

International Conference on Public Policy & Social Sciences 2023

13-15 September 2023

Organised by Faculty of Administrative Science & Policy Studies, Universiti Teknologi MARA (UiTM), Seremban Campus, Negeri Sembilan, Malaysia, and International University of Sarajevo (IUS), Bosnia and Herzegovina

**Obstacles in Formulating Policy for Climate Change Mitigation:
A review**

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Abstract

Climate change has become central to many public policies nowadays as all parties are concentrating on overcoming the issue. However, formulating the policies is challenging. Therefore, this paper aims to identify the obstacles to formulating climate change-related policies from the perspective of land administration. It is done by reviewing the existing literature using the narrative literature review method based on the findings of past research. This paper aims to find out the obstacles in formulating new policies related to land administration. Economics and governance are among the obstacles to formulating climate change policy. This insight will assist authorities in strategizing on overcoming the obstacles so that climate change policies can be well formulated.

Keywords: Climate change; Land Administration; Obstacles; Policy

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DOI: <https://doi.org/10.21834/e-bpj.v9iSI22.5888>

1.0 Introduction

Climate change is one of the obstacles facing the globe today, and several organizations have been brought together to debate solutions. According to Boateng & Boateng (2015), climate change is the most pressing issue of the current era. Based on Okoli & Ifeakor, (2014), in US global climate change program, climate change is characterized as an extreme reaction brought on by the status of global weather occurrences. The earth's ecosystem now contains more carbon dioxide than it did in the past due to the negative impacts of soil, ozone layer depletion, humans, agricultural resources, water resources, and others. This has had a direct impact on climate change (Francis, 2014). Based on the analysis that has been done by Chen et al., (2016); Kais and Sami, (2016); Kaika and Zervas, (2013), stated that economic expansion has a variety of effects on emissions depending on the level of development, according to research on how it affects GHG emissions in different locations. In 1992, the UN Framework Convention on Climate Change (UNFCCC) was established to facilitate thorough national adaptation programs in response to this realization. The National Adaptation Programmes of Action

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(NAPA) were created by the Least Developed Countries (LDCs), and they define how each nation views its most "urgent and immediate needs to adapt to climate change." (UNFCCC, 2011:2). Additionally, the LDCs are creating National Adaptation Plans (NAPs) to deal with the short- and long-term impacts of climate change. It is believed that the NAPA was the first national "policy" that was entirely devoted to climate change adaptation. (Friis-Hansen et al., 2013; Hepworth, 2010). It is commonly understood that policies must provide a conducive environment that not only directs development stakeholders in the design and execution of adaptation initiatives but also makes it possible for communities to adjust to climate change (Berman et al., 2015; Bauer et al., 2011; Cimato and Mullan, 2010).

2.0 Land Administration Policies

One of the most pressing issues of today's world is tackling the issue of climate change. Decisions significantly impact climate change mitigation and control of land use. One-third of all CO₂ emissions (CO₂) from human activities are believed to be attributable to land usage (OECD, 2017). It should be understood that a variety of human- or naturally-made activities can contribute to climate change. For instance, the study by Goldewijk and Ramankutty (2004) indicated that within 300 years of the occurrence of land use activities, the worldwide agricultural area rose from 3 to 4 million square kilometers in 1700 to 15 to 18 million square kilometers in 1990. Deforestation, for example, is one of the land use modification activities that alter land use and is thus the second greatest producer of carbon dioxide that causes climate change (Le Quéré et al., 2009). In general, land use, and forestry are major contributors to greenhouse gas emissions (IPCC, 2000). To overcome the problem of climate change, related organizations must create a policy that can be followed by all parties. Based on Williamson, et al., (2010) stated that there has an important need to address issues related to climate change that need to be added to the land administration system nowadays.

Dealing with climate change and its effects frequently necessitates the implementation of land administration plans. While specific policies may vary between countries and regions, several approaches are commonly adopted to incorporate climate change considerations into land administration systems. Land administration policies play a crucial role in addressing the obstacles posed by climate change (Stig Enemark, 2010). Land use planning is frequently used in climate change strategies to encourage sustainable growth and lower greenhouse gas emissions. Finding locations for renewable energy projects, conservation areas, and sustainable agricultural methods are all part of this. Secure land tenure and property rights also are essential for effective climate change adaptation and mitigation. Policies may focus on strengthening land tenure security, particularly for vulnerable populations, indigenous communities, and small-scale farmers, to encourage sustainable land management practices (Chakrabarti, and Barbanente, 2020). By taking climate risks and vulnerabilities into account when planning land use, land administration policies may incorporate climate resilience and adaptation strategies. To do this, it may be necessary to establish zoning laws to stop construction in high-risk locations (such as floodplains and coastal regions), promote green infrastructure, and incorporate climate-related information into the procedures used to make decisions about land use (Childress, Siegel, and Törhönen, 2014).

An example of a land administration policy for climate change could be the implementation of a Land Use Change and Forest Conservation Program (LULUCF). These policies aim to promote sustainable land use practices, mitigate greenhouse gas emissions, and enhance resilience to climate impacts. The policy encourages low-impact logging, sustainable agriculture, and agroforestry as examples of sustainable land use practices. It promotes local governments and landowners to implement strategies that lessen soil erosion, enhance the health of the soil, and cut down on greenhouse gas emissions from land-based activities (B. T. Kang and Festus K Akinnifesi, 2000). The policy ensures secure land tenure and property rights for local communities and indigenous peoples. It acknowledges and values customary methods of land use and takes into account their expertise when making decisions on how to manage the land. Clear land tenure encourages management of the land and involvement in initiatives to reduce greenhouse gas emissions and adapt to them (Janis Alcorn, 2013).

The other example of a land administration policy aimed at mitigating climate change is the "Green Building and Sustainable Development Policy." This policy focuses on promoting environmentally friendly land use and construction practices to reduce greenhouse gas emissions and enhance energy efficiency (Kofi Agyekum, Emmanuel Adinyira, and Godslove Ampratwum, 2020). The policy places a strong emphasis on maintaining urban woods, parks, and green areas. To improve stormwater management, lessen the impacts of heat islands, and improve air quality, it encourages the incorporation of green infrastructure, such as green roofs, rainwater harvesting systems, and permeable surfaces. The policy may include provisions for carbon offset and mitigation strategies within the built environment. This could involve incentivizing the implementation of renewable energy systems, supporting the development of community solar projects, or facilitating carbon trading mechanisms within the local jurisdiction (OECD, 2015).

Next is the Climate-Resilient Land Management Policy. This policy focuses on enhancing land management practices to build resilience to climate impacts and reduce vulnerability (OECD, 2018). The concept combines climatic factors into zoning and land-use planning. It emphasizes avoiding high-risk development regions and protecting and restoring natural ecosystems, such as wetlands and coastal buffers, which function as natural defenses against the effects of climate change (Climate-ADAPT, 2023). The policy also creates a thorough framework for assessing climate risk and mapping out the regions most susceptible to the effects of climate change, such as sea level rise, drought, or extreme weather. This data aids in guiding choices on land use planning and establishing priorities for adaptation and mitigation actions (Lara Hawchar., 2020). The policy encourages climate-resilient agricultural methods that are sustainable. This covers the use of organic fertilizers, agroforestry, soil conservation measures, and climate-smart agriculture methods. Additionally, it promotes the use of sustainable land management techniques to reduce soil erosion and enhance water retention, such as contour farming and terracing (United Nations, 2023).

This paper aims to identify the obstacles in formulating climate change-related policies from the land administration perspective. There are various problems are obstacles to building a new policy, which also applies to the new land administration policy to deal with

the problem of climate change. Numerous studies claim that economic and governance factors are among the major impediments to the creation of policies, particularly those connected to climate change from the perspective of land administration, based on a systematic, narrative, and in-depth study of the literature. Research on formulating climate change policy has highlighted significant gaps, particularly regarding the economic and governance challenges involved. Economically, there's a need for more comprehensive cost-benefit analyses that consider long-term impacts and externalities. Governance-wise, challenges include ensuring policy coherence across different government levels, effectively engaging stakeholders, and integrating scientific research into policy-making. Addressing these gaps requires improved models for economic transition, frameworks for stakeholder engagement, and strategies for science-policy integration. Overcoming these obstacles is crucial for developing effective, equitable, and sustainable climate policies, suggesting a pressing need for further research in these areas.

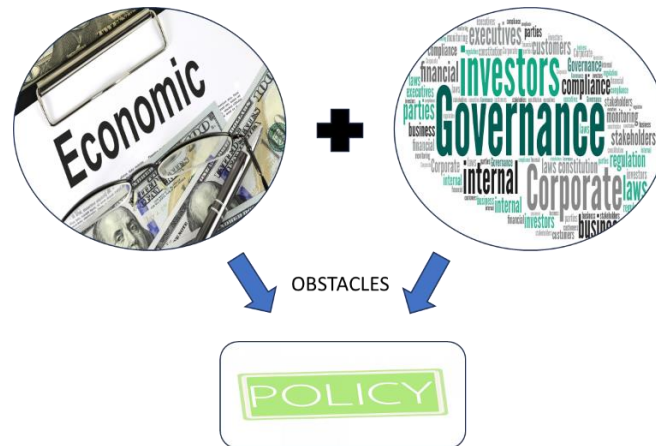


Fig. 1: Obstacles in formulating new policy from land administration perspective

3.0 Methodology

To achieve the aim of this paper which is to identify the obstacles in formulating climate change-related policies from the land administration perspective, the methodologies adopted in the execution of the review are characterized by a systematic, narrative, and comprehensive exploration of the academic literature, wherein this approach is predicated on a qualitative, thorough summary and integration of the extant research findings pertinent to a designated area of inquiry. This methodological framework is meticulously crafted to offer a broad and insightful overview of the existing body of knowledge, thereby facilitating an in-depth understanding of the subject at hand. It aims to meticulously map out the landscape of current scholarship, identify the core themes that emerge from the literature, and draw attention to the most significant insights and breakthroughs that have been made in the field. By doing so, it seeks to bridge the gap in understanding, shed light on areas that warrant further investigation, and provide a foundation for future scholarly endeavors. Following this comprehensive outline is an elaborated discussion on the challenges and impediments encountered in navigating these two fundamental aspects of the review process, offering insight into the complexities involved in synthesizing and interpreting the vast array of scholarly work.

4.0 Economic Obstacles

Based on Chen et al., (2016); Shahbaz et al., (2015); Kais and Sami, (2015), (2016), stated that economic growth is one of the dominant drivers of GHG emissions that contribute to climate change issues. Besides that, in emerging nations, corruption has grown to be a significant issue when formulating new legislation (Hilbert, M. 2016). The whole system for establishing policies has been wrecked by corruption. Because there is so much corruption involved in the implementation process, policies created in developing nations are difficult to put into practice. Some top-level managers who intimidate their staff benefit from policies, which are unfavorable to them. The process of creating the policies ends up in a muddle of not being finished when money is allotted for the implementation phase and the funds are misused. Lack of funding may result in some policies and procedures not being developed (Hanna, 2018).

i) Uncertainty and long-term planning

It is difficult to forecast with precision how climate change will affect society in the future because the problem is dynamic and multifaceted. Uncertainties including the rate of technology development, potential threats from climate change, and shifting international policy frameworks must be addressed by policymakers. To effectively combat climate change and modify policies as new evidence becomes available, long-term planning is essential (Hugues Chenet, Josh Ryan-Collins, & Frank van Lerven, 2021).

ii) Cost of mitigation

Based on Alyssa Fischer (2021), energy efficiency programs, clean energy infrastructure, and technical advancement are frequently necessary for the implementation of plans to minimize greenhouse gas emissions. These expenses may put a burden on public spending plans or private sector investments due to their potential magnitude. The advantages of mitigation measures for the environment must

be carefully weighed against their costs by policymakers. Besides that, Alyssa Fischer (2021) also stated that introducing new policies frequently comes at a cost, whether it be through the implementation of new rules, the provision of subsidies or incentives, or the funding of infrastructure. Government budgets may be strained by these expenses, which may also have an effect on the economy as a whole. Policymakers must carefully weigh the financial ramifications and explore how to finance these efforts without placing an undue burden on other industries or displacing them. Obtaining the necessary funding for efforts to mitigate and adapt to climate change is a serious challenge. Projects that are sustainable and climate resilient need to get funding from both the public and private sectors. To attract investment and scale up climate action, policymakers must investigate cutting-edge finance strategies like green bonds, carbon pricing, and public-private partnerships.

iii) Impact on Industries and Jobs

The shift to a low-carbon economy may disrupt certain industries that largely rely on fossil fuels and high-carbon activities. The possible economic and social repercussions on the workforce and communities that rely on these industries must be taken into account by policymakers. To achieve a just transition, they must devise measures to aid the impacted sectors through employment training, reskilling, and transition support, (Mitić et al 2023).

iv) Financing and investment

Referring to UNFCCC (2023), it is extremely difficult to secure the funding required for measures to mitigate and adapt to climate change. Sustainable and climate-resilient initiatives must get funding from both the public and private sectors. To attract investment and scale up climate action, policymakers must investigate cutting-edge finance techniques like green bonds, carbon pricing, and public-private partnerships.

v) Distributional Effects and Equity

Different geographic areas, communities, and social classes are impacted differently by climate change. The costs of climate adaptation or the effects of extreme weather may be disproportionately felt by vulnerable communities. It is important to consider distributional implications while developing climate policy and to make sure that disadvantaged groups are not unfairly burdened, (S. Nazrul Islam and John Winkel, 2017).

These economic difficulties underscore how complicated and multifaceted climate change policy is. To achieve meaningful and effective climate action, policymakers must carefully balance environmental aims with economic factors, social equity, and long-term sustainability. It takes meticulous study, stakeholder involvement, and a thorough grasp of the economic effects of policy choices to address these economic difficulties. Before fully implementing new regulations, policymakers should think about using pilot projects or phased implementations to test the effectiveness and reduce any potential negative effects.

5.0 Governance Obstacles

Governance (here defined as formulating policy) is one of the factors that may influence how the state and individuals choose to adapt to climate change, as well as whether they can take advantage of all available opportunities for adaptation and the degree to which a particular adaptation choice has been successful or not (Mashfiqu Salehin, Rezaur Rahman, Andrew Allan, & M. Anwar Hossen, 2018). Martin Weitzman and Gernot Wagner (2015) have stated in their book *Climate Shock*, "Climate change is unlike any other public policy problem. It's almost uniquely global, uniquely long-term, uniquely irreversible, and uniquely uncertain—certainly unique in the combination of all four", in terms of governance aspects. They also said that the areas of governance and public policy will provide the largest obstacles to achieving national and local climate targets through infrastructure investments, not engineering or technology. Key institutional issues include the need for greater public investment in preventing damages as opposed to investing only in relief and recovery, infrastructure siting, stranded economic and social assets, and broad governance issues that prevent governments at all levels from cooperating effectively.

i) Global Coordination

United Nations (2021), has stated that a global issue like climate change necessitates coordination and cooperation among nations. A significant problem is creating efficient governance structures that unite nations with various agendas, interests, and skills. Consensus-building and addressing the concerns of various nations are necessary for the negotiation and implementation of international agreements like the Paris Agreement, but these tasks can be challenging due to geopolitical tensions and opposing national interests.

ii) Policy Fragmentation

OECD (2009), stated that policies related to climate change frequently transcend numerous industries and governmental levels, which results in policy fragmentation. The development and implementation of climate change policies include numerous government departments, organizations, and international organizations, which can lead to overlapping or competing legislation and tactics. To guarantee policy coherence and effectiveness, policies across various sectors and levels of governance must be coordinated and aligned.

iii) Adaptation and Equity

Vulnerable populations, such as marginalized communities, low-income groups, and indigenous peoples, are disproportionately affected by the effects of climate change. The governance challenge of ensuring equity and social justice in climate change policies calls for addressing the varying impacts and vulnerabilities of various populations. Effective climate change governance must prioritize integrating adaptation strategies and fostering fair access to resources and benefits associated with the changing environment, (UNFCCC, 2018).

iv) Stakeholder Engagement

Many different stakeholders are impacted by climate change policy, including local communities, corporations, governments, and civil society organizations. Effective policy dissemination to all pertinent parties is required, along with suitable training initiatives, (USAID, 2013). Organizations frequently fall short in their efforts to communicate effectively and teach employees, which results in a lack of knowledge and comprehension of their policies. This may cause non-compliance and raise the possibility of breaking the law. Effective governance requires that these stakeholders engage meaningfully in the formulation of policies and the decision-making process. It can be difficult to achieve inclusive and participatory government, though, because diverse stakeholders may have conflicting interests, unfair power relations, or a lack of information and resources, (USAID, 2013).

iv) Complexity and Length

Richard Coyne (2005) stated that policies are too long and complex, making it challenging to understand and use them in real-world situations. A policy's too complicated wording may deter employees from reading and comprehending it, which could result in noncompliance or incorrect interpretation. A balance between thorough protection and straightforward policy wording must be struck.

Strong governance frameworks, institutional strengthening, stakeholder involvement, and all other aspects are all required to address these governance difficulties in climate change policy. It comprises encouraging cooperation between governments, civil society, and the private sector in addition to making investments in capacity building, fostering openness and accountability, and integrating climate change issues into broader policy frameworks. Strong policy creation processes, good communication and training programs, regular policy reviews, and efficient enforcement methods are all essential components of policy governance. Organizations can also promote a culture of policy understanding and accountability throughout the board to increase the effectiveness of policy governance.

6.0 Conclusion& Recommendations

In conclusion, the field of land administration is significantly impacted by economic and governance issues. The complexity and obstacles that land administration systems encounter are a result of several factors, including inadequate funding, unstable land tenure, illegal land markets, land grabbing, corruption, urbanization, and problems with intersectional coordination. These difficulties lead to ineffective land administration, conflicts, disagreements, and insufficient delivery of essential services. They obstruct the efficiency, dependability, and transparency of land administration procedures, impeding both sustainable growth and economic expansion. Research on economic and governance challenges in formulating climate change policy is limited by complex interactions, data scarcity, and unpredictable long-term effects. Methodological challenges, diverse interests, and institutional constraints further complicate policy formulation. Additionally, societal behaviors and the difficulty in quantifying impacts across different scales and timelines hinder effective climate governance and economic assessment. It is crucial to boost institutional capabilities, encourage accountability and openness, strengthen the rule of law, invest in technology and infrastructure, and support inclusive decision-making processes to address these issues. This will enable sustainable land management and boost economic development by making land administration systems more effective, transparent, and receptive to societal requirements. For providing fair access to land, defending property rights, and encouraging sustainable land use, it is essential to address economic and governance issues in the area of land administration. This may entail enhancing accountability and transparency, investing in capacity-building programs, implementing thorough land policies and regulations, implementing effective technologies for land administration, and encouraging participatory strategies involving numerous stakeholders in decision-making processes. By solving these issues, land administration can improve and support social stability, economic growth, and sustainable land management. From the standpoint of land administration, policymakers can foster the development and implementation of successful climate change policies by addressing these economic and governance issues. These regulations can develop resilient communities that can adapt to environmental change, alleviate climate hazards, and encourage a sustainable land administration system.

Paper Contribution to Related Field of Study

Future scholars as well as the land administrator stand to gain a lot from this study. This is because this research will describe some of the obstacles encountered when creating a new land administration strategy from the perspective of addressing concerns connected to the rapidly worsening climate change. With the aid of this analysis, the land administration will find it simpler to create a new climate change policy. Additionally, to be successful in developing new land administration policies from the perspective of addressing climate change concerns, the obstacles that are tough in the formulation of new policies will be able to be addressed and decreased. From a land administration perspective, addressing climate change mitigation obstacles requires integrating land use planning with sustainable development goals. This involves reforming land policies to incentivize green infrastructure, conserving ecosystems, and promoting land practices that reduce emissions. By aligning economic and governance frameworks with land administration, we can enhance resilience, support sustainable urban and rural development, and ensure equitable access to resources. This approach encourages a holistic view where land management plays a central role in climate action, facilitating collaboration across sectors to achieve comprehensive and effective mitigation strategies.

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