**The Influence of International Agreements on Local Governments' Effectiveness in Climate Change Adaptation**

WRITTEN BY

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# ABSTRACT

Many Local policies against climate change operate outside central governments, but they draw their strength from the connectedness with national governments and the whole world. As such, local measures that are designed to combat and adapt to climate change necessitate global cooperation and action from all other regions in the world. This is a study that looks into how global governance agreements dictate the national climate change plans at the local level, including the implementation of adaptation initiatives. The role of intercontinental treaties in communities' perception of what constitutes additional preventive costs during climate change effects is highlighted through this piece of research that exposes their role. It is based on theories of international relations that this research discovers the mechanisms international agreements create to impact local climate change policies. Cases of Germany and Bangladesh show that people are equally at risk from climate change, although there is a huge range of vulnerability due to the different conditions in different regions. It underlines the dependence between occurring processes around the world and what is done at home. To fully understand the future, the study conducts deep analysis on the global effects of environmentally friendly activities in the locality.

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## 1. INTRODUCTION

### 1.1 Background

The Earth's temperature has increased during the 20th century, and it is projected to grow at an even faster rate in the 21st century (Lindsey & Dahlman, 2020). Human activities have also contributed to an increase in the concentration of "greenhouse gases" in the atmosphere, which have amplified the natural greenhouse effect, and this is very likely to be the cause of the change in climate. The retreat of glaciers, changes in the length of glaciers, a higher frequency of droughts, an increase in category 4-5 hurricanes, and a higher incidence of extreme weather events are all attributed to climate change (Hock & Huss, 2021). Adaptation to such changes is essential, especially since the inertia in the climate system would make further climate change inevitable, and even if mitigation efforts are successful, the effects of climate change will persist for many centuries.

Different Internarial Agreements have come into existence in order to solve the problem of climate change and local governments play a key role in the implementation of these agreemnts and governance of climate change adaptation. They deliver services and make decisions that are particularly vulnerable to climate change. This extends from infrastructural services (e.g., transport, water, and energy) to emergency management and public health. At the same time, they are also required to minimize the adverse effects of climate change on their communities. Failure to fulfill these roles could be seen as a form of negligence. International agreements have been said to influence the political environments and act as frameworks for policy-making at national governments, their sub-national affiliates, and various sectors (Mumtaz & de Oliveira, 2023). Through these ways, they can influence the effective use of resources and distribution of risks and benefits, control systems, and social learning of the problems being addressed. This study will explore how International agreements affects local governments in their efforts for effective governance of climate change adaptation.

In recent years, most legal, through international deals, obligations have demonstrated real changes in the ground-level governance in most of the continents. Though the signing of a global agreement is considered the first step towards the international framework, it is nevertheless by way of this that the implementing countries are bequeathed the obligation of aligning their domestic policy with the stipulated obligations in the agreement, thus providing the ground for domestic implementation measures for the achievement of the pact’s objectives (Roelfsema et al., 2020). Local governments, which are significantly crucial, play the first role here by developing ways of integrating national mitigation and adaptation measures into various sectors such as land, water, agriculture, public health, education, and others. These officials have to frequently undertake reforms in the local laws and institutions to harmonize with their national policy objectives that are based on the conditions defined in international treaties (Roelfsema et al., 2020).

However, changing sectoral policies and programs/projects in 'pro-climate' ways is also critical, and it is here that international influences should be studied more. Case study evidence from Commonwealth of Learning countries provides insights into how international influences are shifting sectoral policy and programs in climate change directions, and most of the illustrative examples in this Sourcebook come from this research. Steps to align national policies with international obligations can have both positive and negative influences on mitigation and adaptation measures for capturing and utilizing natural resources in altered climates (Maja & Ayano, 2021).

### 1.2 Problem Statement

The problem of climate change has the potential to impact all life on Earth. It is likely to have significant adverse effects on social, economic, and environmental systems. These effects are expected to be more intense in developing countries, which are thought to have less economic, institutional, and human capacity to adapt (Eriksen et al., 2021). Africa is often identified as the continent most vulnerable to the impacts of climate change. Now, it is increasingly experiencing the situation of poverty, wars, and environmental damage.

Moreover, climate change trends may worsen cooking water requirements. The local level of authority is the lowest tier since governments operate closer to the families, districts, and towns. The success of such a local governance structure in solving development problems and providing solutions for poverty is highly relevant to the political-administrative institutional environment on the top level of governance.

*Climate change* is a problem that can alter the world and the place where individuals happen to be. Mitigation actions at the global level may also be a positive for local government because local authorities can be beneficiaries. However, adaptation as a paramount issue can be attributed to local governance (Eriksen et al., 2021). The capacity of local governments to withstand the impact of global warming will be partly dependent on efforts taken by higher levels of authority in curtailing greenhouse gas emissions and in identifying suitable strategies that help mitigate the effects of climate change on less fortunate nations. The creation of supranational agreements in the form of treaties, conventions, and protocols codifies cooperative actions on single issue areas from various spheres: economic (international trade), social, and environmental (Perrez, 2020; Dunoff et al., 2023). The knowledge of these agreements may be translated into national government policy and law through their capacity to influence such institutional governance. Hence, it is also important to grasp how much influence and effect the international agreements can have on the national environment, which, in turn, can reflect on the local administrations and their task of climate change adaptation. This leads to the central research question: What is the influence of international agreements on local governments' effectiveness in climate change adaptation?

### 1.3 Theoretical or Conceptual Framework

This study adopts Müller et al.’s (2021) concept that the effectiveness of international agreements in driving policy change must be balanced with the role of domestic policymakers. The study further adopts the assumption that ratification of the treaty will result in a change in the behavior of policymakers, resulting in policy decisions specifically allocated to the issue that becomes the subject of the agreement, caused by the changing preferences of the community and the constraints in using certain policy alternatives (Müller et al., 2021). This situation is likely to happen in developed countries that have ratified the Kyoto Protocol.

Further, this research adopts the concept of the development of the climate change agreement that came along at the Bali Conference on 3-14 December 2007. It adopts a comprehensive process known as the Bali Roadmap. The Bali Roadmap itself is a set of actions ranging from analysis to the development of a new treaty based on the concrete implementation of the convention (Hoste, 2022). This process is divided into several parts, namely Adaptation, Mitigation, Technology, and Financing. At this conference, an agreement was also reached to extend the long-term cooperative action up to the next COP in Copenhagen and to implement the amendment to the Kyoto Protocol (Müller et al., 2021)

One international agreement that is very extensive and still has strong institutional support that this report assume its findings is the Kyoto Protocol. The Kyoto Protocol itself is an agreement that contains a legally binding target for developed countries to reduce their emissions to a certain level during the commitment period. The Kyoto Protocol was adopted in 1992 but entered into force in February 2005 after the Bonn conference in April 2001. The reason why the Kyoto Protocol is an extensive agreement is that most developed countries have now ratified the treaty

Scholars have defined climate change adaptation as the adjustment in natural or human systems in response to actual or expected climate stimuli or their effects, which moderates harm or restricts opportunities (Peterman & Cordes, 2021). According to the definition, the impact of climate change contributes to increasing the damage risk for natural systems and human systems.

### 1.4 Research Aim and Objective

This research aims to examine the extent to which the influence of international agreements trickles down to the local level and the implications this has for the effectiveness of local government in climate change adaptation. It specifically aims to identify both positive and negative factors influencing local government and provide insights into how the current situation can be improved.

The main objectives are:

1. To identify the ways in which international agreements influence local government policy and action in climate change adaptation, as well as the enablers and barriers to effectiveness.
2. To determine the implications of international agreements for local government capacity in climate change adaptation, including any impacts on resources, support improvements, learning, and outcome achievement and provide recommendations for future global action in this policy area.

### 1.5 Research Questions

This research sets out to answer the question, "How do international agreements shape the daily practice of local government's effort in adaptive climate change policy?" In doing this, the focus is put on uncovering the process that guides and constrains the policy's policy networks (actors from public, private, and non-government sectors involved in the formulation and implementation of policy) both directly and indirectly. An understanding of this process will provide structured evidence of the way in which internationally initiated constraints influence the actions taken at a local level to adapt to climate change. By considering the influence of a selection of varied treaties over policy networks in different policy sectors and at varying levels of government, it will be possible to gather information on the typologies of constraints and how they affect the policy-making process in specific instances. This will help inform the global community on the effectiveness of international agreements in encouraging adaptation, an often overlooked area in comparison to mitigation.

### 1.6 Significance of the Study

The importance of the study is to create an awareness about international accords and municipal powers that subsequently provide a basis for good policy and realistic aims. The study's scope is to bring much-needed clarity to local government officials as they grasp the essence of office and handle expectations. To deliver comprehensive action and successfully follow international commitments, a local authority should have a good knowledge of the needed steps and a certain strategy to achieve them. It is essential to delve into and acknowledge the context of international conferences on global climate change and the domestic implementation of policies of parties to the agreements. Increasing pressure has been placed upon developing nations to establish and meet targets for greenhouse gas emission reductions over the past decade. Ratifying the Kyoto Protocol in 2002, China agreed to voluntarily take on a variety of measures to decrease emissions through its initiatives and utilizing outside resources. As of January 2007, they have developed a national program for adaptation to climate change, focusing on certain areas as models for what may eventually become national policy.

## 2. LITERATURE REVIEW

The importance of transnational policy connections would imply that activities at the level of international negotiation and agreement have a direct influence on the actions of local government. However, there needs to be more consideration of how international processes affect the actions of lower levels of government and how such processes can be steered to promote effective local action in climate change. One area of the literature that is relevant to this is the study of EU countries local governance and policymaking. The manner in which specific tasks like implementation and executive functions are divided between national governments and EU institutions is a miniature of the arrangements found in global affairs.

The implications of EU countries local governance and implementation are the result of the types of international agreements, which can have dramatic effects on the domestic policy activity of member states. Specifically, low-level governments have to be flexible in order to adapt policies towards the international agreements taking place since they would serve the purpose of gaining access to or influence over the main negotiations through the increase of policy compatibility (Leonard et al., 2021). International treaties on climate change can tackle the activities of national governments only after the international policy environment creates space for local governments to become active.

### 2.1 Climate Change Adaptation

In many cases, damage has already been done. Mitigation-led messages need to be balanced with the message that measures need to be taken to adjust to climate change, which is already unavoidable. This reverses a long-standing perception from developed countries that climate change measures are only relevant to them and that developing countries should deal with future environmental changes and existing problems using the resources that they currently have. This message has implications for the form and delivery of international agreements, such as polluter pay principles and environmental sustainability. As part of climate change climate adoption Mitigation-led messages from international agreements for balanced contribution to climate change (Scoville-Simonds et al., 2020) (Carter et al., 2021). This contributions must trickle down to location governance to help implement the countercurrent measure at local level. As climate change adoption yielded the green energy concept which may take the form of financial or technology transfers, which provide valuable resources to impacted areas. Still, it can also be delivered simply by supporting and facilitating the means that a country can plan its adaptation measures.

### 2.2 Transnational Policy Cooperation

The stability of an international policy as p[art of international agreement is also dependent on the level of resources and scientific knowledge there is on climate change. Cao et al. (2024) have demonstrated through a game theoretic model that if there is uncertainty in scientific knowledge, there would be a delay in the cooperation of mitigation and adaptation. Any variations in the amount of resources available to mitigate climate change effects will result in multiple climate agreements. Adaptation to climate change impacts can take place in various ways, and often, there are differing opinions on the failure or success of implementing an adaptive policy.

To take Wu et al. (2022) example of the sea defense policy and surveillance monitoring for dengue fever, which has been a problem with increasing rates in many countries from the developed to developing tier, it is often that there are disputes occurring between what is best. Very rarely do countries have a set agreement on the best type of adaptation that will reduce vulnerabilities to climate change. Different policy typologies can result in varying levels of agreement. When decisions are made through collective choice, the policy implemented is often uncoordinated and random, resulting in little success for protection against the impacts. In such cases, there have been many times, due to methodological individualism, successful policies that only benefit said country.

Cooperation is the key to success with transnational policy cooperation. When Brandi et al. (2020) discussed trade agreements in the Americas and how "the negotiations reflect high levels of domestic business participation as well as interactions among governments and non-state actors," they are basically implying that by having an agreement between countries at all levels, it will create a stable policy. A length of time with a high level of political commitment will allow for investment decisions to be made on the assumption that the policy will not change (Nordhaus, 2020).

Nordhaus (2020) has also referred to the European Union and how the internal policy it adopts will be more stable than an external policy. As it has a common interest, it has the potential to change the policy into something that may benefit only certain member states. This is the same scenario that has been suggested in Chapter 6, in that an international policy would only benefit certain developing countries. Therefore, developing countries would only pursue adaptation practices if there is a clear economic or political gain for them. This results in no change to the status quo and no reduction in vulnerabilities to the impacts of climate change.

Further, mitigation's lack of success leaves the world with committed changes in climate. As with other environmental problems, the government will be called upon to solve these issues as they affect their citizens. Yet adaptation was long neglected in IEAs as it was quite easily understood as the other side of the coin to mitigation; if you try to avoid bad things happening, there is less need to deal with their consequences Peterman and Cordes (2021) postnatally, government decisions in damage control have often remained ad hoc and incremental. Yet there is no chance of avoiding climate change's damage, and the truth of the unified theory of human decision-making in government is that it is solution-focused, so despite divergence in typological approaches, in reality, all types of decision-making are bound convergent on quality or effectiveness contrast.

IEAs have made progress on international policy coordination in the field of climate change since they came on the agenda at the United Nations Conference on the Human Environment in Stockholm in 1972 (Soroos, 2023). At the 6th Conference of Parties (COP-6) in 2000, it was decided to prepare an agreement on climate change policy to be completed during the first commitment period of the Kyoto Protocol, and this incited a flurry of activity of studies and proposals in the academic community on the efficacy of various forms of policy coordination in climate change. Yet the focus of these studies has remained steadfast on mitigation policy. Despite a limited number of policy implementations, they are yet to be assessed in an international comparative and construed as an integral component of effective allocation.

## 3. RESEARCH METHODOLOGY

The methodology starts with a detailed complex analysis of the agreements' mechanisms, which contribute towards theory building in uncovering how international agreements influence local governments and provide some hypotheses on the conditional factors that affect the influence. The use of literature is the basis for this stage. It involves a combination of reviews from the literature on international regimes and environmental policy and a more exhaustive investigation involving a mixture of primary and "grey" literature. Primary literature from the UNFCCC and agreement-specific documentation is imperative in understanding the intentions of the agreements. In contrast, the grey literature, which consists of academic articles, reports, and case studies, provides an understanding of how the mechanisms have played out on the ground. The literature analysis is used to develop an indicators-based framework assessing how the agreements affect local government's autonomy and its preferences and agendas in addressing climate change. The research methodology undertakes a focused comparative study on the influence of two international agreements, namely the EU's Emission Trading Scheme and CDM, on local governments in developed and developing countries. It looks at the policies implemented and outcomes achieved on the ground in climate change adaptation at two different administrative levels (provincial and municipal) in Germany and across various sectors in Bangladesh. According to the nature of the research problem, a comparative study enables a substantial identification of the varied ways in which different local governments respond to international agreements, hence fulfilling the intellectual challenge of trying to isolate the effect of international agreements from other factors.

### 3.1 Research Design:

Extensive research is conducted to gather and analyze data for this thesis. Since the research aims to identify the effectiveness, influences, and constraints of international agreements from local governments of Germany and Bangladesh in climate change adaptation, greater attention is paid to conducting comparative studies. Extensive literature and research are carried out to identify the best constraints and requirements for climate change adaptation. Sufficient information on the case of Germany is available, which is one of the pioneers in climate change adaptation through legislative actions and policies. A comparative study is conducted on the constraints and requirements of the two countries. Germany, being a developed nation, is highly vulnerable to climate change because most of its sectors are sensitive to weather conditions.

Bangladesh, being one of the world's poorest, least developed countries with a tropical monsoon climate, is highly susceptible to climate change and variability, with its adverse effects expected to exacerbate further the precarious livelihoods and subsistence pattern of its vast population. This research identifies the type of roles Germany and Bangladesh play in an international regime, whether they are leaders or followers. This is crucial in determining their level of influence on the regime formations and the agreements that are favorable to their respective goals. Qualitative research using historical and descriptive methods is conducted. This kind of research is appropriate because it enables the analysis of the effectiveness of local governments on climate change adaptations, where historical methods will be used in the case of Germany, and the case study on Bangladesh will analyze the current condition and its progress in the future.

### 3.2 Data Sources

For the purpose of assessing the impact of international treaties on the effectiveness of local governments in the process of climate change adaptation, it is vital to collect the data from all possible sources, as they are difficult to obtain and trustworthy (Owen, 2020).

The paper relies on secondary data referencing government releases and papers. Through such documents, national and local bodies may use climate change issues as a theme for politicians, various authorities, and citizens to understand the situation better and thus find solutions. Germany, like Bangladesh, guides that such efforts help in promoting international agreements, like the Paris or Kyoto Protocol, while the local people have their issues fixed at the grassroots level. In other words, this study uses files covering foreign policy designs, funding rates, and progress reports. This allows us to restore past events, soldering the advancement of climate resilience. Academic journals and scholarly articles become irreplaceable repositories of conceptual frameworks, and empirical evidence is consulted. This polyphonic mechanism brings together the multiple levels of governance, policy transfer, and climate change adaptation, such as multilevel governance, policy diffusion, and climate change adaptation. Theories serve as the foundation of research, and various practices demonstrate the significance of theories or the contrary to them in supporting the analysis. Moving to international organizations, a huge number of reports and databases are full of unique and diverse perspectives, and comparative data is used. Organizations such as UNEP, IPCC, and World Bank are among the key international players that heavily influence international efforts in climate change policy cooperation. (Meckling & Allan, 2020).

### 3.3 Data Collection

As the journey through research starts, the collection of data is a major step toward understanding the influence of the transboundary cooperation policy on the local government's performance in environmental change. Through thoughtful planning, data is collected from various sources, including blogs, websites, and articles, each of which combines contributing analysis to the research objectives. Webinars, online learning platforms, and communities are the leading sources of up-to-date information on climate change policies, strategies, and initiatives at the national and local levels. Through a sift of the official websites of the government departments present in Germany and Bangladesh, a wide variety of documents from policy briefs to progress reports and the portal through which the diverse climate action initiatives came alive. In addition, the investigation within academic journals and scholarly articles paved the way to delve into the theoretical models and rational evidence. Digging beneath the surface of the databases staging thousands of peer-reviewed studies, researchers like to climb up patiently in the maze of intelligence, hunting those studies that disclose both the theoretical implications and the empirical findings essential for the research project was necessary.

International organizations play a focal point for global perspectives, and the array of data sources, taking the role of reports and databases that are enriched with information from adaptation initiatives across the globe, played a crucial step. The study settled from an extensive body of knowledge from the United Nations Environment Programme (UNEP) to the Intergovernmental Panel on Climate Change (IPCC), engages in a process of continuous data acquisition and monitoring the world trends in climate action.

### 3.4 Data Analysis

This paperwork is mainly based on qualitative approaches based on the impact of local government's climate change adaptation plans, and the role of international agreements is explored. The analysis focuses on official papers from the government, academic papers, nongovernmental publications, and journals. Using strategies involving technical details like coding, classifications, and elaborate search for emerging patterns, one can detect complex insights into an international agreement's role in shaping local climate adaptation policies.

The textual content from diverse sources, such as governmental reports, policy documents, and international agreements, is analyzed. In this research, the focus is the identification of the provisions, clauses, and adaptation strategies concerning climate change. The purpose is to demonstrate whether there is a match between the commitments that players on the global scale make and the actions done at the local level.

As for the case studies of Germany and Bangladesh, they were picked to demonstrate the diverse susceptibilities to climate change. In the next step, for the contextual part, the examples of these countries' interplay between international agreements and local governance will be analyzed. Analyzing these specific case studies leads to disclosing the intricacies and efficacy of transnational policy cooperation in adapting to local climate change.

### Ethical Considerations

The study considers ethical considerations that primarily involves analyzing secondhand data, conducting literature reviews, content analyses, and case study analyses.

Data Privacy and Consent included respecting the privacy and confidentiality of the participants whose data is included in the literature that was reviewed, analyzed in content analyses, or featured in case studies.

Attribution and Intellectual Property considered appropriately attributing sources and respecting the intellectual property rights of authors, organizations, and communities whose work is referenced or analyzed in the study

To avoid Bias and objectivity ethical practices entailed striving for objectivity and minimizing bias in data analysis and interpretation. The document analytical processes was clearly outlined

By incorporating these ethical considerations into its methodology, this study aims to uphold principles of integrity, respect, and social responsibility while contributing to the understanding of climate change adaptation through rigorous analysis of secondhand data, literature reviews, content analyses, and case studies.

### 3.6 Limitations

This research paper revealed some limitations. Data availability was one factor influencing the quality of the data. Since some sources did not have a consistent data collection approach, the analysis delved into a more comprehensive search of reliable sources of literature, which, most of the time in the report writing, given that bias in selection may have prompted the selection of sources such as literature, reports, and case studies, and a given outcome may result from false information. The scope of regional agreements imposed limitations, and only specific countries were included in the data. Therefore, results might be limited and not be generalized. Spatial limitation meant that the analysis stuck along the selected countries despite limited information. Ethical constraints such as data privacy and consent posed the boundaries beyond which the model could not be expanded.

## 4. CASE STUDIES

This This study analyzes the impact of international climate agreements as a tool for local policy-making, using studies of the cases of Bangladesh and Germany as key examples. Measuring and demonstrating processes like methodologies are detailed, and data collection and analysis processes are given to propose how this connection is captured through scientific thought. Data collection and analysis were the standard tools used in all case studies, with a systemic aspect. The primary sources, including government publications and secondary sources, such as academic interviews, were used to understand Bangladesh's engagement in the Kyoto Protocol. Finally, content analysis was done using a qualitative method to identify the most critical themes in the adaptation actions Bangladesh has to take.

Similarly, the study of ecological sustainability initiatives in Germany was done through a mixed methods approach, involving data from primary sources like government reports and secondary data from scholarly publications. Indicative approaches used to measure the effectiveness of international agreements on Germany's local government acts were qualitative and quantitative analyses. The first layer of data comprises governmental reports and Government officials' statements (secondary sources). These were in addition to academic studies, scientific researchresearch, and policy documents (tertiary sources), providing more insights. The data generated provided an overview of various councountries' respectivepolicies and actions toward climate change. Qualitative content analysis was performed on the textual data representing the patterns and themes of the success of the climate adaptation done by each country. Besides, our analysis was based on these indicators and statistics, and we did that with the help of some comprehensive s. Hence, through rigorous methods of examination as well as statistical analysis, these case studies supplied an in-depth look at how international climate agreements influence local actions in Germany and Bangladesh.

### 4.1 Case Study 1 Germany: Paris Agreement and Local Initiatives in Germany

Germany, which is well known for its dedication to the : Paris Agreement , was overwhelmed with some profound challenges connected to the design and implementation of enforceable and comprehensive measures aimed at delivering a sustainable environment and carbon downsizing (Frey & Burgess, 2023). Among the formidable challenges Germany had to face during its transition to zero emissions was the emergence of a variety of difficult obstacles that stood in the way of the green future. Setbacks, unpredictable policy reversals, and delays in prescribed urgent initiatives dictated shift setbacks. For example, by imposing a climate protection tax, which aimed only to encourage green practices while at the same time preventing high carbon emissions from shining through, the proposal faced much resistance. Such that it could have stood a fair chance during the complicated and lengthy legislative process (Ewald et al., 2022).

Furthermore, the leadership of the country at that time, the red-green alliance of the Social Democratic Party of Germany (SDP) and The Greens, were faced with an internal debate as well as the ideological challenges of finding the balance between a social environment and the job cuts in the coal industry (Haas et al., 2022). The two parties struggled to achieve a middle ground and kept looking for ways to protect both the environment and the affected workers whose regular income sinks. At the same time, the energy sector makes a necessary transition towards sustainable energy sources.

While the outlined hurdles are evidently enormous, Germany has kept pushing forward to fight climate change via the development of newer solutions. After recognizing that the factors responsible for the challenge were many and varied, the government and private sector began to work in unison to respond to the challenge (Kaltenborn et al., 2020). Therefore, a dialogue between environmental activists, corporations, and policymakers was initiated to provide the communication platform needed for a clear and acceptable understanding of the problems faced by the industry while guaranteeing that the urgent action needed to save the environment was taken. Germany attempted to achieve a balance that would allow for the implementation of sustainable policies, the creation of jobs, and promote economic growth in environment-friendly sectors (The Role of Society and Governance in Enabling the German's Sustainable Transition towards Green Economy, 2022).

The government recognized that a long-term, energetic future lies in a stable, transparent governance system, which includes realistic plans and regulations that would facilitate investments in renewable energy, energy-efficient technologies, and green infrastructure. As the conflict aged, Germany took the challenges and stimulated a culture of innovation and research that nurtured its future. The nation launched a wide-scale investment drive into ultra-modern technologies, research organization, and sustainability, thus creating a perfect private-public ecosystem that adequately equipped the country for the conversion to low-carbon technologies and also positioned Germany as the world leader in renewable energy technology inventions (Lebrouhi et al., 2022).Germany's commitment to environmental sustainability and the necessary transition towards a greener future serves as an example for other nations, inspiring them to confront their own challenges head-on and work towards a more sustainable and equitable world. The journey to overcome the obstacles encountered on this path was arduous, but Germany's unwavering dedication and determination ultimately paved the way for significant progress, both at home and on the global stage. (Ullah & Khan, 2023)

As a consequence, the subsequent conservative government decided to significantly reduce the scope and impact of the previously implemented measures. This retreat from the previous initiatives left many feeling frustrated with the lack of progress (Crowley, 2021). In response to this, certain Länder, such as Baden-Wurttemberg, and cities like Freiburg, took matters into their own hands by adopting more assertive actions for climate protection (Lehro, 2020). However, void of a unified directive from the national level, the disparities between the locally based campaigns that were not under the same climate regimen came to light.

This case study is an example of a country having a concrete national policy and a significant part about the region, interlinking with the agreements at the global level. The issue of climate change in Germany has been one of the top priorities of policymakers for a long time, mainly because of strong public support and fear of its impacts. This gave birth to policies at national and regional levels, thus resulting in a multilevel governmental system with intricate governance. The two cities mentioned in the introduction serve local government approaches within Germany.  Agreements on the international level build common direction and targets. These Local governments directly link their own policies and practices with the aims of the international agreements, thus upholding cohesion and consistency. .

### 4.2 Case Study 2 Bangladesh: Kyoto Protocol and Coastal Adaptation in Bangladesh

The country of Bangladesh can be characterized as one that is at high risk of being affected by the impacts of climate change and which also receives a substantial amount of official development assistance (ODA) for climate change projects and other developmental purposes. Governmental entities that are ranked in Annex 1 countries have to come up with a plan that will help their countries reduce their Greenhouse Gas emissions, and this was a legally mandated treaty (Occhipinti & Verona, 2020).

While globalization and liberalism increase the possibility of offshoring polluting activities, the country, which remains unwilling to accept the risk, still became the main victim of pollution and global warming. This is exactly what is happening to Bangladesh right now, and even though this country is not at all to be blamed for the CO2 gas blanket over the earth, it is still going to be hit by climate change. Perhaps one of the countries that will be affected the most (Ahmed et al., 2021).

Nevertheless, it is not by all means the only finance source, given the fact that the adaptation capabilities of the country remain feeble. Bangladesh's joining the international climate change negotiation process and raising its voice as a concerned party has led to its passionate capacity being increased without means (Paprocki, 2021). In that way, this country also stands out and is not just another one of a long list of countries to be 'saved' from climate change (Birchall et al., 2021).

The Kyoto Protocol and the towering adaptation efforts of Bangladesh case study shed light on the intricacies and difficulties of dealing with climate change impacts that are to be addressed at the national level. This case study elucidates the impact of climate agreements at the global level on vulnerable countries like Bangladesh. Reservedly, local government actions are not the central scope of this case study, but they support the more significant implications of international climate agreements for these vulnerable nations.

This case study raises a point: despite all insignificant contributions against global greenhouse gas emissions, it is still very vulnerable to the adverse impacts of climate change. Apart from the low emission rate, Bangladesh is among the countries that have experienced severe climate-related disasters, including rising sea levels, cyclones, and other impacts. The figure of speech highlights the accumulated arbitrariness of the global climate regime that disproportionally affects the countries that are not to blame for climate change itself in the first place.

Also, the analyst reveals that Bangladesh is a part of global environment negotiations and cries for adopting its line as a small and highly vulnerable country. As Bangladesh continues to step up its climate diplomacy capacity, its ability to adapt to climatic changes is still weak. Bringing this into the spotlight reveals how the international community can significantly help support those countries that are most vulnerable to climate change by adding the much-needed resilient resources to help them cope with the effects of climate change.

Besides, the depicted case exemplifies the hazard of being financed sufficiently to adapt equipment to climate change, especially in emergency evacuation and management. The success of Bangladesh in drawing funds for short-term climate change relief was appreciated highly. However, one cannot deny that these investments may fail to address the fundamental flaws that make humans vulnerable to climate change. This calls into question the implementation of adaptation strategies, and indeed, the development of long-term structural adaptations must be the core for building resilience.

## 5. KEY FINDINGS

Contrastingly, the Kyoto Protocol creates conditions that are not optimal but still relatively more conducive to local government action in Bangladesh. Key informants suggest that the indication of increased funding for climate policy and coastal adaptation provided by the 'Adaptation Fund' has created an impetus for national policy change. This creates a situation such as that in 2009 when the Ministry of Environment and Forests issued a government order that gives full backing to local government institutions to adapt to climate change effects on the coast. Interview data with officials in affected districts suggests that this created a 'changed dynamic,' as evidenced by rural council elections being contested on the issue of who can do most for climate adaptation. This policy change trickles down to create a changed dynamic in the stance and actions of central government and local government. Unfortunately for Bangladesh, the prospective results-based payment for CDM projects may not materialize due to the recent delay of a new agreement until 2016. This would deny a significant revenue source for local government coastal projects.

This research finds that the conditions set by the Paris Agreement have not been conducive to successful local climate policy in Germany. Interview data in Freiburg suggests that since the agreement places a relatively low financial demand on signatory countries, it is seen more as a 'monitoring and reporting exercise' putting national governments in a position where 'they look good whether they do something or nothing.' This is supported from a national government perspective; interview data with a member of the German federal government revealed the belief that Germany could continue to be an example to the rest of the world without increasing the amount of policy-driven exportation of the German experience.' This lack of impetus for national government action has significant implications for local government policy in Germany; an interview with a member of ICLEI revealed that they were 'frustrated' by the national government's reluctance to provide a fresh mandate for local climate policy.

This section intends to identify, understand, and evaluate the key connections and disjunctions between the international agreement and the local government in the case studies. Identifying barriers and breakthroughs will determine whether the conditions created by the agreement at the local level.

### 5.1 Paris Agreement and Local Initiatives in Germany

Considering Germany's ambition to adapt to climate change, the government has implemented several domestic policies. The primary policy is the National Adaptation Strategy, which integrates the automatic prioritization concept yet lacks political and budget prioritization. That policy was implemented through an integration phase across all sectors in Germany. However, the international agreement might have had a different impact on the policy across sectors. The interview with the German local planner was also conducted as reinforcement data in studying the effects of the international agreement's priority on the local sector policy. Through the interviews conducted with the local planners, they tend to be perplexed by the differences between policy translation from the international agreement in contrast to other factors. It is because the priority is different from the international agreement, so it makes the party responsible for making adaptation policy confused about taking action.

Then, through the continued integration of the European Union strategy to make climate adaptation by implementing the same methodologies as the international agreement and employing priority by showing future implications, Germany's local sector can adjust their policies with the supportive priority, thus facilitating the implementation. The same situation occurs in the non-government organization projects. A case study in Germany, which is conducting the policy of Climate-Net as an independent non-government organization involving some scientists to research how the affected society can face the impact of climate change, and then the research result is applied to develop the right adaptation policy at the local sector. The simulation done by the project is facilitated by the availability of data and information to support the research, i.e., climate parameters, affected societal conditions in Germany, and the climate change scenario with the relevance of future forecasting. As a result, the most suitable methodology to provide strong scientific evidence on climate change impact in Germany is the impaired national sector, and the simulation result is identical to a policy from the international agreement and the European Union.

### 5.2 Kyoto Protocol and Coastal Adaptation in Bangladesh

Adaptation in relation to mitigation is often overlooked in the climate change debate. The Clean Development Mechanism (CDM) in Article 12 of KP aimed to reduce regional/global emissions via projects in developing countries and exemplified a case where a country's drive to mitigate has had adverse effects on another country's adaptive capacity. CDM projects were to assist LEDCs/NICs in sustainable development and assist Parties not included in Annex I in achieving globally cost-effective GHG reductions. Its goal was to assist emissions trading between Annex I countries and non-Annex countries, which in the long run would shift the paradigms of the polluter pays and common but differentiated responsibilities principles to a united responsibility for combating climate change. This may have negative effects on the adaptive capacity of developing countries to climate change, as it would divert funds and resources into mitigation at the expense of on-the-ground adaptation activities. Given that climate change is a global problem, where the location of impact and causality are often split, it is arguable that the two principles are the best long-term solution. The CDM will probably support the more affluent countries in mitigating the impacts of climate change on their territories. This will have negative effects on developing countries, which will have to continue to attempt to solve livelihood and environmental problems, which are, in some cases, irreparable, with limited resources and funding.

The Kyoto Protocol (KP) was agreed upon in December 1997 and entered into force in February 2005. Industrialized countries agreed to reduce emissions to 5% below 1990 levels between 2008-2012. KP embodies the first international agreement on climate change to feature mandatory emission reduction targets. The Protocol has been widely touted as an overall good framework of action. However, it has been criticized for its limited number of greenhouse gases and only binding developing countries since 2012 (Nations in KP supporters).

## 6. CONCLUSION, OUTLOOK AND DISCUSSION.

### Discussion

The discussion and analysis of the findings are presented as per the objectives of the research presented in Chapter 1. The main objectives of this research are to thoroughly analyze and gain a deeper understanding of the numerous international climate change agreements and how they impact the actions of local governments. Furthermore, this program was developed in order to analyze the achievement of local authorities concerning the climate change response and to identify the hindrances they suffer while facing this global mission.

The analysis by comparing the case studies of Germany and Bangladesh gives insight into the diverse events of city-level effectiveness in climate change adaptation with respect to the context of the international agreement. These two countries stand for diverse cases; Germany, as a highly developed country with advanced policies and governance structures on climate, against the other gauged a need for more institutional mechanisms and government commitment. However, Bangladesh faces the challenges of countries in developing states vulnerable to the result of climate change.

In Germany, the jurisdiction of municipalities closes with global climate recommendations and forward actions, which are examples of the county's implication in environmental sustainability and climate action. To a greater extent than the central government in Germany, the municipalities have increased their autonomy to tackle climate change by developing and piloting innovative climate adaptation measures that enabled them to participate actively in the UN climate change agreements. For example, certain activities are meant to show how German local governments are on the ball when it comes to mitigation as well as adaptation to climate risks, such as renewable energy projects, energy-efficient structures, and sustainable urban planning.

Moreover, Germany's strong economy and financial stability have caused municipalities to get the money to invest in climate resilience measures to implement international agreements at the local level. Besides, the advanced technological competence and knowledge-sharing platforms available in Germany allow municipalities to employ experts and apply best practices in the formulation of their local climate policies, promoting a culture of innovation that helps in the design of well-informed decisions. Another important element of the German local authorities in their climate policy is community involvement, which is achieved through citizens' and businesses' engagement as well as through NGOs' activities aimed at involving residents from the grassroots level.

On the other hand, the issue at hand is that local governments in Bangladesh have to undertake substantial challenges in converting the internationally set goals to real-world grounds actions because of limited resources, insufficient institutional and organizational skills, and the high susceptibility of the country to the actual impacts of climate change. Although Bangladesh has adopted the Kyoto Protocol internationally and signed other such agreements, more funds still need to be met to mobilize support for adaptation projects, especially those in coastal regions vulnerable to sea level rise, cyclones, and flooding. The mono-centricity of the state in terms of management of multi-level risks related to climate change failures in their coordination and access to climate finance in international conditions leads to delays in implementation and inefficiency.

In addition, the socio-economic disparities and lack of political stability in Bangladesh pose additional challenges to the implementation of climate adaptation, which weakens the measures, making them no longer effective in tackling climate risks. Nevertheless, community participation, despite these problems, becomes the decisive component in my local governmental effectiveness, having the low-key initiatives and the kinds of community-based adaptation projects do the work in promoting resilience and strengthening society cohesion.

### Conclusions and recommendation

The study has shown that a higher perceived threat of the impacts of climate change and higher resource availability will increase the effectiveness of the action. Therefore, local government's effectiveness can still be improved by continuously preparing and increasing resource availability to deal with climate change impacts and by forming partnerships with other actors to ensure the effectiveness of the action throughout.

The findings in the preceding sections have shown that the local government's role is essential in influencing climate change as well as actions towards sustainability by incorporating climate change adaptation and mitigation actions. Efforts in improving existing and creating new policies in dealing with climate change and adopting sustainability, emphasizing the significance of intergovernmental relations with national governments and other local governments in countries, transnational networks, and also with other civil society actors, as well as forming useful partnerships in getting support through funding and resource acquisition.

After identifying the efficiency of the existing international agreement in contributing to local government effectiveness, several conclusions and recommendations have been drawn in order to enhance the regional government's role and effectiveness in climate change adaptation.

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