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# Social capital in a capitalocene risk society: An integrative analysis to eco-society structure

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## ABSTRACT

**Background:** Indonesian society facing both escalating natural and anthropogenic disasters. However, the populace is inadequately prepared for this upheaval due to systemic limitations in cultural, strategic, and infrastructural capacity, which classify them as a vulnerable and high-risk society. Theoretically speaking, the Capitalocene paradigm points out that unveiling the capitalist structures behind modernity is essential to truly understand Indonesia's status as a Risk Society. This study, therefore, aims to explore the potential shift beyond conventional disaster resilience by enhancing societal adaptability to actively confront the risks of the Capitalocene era. **Method:** This paper utilizes the Integrative Literature Review (ILR) method and applies the concepts of the Capitalocene and Chthulucene alongside the social capital model. **Finding:** The analysis finds that social capital, particularly its bonding form, is a crucial factor in enhancing community resilience. It demonstrates a strong relationship with sustainable livelihoods and adaptive capacity across disasters context. Critically, the jeopardized relationship between society and the state is fully exposed through the Capitalocene lens, necessitating the Eco-Society structure to implement three conceptual criteria that address core failures in accountability, knowledge, and relational philosophy. **Conclusion:** The Eco-Society structure is feasible for implementation within Indonesian society as a necessary framework to confront the Capitalocene Risk Society. **Novelty/Originality of this article:** As the Eco-Society remains widely unknown in sustainability research, the novelty of this study lies in proposing criteria for its implementation, offering a model applicable to broader research aims and scopes, particularly within the Indonesia context.

**KEYWORDS:** capitalocene; eco-society; social capital.

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## 1. Introduction

Indonesia is recognized as the fourth most populous country globally, holding the fourth rank worldwide for disaster events (2005–2024), and the second globally for cumulative exposure to climate risk (e.g., flooding, pandemic, extreme heat, water crisis) and social risk (e.g., political instability, social conflict, and rapid population growth) (World Bank Group and Asian Development Bank, 2021; Delforge et al., 2025; ASSCR, 2021; IFHV, 2024). Indonesia also contributes 3.5 percent of global Green House Gas (GHG) emissions, including approximately 1,495 million tonnes of Carbon Dioxide (CO<sub>2</sub>), which positions the nation as a top emitter of GHG (World Bank Group and Asian Development Bank, 2021; Dunne, 2019). These overlapping environmental challenges are further exacerbated by hazardous geographical conditions. Indonesia is, in fact, located at the

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intersection of major tectonic plates; Eurasian Plate, the Indo-Australian Plate, the Philippine Plate, and the Pacific Plate (Bappenas, 2023).

The collision of these tectonic plates will frequently results in earthquakes, tsunamis, and volcanic activity. Over the past 20 years, subduction earthquakes with magnitudes above 7 have become increasingly frequent (Bappenas, 2023). Consequently, Indonesia is highly vulnerable to natural disasters, particularly those related to its tectonic activity. This reality is evidenced by the data from the Indonesian Disaster Data Geoportal/*Geoportal Data Kebencanaan Indonesia* indicates 2,139 natural disaster occurred within a year. The majority of these disasters resulted from: flooding (1,156 cases), wildfires (355 cases), landslides (169 cases), and extreme weather (412 cases). These categories consistently register over a hundred incidents annually (BNPB, 2025). The Global Climate Risk in 2025 also reported about 6,827 climate-related disasters, which affect more than 13 million people. Regarding health implications, climate risks have been linked to 96 percent pneumonia cases and have been responsible for approximately 45 percent of child deaths due to respiratory diseases stemming from air pollution.

Hendrawan et al. (2025) also highlight Indonesia's exposure to the climate risks, with a northern areas such as Kalimantan, Sumatra, and Papua projected to face more frequent extreme rainfall events, increasing flood risks, while southern regions, including Java and Nusa Tenggara, are becoming increasingly susceptible to prolonged droughts due to higher number of consecutive dry days. More recently, the human-induced (hereafter referred to as anthropogenic) risks became evident with the contamination of commodity exports by Cesium-137 (Cs-137), affecting nine people in Banten due to industrial failure, and the severe by the acute air pollution crisis in Jakarta, which ranked among the top ten most polluted cities globally (BBC News Indonesia, 2025; IQAir, 2025). From the economy perspective, the El Niño and La Niña phenomena cause crop failures and inflict damage to cultivate land (such as paddy fields and the cocoa sector), thereby posing a major threat to the agricultural economy. Consequently, these facts strenghten Indonesia's classification as a vulnerable and high-risk society (Karso et al., 2025; Yan & Galloway, 2017; Hendrawan, et al., 2025)

However, the Indonesian populace is not adequately prepared for the scale of the ecological and social upheaval, due to limitations in both cultural, strategy, and infrastructural capacity (Amkas, 2022; Putri et al., 2025; Abdulharis et al., 2022; Ward et al., 2013). Furthermore, effective disaster resilience is often viewed as an expensive and exclusive governmental endeavor, rather than a shared societal responsibility (Partelow, 2021). For instance, illustrate the significant divergence between Indonesia and Japan regarding disaster preparedness culture across six key aspects: cultural values; disaster education; technology and infrastructure; disaster drills and simulations; community roles; and disaster management coordination. As result, Indonesia exhibits limited implementation of structured disaster education, significant technological and infrastructural gaps, disconnect community engagement, a weak coordination mechanism, and a framework that is not yet fully institutionalized within its disaster governance model. Furthermore, Japan's resilience is built upon a strong linkage between advanced climate and disaster alarm technology in smart cities, the robust accumulation and sharing of knowledge through cyberspace, a focus on prevention measures (e.g., Disaster Risk Reduction; DRR), and a culture of disaster awareness that is institutionalized within its people-centric concept, Society 5.0 (H-UTokyo Lab., 2020; Al Fayed et al., 2023; Mavrodieva & Shaw, 2020).

The fundamental dilemma between disasters attributable to natural factors and those resulting from human trajectory necessitates discussion from both sociological and environmental perspectives. Therefore, the theoretical frameworks of the Risk Society and the Capitalocene are crucial for understanding the profound nature disenchantment currently facing Indonesian society, as these concepts stem from the convergence of unrestrained capitalism, rapid modernization, high demographic growth, the misuse of technology, and the state's exploitative impetus (King & Auriffeille, 2020; Beck, 1992; Moore, 2016; de Vuurst & Escobar, 2020; Magdoff & Foster, 2011; Bell & Ashwood, 2016;

Hanningan, 2023; Foster, 1999). Theoretically, the concept of the Risk Society was introduced by Ulrich Beck in 1986 to critique the perpetuating impacts of advanced technology and industrial production (e.g., nuclear power and toxic chemical manufacturing), alongside the inherent liabilities of economic growth and the adversarial paradigm of nature (Cohen, 1997; Beck, 1992; Hanningan, 2023; King & Auriffelle, 2020). The term risk, as conceptualized by Beck (1992), is politically reflexive; it represents a systematic method of dealing with hazards and insecurities that are reciprocally generated by modernization itself.

However, critics argue that the anthropocene or The Age of Man era's framing is too broad and obscures the specific historical, economic, and political forces—notably capitalism and colonialism—that have actually shaped the climate crisis (Moore, 2016; Moore, 2017; Román & Molinero-Gerbeau, 2023; Arons, 2023; Foster, 2024). Therefore, the theory of Capitalocene—as a terms to address this gap—has a connection to the *Risk Society* framework, specifically by identifying capitalism, exploitative practices, and industrialism as central factors driving environmental deterioration (Moore, 2016; Hanningan, 2023; Widyanto, 2022). The anthropocentric notion, which positions human identity as *primus inter pares* (first among equals), is gradually shifting toward the post-human ecocentric perspective (Henning & Walsh, 2020). This latter view situates human biology and the body on the same ontological level as non-human subjects (e.g., plants, animals, and other organisms) (Henning & Walsh, 2020; Haraway, 2016). From a post-human ecocentric perspective, theorists such as Haraway (2016) and Latour (2017) understand the Earth as a living, active entity.

First, while critiquing anthropocentrism and modernity, these authors propose relational philosophy: Haraway's Chthulucene is defined as a time-place to learn to stay with the trouble, while Latour posits Gaia not merely illustrate Earth as a planet, but as an active political force responsive to both human and non-human actions. Second, this radical perspective views human existence merely as part of an active web of life, which has catalyzed a new systems thinking that grants non-human entities agency in shaping the world through complex interwoven relationships, leading to frameworks such as tentacular thinking and Actor-Network Theory (ANT). Third, both theorists propose new forms of ethics and politics that move beyond domination. This includes establishing kin (by learning how to "live and die well with each other in a thick present") and recognizing Gaia as a political actor that must be heard and responded to, suggesting a transition toward a more inclusive eco-society structure (Latour, 2017; Haraway, 2016; Moore, 2016). Unfortunately, these philosophical perspectives have yet to be fully incorporated into an analysis aimed at understanding the vulnerability of the Indonesian populace, which is trapped between natural calamities and those induced by capitalist expansion. Conversely, Indonesia's approach continues to prioritize mitigation and adaptation schemas—often technical or top down—over the integration of profound, embedded knowledge rooted in community relationships, traditional folkways, and informal practices (Siagian et al., 2014; Rudiarto et al., 2018; Gan et al., 2021; Karso et al., 2025).

This study, therefore, aims to examine a potential strategies for alleviating this systemic burden by exploring the role social capital model, which is already established and practiced intrinsically within Indonesia's society (Gisevius et al., 2024; Karso et al., 2025; Partelow, 2021). Social capital represents the access and use of social networks (connections), such as sociability (social norms, fellowship, sympathy, trust, knowledge, and social intercourse) and economic mutualism (investment, resources, profit) to work together for individual and/or collective goods (Putnam, 2020; Bourdieu, 1980; Castiglione et al., 2008; Elliot, 2013; Lin, 2003; Coleman, 1988; Lin et al., 2001). In this sense, enhancing the role of social capital will also foster two important schemas to overcome disasters: community resilience (for the short term) and eco-society structure (for the long term). Thus, this study argues that the role of social capital is more foundational element than conventional infrastructure or top-down approaches as a preliminary disaster response and/or a sustainable resilience behavior (Carmen et al., 2022; Eriksson et al., 2021; Partelow, 2021; Karso et al., 2025; Zhao et al., 2025; Aldrich & Meyer, 2014). Moreover, contextualize social capital within the

framework of the Capitalocene and Risk Society, this resource can be activated and contextualized for effective disaster management across Indonesian society.

Recognizing the conceptual gaps identified earlier, this approach aims not merely to prepare Indonesian to navigate natural disasters, but also to foster adaptability in confronting the Capitalocene era's risks, such as world's pandemic COVID-19, toxicity of waste in Java's coastal areas, rapid urbanization, or deforestation catastrophes in Papua (Hanafi, 2022; Forest Watch Indonesia, 2019; Indow et al., 2021; Riyadi et al., 2020). However, several existing findings focus merely on natural disasters and often fails to address technological hazards. Consequently, the established social capital models have focused too narrowly on natural disaster contexts, overlooking anthropogenic risks. Meanwhile, one of the most expected outcomes of the eco-society structure is the development of resilience to navigate both natural and anthropogenic disasters (Grimm et al., 2008; King & Auriffeille, 2020; Foster, 2024; DeGeus, 2007; Haberl et al., 2016).

## 2. Methods

This study employs an Integrative Literature Review (ILR) method. The review was conducted using a wide range of trusted academic sources, including peer-reviewed journals, scholarly books, and relevant institutional reports, ensuring both depth and rigor (Snyder, 2019; Torraco, 2005; Cronin & George, 2020; Palmatier et al., 2018). The purpose of this study is neither to produce new empirical data nor to inform policy and practice, but rather to synthesize and critically analyze existing research to construct a conceptual model or theory that integrates the literature, key concepts, and interconnections surrounding the issues (Oermann & Knafl, 2021). The ILR was structured using four phases: designing the review, conducting the review, analysis, and writing up the review (Snyder, 2019; Whittemore & Knafl, 2005).

Initially, in the first phase, the literature review focused on natural and human-induced hazards in Indonesia. This was done to identify how communities mobilized social capital in contexts such as earthquakes, floods, volcanic eruptions, forest fires, and urban crises. Next, work were examined that utilized a Capitalocene approach to bridge the philosophical gap between environmental ethics and Risk Society, and to analyze how these perspectives related to collective action. By scanning the literature on philosophical and ethical assertions, this study established an ontological lens for interpreting human-environment relations within the Capitalocene Risk era. Additionally, all cases were related to Indonesian experiences, allowing for a comparative understanding of how bonding, bridging, and linking forms of social capital navigate these types of disaster conditions (Putnam, 2020; Aldrich & Meyer, 2014). Thus, the selected literature integrates philosophical, critical, and structural perspectives to offer a more holistic understanding of resilience and collective action.

To ensure rigor and transparency, the review began with a preliminary scan of existing literature reviews in the field to avoid redundancy and delineate the scope. Search terms were derived from the core keywords of the study, including social capital, capitalocene, eco-society, risk society, natural disaster, capitalism, anthropocene, indonesia, and applied across selected databases including Scopus, Web of Science (WoS), Science Direct, DOAJ, JSTOR, and Google Scholar. The primary inclusion criteria focused on peer-reviewed publications for the last 5 to 10 years; however, highly prominent literature was retained as a primary reference regardless of its publication year. All decisions regarding search strategy, source selection, and thematic categorization were documented to ensure methodological clarity and reproducibility.

In the second phase, the review was performed using a staged selection strategy. Initially, abstracts were screened to determine thematic relevance to the core concepts. In addition to database searches, reference chaining was employed to identify further relevant literature cited within selected articles. This technique proved particularly effective for tracing foundational theoretical texts and locating region-specific case studies that had not

appeared in initial keyword searches. However, care was taken to avoid over-reliance on citation networks that might reinforce disciplinary silos or exclude dissenting perspectives. Certain of social capital models were examined against specific criteria, including evidence demonstrating community action/behavior in overcoming disaster, the model's relation to the governmental role, and its potential for future policy implications. These models are expected to illustrate the potential for understanding social capital that are contextually appropriate for Indonesia, thus contributing to the long-term formation of an eco-society structure.

In the third phase, after conducting the rigorous literature review and selecting the final sources, the literature review involved a systematic process of data abstraction and conceptual synthesis. The abstraction process was designed to capture both descriptive metadata (e.g., author, year, location, type of study) and substantive content, including theoretical perspectives, conceptual definitions, and empirical findings related to social capital mobilization in the Risk Society context. Specifically, sources were categorized thematically according to disaster type (natural vs. anthropogenic), social capital dimension, and ecological framing. In cases where conceptual ambiguity or philosophical divergence was present—such as differing interpretations of resilience or nature–culture boundaries—these sources were flagged for deeper comparative analysis. Throughout this phase, transparency and reflexivity were prioritized. Similar to the first phase, all abstraction decisions, thematic groupings, and interpretive judgments were meticulously documented to ensure methodological clarity.

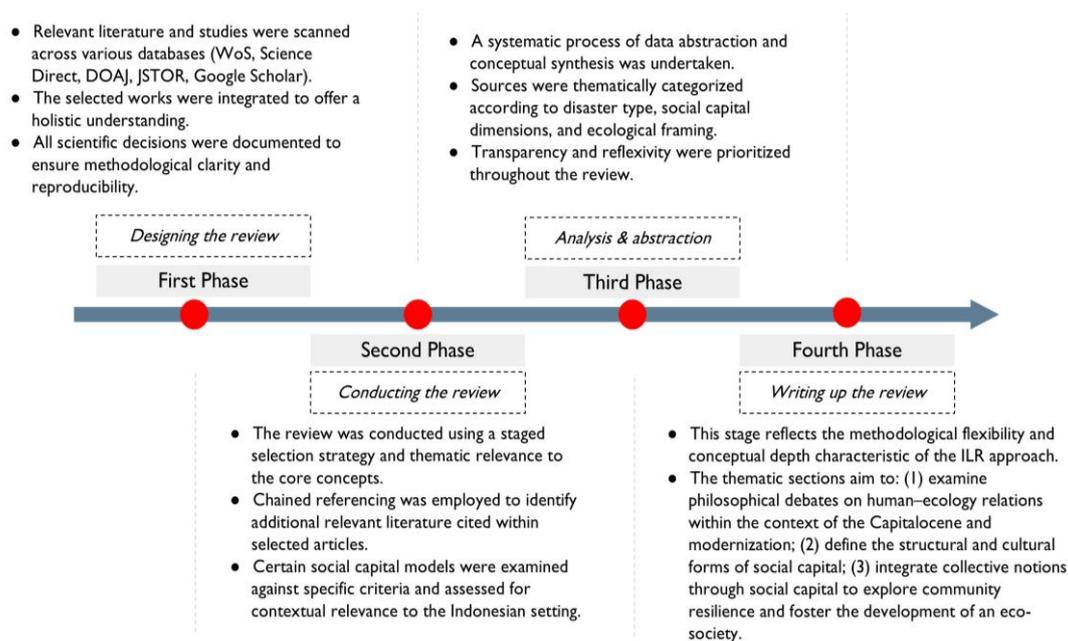


Fig. 1. Integrative literature review (ILR) process

Finally, in the last phase of the ILR, the structure of the final article reflects the methodological flexibility and conceptual depth characteristic of the ILR approach. Unlike systematic reviews that follow rigid protocols (e.g., PRISMA method), the ILR allowed for the synthesis of diverse source types, while maintaining transparency and analytical rigor. The review is organized into thematic sections that correspond to the core research dimensions: Philosophical debates on human–ecology relations within the context of the Capitalocene and modernization; defining the structural and cultural forms of social capital embedded in Indonesian society; integrating collective notions via social capital to explore community resilience and foster eco-society structure as a critical capability against the Capitalocene Risk Society era. Additionally, this study does not merely summarize existing knowledge but proposes a new framework for understanding resilience in Indonesia. The entirety of this methodological process is illustrated in Figure 1

### 3. Results and Discussion

#### 3.1 Anthropocene vs. capitalocene: Framing the risk society

The development of science and technology plays a pivotal role in the advancement of the development of modern civilization (Marfai, 2016; Foster, 2024; Beck, 1992). However, this development is often accompanied by the neglect of environmental conditions, as exemplified by the emerging capitalism, modernization, and industrial activity (Magdoff & Foster, 2011; Powers et al., 2019). Additionally, the environmental management, which is considered a main factor in the UN's of Sustainable Development Goals (SDGs) agenda, is rooted in a certain paradigm (Haberl et al., 2016). This paradigm is subject to evolution, change, and contextualization across the time, primarily because environmental problems are also social problems (Bell & Ashwood, 2016). Furthermore, critiques of environmental management mention a paradigm shift from a human-centered approach to an ecocentric paradigm. The human-centered paradigm, widely associated with the Anthropocene, positions humanity as the primary driver of planetary change (Román & Molinero-Gerbeau, 2023).

Crucially, this paradigm vulnerable to manipulation and appropriation—both morally and in policy—by human political agendas (Moore, 2016; Latour, 2017; Haraway, 2016; Henning & Walsh, 2020; Arons, 2023). Moore (2017) describes the origin of Anthropocene as a development of Cartesian dualism that posits humanity and nature in a separate spheres, when they interact and influencing each other without always being structurally shaped. Thus, this perspective serves as a root to explain the history of capitalism (Haberl et al., 2016). In this context, the Anthropocene framework coalesce around the Green Arithmetic formula: Society + Nature = Environmental Studies. This formula makes sense for human actions that create a change in nature, but it fails to explain the reality that nature operates both outside the human body (from global climate to microbiome) and within the human body (through our veins and minds). In other words, humans produce intra-species differentiations which are ontologically fundamental to our species-being (Moore, 2017).

Donna Haraway (Moore, 2016) challenges the Anthropocene framework by seven objections. First, The anthropos myth is a flawed, tragic setup. The crisis is framed as a tragedy of Man who potentially wreaks havoc on nature, leading to inevitable double death (ecological and cultural). This narrative, however, obscures the true actors driving global development and debilitates the construction of political and social alternatives. Second, the focus on Species Man is unwarranted. By considering humanity as the sole agent of global change, Haraway argues the framework ignores that a specific, historical minority—namely capitalism, colonial powers, and specific technological regimes—bears greater responsibility for destructive practices. Third, the Man + Tool narrative is an exceptionalist fabrication. The core argument—that human dignity (a concept enhanced during the Enlightenment era) is demonstrated by uniquely self-made tools that evolved through human invention—overlooks the complex, co-creative role of non-human entities (the environment and other species) in shaping history. Fourth, history must be replaced by geostories or Gaia stories. Haraway rejects the Anthropocene's premise of HIS story (history) as a purely human timeline, instead urging us to listen to Earth Stories (sympoietic worlds) that articulate the deep, webbed interdependence of all life on Earth (Terrans), integrating human and non-human existence. Fifth, the framework relies on bounded individualism and competition. The Anthropocene unconsciously relies on a model of humanity as a bounded individual (Me, Myself, and I thought) engaging in zero-sum competition. However, modern thought recognizes that existence is fundamentally relational, webbed, shared, and sympoietic. In other words, the world is established by a dynamic realm of collective relations between human and non-human entities. Sixth, the Anthropocene's social apparatus is bureaucratic and top-heavy, demanding alternative, more effective forms of action and storytelling for change. Lastly, science is limited by autopoiesis (self-making) and modern synthesis (gene-centric evolution). This limitation

renders such science insufficient because it struggles to account for phenomena such as symbiosis and development as a primary driving forces, especially when we see webbed ecologies driven by microbes. Furthermore, Haraway offers the Chthulucene concept that concern on staying with the trouble and actively making kin with human and non-human others to collaboratively navigate an uncertain future (Haraway, 2016; Moore, 2016; Foster, 2024).

The Capitalocene perspective functions to bridge the gap between the Anthropocene and its critiques concerning capitalism and anthropogenic hazards, serving as a preliminary denunciation of the modern system. However, this perspective often tends toward detachment from practical concerns. This raises the fundamental question: What concrete concepts can measure the mechanism of exploitation rooted in the capitalist structure? To address this issue, four key concepts were identified: nature/society dualism, the cheap nature strategy, the metabolic rift approach, and natural capital (Foster, 1999; Moore, 2016). Central to this critique is nature/society dualism, where capitalism relies on the separation of society and nature (King & Auriffeille, 2020). In a broader context, this ideology serves to justify racism, patriarchy, social exclusion, and violence, as these are deemed to operate outside the bounds of civilized society. This separation fosters the foundation of economic exploitation. Furthermore, capitalism views nature as a cheap input.

Dualism enables capitalism's accumulation strategy, which is based on acquiring inputs such as labor, power, food, energy, and raw materials. Crucially, the price of these inputs is not equivalent to the disaster costs incurred. Capital relentlessly exploits nature and externalizes costs onto the web of life. More critically, extending beyond the mere view of nature as a cheap commodity, Foster (1999) argues that the impact of capitalist production and consumption leads to ecological crisis, the alienation of humanity from nature, and the Metabolic Rift. By definition, the Metabolic Rift is a Marxist concept used to explain disruptions occurring within natural cycles and human-ecological relations (Foster, 1999; Foster et al., 2010). The original context involved the robbing of rural soil nutrients and their transfer to cities via food and fiber, where they contributed to pollution, soil exhaustion, and ecological imbalance. Therefore, as Marx argued, restoring the soil metabolism was necessary to ensure environmental sustainability for future generations. However, if continuously neglected, this damage could reach global earth systems and lead to upheaval. This critique is further linked to how capitalism defines ecosystems as natural capital to be traded and financialized, thereby fueling a new form of industrialism (Hawken et al., 1999; Magdoff & Foster, 2011) (see Figure 2).

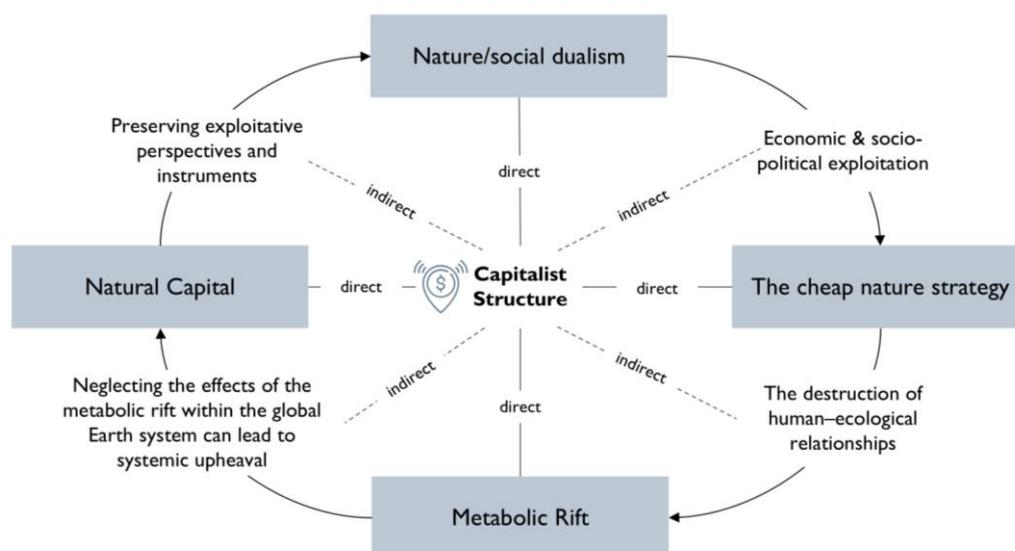


Fig. 2. The relationship of four key concepts to the measurement of capitalist structure

However, the processes of capitalism, industrialism, and rationalization through science and technology are now firmly rooted and dominate nearly every aspect of the modern society. In other words, we live within the inertia of these conditions. Beck (1992; 2000) posited that societal struggle shifts its focus from the distribution of wealth (the class society) to the distribution of modernization risks and hazards produced by industrial society itself. Although many of the theories and concepts in Risk Society involve hidden politics, ethics, and morality, the core driving force—the notion of reflexive modernization—emerges from the unintended side effects of industrialization (Adam et al., 2005). Reflexive modernization can lead to new forms of the scientization of protest, becoming self-critical and self-confrontational. Furthermore, it necessitates a meditative state that unconceals the essence of technology (Beck, 1992).

Ethical and political knowledge, derived from various interactions between disaster, capitalism, media, science, and politics, is now connecting toward a new system that perpetually articulates risk. This system cannot possibly guarantee the safety of major projects in biochemistry, genetics, and nuclear energy. These risks become incalculable and undecidable, meaning their impact cannot be steadily measured or controlled. The more complex the risk (such as catastrophic condition), the more impossible it is to make a rigorous calculation. Moreover, our modern system lacks the capacity to ensure our safety and future. This lack of capacity implies that current practices lead directly to the concrete production of vulnerability by destroying natural defenses (e.g., clearing flood plains or mangroves) and driving the Metabolic Rift (e.g., climate change, toxic air), ultimately producing an anthropogenic rift in planetary biogeochemical cycles. Consequently, the high costs of these risks, which can no longer be externalized in physical reality, are realized as a devastating events. This realization forces a crucial philosophical challenge to catastrophism, as the ethical debate warns that framing such events as inevitable apocalypse risks political passivity and paralysis, thereby undermining effective resistance against the capitalist forces that produce the disaster (Latour, 2017; Magdoff & Foster, 2011; Beck, 1992).

### *3.2 Defining the social capital model in natural and anthropogenic disasters*

Many scholars opined two prominent perspectives for understanding the logic behind the social-nature relationship (Piironen, 2018; Moore, 2016; Henning & Walsh, 2020; Morton, 2013). First, the Nature as an object (antagonistic) perspective. This destructive view is represented by antagonists in folklore who engage in acts of exploitation and violence against the environment. This modern, extractive logic is precisely what the Capitalocene concept critiques (Moore, 2017). Conversely, Nature as a subject (holistic or ethical perspective). This worldview is embodied by protagonists who position nature as Mother, the ethical source of life, and a holistic entity (Foster et al., 2010). This relational view fosters environmental wisdom and internalizes preservation values that later become the principle of environmental justice (Elliot, 2013; Grasso & Giugni, 2022). From a holistic view, the notion of the Traditional Ecology Knowledge (TEK) (or Local Ecological Knowledge, LEK) of Indonesian societies is an evolving body of knowledge, belief, and practice that holds significant relevance. Thus, it is acquired over hundreds of years through direct contact with the environment and is culturally transmitted among kin and through collaborative practice (Haraway, 2016; Whyte, 2013; Großmann, 2022).

This is evidenced by the paradoxical findings that Indonesian citizens, particularly the younger generation, exhibited the lowest scores in ecological knowledge, yet demonstrated high scores in pro-environmental behaviors (Tsykalova, 2025). Among Indonesia's traditional tribes, which characterize the nation as a major agrarian developing country, it is clear that local ecological knowledge has been transmitted collectively through folktales, rituals, teachings, and primary communication within families (Marshall & Beehler, 2007; Haberl et al., 2016). Consequently, nature is viewed as a deity or spirit that must be preserved (Sumarwati, 2022; Susanto & Numata, 2023). The capitalist perspective

underpinning modern science, in contrast, has actively hindered the preservation of ecological-human knowledge and relations among indigenous people/*masyarakat adat*, thereby contributing to their alienation and decline. This is further compounded by social problems such as poor infrastructure, political instability, and limited community engagement (Rumayomi et al., 2025).

In addition, the interaction schemas within society, which manifested by kinship, political dynamics, collective action, and social movements, are conceptualized by social scientists as being embedded within the social capital framework (Bhuiyan & Evers, 2005; Aldrich & Meyer, 2014; Lin et al., 2001). Social capital has emerged as one of the most significant theoretical frameworks in community disaster resilience research after adaptive capacity concepts (Zaman & Raihan, 2023; Partelow, 2023). Furthermore, social capital can promote community cohesion and enhance collective capacity to respond effectively during emergencies. Facilitating the provision of information, search and rescue operations, immediate sheltering, financial resources, and emotional support, particularly within the context of Community Disaster Risk Reduction (CDRR) (Zhao et al., 2025). However, the definition of social capital lacks coherence, although the concept is critical to defining community resilience, focusing on network structures, trust, engagement, norms, and shared values (Bhuiyan & Evers, 2005; Lin, 2003; Partelow, 2023).

Bourdieu (1980) opined capital as a tool for accumulating class position and a form of power within social relations. Furthermore, Bourdieu views social capital as social obligations or networks (connections) maintained through group membership and functioning as a form of symbolic capital. By contrast, Coleman (1988) argues that social capital is related to its function, viewing it as an aspect of social structure that includes norms, trust, and dense networks that facilitate the actions of individuals within that structure, primarily for economic activity under the notion of appropriability. Conversely, Putnam (2020) posits social capital as generalized trust, norms, rules, and networks, which are features of social organization that enhance societal efficiency, which he termed a public good. To rationalize this academic decision, the distinction between social capital and other forms of capital must be outlined. Adler & Kwon (2002; 2000) highlight three key differences: First, unlike the production of human capital through education, social capital is acquired only by two or more people and necessitates their cooperation. Second, social capital is defined by the structure of the relationship and is not merely individual or solitary attribute. Third, there is no exclusive right to social capital, as its core resides in the relationship itself, rather than within the individual actors. (Adler & Kwon, 2000; Adler & Kwon, 2002; Coleman, 1988).

Putnam (2020) introduced the crucial distinction between two types of social capital based on the homogeneity of the network. These types are termed bonding and bridging social capital. Bonding relations are described as strong ties within homogenous, exclusive groups (e.g. family, close neighbors, relatives). The primary function of bonding is getting by, providing mutual support, strong group identity, and loyalty (Gittel & Vidal, 1998; Kerr, 2018; Adler & Kwon, 2002). Some studies pointed out that trust, norm, network and participation are the foundation for this type (Zhao et al., 2025; Ostrom & Ahn, 2008). The second type is bridging social capital. In contrast, bridging social capital involve weaker ties across diverse, heterogenous, exclusive, and social cleavages (e.g., professional associations, diverse organizations). The primary function of bridging relations is getting ahead, which provides access to a broader context of external assets, information, and new opportunities (Putnam, 2020; Bhuiyan & Evers, 2005). Additionally, there is a form of social capital known as linking social capital, which enables connections through officials, power structure, or authorities in formal settings (Aldrich & Meyer, 2014; Gisevius et al., 2024; Szreter & Woolcock, 2004).

This paper, therefore, examines evidence-based models of social capital's function in overcoming natural hazards, and subsequently analyzes the applicability of these models to anthropogenic hazards. For instance, investigated a structural model of community social capital in Pujon Kidul Tourism Village aimed at overcoming COVID-19 pandemic. The core

model proposed a positive relationship between social capital variables, such as trust and norms, as integral to establishing successful social capital. Trust was identified as the main driver of social capital, encouraging people to engage in collective action (community initiative), and fostering effective adaptation patterns to the pandemic. In addition, research from Partelow (2021), which focused on post-earthquake tourism recovery on Gili Trawangan; Karso et al. (2025), who analyzed social capital transformation to foster local government resilience in hazard areas; and Gisevius et al. (2024), who applied spatial-functional framework to flood adaptation in Padang and Denpasar Regency, all yield significant similarities in their conceptualization and findings regarding social capital.

First, in communalities findings, social capital is more effective in a bonding network type, which is found in Padang and Denpasar. Conversely, in Gili Trawangan pre-existing bonding ties were the foundation for the immediate, self-organized collective action and high trust among foreign-owned businesses (FSBs). Even the national vulnerability study implies that a lack of resources (low socioeconomic status, poor infrastructure, and large dependent families) correlates with high social vulnerability, which is often an indicator of weak internal coping mechanisms that are typically supported by strong bonding ties. Second, both studies emphasize that no single form of social capital is sufficient to highlight the complementary relationships among network types. Local/Bonding ties provide immediate practical aid (labor, immediate resources), while broader or Translocal/Linking ties are crucial for psychological support, financial resources, or accessing external assistance. Third, these studies converge on the idea that the mere presence of social capital is insufficient, it must be activated to enhance resilience. In the flood disaster, household agency is key to leveraging networks for long-term adaptation. In the earthquake disaster, social capital acts as the foundational mechanism enabling collective action for rapid community response and recovery.

Another example is the research by Siagian et al. (2014) on social vulnerability to natural hazard in Indonesia, which analyzed socioeconomic and demographic variables, including poverty, education, age, gender, and infrastructure. The results showed that the driving factors of social vulnerability were rooted in socioeconomic status and infrastructure. Poor people were more likely to reside in slum housing and suffer unhealthy environments, making it difficult to prepare appropriate emergency supplies during hazards (Kerr, 2018). Other contributing factors were gender, age, population growth and family structure. The elderly, individuals with disabilities, women with limited autonomy, and children tend to be more vulnerable when a disaster occurs. Family structures become a vulnerable factor when numerous family members are still depend (e.g., children, elderly, unemployee members) within lack of economic resources.

Therefore, mitigations and other programs on infrastructure development, poverty reduction, gender and family planning should be implemented (Siagian et al., 2014). Separately, social capital is widely viewed as a vital mechanism that enhances resilience in both adaptation and mitigation processes. This view is attribute on the idea that societal vulnerability is strongly related to the absence of capacity to adapt, cope, and recover. However, public trust and norms frequently fall outside the full control of governmental or bureaucratic mechanisms, resulting in a lack of reciprocal trust, which ultimately undermines social capital (Riyadi et al., 2020; Karso et al., 2025). Thus, the low level of linking social capital contributes to the low level of people participation and capacity in risk management (Abdulharis et al., 2022).

In the context to analyzing anthropogenic hazards, findings suggest that within the Capitalocene risk society, hazards are significantly amplified by governance failure, industrial activity, criminality, and corruption (Riyadi et al., 2020; Balasubramanian, 2025; Beck, 1992; Magdoff & Foster, 2011). In other words, the central failure is the active dismantling of the linking social capital mechanism. Risk is, therefore, not purely an act of nature, but a direct anthropogenic or state-induced hazard (Kerr, 2018; Gan et al., 2021). The linking social capital breaks down due to white collar crime, conspiracy, and abuse of bureaucrats power. This corruption deliberately manipulates law and permits to enable

illegal activities, such as toxic waste disposal, mining, illegal logging, for illegitimate gain (Riyadi et al., 2020; Szreter & Woolcock, 2004). Ironically, the state, which should protect society, instead enables hazards that fundamentally undermine public trust and accountability. Thus, when formal linking capital collapses, the community relies heavily on its internal ties, pivoting bonding social capital to maintain integrity against the forces of social and environmental disintegration. This shift from linking to bonding as an understandable alternative approach to fostering resilience.

Resilience is thus redefined as a cultural and social continuity (maintaining identity, cohesion, and meaning) in the face of modernization, fragmentation, and toxic threats, rather than mere physical recovery from a natural calamity (Haraway, 2016). Internal strength among disaster-affected communities is anchored in dynamic cultural practice, such as shared meals, rituals, and *ngguyub* (a share sense of belonging and direct mutual assistance). These practices function as social mechanisms to reinforce intergenerational solidarity, mutual assistance, and shared identity.

Thus, communities exercise the function of agency and bottom-up resilience to reconstruct the areas of government's failure. Furthermore, the function of bridging social capital transforms: it shift from building diverse social networks for external assistance during typical disasters to demanding transparency and renegotiating the dysfunctional relationship with power. The community is eager to move from simple preparedness to negotiating the terms of co-existence with hazard-enabling authorities (Simandjorang & Simandjorang, 2025). This shift also requires breaking the culture of silence and demanding transparency about decision-making, planning, and mitigation efforts from agencies and government (Doherty et al., 2024). In conclusion, this negotiation of a *new normal* aims to define shared responsibility that explicitly includes the long-term health of the natural environmental itself.

### 3.3 Integrating eco-society structure possibilities through Indonesia's social capital

The analysis of social capital models across both disaster contexts reveals a strong correlation in fostering community resilience, sustainable livelihood, and enhancing adaptive capacity to environmental and social shocks, particularly through bonding social capital (Zhao, et al., 2025; Pretty & Ward, 2001; Zaman & Raihan, 2023). In natural disasters, successful social capital results from a positive reciprocity between trust and norms, and is often effective in bonding social capital type. This mechanism is supported even when communities are in poor condition, offering benefits that Traditional Ecological Knowledge (TEK) cannot preserve. Crucially, social capital is not automatic or taken-for-granted resource; rather, it must be actively mobilized by agency, strategic mechanism, and robust network. For instance, indigenous or rural societies often cannot avoid the impact of volcanic eruptions, despite strong *gemeinschaft* relations (close community ties). These internal bonds must be complimented by the intervention of bridging (e.g., NGO, business stakeholders), and linking social capital (e.g., government, officials) (Zhao, et al., 2025). Moreover, if a natural calamity occurs, purely internal ties may not be sufficient to sustain recovery. Therefore, social capital serves as a catalyst for resilience enhancement, particularly the linking social capital, which contributes significantly to the level of public participation and the capacity for effective risk management.

Conversely, a positive correlation cannot be evidenced in the context of anthropogenic disasters. Ironically, the primary hazards often originate within the linking social capital, manifested through governance failures, unchecked industrial activities, and strategic manipulation by political elites. In this context, the dominant risks are not seismic or volcanic, but rather stem from anthropogenic actions and state mismanagement. Communities lose their homes due to deforestation, suffer livelihood collapse from polluted seas, and face toxic illness due to microplastics. This dynamic also drives a shift back from linking to bonding social capital, which fueled by mistrust and normlessness that weakens positive vertical relationships (Muhammad et al., 2024). The resulting output is centralized

critique and the imperative for communities to speak out. Thus, the social capital model for this particular hazards shifts its focus from building external assistance to demanding transparency (adopting a critical stance) and renegotiating the dysfunctional relationship with power (Bakker, 2023). The shared responsibility inherent in social capital posits a crucial factor for ensuring the right to live in healthy environment. These social capital models can be seen in Figure 3.

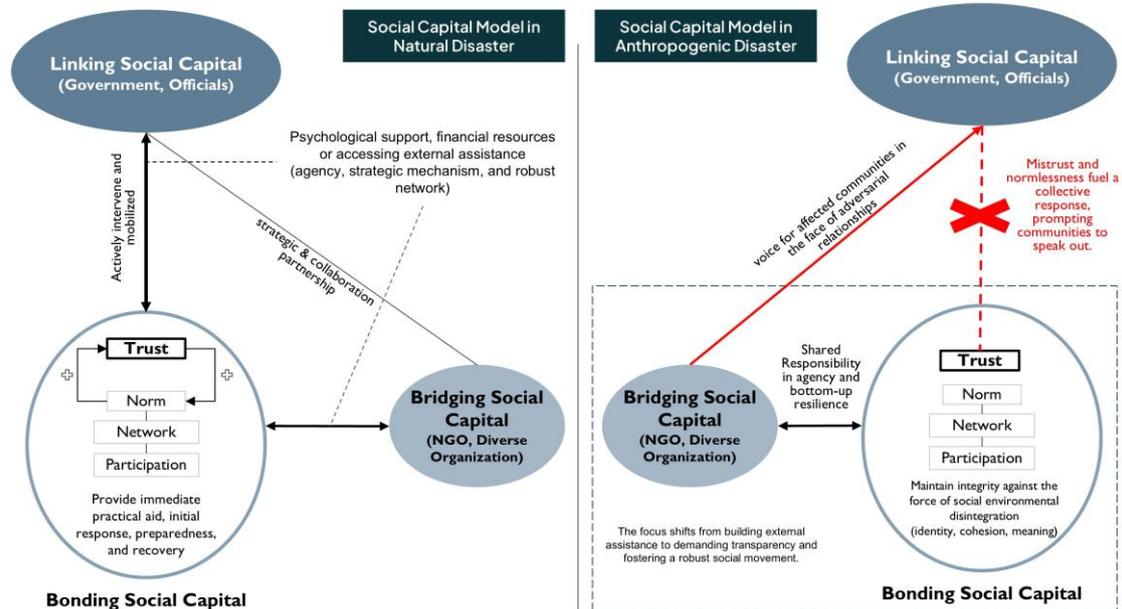


Fig. 3. The social capital model according to the disaster conditions

This jeopardized relationship between society and the state is entirely understandable through the Capitalocene perspectives. There is no inherent intrigue or political failure embedded within linking social capital during natural hazard mitigation or adaptation, since the common enemy and resilience are defined by the adaptive capacity for preparedness and rapid recovery from natural calamities (Magis, 2013). However, anthropogenic disaster often precipitate natural hazards, but they are defined by the accompanying structural changes and political failures (Beck, 1992). While mitigation efforts in natural post-disaster frequently encounter social injustice and hidden violations, neglecting the victims behind the inevitable misfortune (which sometimes leads to social movements and political correspondence (Bradley, 2017)), strong bonding social capital serves a critical role in ensuring short-term survival. This ethical consideration is fundamentally different for anthropogenic risks, where the hazards infect social structure, the environment, and the economic intergenerationally. Tables 1 illustrates these key differences.

Consequently, social capital is a crucial factor for disaster management and serves as practical mechanism to actualize the Chthulucene in the Risk Society. This is essential because anthropogenic disasters can precipitate natural hazards. The Chthulucene thus represents a new form of social capital, aimed not only at fostering community resilience against natural hazards, but also at cultivating the long-term eco-society specifically to overcome the inherent disadvantages of the Risk Society. Haraway (2016) posits staying with the trouble as the capacity for Indonesia social movement to confront and acknowledge ecological disaster without resorting to escapism or simplified solutions. This also changes the conceptualization of social capital, moving beyond bonding, bridging, and linking ties to focus on kin relations collectively and actively seeking co-existence with nature.

Table 1. The difference in response between natural and anthropogenic disasters

|                                      | Natural Disaster   | Anthropogenic Disaster   |
|--------------------------------------|--|--|
| Time                                 | It occurs within a specific timeframe and location, with measurable intensity, under controlled conditions.  | It occurs at an uncertain time, in variable locations, with an unpredictable intensity that cannot be precisely detected or measured at the moment of occurrence.  |
| Impact                               | It is often larger than anticipated, yet remains under monitoring. Governments and agencies can build shelters in response. Moreover, while there is a death toll, it typically emerges during the post-disaster mitigation phase—when the natural disaster has already occurred | Deaths occur gradually, shelters are absent, and victims remain incalculable over time. They are perpetually vulnerable, which challenges the very premise of the Risk Society. While some areas are permitted to enter a new normal through adaptation, these conditions are largely shaped by underlying forces of power and capitalism. |
| Relation with another social capital | It views governments and power relations as saviors, fostering bonding social capital and guiding humanitarian NGOs to participate in rescue efforts.  | It views governments and power relations as adversaries, thereby fostering criticism and strengthening internal community bonds. It also breaks the culture of silence, positions NGOs as partners in social movements, and amplifies the urgency of activism.   |

The TEK embedded perpetually at local (customary law) and national levels (e.g., *Gotong-Royong* or mutual aid) preserves the ontological shift from a focus on post-disaster mitigation to the active preservation of the kin network (symbiotic ecological alliance), thereby fostering moral responsibility, long-term commitment, and multigenerational adaptation (Haraway, 2016; Foster et al., 2010; Judge & Nurizka, 2008). In other words, the Chthulucene cultivates and preserves TEK as a response to modern ecological disaster. Furthermore, environmental sociological theory highlights that most of modern natural disasters are now hybrid risks (Hanningan, 2023; Grasso & Giugni, 2022; Wong & Lockie, 2018). Natural hazard, therefore, only become disaster when they intersect with anthropogenic vulnerabilities, such as poor governance, inadequate infrastructure, poverty, and injustice (Bell & Ashwood, 2016). Mapping the successful eco-society structure requires three key conceptual criteria to address core failures of the Capitalocene risk society by demanding structural changes in accountability, knowledge, and relational philosophy (Bell & Ashwood, 2016; Cohen, 1997; Zhao et al., 2025; Beck, 1992; Haraway, 2016).

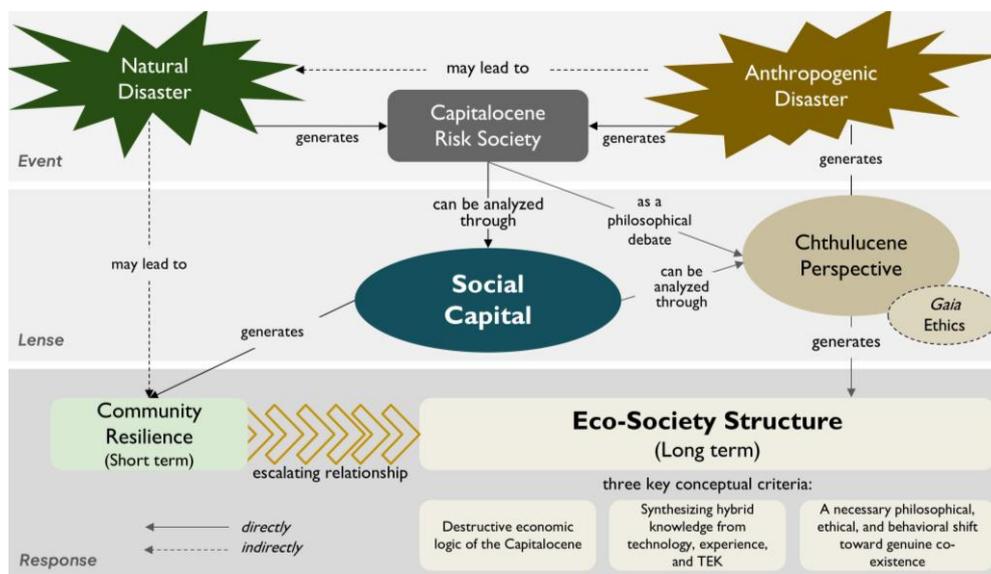


Fig. 4. Integrative framework for disaster response

First criterion directly counters the destructive economic logic of the Capitalocene. This opens a pathway for linking social capital and is the main critique used to ensure that collective norms of trust and reciprocity are strong enough to act as a check on political greed and institutional failure that hinder collective ecological management. Crucially, this accountability is vital for sustaining long-term environmental management and preventing the capitalist interests from being jeopardized by elites. The second criterion addresses community capacity to mitigate, adapt, and innovate by synthesizing hybrid knowledge drawn from technology, experiences, and TEK. This integration is framed within a social learning system, facilitated by network and bonding social capital, which promotes ecological literacy and sustainable practice. The last criterion addresses the necessary philosophical, ethical, and behavioral shift towards genuine co-existence (Miller & Eggleston, 2020). This criterion is crucial for realizing the principles of staying with the trouble and making kin with the non-human entities. The eco-society structure enables a state in which social arrangements are explicitly oriented toward regenerative practices and acknowledging the non-human world. This orientation provides a long-term justification for protecting natural capital that was previously tied to the nature/social dualism and exploitation perspectives (See Figure 4).

#### **4. Conclusions**

The eco-society structure is feasible for implementation within Indonesian society as a framework to confront the Capitalocene Risk Society. The shift moves the mobilization of social capital beyond mere community resilience, instead enhancing its function toward constructing the comprehensive eco-society structure. The findings, then, establish the philosophical necessity of this shift, unveiling the Anthropocene's flaws through the Capitalocene lens as a critical tool to expose the destructive capitalist structure. This philosophical grounding resonates deeply with the social capital model, particularly in context of anthropogenic disasters where hazards infect the social, environmental, and economic structure across generations. Therefore, alternative philosophical frameworks such as the Chthulucene and Gaia ethics cultivate and preserve Traditional Ecological Knowledge (TEK) and ethical sensibilities by proposing new pathways to elevate social capital in response to modern ecological crises. Given that this framework remains widely unknown in major sustainability research, the novelty of this study lies in integrating eco-society possibilities through three criteria. These criteria address the core failures of the Capitalocene Risk Society, specifically demanding structural changes across accountability, knowledge acquisition, and relational philosophy. Moreover, this framework contributes by enhancing mitigation and adaptation learning through the cultivation of indigenous resources, and theoretically by providing model applicable to broader research aims and scopes, particularly within Indonesia context.

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#### **Author Contribution**

Conceptualization, J.M.E.; Methodology, J.M.E.; Validation, J.M.E.; Formal Analysis, J.M.E.; Investigation, J.M.E.; Resources, J.M.E.; Data Curation, J.M.E.; Writing – Original Draft Preparation, J.M.E.; Writing – Review & Editing, J.M.E.; Visualization, J.M.E.

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During the preparation of this work, the author used Grammarly to assist in improving grammar, clarity, and academic tone of the manuscript. After using this tool, the author reviewed and edited the content as needed and took full responsibility for the content of the publication.

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**References**

- Abdulharis, R., Handayani, A. P., Isouchi, C., & Meilano, I. (2022). Developing Community Disaster Resilience in the Lembang Fault Area, Indonesia: Lessons Learned from Japanese Experience. *Applied Science*, 12(1271), 1-28. <https://doi.org/10.3390/app12031271>
- Adam, B., Beck, U., & Loon, J. (Eds.). (2005). *The Risk Society and Beyond*. SAGE Publication.
- Adler, P. S., & Kwon, S.-W. (2000). Social Capital: The Good, the Bad, the Ugly. In E. L. Lesser (Ed.), *Knowledge and Social Capital: Foundation and Applications* (pp. 89-115). Butterworth-Heinemann.
- Adler, P. S., & Kwon, S.-W. (2002). Social Capital: Prospects for A New Concept. *Academy of Management Review*, 27(1), 17-40. <https://doi.org/10.2307/4134367>
- Al Fayed, M. A., Maarif, S., Syamsunasir, Widodo, P., & Kusuma, I. M. (2023). Implementation of the Disaster Risk Reduction Program in Japan as an Effort for Disaster Risk Reduction in Indonesia. *International Journal Of Humanities Education And Social Sciences (IJHESS)*, 3(1), 248-256. <https://doi.org/10.55227/ijhess.v3i1.587>
- Aldrich, D. P., & Meyer, M. A. (2014). Social Capital and Community Resilience. *American Behavioral Scientist*, 1-16. <https://doi.org/10.1177/0002764214550299>
- Amkas, K. (2022). *Hidup di Negara Rawan Bencana, Masyarakat Indonesia Belum Sadar Bencana*. VoA Indonesia.
- Arons, W. (2023). We Should Be Talking about the Capitalocene. *TDR: The Drama Review*, 67(1), 35-40. <https://doi.org/10.1017/S1054204322000697>
- ASCCR. (2021). *ASEAN State of Climate Change Report: Current status and outlook of the ASEAN region Toward the ASEAN climate vision 2050*. ASEAN.

- Bakker, L. (2023). Custom and violence in Indonesia's protracted land conflict. *Social Sciences & Humanities Open*, 8, 1-6. <https://doi.org/10.1016/j.ssaho.2023.100624>
- Balasubramanian. (2025). The Role of Social Capital in Sustainable Development: A Sociological Perspective. *Forefront in Sociology & Political Science*, 2(1), 1-6. <https://doi.org/10.5281/zenodo.14779302>
- Bappenas. (2023). *KLHS RPJPN 2025-2045*. Bappenas.
- BBC News Indonesia. (2025). *Keresahan warga dekat pabrik sumber radioaktif di Banten – 'Mereka pakai masker, sarung tangan, tapi enggak ada yang menjelaskan'*. BBC.
- Beck, U. (1992). *Risk Society: Towards a New Modernity*. (M. Ritter, Trans.). SAGE Publications Ltd.
- Bell, M. M., & Ashwood, L. L. (2016). *An Invitation to Environmental Sociology* (5th ed.). SAGE Publications Ltd.
- Bhuiyan, S. H., & Evers, H.-D. (2005). Social capital and sustainable development: Theories and concepts. *ZEF Working Paper Series*(2), 1-21. <https://hdl.handle.net/10419/88347>
- BNPB. (2025). *Disaster in Indonesia 2025*. BNPB.
- Bourdieu, P. (1980). Le Capital Social: Notes Provisoires. *Actes de la Recherche en Sciences Sociales*, 3, 2-3. [https://www.persee.fr/doc/arss\\_0335-5322\\_1980\\_num\\_31\\_1\\_2069](https://www.persee.fr/doc/arss_0335-5322_1980_num_31_1_2069)
- Bradley, M. (2017). More than Misfortune: Recognizing Natural Disasters as a Concern for Transitional Justice. *International Journal of Transitional Justice*, 11, 400-420. <https://doi.org/10.1093/ijtj/ijx024>
- Carmen, E., Fazey, I., Ross, H., Bedinger, M., Smith, F. M., Prager, K., McClymont, K., & Morrison, D. (2022). Building community resilience in a context of climate change: The role of social capital. *Ambio*, 51, 1371-1387. <https://doi.org/10.1007/s13280-021-01678-9>
- Castiglione, D., van Deth, J. W., & Wolleb, G. (Eds.). (2008). *The Handbook of Social Capital*. Oxford University Press.
- Cohen, M. J. (1997). Risk Society and Ecological Modernization: Alternative visions for post-industrial nations. *Futures*, 29(2), 105-119. [https://doi.org/10.1016/s0016-3287\(96\)00071-7](https://doi.org/10.1016/s0016-3287(96)00071-7)
- Coleman, J. (1988). Social Capital in the Creation of Human Capital. *The American Journal of Sociology Supplement*, 94, S95-S120. <http://www.jstor.org/stable/2780243>
- Cronin, M. A., & George, E. (2020). The Why and How of the Integrative Review. *Organizational Research Methods*, 1-25. <https://doi.org/10.1177/1094428120935507>
- de Vuurst, P. V., & Escobar, L. (2020). Perspective: Climate Change and the Relocation of Indonesia's Capital to Borneo. *Front. Earth Sci.*, 8(5), 1-6. <https://doi.org/10.3389/feart.2020.00005>
- DeGeus, M. (2007). Towards an Ecological Art of Living: On the Value of Ecological Utopianism for our Future. In L. Leonard (Ed.), *Utopias, Ecotopias and Green Communities: Exploring the Activism, Settlements and Living Patterns of Green Idealists* (Vol. 1, pp. 26-50). Emerald. [https://doi.org/10.1108/S2041-806X\(2007\)0000001004](https://doi.org/10.1108/S2041-806X(2007)0000001004)
- Delforge, D., Charalampous, P., Alonso, A., Below, R., Castin, E., Tonnelier, M., ... Speybroeck, N. (2025). *EM-DAT: the global disaster database — what it is, why it matters, and what's next?* Medlemstidning för Svensk Epidemiologisk. SVEPET.
- Doherty, S., Matthews, B., Khan, A. H., & van de Fliert, E. (2024). Fire futures: design for community-led resilience. *Environmental Hazards*, 1-22. <https://doi.org/10.1080/17477891.2024.2419025>
- Dunne, D. (2019). *The Carbon Brief Profile: Indonesia*. carbonbrief.org.
- Elliot, J. (2013). *An Introduction to Sustainable Development*. Routledge.
- Eriksson, M., Santosa, A., Zetterberg, L., Kawachi, I., & Ng, N. (2021). Social Capital and Sustainable Social Development—How Are Changes in Neighbourhood Social

- Capital Associated with Neighbourhood Sociodemographic and Socioeconomic Characteristics? *Sustainability*, 13(13161), 1-22. <https://doi.org/10.3390/su132313161>
- Forest Watch Indonesia. (2019). *Bioregion Papua: Hutan dan Manusianya*. Forest Watch Indonesia (FWI).
- Foster, J. B. (1999). Marx's Theory of Metabolic Rift: Classical Foundations for Environmental Sociology. *American Journal of Sociology*, 105(2), 366-405. <https://doi.org/10.1086/210315>
- Foster, J. B. (2024). *The Dialectics of Ecology: Socialism and Nature*. Monthly Review Press.
- Foster, J. B., Clark, B., & York, R. (2010). *The Ecological Rift: Capitalism's War on the Earth*. Monthly Review Press.
- Gan, C. C., Oktari, R. S., Nguyen, H. X., Yuan, L., Yu, X., KC, A., Hanh, T. T. T., Phung, D. T., Dwirahmadi, F., Liu, T., Musumari, P. M., Kayano, R., & Chu, C. (2021). A scoping review of climate-related disasters in China, Indonesia and A scoping review of climate-related disasters in China, Indonesia and adaptation measures. *International Journal of Disaster Risk Reduction*, 66(102608), 1-11. <https://doi.org/10.1016/j.ijdrr.2021.102608>
- Gisevius, K., Niesters, L.-M., Larasati, A., & Braun, B. (2024). Local and translocal social capital in flood adaptation: evidence from Indonesian coastal communities. *Environmental Hazards*, 1-22. <https://doi.org/10.1080/17477891.2024.2424310>
- Gittell, R., & Vidal, A. (1998). *Community Organizing: Building Social Capital as a Development Strategy*. SAGE Publications.
- Grasso, M., & Giugni, M. (Eds.). (2022). *The Routledge Handbook of Environmental Movements*. Routledge.
- Grimm, N. B., Faeth, S. H., Golubiewski, N. E., Redman, C. L., Wu, J., Bai, X., & Briggs, J. M. (2008). Global Change and the Ecology of Cities. *Science*, 319, 756-760. <https://doi.org/10.1126/science.1150195>
- Großmann, K. (2022). *Human-Environment Relations and Politics in Indonesia*. Routledge.
- Haberl, H., Fischer-Kowalski, M., Krausmann, F., & Winiwarter, V. (Eds.). (2016). *Social Ecology: Society-Nature Relations across Time and Space*. Springer Nature.
- Hanafi, A. (2022). *Konsekuensi Tiga DOB Provinsi Papua terhadap Masyarakat*. rmol.id.
- Hanningan, J. (2023). *Environmental Sociology* (4th ed.). Routledge.
- Haraway, D. J. (2016). *Staying with Trouble: Making Kin in the Chthulucene*. Duke University Press.
- Hawken, P., Lovins, A., & Lovins, L. H. (1999). *Natural Capitalism*. Little, Brown and Company.
- Hendrawan, V. S., Rahardjo, A. P., Mawandha, H. G., Aldrian, E., Muhari, A., & Komori, D. (2025). Review article: Past and future climate-related hazards in Indonesia. *EGUsphere*. <https://doi.org/10.5194/egusphere-2025-584>
- Henning, B. G., & Walsh, Z. (Eds.). (2020). *Climate Change Ethics and the Non-Human World*. Routledge.
- H-UTokyo Lab. (2020). *Society 5.0: A People-centric Super-smart society*. Tokyo: Springer. <https://doi.org/10.1007/978-981-15-2989-4>
- IFHV. (2024). *The World Risk Report 2024*. Berlin: Bündnis Entwicklung Hilft.
- Indow, L., Maturbongs, R. A., Prabawardani, S., Hendri, & Lyons, G. (2021). Implementation of the remote indigenous community empowerment program on the sustainability of the local food crops in West Papua, Indonesia. *BIODIVERSITAS*, 22(12), 5247-5254. <https://doi.org/10.13057/biodiv/d221202>
- IQAir. (2025). *August 19, 2025: Jakarta among top 10 most polluted cities in the world*. iqair.com.
- Judge, Z., & Nurizka, M. (2008). Peranan Hukum Adat Sasi Laut dalam Melindungi Kelestarian Lingkungan di Desa Eti Kecamatan Seram Barat Kabupaten Seram Bagian Barat. *Lex Jurnalica*, 6(1), 30-61. <https://ejournal.esaunggul.ac.id/index.php/Lex/article/view/290>

- Karso, A. J., Hardi, R., & Baryalai, A. S. (2025, April). Transforming Social Capital to Strengthen Local Government Resilience in Hazard-Prone Areas. *Journal of Contemporary Governance and Public Policy*, 6(1), 55-80. <https://doi.org/10.46507/jcgpp.v6i1.677>
- Kerr, S. E. (2018). Social Capital as a Determinant of Resilience: Implications for Adaptation Policy. In Z. Zommers, & K. Alverson (Eds.), *Resilience: The Science of Adaptation to Climate Change* (pp. 267-275). Elsevier. <https://doi.org/10.1016/B978-0-12-811891-7.00022-0>
- King, L., & Auriffeille, D. M. (Eds.). (2020). *Environmental Sociology, From Analysis to Action* (4th ed.). Rowman & Littlefield.
- Latour, B. (2017). *Facing Gaia: Eight Lectures on the New Climate Regime*. (C. Porter, Trans.). Polity Press.
- Lin, N. (2003). *Social Capital: A Theory of Social Structure and Action*. Cambridge University Press.
- Lin, N., Cook, K., & Burt, R. S. (Eds.). (2001). *Social Capital: Theory and Research*. Aldine de Gruyter.
- Magdoff, F., & Foster, J. B. (2011). *What Every Environmentalist Needs to Know about Capitalism: A Citizen's Guide to Capitalism and the Environment*. MONTHLY REVIEW PRESS.
- Magis, K. (2013). Community Resilience: An Indicator of Social Sustainability. *Society & Natural Resources: An International Journal*, 23(5), 401-416. <http://dx.doi.org/10.1080/08941920903305674>
- Marfai, M. A. (2016). *Pengantar Etika Lingkungan dan Kearifan Lokal*. UGM Press.
- Marshall, A. J., & Beehler, B. M. (Eds.). (2007). *The Ecology of Papua* (The Ecology of Indonesia Series ed., Vol. I). Periplus.
- Mavrodieva, A. V., & Shaw, R. (2020). Disaster and Climate Change Issues in Japan's Society 5.0—A Discussion. *sustainability*, 12(5). <https://doi.org/10.3390/su12051893>
- Miller, D. E., & Eggleston, B. (Eds.). (2020). *Moral Theory and Climate Change: Ethical Perspectives on a Warming Planet*. Routledge.
- Moore, J. W. (Ed.). (2016). *Anthropocene or Capitalocene? Nature, History, and the Crisis of Capitalism*. Kairos.
- Moore, J. W. (2017). The Capitalocene, Part I: on the nature and origins of our ecological crisis. *The Journal of Peasant Studies*, 1-38. <http://dx.doi.org/10.1080/03066150.2016.1235036>
- Morton, T. (2013). *Hyperobject: Philosophy and Ecology after the End of the World*. University of Minnesota Press.
- Muhammad, S., Arifin, S., Syam, R., & Putra, B. A. (2024). On the brink of social resistance: local community perceptions of mining company operating permits in East Luwu, Indonesia. *Front. Sociol.*, 1-9. <https://doi.org/10.3389/fsoc.2024.1373736>
- Oermann, M. H., & Knafl, K. (2021). Strategies for completing a successful integrative review. *Nurse Author & Editor*, 31, 65-68. <https://doi.org/10.1111/nae2.30>
- Ostrom, E., & Ahn, T. K. (2008). *The Meaning of Social Capital and its Link to Collective Action*. Indiana University, School of Public & Environmental Affairs. Edward Elgar.
- Palmatier, R. W., Houston, M. B., & Hulland, J. (2018). Review articles: purpose, process, and structure. *Journal of the Academy of Marketing Science*, 46, 1-5. <https://doi.org/10.1007/s11747-017-0563-4>
- Partelow, S. (2021). Social capital and community disaster resilience: post-earthquake tourism recovery on Gili Trawangan, Indonesia. *Sustainability Science*, 16, 203-220. <https://doi.org/10.1007/s11625-020-00854-2>
- Partelow, S. (2023). Social Capital in governance and sustainable development. In K. V. Assche, R. Beunen, & M. Duineveld (Eds.), *Elgar Encyclopedia in Urban and Regional Planning and Design* (pp. 356-360). Edward Elgar Publishing.

- Piironen, T. (2018). A meaning holistic (dis)solution of subject-object dualism– its implications for the human sciences. *History of the Human Sciences*, 1-19. <https://doi.org/10.1177/0952695117752015>
- Powers, M., Monson, M. J., Zimmerman, F. S., Einav, S., & Dries, D. J. (2019). Anthropogenic Disasters. *Crit Care Clin*, 35, 647-658. <https://doi.org/10.1016/j.ccc.2019.06.002>
- Pretty, J., & Ward, H. (2001). Social Capital and the Environment. *World Development*, 29(2), 209-227. [https://doi.org/10.1016/S0305-750X\(00\)00098-X](https://doi.org/10.1016/S0305-750X(00)00098-X)
- Putnam, R. D. (2020). *Bowling Alone: The Collapse and Revival of American Community, Revised and Updated*. Simon & Schuster.
- Putri, I. H., Handayani, W., Mulia, F. A., Ichihara, J., Anggreani, M., Setiadi, R., & Sudarno, S. (2025, August). Examination of barriers to climate change adaptation: Experience from Semarang City-Indonesia. *Urban Governance*, 5, 314-330. <https://doi.org/10.1016/j.ugj.2025.08.005>
- Riyadi, B. S., Alhamda, S., Airlambang, S., Anggreiny, R., Anggara, A. T., & Sudaryat. (2020). Environmental Damage Due to Hazardous and Toxic Pollution: A Case Study of Citarum River, West Java, Indonesia. *International Journal of Criminology and Sociology*, 1844-1852. <https://doi.org/10.6000/1929-4409.2020.09.211>
- Román, Á. S., & Molinero-Gerbeau, Y. (2023). Anthropocene, Capitalocene or Westernocene? On the Ideological Foundations of the Current Climate. *CAPITALISM NATURE SOCIALISM*, 34(4), 39–57. <https://doi.org/10.1080/10455752.2023.2189131>
- Rudiarto, I., Handayani, W., & Setyono, J. S. (2018). A Regional Perspective on Urbanization and Climate-Related Disasters in the Northern Coastal Region of Central Java, Indonesia. *Land*, 7(34), 1-15. <https://doi.org/10.3390/land7010034>
- Rumayomi, N. A., Murdjoko, A., Ungirwalu, A., Mulyadi, Benu, N. M., & Djitmau, D. A. (2025). Integrating Traditional Ecological Knowledge in Teluk Bintuni District: Opportunities and Challenges for Sustainable Resources Management. *BIOTROPIA: The Southeast Asian Journal of Tropical Biology*, 32(2), 228-241. <https://doi.org/10.11598/btb.2025.32.2.2486>
- Siagian, T. H., Purhadi, P., Suhartono, S., & Ritonga, H. (2014). Social vulnerability to natural hazards in Indonesia: driving factors and policy implications. *Natural Hazards*, 70, 1603-1617. <https://doi.org/10.1007/s11069-013-0888-3>
- Simandjorang, W. E., & Simandjorang, V. (2025). *The time for silence is over: make ecocide a crime in Indonesia*. observerid.com,
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333-339. <https://doi.org/10.1016/j.jbusres.2019.07.039>
- Sumarwati, S. (2022). Traditional ecological knowledge on the slope of Mount Lawu, Indonesia: all about non-rice food security. *Journal of Ethnic Foods*, 9(9), 1-13. <https://doi.org/10.1186/s42779-022-00120-z>
- Susanto, D., & Numata, S. (2023). Traditional Ecological Knowledge of the Tengger Tribe and its Influencing Factors in Bromo Tengger Semeru National Park. *Jurnal Manajemen Hutan Tropika*, 29(3), 254-264. <https://doi.org/10.7226/jtfm.29.3.254>
- Szreter, S., & Woolcock, M. (2004). Health by association? Social capital, social theory, and the political economy of public health. *International Journal of Epidemiology*, 650-667. <https://doi.org/10.1093/ije/dyh013>
- Torraco, R. J. (2005, September 3). Writing Integrative Literature Reviews: Guidelines and Examples. *Human Resource Development Review*, 4(3), 356-367. <https://doi.org/10.1177/1534484305278283>
- Tsykalova, L. (2025). Shaping tomorrow: Global patterns in youth environmental engagement. *The Journal of Environmental Education*, 56(5), 349-367. <https://doi.org/10.1080/00958964.2025.2498896>
- Ward, P., Pauw, W. v., & Marfai, M. (2013). Governance of flood risk management in a time of climate change: the cases of Jakarta and Rotterdam. *Environmental Politics*, 22(3), 518-536. <http://dx.doi.org/10.1080/09644016.2012.683155>

- Whittemore, R., & Knafl, K. (2005). The integrative review: updated methodology. *Journal of Advanced Nursing*, 52(5), 546-553. <https://doi.org/10.1111/j.1365-2648.2005>
- Whyte, K. P. (2013). On the role of traditional ecological knowledge as a collaborative concept: a philosophical study. *Ecological Processes*, 2(7), 1-12. <http://www.ecologicalprocesses.com/content/2/1/7>
- Widyanto, U. (2022). *Perubahan Iklim: dari Anthropocene ke Capitalocene*. mongabay.co.id.
- Wong, C. M., & Lockie, S. (2018). Sociology, risk and the environment: a material semiotic approach. *Journal of Risk Research*, 1-17. <https://doi.org/10.1080/13669877.2017.1422783>
- World Bank Group and Asian Development Bank. (2021). *Climate Risk Country Profile: Indonesia*. World Bank Publications.
- Yan, W., & Galloway, W. (Eds.). (2017). *Rethinking Resilience, Adaptation and Transformation in a Time of Change*. Springer Nature.
- Zaman, M. O., & Raihan, M. M. (2023). Community resilience to natural disasters: A systemic review of contemporary methods and theories. *Natural Hazards Research*, 3, 583-594. <https://doi.org/10.1016/j.nhres.2023.05.003>
- Zhao, G., Hui, X., Zhao, F., Feng, L., Lu, Y., & Zhang, Y. (2025). How does social capital facilitate community disaster resilience? A systematic review. *Frontiers in Environmental Science*, 12(1496813), 1-16. <https://doi.org/10.3389/fenvs.2024.1496813>

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