Participatory Social Action in Addressing the Impacts of Climate Change, a Case Study in Indonesia

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ABSTRACT

This study explores the philosophical underpinnings of addressing climate change. Three journals were examined, covering issues of climate change impacts, the second discusses mitigation efforts, and the third focuses on Indonesia's diplomacy in reducing greenhouse gas emissions. Using NVivo software, qualitative analysis maps social action for climate change adaptation in Indonesia. The study includes a case analysis of five villages under the Climate Village Program (PROKLIM), showcasing community engagement, education, and capacity building in adaptation and mitigation. Philosophical discussions encompass epistemology, coherence, correspondence, and pragmatism, linking past philosophical views. The research reveals comprehensive coverage of ontology, epistemology, and axiology across the journals, demonstrating strong correlation and coherence. Field-based evidence aligns with these philosophical approaches, illustrating successful social adaptation actions. Five main themes emerge: Climate Change, Development, Management, Policy, and Social Action. Recommendations highlight the need to measure the positive impacts of social actions on economic benefits, social-cultural capacity, and environmental quality, bridging the gap between theory and practice.

Keywords: philosophy, climate change, participatory action research, adaptation

INTRODUCTION

A. Background

The Earth is getting hotter. This short statement is easily felt wherever we are in the country. The air indeed feels hotter than before. In other parts of the world, even in countries with subtropical climates, air temperatures during the summer have exceeded normal temperature limits. This heat has caused casualties and forest fires in Canada, America, and Europe. In Canada[1], in the summer of 2021, air temperatures reached 49.6°C, resulting in hundreds of deaths and the worst forest fires in Canadian history. A 719 people were recorded dead in just seven days in the province of British Columbia, the westernmost region of Canada [11]. Furthermore, [21] mentions that the World Bank estimates that by 2030, climate change will impoverish 68-132 million people. This estimate depends on the severity of the impact of climate change in each region[2].

The United Nations, through its branch organization, the UNFCCC (United Nations Framework Convention on Climate Change), plays a role in addressing climate change issues by fostering cooperation and building common interests, interdependence, and absolute gains, so that countries can collaborate rather than conflict, while also clarifying the roles of each country according to its capacity [36]. Indonesia has ratified the international convention on climate change through Law No. 16 of 2016 concerning the Ratification of the Paris Agreement to the UNFCC. This ratification binds Indonesia to demonstrate its commitment to emissions reduction. The targets outlined in the NDC (nationally determined contribution) state that Indonesia is committed to reducing emissions by 32% through its own efforts and 43% through support from international financing by 2030 [41].

Discussions about climate change issues and mitigation efforts currently focus more on policy realms, program planning and implementation, monitoring, technology utilization, and institutional frameworks to address the impacts of climate change more effectively. Discussions from the perspective of the philosophy of science are rarely found, which could then contribute thoughts on the fundamental problems of humanity, approaches to handling impacts that focus more on how humans interact, the relationship between humans and nature, and how moral values, social interconnectedness, and pragmatism in research could provide different perspectives and make climate change impact mitigation efforts more grounded. This brief study attempts to examine three studies regarding climate change adaptation actions, which can logically be ordered based on the process of stating climate change-related issues, steps to address impacts through community approaches, and the performance diplomacy of climate change impact mitigation in Indonesia at the international level. This research also analyzes social action practices using NVivo software to better understand concepts, map climate change social issues, and provide recommendations for further research to develop research findings.

The research aims to: (1) Analyze three journals related to climate change adaptation from the aspect of qualitative study of social action practices; (2) Understand the logical connections of the three journals and provide a general interpretation through the perspective of the philosophy of science; (3) Explore the philosophy of the three journals using references from leading philosophers, rationalism and empiricism, and aspects of coherence, correspondence, and pragmatism associated with social action for climate change adaptation; and (4) Present a field-based climate adaptation program in West Kalimantan as a case study to illustrate practical applications and outcomes of theoretical frameworks in a real-world setting. Therefore, it is hoped that this research can enrich our knowledge in our efforts to make the environment around us better.

METHODOLOGY

The research framework is based on the premise that the three different studies under discussion have logical connections. The logical sequence begins with the presentation and identification of climate change issues, efforts to address the impacts of climate change through community engagement, and how the results or performance of climate change actions are diplomatically presented at the international forum. Indonesia has ratified the International Convention through the Paris Agreement, binding Indonesia to actively engage in efforts to reduce global greenhouse gas emissions. Within the framework of the philosophy of science, the researchers aim to examine how these three interrelated studies can demonstrate consistency in terms of ontology, epistemology, and axiology, so that readers can understand the meaning behind the technical information presented in the research. The three journals under study are [1], [13], and [15]:

1. Ainurrohman, A and Sudarti, S. (2022). The Analysis of Climate Change and Global Warming as Critical Phases. Jurnal Phi, Jurnal Pendidikan Fisika dan Fisika Terapan. Vol 3 (3), 2022;

2. Fatkhullah, M., Mulyani, L., Dewi, A.S., Habib, M, A.F., dan Reihan. (2023). Communication Strategies in Addressing Climate Change Through Community Engagement. Jurnal Komunikasi Pembangunan. Vol.

21(03), 2023; and

3. Firdaus, A.Y. dan Wandira, P.A. (2022). Indonesia's Environmental Diplomacy: Issues in Climate Change Mitigation. JPPI, Vol. 8(3), 2022

The literature review method is utilized to explore the background of ideas, the use of theories concerning the research process and topics, and how the results of this research generate values that are beneficial to humanity. Literature studies are also used to assess the extent to which coherence, correspondence, and pragmatism are employed in the data search, analysis, and presentation processes. Additionally, literature studies are expected to uncover the hermeneutic approaches used by the initial researchers in discussing and elaborating on their research findings. The results of the evaluation of the three studies are then compared to identify consistencies, connections, and gaps that may contribute to addressing climate change issues in Indonesia.

Furthermore, NVivo version 12 software is used to elucidate themes surrounding climate change adaptation and community-based social action presented in the three journals. Through this software, Word Clouds are generated to define the themes that will be further analyzed, the intensity of each theme in the three journals under study, Project Maps related to social action for climate change adaptation, Mind-Maps of Social Action for Climate Change Adaptation, and a comparison of the similarity of words found in the journals.

To provide a real-world evidence of the result from the desktop studies, a field-based case study was conducted in five villages located in Kapuas Hulu District, West Kalimantan Province, Indonesia. The villages of Tanjung, Nanga Lauk, Batu Lintang, Selaup, and Nanga Sangan were facilitated to obtain PROKLIM (Village Climate Program), a community-based climate adaptation program implemented by the Ministry of Environment and Forestry, Government of Indonesia. These villages received support from the Asian Development Bank for a REDD+ program over five years (2018-2023). The program's evaluation focused on three key areas: mitigation action, adaptation action, institutional capacity, and emission reduction performance. This case study aims to illustrate the practical application and outcomes of theoretical frameworks in a real-world setting, providing a comprehensive understanding of how climate adaptation strategies can be effectively implemented at the community level. Through this case study, the research seeks to highlight the successes and challenges faced by these communities in their efforts to adapt to climate change and reduce emissions, offering valuable insights for broader application and policy development. Methods applied during the field-based case study included: focus group discussions in five villages, series of participatory training related to PROKLIM, data collection related to climate mitigation action (e.g., land/forest rehabilitation, forest fire management, waste management, and renewable energy programs), climate adaptation actions (e.g., disasters management, water management, and improving community health and sanitation), institutional capacity improvement (training, leveraging program in other villages, and knowledge sharing), and participatory landuse mapping to measure emission reduction at the village level).

LITERATURE STUDY

A. Threats of Climate Change to Human Life

Global climate change is currently one of the most acute problems in the world economy and politics. A 97% of scientists agree that this issue exists, and it has been worsening over the past 20 years during the industrial revolution, leading to massive emissions of harmful substances into the atmosphere, water, and soil [52].

In 2021, extreme weather conditions have garnered worldwide attention. Countries like Canada, South America, Iran, Afghanistan, Pakistan, and Turkey suffered severe droughts. Droughts have persisted in East

Africa for about 40 years. Record temperatures have been recorded in several parts of the world. These places include Death Valley, California (54.4 degrees), British Columbia (46.6 degrees), and Sicily (48.8 degrees). Western European residents faced major floods. Many casualties and financial losses were suffered by Germany, Henan province in China, and the southeastern United States [52].

In addition to the tangible impacts such as disasters and loss of life, economic impacts also accompany them, and the figures are staggering. One example of economic losses can be calculated from the increased prevalence of climate-sensitive diseases in the future, including dengue fever, malaria, diarrhea, and pneumonia [35]. Research results indicate that the impact of climate change on climate-sensitive diseases has the potential to affect Indonesia's Gross Domestic Product (GDP) by 0.1% or equivalent to Rp. 7.6 trillion. Climate change is expected to more frequently trigger disasters, thus increasing health losses up to 1.8% of Indonesia's national GDP. Strengthening climate change adaptation actions in the health sector requires more attention to reduce these losses [35].

B. Global Efforts and Indonesia's Role

In order to effectively address the impacts of climate change, government involvement in all countries is necessary for long-term development through strict accountability for resources and regulations applied in the past to produce up-to-date climate policies in the future [2]. Mitigating the impacts of climate change should be a top priority, and therefore, this global threat requires global commitment to addressing its adverse effects to ensure global sustainability.

The impacts of climate change have been felt worldwide, prompting various efforts and policies to address the resulting impacts. These range from the implementation of circular economy concepts, seen as the antithesis of linear economic activities, to reducing fossil fuel consumption and carbon tax policies. All of these policies must be understood and supported by all stakeholders, not just the government, but also involving all sectors including the private sector, businesses, and communities. Awareness and participation of all parties are needed to address the impacts of climate change and to achieve sustainable development. These efforts are not only for the current generation but also for future generations [25].

Indonesia, as a country vulnerable to the impacts of climate change due to its tropical location, consistently follows global trends in addressing climate change issues. However, it has yet to set ambitious targets and priorities. Although the narrative on the importance of the ocean's presence has begun to be advocated, it still requires time and long processes to be implemented through international climate governance [42].

Handayani et al., [17] in their book "*Community-Based Climate Resilience: Concepts and Implementation*" discuss the Community-Based Disaster Risk Management (CBDRM) initiative, which combines disaster science with a framework of community social movements. This approach emphasizes that disaster response should be community-based and oriented towards communities. This is based on the fact that communities are the ones directly affected by losses during disasters and therefore should be involved in disaster risk management ([54] and [53]). Community involvement is essential in mitigation, preparedness, and recovery processes through the provision, access, and control of community resources ([55] and [56]). In the CBDRM framework, community members are the main actors in planning or designing strategic steps to survive and adapt during disasters, by optimizing the use of local resources and potential ([57] and [58]). Communities with knowledge of the issues, consequences, and challenges faced need to be involved in the development of policies and strategies in disaster mitigation and risk reduction [59]. This engagement process will foster a sense of ownership and long-term commitment from the community ([60] and [61]).

Furthermore, [17] also state that the Community-Based Disaster Risk Management (CBDRM) approach promotes a combination of bottom-up and top-down approaches to overcome resource limitations and enhance the effectiveness of disaster risk management program implementation. The top-down approach

initiates the CBDRM process, aiming to provide opportunities for communities through policies and initial support from the government and other stakeholders. The top-down approach in CBDRM can also be seen in the final stage, when CBDRM practices are institutionalized through the production of disaster risk management planning documents that need to be monitored for implementation and sustainability by the government. The bottom-up approach is manifested in the active involvement of communities as subjects of CBDRM in every stage of disaster risk management.

C. Policy Philosophy on Climate Change Issues

Literature in Indonesia related to the application of philosophy of science in the context of climate change is still scarce. Some foreign literature eventually becomes the choice. [7] wrote in the Journal of Environmental Politics Vol. 22, No. 3, that recently, climate change issues continue to dominate academic work in green/environmental politics. Indeed, there is an inverse relationship between the lack of political leadership in addressing climate change and the growing sophistication of academic analysis of this complex issue. There is an increasingly large gap between the growth of our knowledge and understanding of the ethical, political, economic, sociological, cultural, and psychological aspects of climate change and the lack of political achievement in setting clear and binding targets. This gap can be considered as evidence that we do not need more reports on climate change. Quoting the most unexpected environmental-friendly politician, Arnold Schwarzenegger, former Governor of California, stated that "*The debate is over. We know the science. We see the threat. And we know the time for action is now*." As a governor, he took practical steps to address the impacts of climate change through political approaches.

In another literature, [14] in The UNESCO Courier journal, July-September 2019 edition, revealed that addressing climate change issues is at the intersection of science and politics. He stated that as one dimension of the ecological crisis, climate change opens the way for more specific reflections on the relationship between science and politics. Science bears a great responsibility for the emergence of climate issues. This is mainly due to the extraordinary power developed by new technologies and their unrestricted use by economic forces, leading us into the Anthropocene era. For the first time in history, human activities are causing changes in the characteristics of certain environments that affect all humanity.

However, science also alerts us to issues related to the ecological crisis. This plays a decisive role in developing scenarios that can lead to rational climate crisis management. Science can destroy us, but it can also save us. Integrated into a broader understanding of reality, the scientific approach remains crucial in controlling climate change. However, democracy is not technocracy. In democracy, it is politics that makes decisions. German sociologist Max Weber (1864-1920) distinguished between the factual realm and the value realm. In the realm of knowledge, scientists specialize in facts. They are responsible for analyzing situations and proposing various scenarios that fit ecological constraints. In summary, [14] states that addressing the impacts of climate change is not as simple as being a technical domain and should be tackled by technocrats [22]. Fundamental approaches are needed so that mitigation efforts can address the underlying causes of climate change issues.

One local literature was found that can be linked to how to translate fundamental religious values with logical implications if these values are implemented. [23] stated that environmental problems (including climate change issues) that are currently occurring actually stem from fundamental-philosophical errors in human understanding or perspectives on themselves, nature, and the place of humans in the entire ecosystem. This error leads to human behavioral pattern errors, especially in their relationship with the environment [62]. Second, wise perspectives are based on faith for the purpose of security and safety as a form of obedience to Allah. In this regard, humans are created as stewards on earth, so it is only right for humans to act wisely to maintain and regulate the environment properly, orderly, and sustainably [63].

D. Social Action Research

Action research and social action offer suitable approaches to address the impacts of climate change by involving active participation of the community. Action research [37], aimed at creating change within communities, prioritizes citizen participation in efforts to address the impacts of climate change [64]. Meanwhile, social action focuses on transforming community structures through increasing awareness, empowerment, and concrete actions to advocate for justice and equality in the context of climate change [51]. The social action model also encourages behavioral change, such as turning households into producers of valuable commodities from waste, enhancing their capacity in addressing waste and environmental issues [16]. Additionally, civil society organizations [36], such as the Indonesian Farmers Union, play a crucial role in assisting farmers and advocating for their rights [9]. In this view, well-planned social movements can also a powerful force in confronting the challenges of climate change by leveraging similarities in profession, gender, and socioeconomic status to achieve goals [18].

The use of NVivo application for qualitative research by expert researchers is widely found in studies on social phenomena. NVivo 12 plus application as a tool for qualitative research analysis, according to [12], is beneficial because it can calculate statistically and also as an application with a strong feature network to investigate visualization [12]. With this capability, researchers can narrate and interpret research data. In short, the NVivo 12 plus software application enables users to beautifully and dynamically visualize relationships between sociograms [39].

E. The Forest Investment Program-1, West Kalimantan

The Forest Investment Program-1 (FIP-1), titled “Community Focused Investment to Address Deforestation and Forest Degradation,” is a five-year grant project administered by the Asian Development Bank (ADB) in cooperation with the Ministry of Environment and Forestry, Government of Indonesia. The project aims to reduce emissions by 3.7 million tons CO2e from 2016-2026 and increase community income by 20% by the end of the project. One of the key outputs of FIP-1 involves bringing 17,000 hectares under Community Based Forest Management (CBFM) agreements between Forest Management Units (FMUs) and community groups, adopting the Social Forestry scheme to address tenure conflict issues [65].

FIP-1 is implemented in 17 villages across Kapuas Hulu and Sintang districts in West Kalimantan Province, covering a total area of nearly 700,000 hectares, with a population of around 10,177 people of productive age. The project aims to provide communities with legal, long-term access to forest areas to improve their livelihoods, enhance village economic development, infrastructure, agroforestry, and build individual and institutional capacities [65]. Additionally, FIP-1 supports the registration of 15 villages into the PROKLIM (Village Climate Program) by facilitating data preparation, evaluation, and community training related to PROKLIM. Five of these villages were selected for a field-based case study in this research, to provide practical evidence supporting the desktop study, illustrating the real-world application and outcomes of climate adaptation strategies within the broader research framework.

RESEARCH RESULTS

A. Summary of Researches

The three studies examined revolve around the issue of climate change. The selection of these three journals is based on the interconnectedness of the topics discussed, which logically link together. The first journal, focusing on the issue and impacts of climate change, reveals the dimensions of impacts resulting from global warming. The second journal emphasizes the government’s efforts to address the impacts of climate change through community involvement and approaches. Meanwhile, the third journal elaborates on the

performance status of emissions reduction and fulfillment of international conventions and the government's commitments in mitigating the impacts of climate change.

a. Journal 1: Climate Change Issues

This journal discusses climate change and global warming occurring as critical phases. Climate change threatens human life, and global warming leads to an increase in atmospheric temperatures. This study uses literature review methods, and data are obtained from various sources such as books, journals, and websites. The impacts of climate change and global warming include disruptions to health, agriculture, forests, infrastructure, transportation, tourism, energy, and society. The increase in atmospheric temperature is caused by human activities such as the use of fossil fuels and greenhouse gas emissions. This study highlights the importance of human/community awareness and actions in addressing global warming and climate change to maintain Earth's sustainability.

b. Journal 2: Community-Based Climate Change Mitigation

The Climate Village Program (ProKlim) is a government program aimed at encouraging community action participation in addressing climate change through adaptation and mitigation. This program is implemented by the Ministry of Environment and Forestry (KLHK) involving local governments, community social actions, and other stakeholders. The communication strategy used in ProKlim focuses on increasing community participation. The context of this program is the threat of climate change to human sustainability. Some figures and data introduced in this program are the increase in average temperatures threatening human life. However, despite an increase in community participation in the ProKlim program, there are still challenges in disseminating formal and limited information.

c. Journal 3: Diplomacy Performance in Climate Change Mitigation

In this journal, the authors review Indonesia's environmental diplomacy in addressing climate change issues. This research aims to evaluate Indonesia's diplomatic efforts in protecting its citizens through the UN framework, adaptation, and climate change mitigation. The research method used is descriptive with secondary data analysis. The results show that as a member of the Framework Convention on Climate Change, Indonesia has taken significant steps in its diplomatic efforts to participate in the local and global community in addressing climate change. However, Indonesia's efforts are still categorized as "Very Insufficient" in terms of reducing greenhouse gas emissions. Stronger commitments and concrete actions are still needed to protect the environment and address climate change.

Upon deeper examination, there is a common thread among the three studies. Although conducted separately without communication among the researchers, they all observe the same facts from slightly different perspectives and backgrounds. The interconnectedness among the studies can be logically explained from these common facts. The first researcher outlines social and environmental issues caused by global warming. These issues are then addressed through the second study's approach, which emphasizes the role of the community directly affected by global warming. As climate change is a national commitment, Indonesia, having ratified international conventions, must report on its climate change mitigation and adaptation performance to international forums.

B. Analysis of Social Action Practices Using Nvivo 12

The research begins by uploading the three journals into Nvivo 12 software as input data. Frequency analysis of words/phrases is conducted both automatically using the available menu in Nvivo 12 and manually to enrich references and enhance the scope of analysis in the three journals. This stage is visualized through a Word Cloud image, as presented in Figure 1.

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Figure 1 Word Cloud of the three journals under study.

Figure 1 shows that the word/phrase “Climate Change” is the most frequently appearing word in the three journals under study, followed by community, global warming, climate program, temperature, environment, communication, the vilage climate program (PROKLIM), and other related words. From the list of words/phrases generated, themes/subthemes are then identified (automatic coding and manual inputs to allow expanding the relevant phrases into defined “codes”, for further discussion and serve as the basis for developing the concept of a social action project for climate change adaptation.

From the extensive list of words/phrases about social action for climate change adaptation, five main themes were identified, which were then developed into 23 subthemes. Details of the themes-subthemes, their distribution in the three journals studied, and the number of references related to the themes-subthemes are presented in the following table.

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Table 1. Details of themes in the examined journals.

No	Themes	Files	References
1.	Climate Change (7 sub themes)	3	397
2.	Management (2 sub themes)	3	144
3.	Policy	3	48
4.	Development Sectors (4 sub themes)	3	135
5.	Social Action (6 sub themes)	3	212

As seen in Table 1, the Climate Change theme has the most references of words/phrases (397), followed by the Social Action theme (212). The Climate Change theme covers issues/impacts of climate change on ecosystems and socio-economic and natural disaster issues. These impacts are divided into five sectors: infrastructure, tourism, forests and agriculture, and health and education. The Management theme shows two approaches to mitigating climate change and adapting to its impacts. The Policy theme becomes an important management action for both mitigation and adaptation aspects. Ultimately, the community, as the most affected party, also becomes a crucial actor in efforts to address the impacts of climate change through social actions. The interaction between themes is illustrated in the above Figure 2.

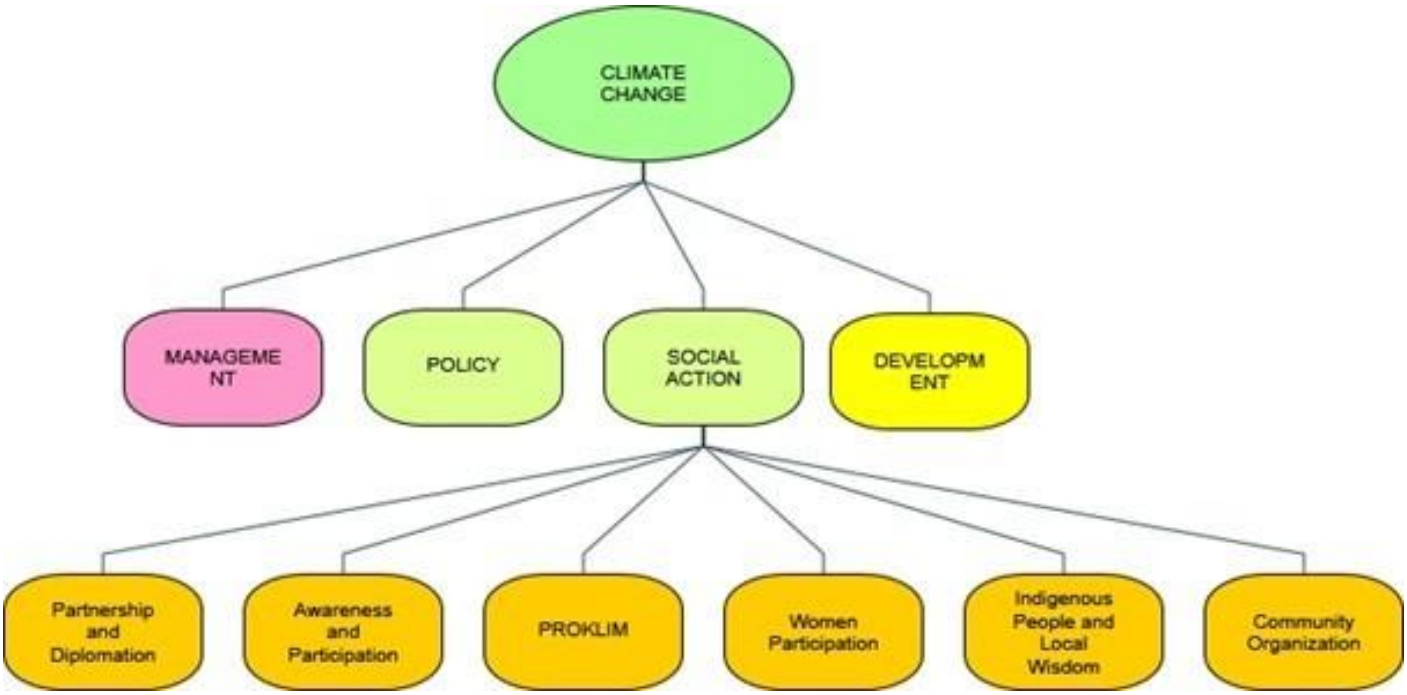

Figure 2. Interaction between themes in the climate change social action (generated from Nvivo)

To gain a deeper philosophical understanding and provide recommendations for further programs, the following chapters present the results of the philosophical interpretation of the three journals.

C. Philosophy of Science in the Three Journals Examined

Using the perspective of the philosophy of science, this research is analyzed based on three fundamental aspects of philosophy of science, namely ontology, epistemology, and axiology. From this analysis, it can be understood whether the researchers, consciously or not, have incorporated considerations of the philosophy of science into their research. In general, all three studies have incorporated considerations of ontology, epistemology, and axiology into their research. Analyzing the philosophy of science using these three

perspectives can help readers understand more deeply each study, how thoughts about the issues discussed are formed, from which perspective conclusions are drawn, and so on [48]. Furthermore, Suaedi adds that science must have these three foundations. Science does not only talk about the essence (ontology) of knowledge itself, but also questions how (epistemology) that knowledge is processed into knowledge that has utility value (axiology). These three sequences are dynamic and will continue to change with the development of human civilization. The analysis of the three fundamental aspects of the philosophy of science regarding the three journals is presented in the following table:

a. Journal 1: Climate Change Issues

The examination of climate change and global warming as tangible and global phenomena encompasses the ontology aspect. This involves detailing the impacts of climate change, including rising atmospheric and ocean temperatures, extreme weather events, and their repercussions on public health and infrastructure. Through the analysis conducted with NVivo, this ontological perspective is manifested in the identification of themes associated with climate change and the sectors of development that are affected.

In terms of epistemology, the research methodology relies on literature review techniques to gather data and information from books, journals, and websites. This information serves to bolster the arguments and conclusions presented in the study. Employing inductive logic, researchers draw generalizations from the collected data, discerning patterns in the impacts and interrelations between climate change and global warming. Furthermore, the study explores strategies for addressing climate change and its effects through both mitigation and adaptation measures.

Lastly, the axiology aspect underscores the acknowledgment of climate change as a significant threat to human life and the environment. The dissemination of information aims to raise awareness about these issues and mobilize communities to take social action in mitigating and adapting to climate change. This research also emphasizes the importance of increasing public awareness, encouraging the involvement of women [29], fostering diplomatic efforts, and fostering partnerships to effectively address the challenges posed by climate change.

b. Journal 2: Community-Based Climate Change Mitigation

The aspect of ontology in this journal can be clearly seen in the understanding the reality of climate change and its profound impacts on both humanity and the environment is essential. It acknowledges that climate change is a tangible phenomenon resulting from human activities, posing significant threats to the sustainability of human life. Therefore, it underscores the critical importance of human action in confronting and mitigating these challenges. Through NVivo analysis, research themes such as droughts, floods, natural disasters, and diseases provide a foundational understanding for community engagement strategies aimed at adaptation actions like PROKLIM.

Secondly, the epistemology is also shown related to research methodology that involves desk research techniques with a qualitative approach, utilizing secondary data to delve into information concerning programs like the Climate Village and their communication strategies. Information gleaned from documents published by governmental bodies, such as the Ministry of Environment and Forestry, serves as valuable resources to comprehend communication strategies in formulating climate change actions through community engagement. The logical framework applied combines elements of inductive-deductive-inductive reasoning. It utilizes national-level data to scrutinize programs like Proklim as social actions at the grassroots level, ultimately drawing overarching conclusions.

Lastly, the axiology is also shown the initiative actions from the central to the research is the emphasis on fostering participation and dialogue within communities as integral components of climate change action

plans, focusing on both adaptation and mitigation strategies. Effective and persuasive communication is highlighted as crucial in disseminating vital information to the public, aiming to enhance community awareness and engagement. Furthermore, the study manifests a commitment to enhancing community involvement through continuous and engaging information dissemination, reflecting core values such as sustainability, justice, and environmental stewardship.

c. Journal 3: Diplomacy Performance in Climate Change Mitigation

Ontology aspect of this journal can be identified from the expression of acknowledging the phenomenon of climate change and its impacts on the environment and human life. It reflects the view that climate change is an undeniable reality and a global challenge that requires collective action.

Utilizing knowledge acquired from literature, research, and scientific articles to support the analysis and findings presented demonstrates a commitment to evidence-based understanding indicated the epistemology aspect of the examined journal. The descriptive approach employed in explaining the issues of environmental diplomacy in Indonesia and outlining the steps taken in climate change mitigation emphasizes clarity and transparency in communicating complex topics. This research utilizes deductive logic, where data from literature studies are meticulously analyzed and discussed to derive meaningful conclusions.

The axiology aspect is seen from the fact of the evaluating Indonesia's efforts in environmental diplomacy and emphasizing the importance of commitment and tangible actions in reducing greenhouse gas emissions and safeguarding the environment are paramount. The use of the term "Highly Insufficient" from an axiological standpoint underscores the imperative for Indonesia to intensify mitigation efforts and adaptation actions to fulfill its global commitments. This reflects a value system that prioritizes environmental stewardship and recognizes the urgency of addressing climate change.

D. Rasionalism and Empirism

Rationalism, empiricism, criticism, and positivism are fundamentally models of thought based on epistemology. The rationalist model of epistemology relies on the existence and function of reason or intellect [31], logic and intellectuality [3], and intuition [48]. In this research, only two models of epistemology were utilized, namely rationalism and empiricism, as two basic models commonly encountered and used by scientific experts. If rationalism relies on reason, intellect, intellectuality, then empiricism is the antithesis of rationalism in the realm of philosophy of science [3]. Empiricism is a philosophical doctrine that prioritizes the role of human experience in acquiring knowledge and diminishes the role of reason ([38] and [26]).

The first journal focuses on the issue of climate change, highlighting the importance of human awareness and actions in addressing global warming and climate change to maintain the Earth's sustainability. It demonstrates a blend of rationalism, relying on human reason and consciousness, and empiricism [65], implicitly through the use of literature study methods and data collection from various sources such as websites, books, and online library journals. This approach reflects the significance of empirical evidence in understanding climate change and global warming, serving as a foundation for climate change adaptation actions. The secondjournal discusses community-based climate change mitigation, possibly incorporating elements of rationalism in the interpretation and analysis of collected data [44]. It utilizes desk research methods, relying on secondary data collection, and combines inductive and deductive methods, with inductive experiences at project sites and within communities serving as the basis for decision-making, a characteristic of empiricism [65]. While the last examined journal explores the performance of climate change mitigation diplomacy, discussing previous research findings and theories supporting the discussion on environmental diplomacy and climate change. It employs literature study methods using secondary data

(research findings, scholarly books, scientific articles, internet, etc.) for analysis, reflecting an empirical approach [65] where data and facts from secondary sources are used as the basis of information for analysis.

E. Alignment with the views of philosophical figures

Connecting opinions, theories, and thoughts in contemporary research with those of past philosophers is important to determine the extent to which contemporary researchers align with the thoughts of philosophers from the past. Conversely, it is quite remarkable to see that the theories and perspectives of past philosophers are still highly relevant to contemporary issues. In this research, opinions of past philosophical figures that are in accordance with the theories and thoughts of the researchers in the examined journals are identified. An analysis of the alignment of theories and thoughts with those of past philosophers across the three examined journals is presented in the following paragraphs.

In the examination of climate change issues, Martin Heidegger's philosophical stance [50], emphasizing the intrinsic value of nature and the profound impact of technology, resonates strongly with the contemporary research focus on understanding human-nature relationships and the consequences of technological advancement [19]. This alignment underscores the enduring relevance of Heidegger's insights [5], as they provide a philosophical foundation for exploring the complexities of climate change and environmental degradation.

In the context of community-based climate change mitigation, the alignment continues with the ideas put forth by Plato, Al-Farabi, and Ibn Khaldun. Plato's discussions on public policy formation [46] and [43], Al-Farabi's exploration of creating a just society through inclusive development [4], and Ibn Khaldun's emphasis on community participation [27] in sustainable development all parallel contemporary efforts to engage communities in mitigating the impacts of climate change. These philosophical perspectives offer valuable insights into the dynamics of societal structures and the role of community involvement [20], [24] in fostering resilience and sustainability [49].

Regarding climate change mitigation diplomacy, the alignment persists with the philosophical concepts of Arne Naess, Peter Singer, and Seyyed Hossein Nasr. Naess's "deep ecology" philosophy [32, 33], Singer's utilitarian ethics [47, 45], and Nasr's Islamic cosmological perspectives [30] all contribute to a deeper understanding of the ethical and moral dimensions of diplomatic efforts aimed at addressing climate change. These philosophical insights provide a framework for promoting empathy towards all life forms, fostering global cooperation, and maintaining harmony between humans and nature in the face of global environmental challenges.

F. Coherence, Correspondence and Pragmatism

In the examination of the first journal, coherence is evident through its well-structured content, starting from the introduction to the conclusion, each section providing clear and interconnected insights into the topic [10]. The author effectively integrates various sources, such as websites and books, ensuring correspondence between the content and the factual basis [34]. Notably, the paper's pragmatism shines through its relevance and importance in addressing issues like global warming, practical insights and understanding of the subject [6].

Moving on to the second journal focusing on community-based climate change mitigation, coherence is maintained through clear relationships between climate change issues and the Climate Village Program (ProKlim), communicated via effective strategies. The paper presents logical arguments and consistent information [34] about the program, indicating a high level of correspondence with the research objective. Moreover, the paper achieves strong correspondence by referencing conceptual frameworks [6] and previous studies [40], enhancing its practicality in understanding and implementing communication

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strategies for climate change mitigation.

In the third journal analyzing climate change mitigation diplomacy performance, coherence is apparent in its organized structure and logical flow of thought [10], with each section seamlessly supporting the main topic of Indonesian environmental diplomacy and climate change issues. The journal meticulously outlines the steps Indonesia has taken to align with international standards and agreements, creating a cohesive narrative that enhances the reader's understanding of the country's strategic approach to climate diplomacy. Correspondence is demonstrated through robust theoretical references [34] and detailed explanations about international agreements, such as the Paris Agreement and other global initiatives. These references reinforce the research's relevance and ensure that its findings are grounded in established scientific and diplomatic frameworks, thus highlighting Indonesia's commitment to global climate objectives. The pragmatism [6] of this research is evident in its thorough analysis of Indonesia's diplomatic efforts, which includes case studies and empirical data supporting the effectiveness of these initiatives.

G. Results from the Case Study

The activities identified as part of the climate village program in five villages selected as case studies are [67, 68]:

1. Identification of Climate Change Vulnerability and Risks: Communities play a role in gathering information and data on potential climate change risks in their areas. In the villages of Selaup, Nanga Lauk, Batu Lintang, Tanjung, and Nanga Sangan in Kapuas Hulu District, communities organize themselves through MPA (Fire Concern Community) and Social Forestry to help reduce the risk of forest fires.
2. Implementation of Climate Change Adaptation and Mitigation: A total of 2,116 community members in the five villages actively participate in agroforestry activities. Additionally, 133 people are involved in Assisted Natural Regeneration (ANR) activities across the five villages. In these selected villages, communities are also actively involved in constructing clean water facilities supported by the FIP-1 project from the Ministry of Environment and Forestry (KLHK) and the Asian Development Bank (ADB).
3. Community Capacity Building: Community members and local government staff are involved in training related to climate change adaptation and mitigation actions. A total of 614 government staff received training on climate change, carbon emission reduction initiatives, and the PROKLIM program. Additionally, 1,220 community members (including 366 women) participated in training on activity planning, alternative livelihoods, and organizational capacity building.
4. Strengthening Community Institutions: Community members in the five villages are involved in the planning, proposal, and operational aspects of Social Forestry. A total of 1,022 people are registered as direct and indirect beneficiaries. Training on community organization, financial planning, and business development is provided, strengthening community institutional capacity, which is a key component of the PROKLIM program.

The PROKLIM (Village Climate Program) assessment conducted in five villages under the FIP-1 project evaluated the villages based on four key areas: Adaptation, Mitigation, Emission Reduction, and Institutional Capacity. Each area had a maximum possible score, with Adaptation being 35%, Mitigation 20%, Emission Reduction 5%, and Institutional Capacity 40%, summing up to a total maximum score of 100%.

In the village of Selaup, the results indicated a strong performance across all areas. The Adaptation efforts scored 29.44%, reflecting significant community engagement in identifying and addressing climate vulnerabilities. Mitigation activities, which include initiatives such as agroforestry and renewable energy projects, garnered a score of 15.7%. The village achieved the maximum score of 5% in Emission Reduction,

showcasing effective strategies in reducing greenhouse gas emissions. Institutional Capacity was particularly strong, scoring 36.35%, leading to a total score of 86.36%.

Tanjung village demonstrated a similarly robust performance with a total score of 88.44%. Adaptation scored 28.17%, indicating comprehensive efforts in enhancing the community's resilience to climate impacts. The Mitigation score was slightly higher than Selaup's at 16.76%, suggesting a greater emphasis on sustainable practices. Like all the villages, Tanjung also achieved the maximum score in Emission Reduction. Its Institutional Capacity was outstanding, scoring 38.50%, which significantly boosted its overall performance.

Batu Lintang village achieved the highest total score among the five villages with 88.61%. The Adaptation initiatives scored 28.77%, reflecting extensive measures to cope with climate change. Mitigation efforts scored 16.84%, and like the others, it reached the maximum 5% in Emission Reduction. Institutional Capacity was strong at 38.00%, underscoring effective organizational and community engagement strategies.

Nanga Lauk's assessment showed a total score of 86.42%. Adaptation scored 27.37%, demonstrating solid efforts in addressing climate-related challenges. Mitigation activities scored 16.90%, slightly higher than in some other villages, indicating a robust approach to reducing environmental impacts. The village also met the maximum Emission Reduction score of 5%. Institutional Capacity scored 37.15%, contributing significantly to its total score.

Finally, Nanga Sangan achieved a total score of 87.19%. The village scored 27.5% in Adaptation, showing effective community initiatives in managing climate risks. Mitigation scored 16.83%, consistent with other villages' efforts in sustainable practices. Emission Reduction was again at the maximum of 5%. Institutional Capacity scored 37.85%, reflecting strong community structures and engagement in climate programs.

The case study on the Climate Village Program (PROKLIM) activities in the villages of Selaup, Nanga Lauk, Batu Lintang, Tanjung, and Nanga Sangan effectively aligns with the research objectives and the results from the desktop studies of three journals. Field-based evidence enhances our understanding of how theoretical frameworks and philosophical approaches to climate change adaptation are practically implemented. Communities play an active role in gathering data on climate risks, integrating local knowledge and participation, which aligns with the objective of analyzing social action practices. The involvement of MPA and Social Forestry in reducing forest fire risks demonstrates practical adaptation strategies.

The participation of 2,116 community members in agroforestry and 133 in Assisted Natural Regeneration (ANR) activities showcases community-based initiatives' contributions to adaptation and mitigation. The use of micro-hydro power plants and solar panels for energy needs, along with the maintenance of clean water facilities, reflects a pragmatic approach to improving resilience and sustainability. Training programs for government staff and community members in climate change adaptation, carbon emission reduction, and organizational capacity building highlight the importance of education and capacity enhancement. The involvement of community members in planning and operational aspects of Social Forestry underscores the role of strong institutions in climate adaptation. Training in community organization, financial planning, and business development strengthens institutional capacity, a key component of successful climate programs, illustrating the importance of coherent and structured institutional frameworks.

RECOMMENDATIONS FOR FURTHER RESEARCH

Based on the analysis results using Nvivo, philosophical analysis related to social actions in addressing the impacts of climate change, and result from the case study, a concept for further research to measure the positive impacts of social actions is proposed. Positive impacts may include increased economic prosperity,

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enhanced social-cultural capacity of communities, and improved environmental quality. The interrelation between the identified research themes is illustrated in Figure 3.

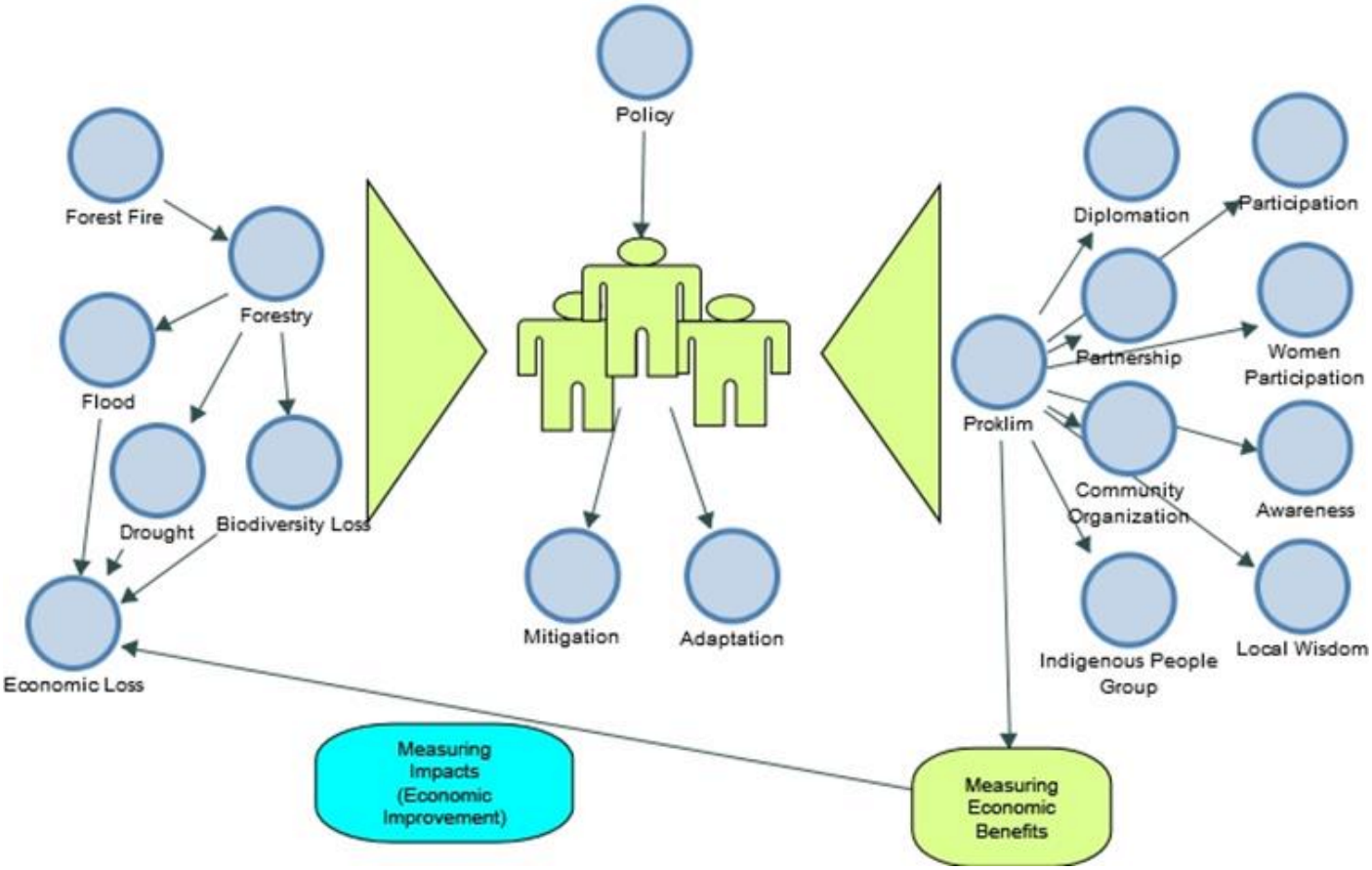

Figure 3. Conceptual map of future research related to community action on climate issues.

On the left side of the diagram, sub-theme components are arranged based on causal relationships where the final impacts are perceived by the community. The impact of climate change on forest ecosystems (such as increased forest fire occurrences) [8] leads to droughts, floods, and biodiversity loss, which can have subsequent impacts on agricultural, tourism, and infrastructural sectors. Ultimately, these impacts decrease community income. Government policies on mitigation and adaptation serve as reference points for community social actions in addressing the impacts of climate change. Through programs like the Climate Village Program (climate adaptation program), communities can become primary actors in mitigating and adapting to climate change issues and subsequently reap economic, socio-cultural, and environmental benefits.

CONCLUSIONS AND RECOMMENDATIONS

The research findings indicate that the Climate Village Program (PROKLIM) effectively addresses climate change adaptation and mitigation through community engagement, education, and capacity building. The qualitative analysis of the three journals, combined with the field-based evidence, reveals a consistent theme of social adaptation actions to mitigate climate impacts. The interconnectedness of the studies is demonstrated through their alignment with philosophical approaches, such as ontology, epistemology, methodology, and axiology.

The case study of the five villages provides concrete examples of how theoretical frameworks are applied in real-world settings, showcasing successful adaptation and mitigation strategies. The PROKLIM activities,

such as data gathering, agroforestry, renewable energy projects, and capacity building, exemplify the practical implementation of social action practices in climate change adaptation.

The alignment of field-based evidence with the research objectives highlights the relevance of philosophical approaches to understanding and addressing climate change. The study's recommendations for further research emphasize the need to measure the positive impacts of social actions, including economic enhancement, social-cultural capacity building, and community environmental quality. By bridging the gap between theory and practice, this research contributes valuable insights into effective climate change adaptation strategies.

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FOOTNOTES

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