

HUMAN SECURITY-BASED IPAS LEARNING FOR STRENGTHENING DISASTER MITIGATION AWARENESS: A LITERATURE REVIEW

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ABSTRACT

Indonesia is highly vulnerable to natural disasters, particularly hydrometeorological events such as floods and landslides. Preliminary interviews at SD Negeri Kebalen 05 indicated that most fifth-grade students had limited understanding of disaster preparedness beyond earthquakes, despite the school's flood-prone geographical location. This condition highlights the need to integrate disaster mitigation education into IPAS (Natural and Social Sciences) learning through a human security approach emphasizing safety, well-being, and sustainability. This study aims to examine how human security-based IPAS learning contributes to students' understanding of disaster mitigation concepts and warning signs. A qualitative approach using a narrative literature review was employed. Relevant scientific articles, books, and research reports published between 2016 and 2026 were retrieved from Google Scholar, SINTA, and DOAJ. An initial search identified 42 records using keywords related to human security, disaster mitigation, and IPAS learning. Following title and abstract screening, full-text eligibility assessment, and methodological review, 21 studies were included in the final synthesis. Data were analyzed using descriptive qualitative content analysis. The findings indicate that human security-based IPAS learning can strengthen students' knowledge, attitudes, and disaster preparedness skills, providing a foundation for developing adaptive and inclusive IPAS learning while supporting SDG 4 (Quality Education) in elementary schools.

Keywords: *Disaster Awareness, Disaster Mitigation, Elementary School, Human Security, IPAS Learning, , Literature Review*

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INTRODUCTION

Indonesia is one of the countries with a high level of natural disaster vulnerability due to its geographical location at the convergence of three major tectonic plates. Data from the Central Statistics Agency (2025) shows that more than 90% of disasters in Indonesia are caused by hydrometeorology, with landslides (42.5%), floods (28.1%), and forest/land fires (20.3%) being the most dominant events. This fact emphasizes the importance of disaster mitigation education from an early age, especially in elementary schools, so that students are prepared to face risks.

The real phenomenon in the field shows that at Kebalen 05 Public Elementary School, floods are the most frequent disaster. The school adjusts learning activities based on the water level, starting from continuing classes during light floods, switching to online learning during high floods, to sending students home if conditions do not allow. However, preliminary interviews with fifth-grade students revealed that most of them do not yet understand the preparedness steps for disasters other than earthquakes. It is important to note that this preliminary observation serves only as contextual background motivating the present study and is not itself part of the literature-review evidence analyzed in this article; the findings drawn from previous research are presented separately in the Results and Discussion section. Nevertheless, this field condition indicates a practical gap in knowledge and mitigation skills that needs to be addressed. At the conceptual level, although numerous studies have examined disaster mitigation education in elementary schools, few have specifically explored how a human security perspective can be systematically integrated into IPAS learning, and even fewer have connected this integration to context-specific threats such as flooding. This gap the limited attention to the intersection between

human security, IPAS learning, and non-seismic disaster awareness is the specific space that the present literature review seeks to map and clarify.

Theoretically, the learning of Natural and Social Sciences (IPAS) has a strategic role in instilling values of care, responsibility, and life skills. Thru a human security approach, IPAS can be directed to protect humans from disaster threats by emphasizing aspects of safety, well-being, and sustainability. The concept of human security itself, as explained by UNDP (1994), encompasses the protection of humans from chronic threats as well as sudden disruptions that damage daily life. In the context of education, this approach is relevant for building a disaster-aware culture from an early age.

Several studies support this urgency. (Qurrotaini & Nurfatmawati, 2021) shows that the integration of earthquake disaster mitigation in IPAS significantly enhances student preparedness. Salsabila & Dinda (2021) assert that the demonstration method in disaster mitigation learning can enhance students' understanding because it involves real practice. Meanwhile, Wibisana et al. (2026) found a gap in the implementation of disaster mitigation education in elementary schools, making the evaluation of human security-based learning important to strengthen inclusive and adaptive strategies.

In the context of primary education, IPAS plays a strategic role as a medium for integrating social values with life skills. According to Salsabila & Dinda (2021), IPAS can build a disaster-aware culture thru the integration of human security values into the elementary school curriculum. This is in line with the findings of Meilani Sitompul & Elfayetti (2024) which emphasize that early childhood mitigation education is crucial because children are at a critical developmental stage for building preparedness.

The concept of disaster mitigation itself is understood as a systemic effort to reduce risk, either thru structural approaches (such as the development of early warning systems) or non-structural approaches (such as socialization and the preparation of disaster response SOPs). Meilani Sitompul & Elfayetti (2024) emphasizes that the success of mitigation is determined by the balance between physical development and the strengthening of

community awareness. Disaster mitigation literacy is also an important aspect. Yasinta, Kuntoro, Alfajar, & Rahman, (2025) emphasize that the integration of disaster mitigation literacy in IPAS learning enhances students' ability to face disasters, especially in vulnerable areas. Thus, human security-based IPAS can serve as an appropriate platform to instill mitigation literacy that connects academic knowledge with life skills.

METHOD

This research uses a qualitative approach with the method of literature review or library research. This approach was chosen because it aims to review and compare findings from various previous studies on human security-based IPAS learning and disaster mitigation education in elementary schools, without involving direct primary data collection from the field. More specifically, this study follows the procedures of a narrative literature review rather than a full systematic literature review: it applies an explicit and traceable search and selection procedure, described below, but does not extend to a formal quality-appraisal scoring instrument or meta-analytic synthesis, which distinguishes it from a systematic review while still going beyond an unstructured library research approach. This method is considered relevant because the topic of human security in the context of disaster mitigation education is still relatively new in Indonesia, necessitating a comprehensive mapping and synthesis of knowledge from various sources before further empirical testing in the field.

The data sources in this study consist of scientific journal articles, proceedings, and research reports discussing human security, disaster mitigation, and IPAS/IPS learning in elementary schools, published within the period from 2016 to 2026. Source searches were conducted thru academic databases such as Google Scholar, Sinta, DOAJ, and Mendeley using Boolean search strings combining the terms "human security" AND "disaster mitigation," "disaster mitigation" AND "IPAS learning," and "elementary school" AND "disaster awareness." Studies were included if they (a) were published between 2016 and 2026, (b) discussed disaster mitigation education, human security, or IPAS/IPS learning at the

elementary school level, (c) were available in full text, and (d) reported a clear research method. Studies were excluded if they were irrelevant to the elementary school context, not fully accessible, duplicated an already-included source, or lacked methodological clarity.

Data collection was carried out thru documentation techniques, namely by tracing, downloading, and recording relevant information from each selected source. The data collection process was undertaken thru several stages, including source identification based on keywords, screening based on titles and abstracts, eligibility checking based on the full content of articles, and the final determination of sources used in the study. This process initially identified 42 records across the databases searched. After removing duplicates and screening titles and abstracts, 29 records remained for full-text eligibility checking; of these, 21 studies met the inclusion criteria and were retained for the final synthesis, while 8 were excluded for insufficient methodological clarity or limited relevance to the elementary school context. The 21 included studies were subsequently grouped based on the main themes, namely the concept of human security in education, disaster mitigation learning strategies, and research findings on increasing disaster mitigation awareness among elementary school students. The quality of each included source was appraised qualitatively by checking the clarity of its research method, the relevance of its context to elementary education, and the credibility of its publication outlet (e.g., accredited SINTA-indexed journals or DOAJ-listed journals).

The collected data were analyzed using content analysis techniques in a descriptive-qualitative manner. The analysis was conducted by reducing the data, which involved sorting information relevant to the study's focus, then presenting the data in the form of thematic categories, and drawing conclusions based on patterns, similarities, and differences in findings among sources. Thru this process, the researcher seeks to identify how the human security approach is integrated into IPAS learning, what strategies are effectively used, and to what extent this approach contributes to increasing disaster mitigation awareness among elementary

school students based on empirical evidence from previous research.

To maintain the credibility of the study, the researchers conducted source triangulation by comparing findings from various studies with similar focuses, so that the resulting synthesis is more objective and not solely reliant on a single source. The results of this literature review are subsequently used as a basis for developing a conceptual framework regarding the contribution of human security-based IPAS learning to disaster mitigation awareness among fifth-grade students at SD Negeri Kebalen 05, while also serving as a foundation for recommendations on developing a more adaptive and contextual IPAS curriculum in elementary schools.

RESULTS AND DISCUSSION

The 21 studies included in this review were synthesized into four recurring themes: (1) school-level baseline conditions, (2) curriculum and literacy-based strategies, (3) simulation- and media-based strategies, and (4) human security-linked school programs. Across these themes, the reviewed studies generally report a positive association between contextual disaster education and improved preparedness, although the evidence comes from different school settings, disaster types, and learning approaches. For example, research by Qurrotaini & Nuryanto (2020) in SDN Cirendeu 02 Tangerang Selatan, reported that earthquake mitigation was implemented through classroom and extracurricular activities, including evacuation procedures. This finding is in line with Qurrotaini & Nuryanto (2020), SDN Petukangan Selatan 02 Jakarta Selatan, identified low flood-mitigation knowledge and the need for stronger preparedness programs; Aryanto, Agustina, Erlianda, Puspitasari, & Silaen, (2023) added a literacy perspective by developing a human-security-based decodable book for elementary students. These studies are broadly consistent in showing the importance of contextual learning and preparedness, but they address different hazards and educational strategies.

In the research Qurrotaini & Nurfatmawati (2021), the human security approach is reinforced thru a case study at SDN

Bahagia 05 Bekasi, which implements anti-bullying programs, healthy canteens, Adiwiyata, and financial literacy as strategies to achieve SDG 4 (Quality Education). Meanwhile, Wibisana et al. (2026) demonstrated the effectiveness of simulation-based education at SDN 2 Batu Mekar, West Lombok, with an increase in student understanding from 20% to over 85% after participating in an earthquake evacuation simulation. Overall, this literature emphasizes that strengthening disaster mitigation in elementary schools requires a combination of curriculum integration, human security-based literacy media, and contextual simulation practices that have been proven to enhance students' practical skills.

The reviewed literature also indicates that disaster mitigation education benefits from thematic integration with creative and contextual learning approaches. Qurrotaini & Nurfatmawati, (2021) describe the need for preparedness education related to earthquake and flood risks; Prambudi (2017) discusses curriculum integration through simulation media; Syarif, Hasriyanti, & Alam, (2025) connects human security with sustainable school development; and Yasinta et al. (2025) provide a contextual perspective on flood control in the Bekasi River area. These studies differ in their contexts and methods, but they converge on the importance of linking disaster knowledge with students' surrounding environments. For IPAS learning, this means that disaster topics can be connected to scientific concepts, social conditions, environmental characteristics, and practical preparedness activities.

Disaster mitigation literacy also requires interdisciplinary learning, local case studies, simulations, and collaboration among relevant stakeholders. Fitria, Malik, & Logayah, (2024) emphasize case studies and simulations, while Aswan (2025) highlight emergency plans and school safety protocols. Dewi & Sukmanasa (2016) identify science and social-studies competencies that can accommodate mitigation content; Fitria et al. (2024) emphasize demonstration as a strategy that engages cognitive, affective, and

psychomotor domains; Suarmika & Utama (2017) show the relevance of ethnopedagogy and local wisdom, such as smong and pranoto mongso, in developing a disaster-aware culture. These findings are complementary rather than contradictory because they emphasize different components of preparedness that can be combined within contextual IPAS learning.

Other studies emphasize curriculum integration, digital media, creative strategies, and local wisdom. Suryadi, Lukitawati, & Ulya (2024) for example, examined five school-preparedness indicators and found that their implementation still required optimization. The reviewed literature also reports that disaster education videos and visual media can support student preparedness, while Syarif, Hasriyanti, & Alam (2025) discuss the development of mitigation-oriented curriculum strategies. Tambunan et al. (2026) further emphasize coastal preparedness through simulations, games, and local environmental knowledge. Although the settings differ, these studies consistently indicate that students benefit when disaster learning is experiential, visual, and connected to local risks.

Six recent works further position social studies and related learning areas as strategic entry points for disaster mitigation education. Aulia & Aji (2024) discuss teacher capacity building through deep-learning-based digital comics; Fitria et al. (2024) emphasize contextual methods, projects, simulations, and cross-disciplinary collaboration; Aswan (2025) report stronger understanding when flood material is integrated into learning; Salsabila & Dinda (2021) highlight earthquake simulation as a practical preparedness strategy; Fitria et al. (2024) presents the “MITIGASI” learning strategy for students in the Lembang Fault area; and Genika, Luthfia, & Wahyuningsih (2023) emphasize the continued need for mitigation education in elementary schools. These findings strengthen the argument that disaster mitigation can be integrated into IPAS through contextual problems,

investigation, visual representation, action, reflection, and practical simulation.

Overall, the synthesis shows that disaster mitigation education in elementary schools is strengthened when formal curriculum content, innovative learning media, simulations, and local wisdom are integrated. The human security approach provides a broader conceptual framework because it places students' safety, well-being, and sustainability at the center of disaster education. UNDP (1994) conceptualizes human security as protection from threats to human life and dignity across multiple dimensions. Within the reviewed literature, the dimensions most directly connected to disaster-oriented IPAS learning are personal security, community security, and environmental security. Personal security can be translated into IPAS activities such as identifying hazard warning signs and practicing self-protective actions during evacuation drills. Community security can be developed through group disaster-response planning, peer-assisted evacuation, and collaborative problem solving. Environmental security can be addressed through analysis of local flood or landslide risks, environmental conservation activities, and local wisdom-based mitigation practices. The corresponding indicators of disaster mitigation awareness include students' ability to recognize local hazards, explain appropriate preparedness steps, demonstrate safe responses, cooperate during simulations, and relate environmental conditions to disaster risk. In this way, human security becomes an operational framework for IPAS learning rather than merely a general label for disaster education.

These findings are relevant to SD Negeri Kebalen 05, which is located in a flood-prone area and where fifth-grade students reportedly have limited knowledge of disaster preparedness beyond earthquakes. Based on the literature synthesis, human security-based IPAS learning in this context

should combine cognitive learning with evacuation simulations, visual or digital media, local environmental analysis, and local wisdom relevant to flooding. The literature therefore provides a conceptual basis for further empirical research, but it does not by itself establish the effectiveness of the proposed approach at SD Negeri Kebalen 05.

CONCLUSION

The reviewed literature indicates that human security-based IPAS learning has the potential to support the strengthening of disaster mitigation awareness among elementary school students. Because this study is based on literature analysis rather than a direct intervention with students, the conclusion represents a synthesis of previous findings and should not be interpreted as evidence of a demonstrated causal effect. Across the reviewed studies, curriculum integration, innovative learning media, simulations, and local wisdom are repeatedly associated with improvements in students' knowledge, attitudes, and practical skills related to disaster preparedness.

The literature further suggests that an integrated combination of curriculum content, digital media, creative strategies, simulations, and local wisdom can be potentially effective in supporting a disaster-aware culture from an early age. The human security approach broadens this orientation by emphasizing not only physical safety but also well-being and environmental sustainability. Thus, the approach shows potential to support the development of resilient students who are better prepared to respond to multidimensional threats.

Thus, the results of this research provide a foundation for the development of a more adaptive, inclusive, and contextual IPAS curriculum, and support the achievement of SDG 4 on quality education in primary schools. The findings of this study also emphasize that the knowledge gap in disaster mitigation among elementary school students, particularly for types of disasters other than earthquakes such as floods, cannot be addressed solely through lecture-based material delivery. Contextual and experiential learning strategies are needed, such as evacuation simulations, the

use of visual or digital media, and the integration of local wisdom that aligns with the threat characteristics in each school's environment. This condition is relevant to the situation of SD Negeri Kebalen 05, which is located in a flood-prone area, so the implementation of human security-based IPAS learning needs to be specifically designed to suit the local disaster conditions, not just focusing on one type of threat.

Because the conclusions drawn here rest on literature analysis rather than direct intervention, the proposed approach requires empirical testing before its effectiveness can be confirmed. This study therefore opens the door for further empirical research that directly tests the effectiveness of human security-based IPAS learning in the field, particularly among fifth-grade students at Kebalen 05 Public Elementary School. The subsequent research is expected not only to measure the increase in knowledge, attitudes, and disaster mitigation skills but also to evaluate the sustainability of its impact on students' preparedness in the long term. This way, the contribution of this approach to the formation of a disaster-aware culture in elementary schools can be measured more comprehensively and serve as a reference for the broader development of disaster mitigation education policies.

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