Interest

The author declares no conflict of interest. The study was conducted independently, and no external party had any role in the design of the study, data analysis, interpretation, writing, or decision to publish the results.

Declaration of Generative AI Use

During the preparation of this work, the author used Grammarly and ChatGPT to assist in proofreading, improving grammar, and refining the academic tone of the manuscript. After using these tools, the author reviewed and edited the content as needed and takes full responsibility for the final content of the publication.

Open Access

©2025. The author. This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. The images or other third-party material in this article are included in the article's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this license, visit: <http://creativecommons.org/licenses/by/4.0/>

References

- ASEAN. (2018). *ASEAN declaration on strengthening social protection: Regional framework and action plan to implement the ASEAN declaration on strengthening social protection*. ASEAN Secretariat. <https://asean.org/book/asean-declaration-on-strengthening-social-protection-and-regional-framework-and-action-plan-to-implement-the-asean-declaration-on-strengthening-social-protection>
- Badan Nasional Penanggulangan Bencana. (2025). *Infografis bencana tahun 2025*. BNPB. <https://bnpb.go.id/infografis/infografis-bencana-tahun-2025>
- Biermann, F., Abbott, K., Andresen, S., Backstrand, K., Bernstein, S., Betsill, M. M., Bulkeley, H., Cashore, B., Clapp, J., Folke, C., Gupta, A., Gupta, J., Haas, P. M., Jordan, A., Kanie, N., Kluvankova-Oravska, T., Lebel, L., Liverman, D., Meadowcroft, J., & Mitchell, R. B. (2012). Navigating the anthropocene: Improving earth system governance. *Science*, 335(6074), 1306–1307. <https://doi.org/10.1126/science.1217255>
- Binci, M., Hakeem, B., Ward, P., Brockerhoff, S., Vaidyanathan, M., Singh, K., Jagmag, M., Arif, S., Kiragu, S., Alur, P., Kabuthu, C., Kimondo, M., Rowe, G., Gardner, C., Aisa, M. G., Khurshid, A., Ntale, A., Bischler, J., Odindo, J., & Merttens, F. (2019). *Evaluation of the Kenya hunger safety net programme—Phase 3*. Oxford Policy Management. Oxford Policy Management – Evaluation of the Hunger Safety Net Programme.

- <https://www.opml.co.uk/projects/evaluation-of-the-hunger-safety-net-programme-phase-3#phase-3>
- Bowen, T., Del Ninno, C., Andrews, C., Coll-Black, S., Gentilini, U., Johnson, K., Kawasoe, Y., Kryeziu, A., Maher, B., & Williams, A. (2020). *Adaptive social protection: Building resilience to shocks*. World Bank. <https://doi.org/10.1596/978-1-4648-1575-1>
- Davies, M., Guenther, B., Leavy, J., Mitchell, T., & Tanner, T. (2008). "Adaptive social protection": Synergies for poverty reduction. *IDS Bulletin*, 39(4), 105–112. <https://doi.org/10.1111/j.1759-5436.2008.tb00483.x>
- Department of Social Welfare and Development, & National Disaster Risk Reduction and Management Council. (2021). *Establishing an adaptive and shock responsive social protection system in the Philippines: A roadmap*. DSWD. <https://old.dswd.gov.ph/publication-page-filebase-backup>
- Dhungana, N., Lee, C.-H., Adhikari, S., Rayamajhi, B. K., Aryal, U. C., & Ghimire, P. (2025). Integrated approach to understanding perceived importance and changes in watershed ecosystem services (WESS): Insights from Central Nepal. *Sustainability*, 17(1), 62. <https://doi.org/10.3390/su17010062>
- Fanggidae, V., Prasetya, D., Sagala, S. A., Yuliawati, A. K., Killa, M. F., Zahra, R. A., Paramitasari, D., & Arrafisena, F. (2024). *Overcoming barriers to mainstream and operationalise adaptive social protection in local regions with multiple risk contexts*. Resilience Development Initiative. <https://www.rdiglobal.org/publications/view/8313/overcoming-barriers-to-mainstream-and-operationalise-adaptive-social-protection-in-local-regions-with-multiple-risk-contexts>
- Folke, C., Carpenter, S. R., Walker, B., Scheffer, M., Chapin, T., & Rockström, J. (2010). Resilience thinking: Integrating resilience, adaptability and transformability. *Ecology and Society*, 15(4), 20. <https://doi.org/10.5751/ES-03610-150420>
- Food and Agriculture Organization of the United Nations. (2024). *New report confirms that social protection is effective for pro-poor climate action*. FAO. <https://www.fao.org/social-protection/news-and-events/news/news-detail/new-report-confirms-that-social-protection-is-effective-for-pro-poor-climate-action/en>
- Hallegatte, S., Vogt-Schilb, A., Bangalore, M., & Rozenberg, J. (2016). *Unbreakable: Building the resilience of the poor in the face of natural disasters*. World Bank. <https://doi.org/10.1596/978-1-4648-1003-9>
- Hebbbar, M., & Shehab, S. (2020). *Shock-responsive social protection in Bangladesh*. Oxford Policy Management. <https://www.opml.co.uk/>
- Igbatayo, S. A., Eslamian, S., Babalola, O. O., & Makanju, A. A. (2022). Strengthening climate resilience and disaster risk reduction: Case study of the Sahel Adaptive Social Protection. In S. Eslamian (Ed.), *Disaster risk reduction for resilience: Disaster and social aspects* (pp. 221–243). Springer. https://doi.org/10.1007/978-3-030-99063-3_10
- Ismail, N. A., & Sidek, N. Z. M. (2025). A conceptual framework for understanding the linkages between environmental degradation and poverty. *International Journal of Research and Innovation in Social Science*, 9(8), 5742–5753. <https://doi.org/10.47772/IJRISS.2025.908000468>
- Jordan, A., & Lenschow, A. (2010). Environmental policy integration: A state of the art review. *Environmental Policy and Governance*, 20(3), 147–158. <https://doi.org/10.1002/eet.539>
- Martinez, G., Drion, B., Gladstone, J., Vidal, A., Andrade, A., & Vasseur, L. (2023). *Nature-based solutions for corporate climate targets: Views regarding the corporate use of nature-based solutions to meet net-zero goals*. International Union for Conservation of Nature. <https://doi.org/10.2305/ELGL1056>
- Nixon, R., Ma, Z., Khan, B., Birkenholtz, T., Lee, L., & Mian, I. (2022). Social influence shapes adaptive water governance: Empirical evidence from northwestern Pakistan. *Ecology and Society*, 27(3), 37. <https://doi.org/10.5751/ES-13546-270337>

- Ostrom, E. (2010). Beyond markets and states: Polycentric governance of complex economic systems. *American Economic Review*, 100(3), 641–672. <https://doi.org/10.1257/aer.100.3.641>
- Paramitasari, D., Krismiyaningsih, E., Sagala, S., Barliani, L. P., Larasati, D., & Yuliawati, A. K. (2025). *Implementing adaptive social protection through government, community, and non-government initiatives: A case study from East Sumba, Indonesia*. Resilience Development Initiative. <https://rdiglobal.org/publications/view/12285/implementing-adaptive-social-protection-through-government-community-and-non-government-initiatives-a-case-study-from-east-sumba-indonesia>
- Pelling, M., O'Brien, K., & Matyas, D. (2014). Adaptation and transformation. *Climatic Change*, 133(1), 113–127. <https://doi.org/10.1007/s10584-014-1303-0>
- Pereznieto, P., & Holmes, R. (2020). *Gender-sensitivity analysis of the Sahel Adaptive Social Protection Programme*. Overseas Development Institute.
- Sagala, S. A., Lassa, J., Arrafisena, F., Zahra, R. A., Paramitasari, D., Pribadi, A. K., Killa, M. F., Saragih, E. C., Fanggidae, V., Prasetya, D., Hapsoro, A., Pedor, S. J., Li, D. E., Talan, J. P., & Klaas, H. K. O. (2024). *Insights from Sumba: Compilation of ideas on adaptive social protection against climate change*. Resilience Development Initiative. <https://rdiglobal.org/publications/view/90011/insights-from-sumba-compilation-of-ideas-on-adaptive-social-protection-against-climate-change>
- Ssekibaala, S. D., & Kasule, T. A. (2023). Examination of the poverty-environmental degradation nexus in Sub-Saharan Africa. *Regional Sustainability*, 4(3), 296–308. <https://doi.org/10.1016/j.regsus.2023.08.007>
- Sun, Y., Gan, Y., Luo, J., Han, T., Wang, H., Yang, R., & Tian, L. (2025). Farm households' livelihood adaptive capacity under multiple pressures of small watershed management. *Ecological Indicators*, 178, 114035. <https://doi.org/10.1016/j.ecolind.2025.114035>
- Talan, J. P., Li, D. E., Klaas, H. K. O., Killa, M. F., Saragih, E. C., & Sagala, S. (2024). *Informal social protection: The role of social capital*. Resilience Development Initiative. <https://rdiglobal.org/publications/view/90009/informal-social-protection-the-role-of-social-capital>
- Tenzing, J. D. (2019). Integrating social protection and climate change adaptation: A review. *Wiley Interdisciplinary Reviews: Climate Change*, 11(2), e626. <https://doi.org/10.1002/wcc.626>
- World Bank. (2012). *FONDEN: Mexico's natural disaster fund—A review*. World Bank. <https://openknowledge.worldbank.org/entities/publication/8351219a-b806-559e-8d4d-62de1aa16374>
- World Bank Group. (2022). *Adaptive social protection in Southern Africa*. World Bank Group. <https://www.preventionweb.net/publication/adaptive-social-protection-southern-africa>
- World Health Organization. (2023). *Climate change and health*. WHO. <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>

Biographies of Author

Latika Putri Barliani, is an independent researcher with a Bachelor's degree in Public Policy and Management. Her research interests focus on adaptive social protection, climate resilience, and policy integration, with a particular emphasis on how governance systems can strengthen social and environmental resilience in developing contexts. She has worked on various studies related to public policy, disaster management, and social protection systems in Indonesia.

- Email: latikabarliani.p@gmail.com
- ORCID: N/A
- Web of Science ResearcherID: N/A
- Scopus Author ID: N/A
- Homepage: N/A