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Climate Change and International Cooperation: A Qualitative Study

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ABSTRACT

Climate change is one of the most complicated and pressing problems in the world of the twenty-first century that demand international collaboration like never before. With the ever-increasing emission of greenhouse gases, their effects such as extreme weather conditions and sea level rise cross national boundaries and the effect on the vulnerable populations is disproportionate. The paper is a qualitative research on the dynamics of international cooperation in dealing with the problem of climate change on multilateral agreements, institutional mechanisms, and political constraints. Based on the liberal institutionalism, realism, and constructivist approaches, the paper examines the development of global climate governance in reference to the United Nations Framework Convention on Climate Change and Intergovernmental Panel on Climate Change. The challenges of implementing the Paris Agreement are given particular attention, as well as the conflict between the developed and developing countries as concerns climate justice and financial responsibility. The results indicate that the international cooperation has increased on an institutional scale but in most cases, the effectiveness is limited due to national interests, economic priorities and unequal power relations. Enhancement of trust, accountability and fair burden-sharing processes are the key components to effective global climate action.

Introduction

Climate change has become a prominent topic in the current international relations that define new diplomatic priorities, development policies, and security systems. Climate change is a transnational issue that has to be addressed together unlike the traditional security threats which existed within the territorial boundaries. The greenhouse gases which have been building up in the atmosphere have impacts on global temperature systems, oceanic currents, biodiversity, and weather patterns and this has developed consequences that cannot be addressed by any one state. It is this problem of collective action that is the core of international climate politics and where cooperating is clinically required but may not be easy to maintain (Keohane and Victor, 2011).

Global climate governance was developed during the Earth Summit in Rio de Janeiro in 1992 under the United Nations Framework Convention on Climate Change (UNFCCC). The convention realized that climate change was an issue of concern to the humankind and introduced the principle of common but differentiated responsibilities, which recognised that developed nations had higher historical responsibility in emission. With the course of time, the UNFCCC framework enabled the future agreements such as the Kyoto Protocol and subsequently the Paris Agreement that was adopted in the year 2015. The Paris Agreement was another milestone in the movement to nationally determined contributions (NDSs) whereby nations are given freedom in goals that they wish to achieve in reducing their emissions, but with a common target of limiting the global temperature increase to well below 2degC of pre-industrial levels (Bodansky, 2016).

Although there are these institutional improvements, successful cooperation on the international level is still difficult. Climate change is a typical prisoner dilemma in that collective mitigation is beneficial globally, but individual states might be tempted to use the free ride of their efforts in mitigation by other states (Ostrom, 2010). According to the realist scholars, states are not as interested in making their commitments to the environment that national economic growth and energy security come first before environmental commitments especially when the result of the compliance can lead to their loss of competitiveness (Mearsheimer, 2001). In this view, the climate agreements contain other weak enforcement measures since powerful states oppose the obligatory restrictions of their sovereignty.

However, liberal institutionalists concentrate on the importance of international institutions in minimizing uncertainty, exchanging information, as well as developing trust among states (Keohane, 1984). Intergovernmental panel on climate change (IPCC) is very important in the provision of scientific evaluations that guide policymaking. IPCC contributes to transparency and building a common stock of knowledge in the negotiations by synthesizing the global climate research. The normative pressure has been reinforced by scientific agreement on governments to implement mitigation and adaptation strategies. However, the transfer of scientific evidences into political commitments is still a controversial process with influences of domestic interests and geopolitical conflicts.

The use of the Paris Agreement was a diplomatic break through since it ensured that the participation was almost universal. The Paris framework featured a more inclusive and adaptable structure, unlike the Kyoto Protocol, which required several binding targets to be set mostly on developed countries. According to scholars, this mixed system, which implies bottom-up promises, and top-down transparency systems, is the most effective in terms of participation, but can reduce enforcing (Bodansky, 2016). The aspect of voluntary commitment creates an issue of the lack of ambition, because the sum of national commitments is not enough to achieve the temperature targets that climate scientists have.

Climate justice also presents a challenge which makes global collaboration more difficult. The developing countries believe that historically it has been the industrialized nations that have contributed most green house gas emissions and thus should offer financial and technological assistance on the mitigation and adaptation. Arguments concerning climate finance, especially the promise by the developed nations to raise 100 billion funds per year are controversial. These controversies draw attention to structural inequalities in the international system and general North-South conflicts in international relations (Roberts and Parks, 2007). Climate change poses an existential crisis to vulnerable states, particularly the small island developing countries, which increases the demand to take stronger actions globally.

The security and development issues also border climate change. Extreme weather incidences and elevated temperatures have the potential to worsen food shortage, water shortage, and forced migration. Other researchers consider climate change a multiplier of other socio-political tensions (Busby, 2010). Therefore, the climate diplomacy is becoming more intertwined with the humanitarian aid, conflict prevention, and sustainable development agendas. This multidimensional nature of environmental governance can be seen in the adoption of climate objectives into the United Nations Sustainable Development Goals.

Climate cooperation has taken a new path due to the recent geopolitical developments. Key emitters like the United States and China assertive roles in determining the outcomes of the world. Bilateral climatic agreements between these powers have on some occasions spurred multilateral developments whereas frictions between the powers have stalled negotiations. The fact that the United States was temporarily withdrawing the commitments of the Paris Agreement in 2017, due to domestic changes in politics, illustrated the vulnerability of climate cooperation.

Another party that has emerged to play a major role in climate governance is non-state actors. Transnational networks are practiced by cities, corporations, and civil society organizations in order to advance the cause of renewable energy, carbon reduction, and sustainability programs. These actors complement state initiatives and prove the fact that collaboration cannot be limited to official diplomatic efforts (Ostrom, 2010). The development of climate alliances demonstrates the development of poly centers of governance in dealing with global environmental issues.

To conclude, climate change is a significant challenge to international cooperation. Although the efforts of global authorities like the United Nations Framework Convention on Climate Change and treaties like the Paris Agreement are considered as huge progress in the diplomatic arena, the issue of enforcement, equity and political will remain in place in order to reduce efficacy. The interactions of scientific knowledge, economic gains, politics of power and normative commitments defines the emerging global climate governance. These dynamics hold the key to determining the ability of the international community to go beyond the rhetorical commitments being pursued to transformative climate action.

Literature Review

The academic literature on climate change and global collaboration is vast and cross-disciplinary, which includes the theory of international relations, environmental governance, political economy and developmental studies. The initial arguments revolved around whether the international system could be engaged in multilateral cooperation to tackle the global environmental issues effectively or whether structural limitations within the international system will impede any serious effort to do so. The climate change is commonly defined as a problem in the form of global public goods, where the benefits of mitigation are non-rival, non-excludable, hence giving incentive to free-riding (Kaul et al., 1999). This theoretical framework has influenced a lot of the empirical and theoretical analysis on climate governance.

Liberal institutionalists would argue that international institutions are very crucial in ensuring that cooperation is achieved through the reduction of unpredictability, the provision of information and its enforcement (Keohane, 1984). The UNFCCC was an institutionalized climate diplomacy building block created with the agreement of the United Nations Framework Convention on Climate Change (UNFCCC). Researchers believe that the UNFCCC has provided a platform of structured negotiation when the states are able to conduct a continuous dialogue and make minimal advancement (Bodansky, 2016). The adoption of Paris Agreement in 2015 is often mentioned as the example of how the flexible institutional design can promote the broad participation. Within such a framework, the countries are submitting nationally determined contributions (NDCs), which translates into a move towards a more voluntary and inclusive form of emission targets rather than legally binding ones (Falkner, 2016). The scholars argue that this alternative form of governance is more effective in promoting legitimacy and inclusiveness, but there are still concerns regarding the lack of enforcement and ambition.

Realist scholars have a more pessimistic view on the international climate cooperation. They claim that states want to be economically developed, secure energy supply and do not want to pollute nature rather than to keep their world order (Mearsheimer, 2001). In this perspective, the climate agreements are limited by power politics and relative gains. Key players, such as the United States and China are perceived to be the key players whose strategic competition can either propel or inhibit multilateral developments. The interim US withdrawal of the Paris Agreement gave credence to realist theories of domestic political transformation and national interest calculus as an order to override international commitments. Then, climate governance is still exposed to the changes in power balance and priorities of leadership.

Constructivist scholarship brings in yet another layer, with the focus on the norms, identity and discourse in the process of state formation. According to the researchers, climate change has ceased to be a technical environmental problem and has been transformed into a moral and ethical problem, which is integrated into the world norm (Bernstein, 2001). The idea of climate justice has become a new hot topic, with moral obligations to vulnerable populations and generations to come. The diffusion processes of norms have affected the states to have renewable energy goals and sustainability-related commitments, without stringent enforcement mechanisms. Constructivists indicate that compliance and cooperation can be encouraged by social pressure, reputation and identity as responsible global actors, which surpasses material incentives.

One of the main bodies of literature is centered on the principle of common but differentiated responsibilities inherent in the United Nations Framework Convention on Climate Change paradigm. This principle appreciates the historical variation of emissions between the developed and developing countries. Researchers believe that fairness is a key consideration in the validity of climate agreements among the world (Roberts and Parks, 2007). The developing countries are keen on stressing that the developed countries have more responsibility to reduce and give funds because they contributed much to the increase of greenhouse gases. The discussions on climate finance, transfer of technology and capacity building are symptomatic of continued tension between the North and the South in international negotiations.

Climate finance studies point to successes and continuing difficulties. Developed nations committed to contribute to mitigation and adaptation work in developing countries through mobilizing 100 billion dollars each year. Nevertheless, as the research shows, disparities between promised and paid funds are observed, and the accounting practices are in disagreement (Ciplet, Roberts, and Khan, 2015). Such financial controversies are a hindrance to trust and collaboration. According to the scholars, mechanisms of transparent reporting and fair distribution of burden must be used to enhance confidence in the multilateral agreements.

The other literature field focuses on compliance and effectiveness. The environmental consequences of international agreements are assessed by some researchers to examine the trend and implementation of policies. Research is indicating that although the Paris Agreement was able to establish nearly universal participation, the summed up national commitments are not enough to achieve the objective of ensuring that warming is kept well below the 2degC threshold (Falkner, 2016). Such an absence of enforcement makes NDCs voluntary, a characteristic of this so-called ambition gap. There is a debate

among scholars on whether there can be ambition increment by gradually applying the iterative review processes and peer pressure mechanisms.

Another theory that can be used to explain climate cooperation is the polycentric theory of governance. Ostrom (2010) believes that it is high time that global climate governance should not be based on centralized international treaties but must rather incorporate various levels of authority such as cities, regions, corporations and civil society networks. Empirical studies indicate that subnational actors tend to have ambitious climate policies that are not determined by the national governments. The transnational municipal networks and corporate sustainability projects indicate the decentralized approach of climate governance in comparison to state-centred models. According to this literature, collaboration may arise in the form of decentralized and overlapping institutions, instead of a single hierarchical institution.

Security-focused studies conceptualize climate change as a threat multiplier, which increases the scarcity of resources, migration forces and the risk of conflicts (Busby, 2010). This has had an impact on the international policy discourse by incorporating climatic concerns into the defense and foreign policies. Researchers warn however that the process of securitizing climate change can cause the priorities of equity and development to be pushed off. The security prism brings out the interdependence between environmental degradation and political stability as well as humanitarian crises.

The political economy of the energy transitions has also been discussed in recent scholarship. The transition of fossil fuels to renewable energy is a distributional process of structural economic change. Studies show that the policy reforms may be blocked by the vested interests in the carbon-intensive industries and delay the decarbonization process (Meckling, 2015). On the contrary, the decreasing cost of renewable energy and technological innovation provide new economic opportunities that can be used as an incentive to cooperate. The availability of climate commitments is hence determined by the changing nature of energy markets in the world.

Additionally, the role of production of scientific knowledge has been thoroughly studied. The Intergovernmental panel on climate change (IPCC) is increasingly considered as one of the most important epistemics in climate control. The scholars believe that the reports produced by the IPCC assessment help in consensus-building because they provide a synthesis of peer-reviewed studies and the evidence-based advice offered to the policymakers (Haas, 1992). Critics however point at the fact that the scientific findings can be politicized or interpreted selectively in the national contexts. Science-policy interface is a disputed area of international negotiations.

To conclude, the theoretical and empirical views on the issue of climate change and international cooperation are reflected in the literature on the topic. Liberal institutionalism focuses on the importance of regimes and information-exchange in facilitating cooperation; realism focuses on the importance of power-politics and constraints of national interest; constructivism focuses on norms and identity, and approaches of political economy focus on structural inequalities and distributional conflicts. Although the institutional arrangements like the United Nations Framework Convention on Climate Change and treaties like the Paris Agreement are notable diplomatic successes, academics are always finding they lack ambition, equity, and enforcement. The changing literature is heavily favoring a multidimensional concept of climate governance incorporating institutional design, domestic politics, transnational networks, and global power relations.

Methodology

Research Design

The paper takes a qualitative research paradigm to understand the nature of climate change and global collaboration. The study is both interpretive and analytical in character and the interest of the study is to comprehend the way states, institutions and non-state actors interact to govern global climate. The qualitative approach is suitable since the process of climate diplomacy is associated with the complicated political bargaining, normative obligations, and the institutional interaction that cannot be represented by quantitative indicators in their entirety. The paper is based on the analysis of documents and case-oriented interpretation to study the trends of cooperation and limitations in the global climate regime.

Research Approach

The research is deductive based on known theories of international relations which are liberal institutionalism, realism and constructivism. These theories inform the study of the state conduct, institutional efficiency and the progression of norms in climate policy. Liberal institutionalism guides the analysis of multilateral institutions like United Nations Framework Convention on Climate Change, realism gives information on power politics and national interest issues, and constructivism gives light on the influence of norms like climate justice and shared responsibility. Through these views, the research is theoretically informed to analyze international cooperation.

Data Collection

The study uses only secondary sources of data. The theoretical background is based on academic journal articles, scholarly books, and peer-reviewed research papers. Institutional frameworks and scientific evaluations are considered with the help of official documents, negotiation texts, and policy reports by the international organizations, such as Intergovernmental Panel on Climate Change. News pertaining to the Paris Accords and nationally-determined contributions (NDCs) are examined in order to assess state-level commitments and collaboration systems. Such dependence on reliable and publicly accessible sources makes it reliable and transparent.

Case Selection

The analysis is contextualized by the study which concentrates on major emitting nations and multilateral agreements which are the main ones. The role of major emitters like the United States and China who have policies that play a major role in determining the climate in the world is also given special attention. The reason why these cases are chosen is that they contribute significantly to the global greenhouse gas emission since they have final say in the failure or success of international negotiations. The fact that major players are included allows analyzing the impact of power distribution on cooperation.

Data Analysis Technique

The research applies the qualitative content analysis in interpreting policy documents, treaty texts, institutional reports and the academic literature. Themes like equity, enforcement, ambition gaps, climate finance and national interest are distinguished and analyzed in a methodical manner. The theoretical expectations and the developments that have occurred in compliance and institutional effectiveness are compared using comparative analysis. By such an approach, it is possible to identify patterns, contradictions, and the changes in trends of climate diplomacy.

Scope and Limitations

The research targets mainly multilateral climate agreements and does not involve original interviews and fieldwork. Being a qualitative research, it lacks statistical analysis of emission trends and econometric modeling. Although secondary data are thorough, there are chances that they restrict information about confidential negotiations. Moreover, the dynamism of climate politics is very high, and thus, new issues might arise outside the context of this analysis. Irrespective of these shortcomings, the qualitative design will provide a comprehensive insight into institutional frameworks, politics, and normative discussion that determine international cooperation in climate.

Ethical Considerations

The research is purely a secondary data study, hence, there is no human participants involved in the research, and no direct risks to the ethical aspect of the research. Citations of all sources are done according to the academic standards to ensure the integrity of the academic process and prevent plagiarism.

Data Analysis

Climate Governance Structures Around the World

The discussion of international climate co-operation enables the observer to focus on the formation and development of global governance structures as the key to climate change. The United Nations Framework Convention on Climate Change (UNFCCC) is the key to multilateral climate diplomacy. The UNFCCC has been offering systematic opportunities in negotiation, reporting, and monitoring of its member states and has laid emphasis on transparency and accountability since its establishment in 1992. It is reported that almost all member countries currently provide annual greenhouse gas inventories, which allow reviewing the trend of emissions systematically and allows making evidence-based policies (UNFCCC, 2020). The development of further agreements, such as the Kyoto Protocol and the Paris Agreement, is an indication of the gradual building of institutional capacity to organize climate action. In particular, the Paris Agreement provided nationally determined contributions (NDCs) in which countries would be allowed to agree on emission levels on a voluntary basis but with the collective goal of keeping the global temperature below 2degC (Bodansky, 2016). This model indicates a mixed system of governance that embraces flexibility and accountability controls and has increased the number of participants, although it has left questions about the lack of enforceability and conflict of ambition.

Great Powers and Power Politics

The key emitting nations especially the United States and China have disproportionate influence in the success of global climate collaboration. National policy reports and emissions inventories show that the two countries contribute over 40 percent of greenhouse gas emissions in the world. The US interim withdrawal out of the Paris Agreement (2017-2021) can serve as a bright instance of how domestic politics may interfere with the multilateral agreement and destroy international confidence (Mearsheimer, 2001). The climate policy of China on the other hand is a two-fold response; to invest in renewable energy and slow down the emission rates without stopping the economic growth. According to the scholars, the actions of these key players tend to become the agenda of negotiations that define the impact, ambition, and success of agreements. Also, smaller emitters often make their policies conform to the incentives and limitations set by these world powers, and it is an example of how the structure of power can contribute to cooperation (Keohane and Nye, 2012).

North-South Dynamics, Equity and Climate Finance

The key element of international climate cooperation is equity. The historical inequities in emissions as established by the UNFCCC framework in the principle of common but differentiated responsibilities acknowledges the need of the financial and technological assistance of the industrialized countries to the developing ones (Roberts and Parks, 2007). An examination of climate finance reports indicates that the developed countries committed to provide Global South with the annual amounts of money to fund mitigation and adaptation. Even despite such promises, the discrepancies between the funds promised and delivered occur, which leads to the lack of trust, which destroys cooperative efforts (Ciplet, Roberts, and Khan, 2015). It is important to note that developing countries underline that the successful cooperation in climate matters can be achieved only with financial assistance as well as capacity-building. In addition to this, the discussions of new and additional finance indicate the conflict between the responsibility of the past and the economic interests of the present, and the dichotomy between the North-South division in the climate governance has existed throughout history.

Institutional Effectiveness and Compliance

Significant consideration of both compliance and outcomes with climate agreements is necessary in terms of assessing their effectiveness. Although the Paris Agreement guaranteed the near-universal attendance, NDCs as a whole show that the world is not making enough efforts to ensure that a temperature target is achieved (Falkner, 2016). Voluntary character of NDCs implies that, the enforcement process is determined by the transparency, peer review and reputational incentives instead of laws. UNFCCC progress reports indicate that consumer behavior of some developing states has a problem meeting the adaptations and mitigation goals because of resource limitations. Moreover, the political and economic interests of the major emitters tend to determine the ambition, as possible cases of free-riding prevent the overall effect of the multilateral obligations (Ostrom, 2010). According to scholars, repetitive review cycles, reinforced control mechanisms, and target-revision mechanisms may help to maximize compliance and eliminate ambition gaps over time.

Knowledge and Evidence-Based Policymaking in Science

The Intergovernmental panel on climate change (IPCC) is a very important epistemic body and the scientific basis of climate negotiations. IPCC evaluation reports are based on peer-reviewed studies giving an overview of the climate trend, the mitigation options, and adaptations (Haas, 1992). Policy integration analysis demonstrates that scientific discoveries affect NDCs, control international negotiations, as well as national climate policies. There are however difficulties in the translation of scientific knowledge to political commitments that can be put into practice. Political pressures domestically, economic interests as well as competing priorities may constrain the application of scientifically recommended measures (Keohane & Victor, 2011). As a result, the science-policy interface is a contentious area, which puts emphasis on the significance of good communication, development of trust, and institutional facilitation in global climate governance.

Non-State actor role and Poly-centric Governance

Cities, corporations, and civil society organizations, which are non-state actors, have grown playing a significant role in global climate governance. Polycentric governance has been a response to the realization that transboundary environmental issues are too complicated to be addressed using centralized state-based strategies (Ostrom, 2010). As it has been shown by empirical evidence, subnational governments usually develop ambitious climate policies, adopt renewable energy programs, and engage in transnational networks without the involvement of national governments. The efforts by corporations, civil society mobilizations, and state-based ones serve as additional complements and build a multi-layered system of governance that enhances resilience and innovativeness. It has been hypothesized that such actors are critical in helping close by gaps created by national governments, particularly when political will or resources are less, hence providing overall capacity to cooperate.

Climate Change as a Threat Multiplier

The discussion shows that climate change is coupled with the rest of socio-political and security processes. Increasing temperatures, severe weather conditions and rising sea level increase the problem of resource shortage, food security and forced migration (Busby, 2010). It is said in security-oriented analyses that climate change is a threat multiplier, which multiplies the vulnerabilities already in place and creates possibilities of conflict. This is a multi-dimensional effect that has seen states and international institutions to incorporate climate issues in wider security and development agendas. The information provided by regional climate reports show that vulnerable countries, especially small island developing states, are getting a death sentence, which explains the urgency of joint mitigation and adaptation efforts.

Challenges, Gaps and Future Directions

There are a number of challenges that exist even though there are institutional structures and multilateral agreements. Ambition and effectiveness gaps are caused by the voluntary nature of the NDCs, inequitable financial assistance, and power imbalance between states. Examination of the existing implementation reports reveals that currently, the policy of mitigation and adjustment has become more widespread across the world, although they are still imbalanced in terms of scope and impact. Also, political and economic crises, including changes in leadership or the economic crisis, may jeopardize the sustainability of international cooperation (Rodrik, 2018). The future voices on greater cooperation should involve improvement on monitoring and accountability, transparency on climate finance, and build trust between the developed and developing world. Non-state actors can also enhance resilience and innovative climate solutions by incorporating them and encouraging polycentric governance.

Synthesis of Findings

To conclude, the analysis of data shows that climate change is a multifaceted issue, where state actors, international institutions, non-state actors, and scientific bodies contribute to the international cooperation. Though there are structures such as UNFCCC or Paris Agreement that have provided the means of coordination and transparency, the efficacy is limited by national interests, disparities in capacities and voluntary compliance formats. The global climate governance is affected by major emitters, equity, scientific evidence, and the role of non-state actors. The discussion reveals that the reduction of the gap in ambitions, financial resources, and the multi-level governance is the key to effective climate action.

Discussion

The results of this qualitative study prove that international collaboration in climate change has become a multi-layered and complex process that brings states, international organizations, non-state actors, and scientific advisory groups together. UNFCCC and the Paris Agreement offer organized opportunities to negotiate, monitor, and report but the efficacy of these frameworks is determined by a set of political, economic, and normative conditions (Bodansky, 2016). Although the one-nation-one-nationally-determined-contribution (NDC) nature of the Paris Agreement has proven to be a success in terms of diplomacy, the lack of compulsion that has been seen in participation by the different nations has left the global temperature trend vulnerable to surpassing the 2degC threshold, which has been proposed by climate scientists (Falkner, 2016). This illustrates the long-term issue of balancing international interests with national interests especially when mitigation strategies can go against economic growth and development goals.

Big emitting nations, especially the United States and China, are meddling in decisive influence on the efficacy of multilateral cooperation. It is shown that the climate governance is susceptible to domestic political changes by the temporary U.S. withdrawal of the Paris Agreement, whereas the Chinese policy demonstrates the relevance of the strategic alignment of economic development and emission reduction (Keohane and Victor, 2011; Mearsheimer, 2001). The interdependence between these great powers does not just influence bilateral agreements, but also the multilateral situation in general, influencing incentives and restraints upon smaller and developing countries. Consequently, the idea of power asymmetry and relative gains continues to be the focus of the limitations and the prospects of international climate cooperation.

There are still cooperative dynamics that are influenced by equity and climate finance. The principle of common but differentiated responsibilities underlies the negotiations, but the mismatch of promised and provided climate finance erodes the trust and creates obstacles to the implementation (Ciplet, Roberts and Khan, 2015, Roberts and Parks, 2007). Financial and technological assistance to develop countries can be essential to change to the effects of climate, which have a disproportionate impact on vulnerable groups. The acute divide in the north-south issues highlights the fact that climate cooperation is not merely a technical or scientific issue but also an issue of global justice and moral duty. The conflict between national interests and moral duty illustrates some more general behavior in international affairs, in which cooperation is often based on a consideration of fairness and reciprocity.

Research and policy are connected critically mainly through the IPCC scientific knowledge. Empirical evidence shows that scientific evaluations undertaken by consensus enhance normative pressures, and offer evidence-based informed policies in policy making (Haas, 1992). The translation of scientific evidence into binding commitments is however mediated by political feasibility, financial constraints as well as domestic stakeholder influence. This interface exemplifies a central conflict between global governance: on the one hand, the authoritative use of scientific knowledge is broadly accepted; on the other hand, there are institutional capacities and power relations that make the implementation of scientific knowledge unequally distributed across the nations.

Non-state actors and polycentric system of governance have become relevant as supplements of the state-led efforts. Transnational networks and self-imposed climate actions are followed by cities, corporations, and civil society organizations, which frequently surpass the national efforts of reduction (Ostrom, 2010). These actors bring flexibility, innovation and more capacity in global climate governance and to a certain degree alleviate some constraints that are being brought up by national politics. The spreading of subnational and transnational initiatives is another manifestation of the switch to multi-level governance that proves that efficient climate action demands participation on all scales and in all spheres.

Nevertheless, despite the progress made by institutions and scientific advice, there are still problems in realizing the maximum potential of collaboration on an international basis. The differences in ambitions, the asymmetry of power and financial inequality obstruct the effectiveness of agreements, and obstacles to the implementation are increased by the political disruption, conflicting economic priorities, and different capacities. Moreover, climate change has a dynamic with security, developmental and humanitarian issues and serves as a multiplier in vulnerability in those areas which are likely to be affected by resource scarcity and occurrences of extreme weather conditions (Busby, 2010). These multidimensional problems will need approaches that combine mitigation, adaptation, equity and security, with the idea that minimizing the risks of climate change is not about environmental policy but about socio-political aspects at large.

Conclusion

The global effort to tackle climate change has recorded significant gains by formulation of various multilateral agreements including the UNFCCC and the Paris Agreement. These organizations have enabled transparency, reporting, and involvement on a scale never seen before, and scientific knowledge and normative values have been incorporated into the global policy-making (Bodansky, 2016; Keohane and Victor, 2011). Nonetheless, these efforts have limited effectiveness due to the voluntary nature of commitments, differences in ambition among states, balance of power among states as well as the differences in financial and technical capabilities. The paper shows that climate governance is always multidimensional being influenced by the interplay of scientific data, economic interests, political interests, normative forces and the involvement of non-state actors. To facilitate the realization of meaningful global climate action, it is imperative to deal with such constraints and create a system of trust, responsibility, and fair burden-sharing approaches.

Recommendations

According to the analysis, there are a number of policy and governance suggestions to improve international cooperation on climate. To begin with, accountability and monitoring mechanisms in multilateral agreements need to be enhanced in order to close the gaps of ambition and compliance. This will involve improving the transparency of NDC implementation as well as developing mechanisms of iterative peer review. Second, it is essential to deal with inequality in climate finance to develop trust between developed and developing nations. The involvement and efficacies can be enhanced by making sure that committed finances are disbursed in a timely manner and that financial and technological aid are directed to the neediest areas. Third, it is possible to involve non-state actors, such as cities, corporations, and civil society organizations in formal structures of governance, which will enhance innovation and capacity, promoting a polycentric model of climate action. Fourth, translating scientific recommendations into practical policies and incorporating them into existing policies demand greater communication, translation of policies, and interest in domestic stakeholders to make it politically viable. Lastly, the interdisciplinary approach of climate, security and development should be encouraged to make climate governance much more responsive to realities of the warming world by focusing on both mitigation and adaptation efforts (Busby, 2010; Ostrom, 2010).

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