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# Managing Institutional Inclusiveness in Collaborative Governance Climate Change Adaptation Policy in Indonesia

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**ABSTRACT**

As part of sustainable development governance in almost every country worldwide, climate change has become one of the strategic issues consistently emerging in environmental political discourse. Indonesia is expected to experience significant impacts in both scale and complexity, which in turn have a high potential to trigger disasters and conflicts that threaten the nation's continuity and integrity. This research aims to describe how the dynamics and substantive changes in institutional regulations related to climate change adaptation governance are evolving. The study adopts a qualitative approach with a descriptive design, in which the findings are not derived from statistical procedures or quantitative calculations. Data were collected through interviews with representatives of the National Council on Climate Change (NCCC), Mercy Corps Indonesia, and the Climate Change Coordination Team of the City of Bandar Lampung. Data analysis was conducted inductively to generate a comprehensive factual description, particularly regarding the influence of the "Four Is" (Ideas, Interests, Institutions, and Individuals). Based on the results of the research and discussion, both the political and administrative governance dimensions have functioned effectively in Bandar Lampung City. The presence of several positive findings substantiates this success. Such success is supported by leadership governance that promotes innovative adaptation actions, sustainable innovation governance, effective communication and knowledge management, and strong institutional governance through the Climate Change Resilience Coordination Team legitimized by the Mayor.

## 1. INTRODUCTION

Climate change has emerged as a strategic concern in the management of sustainable development in almost all countries across the world [1]. This has always been on the policy agenda and a basic research theme behind the policymaking. The climatic change was chosen to be the main topic of the given research due to the fact that this issue received significant attention on the international level during the last 20 years. The climate change problem is one of the most complicated problems of public policy ever experienced by governments [2]. The governments are important in the development and establishment of climate change policies on adaptation [3]. The effectiveness of such initiatives is directly proportional to the ability of a country to handle one of the most significant problems the planet and humanity's survival face at the moment and in the future.

Climate change effects are not limited to one area in a country but manifest all over the world, making it a threat to nearly all corners of the earth [4]. The transboundary argument of climate change implies that successful solutions need to be taken by all nations. The very notion of international cooperation with the greatest degree of legitimacy is thus crucial in order to predict the effects of climate change and take the rightful steps and act in unison with the actors and the nations [5]. Global climate change refers to a long-term change in climate behavior pattern, which is normally experienced over a span of about 30 years [6, 7]. There are a number of studies that regard the global change as a global adjustment of climatic factors (temperature, pressure, humidity, precipitation, and wind) that can be caused by both natural processes (for example, the greenhouse effect) and human activities (for example, industrial processes, oil and coal reserve extraction, and forest burning) [8, 9].

Climate change has far-reaching implications, which include the rise of sea level, the change in weather patterns, the climate and temperatures, and the change in distribution and intensity of rainfall [10, 11]. These transformations depend on their consequences, which affect a number of vulnerable areas, such as health, agriculture, food security, and infrastructure, and are related to the higher rates of natural disaster occurrence and severity [12, 13]. Indonesia, being an archipelagic nation, is most susceptible to the threat of natural disasters. The coastal areas, especially the coast, have been noted to be quite vulnerable to floods, landslides, erosion, tropical storms, and droughts. These risks are expected to rise

significantly in the future in case proper intervention is not taken because the impacts of climate change will become even more severe.

The possibility of economic loss due to climate change in Indonesia is very high. Indonesian cities may experience the potential financial losses of USD 44 trillion annually as a result of climate-related disasters by the year 2025, according to the prediction of a global strategic risk consulting firm [14]. Some other studies also forecast the possible annual loss in GDP by 6.7 percent in Indonesia and three other Southeast Asian economies, namely, the Philippines, Thailand, and Vietnam, due to climate change, but mitigation measures would cost 1-2 percent of GDP [15]. This case is further reinforced by the national disaster response budget in Indonesia [16], which, even though not perfect yet, has been about one percent of the national budget, which is at around 15 trillion rupiah annually, and represents the size of financial problems faced in the country.

As it is so vital, any attempt to reduce the effects of climate change should be taken immediately. The most feared effects that can arise if climate change is not addressed early enough include (1) about 200 million people will be displaced because of rising sea levels; (2) more people will die due to lack of food and malnutrition; and (3) there are chances of disastrous events that will overtake the global human population, reducing it by 15 to 40 percent [17, 18]. Indonesia will be affected both in magnitude and in complexity, since it is an archipelagic state with a long coastline with millions of the poor in its population who are overly dependent on the natural resources for food security. These effects can lead to catastrophes and wars that undermine the survival and the national interest of the country [19]. Different international research has categorized Indonesia as a highly vulnerable country owing to its geographical location and low adaptive capacity, both at the government level and among vulnerable populations.

The climate change problem has resulted in several international agreements since 1994 [20], and one of them is the commitment by Indonesia to tackle climate change through mitigation and adaptation at macro and micro levels, starting in 2004 [21]. The dynamics of the national policy are still changing, which is shown by the fact that a number of new regulations have been introduced. On the implementation level, the government has not only embraced the national policies but also has set some areas as pilot projects or best practices for other parts of Indonesia in mitigating the effects of climate change. Considering the research aspect, climate change is a pertinent, pressing issue of research by Sietsma et al. [22] pertinent in that it will cause other issues, pressing in that anything that is done late will lead to missed opportunities, and viable in the sense that resources will be available to deal with it. These resources in the Indonesian context encompass the knowledge of policy networks that are applied to create institutions, including working groups, action teams, or climate resilience coordination teams, which inclusively have the power to build collaborative governance in climate action in different parts of Indonesia.

These two strategies incur mitigation and adaptation measures that the government has implemented in order to minimize the effects of climate change [23, 24]. The reduction that is called mitigation is aimed at the factors that cause global warming to be addressed so as to reduce the pace at which climate change occurs [25]. Adaptation or adjustment is the act of being ready to adjust to the already existing changes. In the current governance environment, the success of governmental administration and social policies is highly determined by coordination between the stakeholders and the institutional networks that are formed due to collaborative governance. The process of collaborative governance is facilitated by four key factors, namely initial conditions, institutional design, facilitative leadership, and the process of collaboration as the central element. Thus, institutional studies play a very important role in the success of collaborative governance. It is against this backdrop that this study seeks to explain the dynamics and substantive alterations in institutional regulations as far as climate change adaptation governance is concerned.

## 2. LITERATURE REVIEW

Dynamics of the public policy are important in analyzing the nature of changes or developments in policy formulation and implementation processes. In this sense, policy cognition is in close association with policy alterations within the frame of a progressive political process. The primary emphasis is on the dynamic and systemic policymaking and implementation. Even though not every system is dynamic, any system has some dynamism. Even the notion of a system can be considered as being a collection of interrelated units or elements, wherein an alteration in one component will influence another, and the system itself will exhibit properties and behaviors not simply properties of its individual components [26, 27]. The dynamics in a system may be either influenced internally or externally and can be described as an open system or a closed system. As a subject of the public policy, dynamics attempt to attain a balance between some of these elements, one of them being the iron triangle scheme with interest groups, executive institutions (bureaucrats), and legislative allocations (Congress) [28]. This system has the structure composed of constituents, regulations, and information needed to execute these regulations, and the actions of this system produce feedback that has the potential to change the system structure.

Adabanya et al. [29] continue to elaborate on the concept of the system as a collection of institutions and activities in the society, which serves to change demands into authoritative decisions. This definition emphasizes that there is a mutual relationship between the system elements and their ability to react to environmental forces, which may be an internal or external factor in the form of demands and support. "Oscillation system" is also a term that is used in studying policy dynamics. The term "oscillation system" in political science is used to refer to the lag of political force in the international system [30]. In the policy arena, the term refers to the equilibrium between actors who have vested interests in a certain policy area. The main peculiarities of the oscillation system are the following [31, 32]: (a) the appearance of balancing groups that interrogate the strongest coalition, and (b) the flexibility of the coalition, where the present rivals can become the future allies. This system is constantly wavering between a state of relative stability and conflict, the latter being observed when the forces of power are not able to sustain equilibrium.

The theoretical framework that was applied in this study in order to find an answer to the problem formulation is dynamic analysis, which focuses on scale, processes, change, and temporality. Even though the analysis of policy dynamics is a comparatively under-researched topic in the literature on

policy theory, and the very concept of policy is challenging to pinpoint to capture all of its usage, the current study employs the Four Is theoretical framework to analyze the process of climate change adaptation policy development in Indonesia. It refers to the Four Is framework, which includes Ideas, Interests, Institutions, and Individuals [33, 34] as one of the determinants of third-level policy change. This methodology is consistent with longitudinal studies that emphasize the significance of time as an independent and a dependent variable in determining the process of policy change. In this respect, new ideas can shape or even change interests and institutions to initiate a paradigm shift in policy. The occurrence and introduction of these novel ideas are very much dependent on the influence of key individuals who support and initiate such changes.

Inclusive institution design is the creation of key principles requisite to successful collaboration [35], and the main focus is on procedural legitimacy in the entire process of collaborating. The government should also be open and inclusive in the sense that there is a perception that participation legitimacy is restricted to some groups. A participative, nondiscriminatory process ensures that every group feels they have a fair and equal chance to contribute to establishing mutual commitments. In this regard, the government should offer ample opportunities to all the concerned stakeholders. The two main principles behind this process of legitimization are (1) the possibility of every actor to get in touch with other stakeholders on the consequences of the policies and (2) the fact that the consequences of policies are the agreement of all acting actors [36-38].

Nevertheless, in cases where the actors are considered relevant to the issue at hand but not aligned or highly motivated to get engaged, the government might choose to not include such actors. The institutional design also has to offer a systematic roadmap concerning the time of the cooperation. However, with respect to the role of the public manager, the key issue with collaborative governance is the social dynamics, which involve ambiguity and complexity of membership, conflicts among stakeholders, and the prevalence of formal power systems. The vagueness and confusion of membership, including the issue of who needs to be involved and who does not, is also a focal point that brings about a challenge to collaboration. Thus, the specificity of the choice of partners and the standardized nature of facilitation by the government officials will turn into the relations practice that will be supported during the collaboration process [39].

The process of governance is typically referred to as the acts or behaviors that guide, govern, or impact upon the affairs of the people in order to bring about the collective values in the society [40]. It is the use of sound and accountable development management that would prevent a misappropriation of the funds invested, political and administrative corruption, and the creation of a legal and political environment that facilitates the development of business [41]. In a functional sense, government effectiveness and efficiency can be measured in terms of three pillars, namely, political governance (through which policy formulation is made [42], administrative governance (through which policy processes are implemented), and economic governance (through which policy processes are implemented) that bring about equity, welfare, and quality of life.

The main goal in the area of climate change adaptation governance is the achievement of adaptive capacity and increased capacity to withstand climate change effects. According to Moşteanu [43], resilience is considered a systematic attempt to endure shocks, recover, and evolve based on the unforeseen alterations. To be more precise, climate resilience is the capacity of individuals, communities, and institutions to operate dynamically in changing climatic conditions and still ensure a satisfactorily high functioning level through innovation and the introduction of adaptive measures [44]. This principle of resilience is spread over various spheres, such as individuals, families, communities, systems, and policies, the goals of which are to adjust to or bounce back against the consequences of disasters based on the ongoing learning processes [45]. Based on this, the given research aims to present a roadmap towards a more inclusive institutional design that will enhance the adaptive capacity of the region and make the resilience-building endeavors more effective. This roadmap is formulated through critical analysis of the dynamics of the climate change adaptation policies, and it consists of four main features that include (a) the development of the regulatory frameworks concerning the institutions of adaptation governance; (b) the classification of the models or types of adaptation models in the institutions studied; (c) the impact of ideas, institutions, individuals, and interests on the dynamics of climate change policy in the context of the institution of Indonesia.

Figure 1 gives a conceptual framework that shows how regulatory dynamics interacts with the Four I factor, which are IDEAS, Interests, Institutions, and Individuals, as the key determinants of the resulting policy model or type. The mutual relation shows that regulatory changes are caused by and impact internal policy factors, which, subsequently, determine the nature of the policy. Moreover, the policy model or type is double-fold in terms of the way the model influences the institutional effectiveness, which is the extent of the national institutions down to the local institutional cases, and the second, the policy model interacts directly with the design of institutional inclusivity. The importance of institutional inclusivity design can be explained by its feedback influence on the four I variables, where the dynamic cycle of participatory institutional design can reinforce or change ideas, interests, institutions, and individual roles. This highlights the overall interconnectedness of these factors as the key to the effectiveness of climate change adaptation governance.

The theoretical position of this research is identified in the conceptual framework in Figure 1, as it shows not only how regulatory dynamics and the Four Is factors (Ideas, Interests, Institutions, and Individuals) are analytically linked to one another but also reflects the theoretical spectrum of this study. This study places the Four Is model into the context of the Indonesian climate change adaptation governance environment, especially the example of Bandar Lampung. The study puts the model in the context of a developing country environment with multi-level institutional structures, political leadership, and participatory governance arrangements to generalize the relevance of the model beyond its historical policy-specific Western settings. This contextualization adds to the theoretical enrichment in that the authors display the interaction of the Four Is within the standards of inclusiveness and decentralized governance in Indonesia. Thus, this paper can be regarded as a contextualization and an extension of the Four Is model, proving its relevance as an analytical tool in non-Western policy settings.

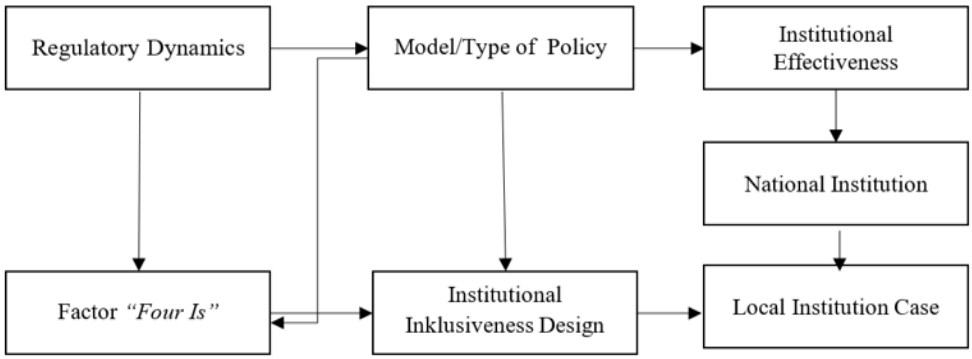


**Figure 1.** Conceptual framework

**Table 1.** Crosswalk ANTARA collaborative governance dan four is frameworks

| Collaborative Governance Variable | Related Four Is Dimension | Indicators Used in this Study |
|---|---|---|
| Institutional Design | Institutions, Interests | Regulatory structure, coordination mechanisms between agencies, allocation of authority, standard operating procedures, and inter-organizational accountability mechanisms. |
| Leadership | Individuals, Ideas | Policy entrepreneurship, facilitative leadership, shared vision development, problem framing, and innovation in sustainability practices. |
| Starting Conditions | Interests, Ideas, Institutions | Pre-existing trust among actors, historical cooperation experience, local political commitment, resource availability, and alignment of climate adaptation objectives. |

The feedback loops indicate the mutual impact between the regulatory processes and the four dimensions of analysis, namely, the ideas, institutions, interests, and individuals, as shown in Figure 1. The role of regulatory dynamics is to influence ideas through defining the formal boundaries, standards, and incentives that identify the sustainability strategies that are deemed viable in terms of green hospital management. On the other hand, new concepts, including new environmental practices or new paradigms of policies, may trigger changes in the current regulations. Regulatory frameworks are operationalized by institutions in organizational norms and routines, but institutional learning and adjustment can also lead to revision in regulation. Interests also impact the priorities of regulatory negotiation and implementation, and also changing stakeholder preferences can bring regulatory reform towards a different direction. Lastly, people are major intermediaries who introduce regulatory developments into action and give feedback in the form of expertise, novelty, and leadership.

Based on the operationalization of feedback loops, this paper also adds the Collaborative Governance model to the Four Is model to offer a more analytical approach. The integration shows the interactions between the procedural aspects of collaborative governance that include institutional design, leadership, and starting conditions with the structural and behavioral aspects of the Four Is framework.

A combination of the Collaborative Governance model and the Four Is framework offers a multi-dimensional analysis lens to represent the interaction between structural and behavioral factors of policy implementation. Although the Four Is model emphasizes the role of ideas, interests, institutions, and individuals working together to drive the dynamics of governance, the Collaborative Governance model provides a procedural perspective (involving the impact of institutional design, leadership, and initial conditions) on the delivery of collaborative results. Table 1 shows a crosswalk of the two frameworks to operationalize the conceptual linkages and the empirical indicators that have been used in this study. As indicated by Table 1, all variables of collaborative governance relate to certain widths of the Four Is model. The institutional design is more of a reflection of the institutional and interest-based part of the governance since it defines how power is shared and the coordination processes. Leadership permeates well to the individual and ideational level since leaders are policy entrepreneurs that will produce and share new ideas, build trust, and lead collaborative learning. The initial conditions between the institutional and interest dimensions bridge the gap between the two dimensions by defining the initial environment where cooperation may be either possible or unfeasible. It is through this mapping that the study is able to combine the process-oriented and structural perspectives, where both the regulatory dynamics and the factors at the actor level are represented analytically.

## 3. METHODOLOGY

The study aims to take a qualitative design, which follows a descriptive design, where results are not obtained through a statistical process or any quantitative computation [46]. This method in itself makes the researcher the main tool for the gathering of empirical data. In-depth interviews were used as the main source of primary data, and secondary data will be taken using relevant reports and past studies. Data analysis was inductive because it was aimed at providing a comprehensive factual description, especially in terms of how the Four I's (Ideas, Interests, Institutions, and Individuals) are able to affect the dynamics of climate change adaptation policies in Indonesia. Also, the implications of these dynamics on the success of collaboration in the development of inclusive and collaborative institutional designs are also studied in this paper, thus highlighting the argumentative and qualitative character of the research.

The case of Bandar Lampung was chosen purposefully given the fact that it provides good analytic leverage in the study of inclusiveness in the Asian Cities Climate Change Resilience Network (ACCCRN) framework. In contrast to other ACCCRN cities, like Semarang or Cirebon, Bandar

Lampung exhibits a special set of decentralized decision-making, participatory planning, and local commitment to leadership directly related to the inclusivity aspect of collaborative governance. It also incorporates community-based organizations and NGOs more actively in its Climate Change Resilience Coordination Team than the other cities and is an analytically abundant case study of how regulatory dynamics and stakeholder inclusiveness in the adaptation policy play out.

The judgment sampling was used as a means to select the research informants [47], who have a broad knowledge of the issue, have access to the necessary data, and are willing to give precise and full information. In qualitative studies, the quality of informants is more important than the number, with relevancy and complexity of the social phenomena examined. The key informants in this study will be:

1) government representatives, that is the members of the Bandar Lampung City Climate Change Resilience Coordination Team (Desti Mega Putri of BAPPEDA and Dirmansyah of the Tourism Office);
2) the representatives of non-governmental organizations (NGOs), that is Mashabi, based on the Mitra Bentala Lampung Foundation;
3) academic representatives, that is, Citra Persada; and
4) agency or representatives of the nongovernmental organization that will support the Bandar Lampung City initiative, which is Mercy Corps Indonesia, namely Agustinus Lenatoro.

The choice of informants is meant to get varied views on the main stakeholders in climate change adaptation governance in the region of study. Ten semi-structured interviews were carried out with four groups of stakeholders: four governmental representatives, three actors of NGOs, two academics, and one representative of the supporting organization. The process of collecting the data took place during the period between April and August 2023. The protocol of semi-structured interviews had five thematic clusters: (1) regulatory and institutional design, (2) roles of leadership and coordination, (3) inclusion of stakeholders and trust-building, (4) distribution of resources and inter-agency mechanisms, and (5) views on policy efficacy. The Research Ethics Committee of PT Penerbit Qriset Indonesia approved this research based on ethical grounds on 12 June 2023 Number: 0007/EA/PQI/VI/2023. The collection of data was ended when thematic saturation occurred, which was characterized by the repeating of the answers, and when no new code appeared after a certain eighth interview, it was evident that no new data was needed to broaden the thematic scope.

The three stages of the interactive model are data reduction, data presentation, and drawing conclusions or verification, the processes through which data analysis was performed [48]. The data reduction stage entailed summarization, key points, and theme and pattern identification of in-depth interview data and document studies to bring out the overall picture of the research [49]. Data presentation was then done as a narrative text where all the information obtained after interviewing all the informants was coded, correlated with other supporting documents, and placed within the theoretical framework to give the data both meaning and significance. The last phase, conclusion verification, was conducted after the thorough analysis of the research findings, with reference to the fulfillment of the four set research objectives.

## 4. RESULTS AND DISCUSSION

### 4.1 The dynamics of climate change regulations

It was at the United Nations Conference on the Human Environment which was held in Stockholm, Sweden, in 1972, that the international community first met to discuss the global environmental situation. It did not, however, become legally binding until the United Nations Framework Convention on Climate Change (UNFCCC) was adopted in June 1992, at the Earth Summit on Environment and Development (UNCED), in Rio de Janeiro, Brazil, and became effective on 21 March 1994. The UNFCCC was signed by 154 national representatives, and since 1995, the parties have met annually through the Conference of the Parties (COP)—also known as the Climate Change Conference—to evaluate, apply, and implement the framework, as well as to negotiate new agreements at each session. The COP serves as the supreme body and the highest decision-making authority, representing the association of parties that have ratified the convention. The COP is responsible for ensuring the coherence of international efforts toward achieving the main objectives of the convention and provides an opportunity to review the effects of actions taken by the parties in pursuit of these goals.

Together with other countries, Indonesia participates in every conference to reach a collective agreement on limiting the global temperature rise to no more than 2°C. The objective of the COP is to establish a new international agreement on universal climate change mitigation efforts that is endorsed and can be implemented across all countries. This agreement must flexibly consider the specific needs and capacities of each nation, maintain a balance between adaptation and mitigation measures, and adopt a long-term perspective with targets that are regularly reviewed and adjusted. The dynamics within this oscillating system generate the emergence of both "allies" and "opponents." Furthermore, the dynamics of this interaction system unfold during the annual implementation of the KPI, and Indonesia's position within these dynamics constitutes two critical questions that must be examined comprehensively to understand their full implications for the country's policy decisions in responding to climate change.

Although Indonesia has been regularly participating in the KPI since 1995, it was only in 2004 that the country genuinely recognized the necessity of formalizing its international commitments into policy. Law No. 17 of 2004 on the Ratification of the Kyoto Protocol to the UNFCCC constituted the first policy to emerge in Indonesia in the context of climate change adaptation. Based on the assumption that the concept of policy encompasses not only what the government does but also what it chooses not to do, the following question arises and requires further explanation.

### 4.2 National policy on climate change

The Government of the Republic of Indonesia has enacted several regulations and policies concerning climate change adaptation and mitigation. The key regulations directly related to climate change are presented in Table 2.

Based on Figure 2, the Government of the Republic of Indonesia has introduced several regulations and policies related to climate change adaptation and mitigation. The National Council on Climate Change (NCCC) was officially established through Presidential Regulation Number 46 of 2008 in early July 2008. The establishment of the NCCC was

timely in responding to the increasingly complex challenges of climate change control and mitigation. The broader and more intricate nature of climate change issues requires stronger coordination and synergy at the national level to avoid a disconnection between international processes and national implementation [7]. Among the key functions of NCCC is the cooperation that helps to empower Indonesia in the international negotiations. This has been done by organizing and planning the position and delegation of Indonesia in the respective international forums. The role has been successfully executed and well supported and actively managed by ministries and agencies who are members of the NCCC and other institutions and organizations, including non-governmental organizations, the private sector, and academia. Since NCCC was launched in the year 2008, Indonesia has been busy in the game of international negotiations, and it has also been involved in formulating major decisions. This has been one of the long-term advantages of Indonesia since it hosted and chaired COP-13/CMP-3 in Bali in 2007.

**Table 2.** The development of climate change adaptation policies in Indonesia

| No. | Year | Regulation | About |
|---|---|---|---|
| 1 | 2004 | Law No 17 Year 2004 | Ratification Kyoto Protocol to The United Nations Framework Convention on Climate Change |
| 2 | 2007 | Document | National Action Plan Addressing Climate Change |
| 3 | 2008 | Regulation of the Minister of Forestry No. P.68 year 2008 | Implementation of Demonstration Activities for Reducing Carbon Emissions from Deforestation and Forest Degradation (REDD) |
| 4 | 2008 | Presidential Regulation No.46 Year 2008 | Formation of the National Council on Climate Change (NCCC) |
| 5 | 2009 | Regulation of the Minister of Forestry No. P.30 year 2009 | Procedures for Reducing Emissions from Deforestation and Forest Degradation (REDD) |
| 6 | 2009 | Regulation of the Minister of Forestry No P.36 year 2009 | Procedures for Licensing Carbon Absorption and/or Storage Utilization Businesses in Production Forests and Protected Forests |
| 7 | 2010 | Presidential Decree of the Republic of Indonesia Number 19 of 2010 | Task Force for the Preparation of REDD+Institutional Formation |
| 8 | 2011 | Presidential Decree Number 25 of 2011 | REDD+Institutional Preparation Task Force |
| 9 | 2011 | Presidential Regulation Number 61 of 2011 | National Action Plan for Greenhouse Gas Emission Reduction (RAN-GRK) |
| 10 | 2011 | Presidential Regulation Number 71 of 2011 | Conducting the National Greenhouse Gas Inventory |
| 11 | 2011 | Presidential Instruction Number 10 of 2011 | Postponement of New Permit Issuance and Improvement of Primary Natural Forest and Peatland Governance |
| 12 | 2012 | Regulation of the Minister of Forestry of the Republic of Indonesia Number: P. 20/Menhut-II/2012 | Forest Carbon Management |
| 13 | 2013 | Presidential Decree Number 5 of 2013 | Amendment to Presidential Decree No. 25 of 2011 concerning the Institutional Preparation Task Force Reducing Emissions from Deforestation and Forest Degradation (REDD+) |
| 14 | 2013 | Regulation of the Head of BAPPENAS No. 3 of 2013 | Formation of the Indonesia Climate Change Trust Fund |
| 15 | 2014 | Document | Indonesia Climate Change Sectoral Roadmap (ICCSR) |
| 16 | 2014 | Document | National Action Plan for Climate Change Adaptation (RAN-API) |

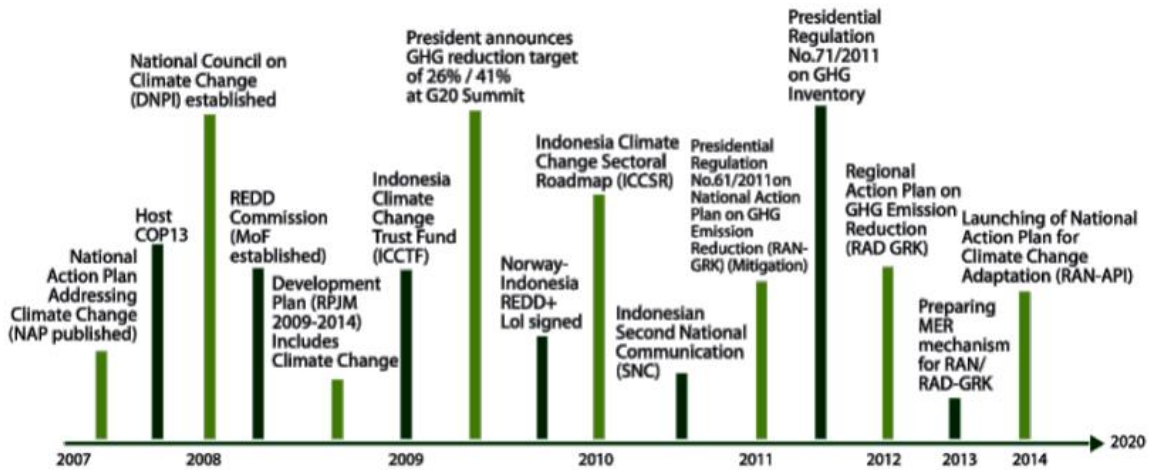


**Figure 2.** Development of national climate change mitigation policy

The issue of climate change has forced every country to adjust. According to the Great Dictionary of Indonesian Language (or KBBI), adaptation refers to an attempt to adapt to the surroundings. Accordingly, in the climate change context, adaptation may be defined as an effort to change and cope with climatic and environmental changes [50]. The climate change threat exposes Indonesia to very great vulnerability. The Indonesian society is, therefore, burdened with the challenge of protecting the largest archipelagic country in the world, whose coastline is more than 81,000 km [51]. In addition, Indonesia has the most diverse marine biodiversity in the world as well as important coastal ecosystems of mangroves, coral reefs, and seagrass beds. The main secret to adaptation activities is to enhance the adaptive

capacity and hence of vital importance. It is possible to note the strength or the frailty of the adaptive capacity based on external influences, such as the condition of the ecosystems and environmental carrying capacity, and internal influences, which are the readiness of regulatory and institutional tools, financial resources, and human capital.

### 4.3 Institutions in the region: A case study of Bandar Lampung

Bandar Lampung is the capital of Lampung Province, occupying 19,722 hectares and consisting of 20 districts and 128 villages. The topography of the city is also defined by two big rivers (Way Kuala and Way Kuripan) and 23 smaller rivers draining into a watershed area (or DAS) leading to Lampung Bay. Teluk Lampung is one of the major ports of the Sumatran islands, which offers natural security against waves in the high seas. Nevertheless, there are a number of coastal regions that have issues of erosion and high population density, which results in land acquisition of settlements that are not usually owned legally, hence causing accretion. A literature review of historic climate records indicates that there were changes and long-term differences in temperature and rainfall in Bandar Lampung, and there were strong indications that the average surface temperature has been rising during the last century [52, 53]. The rainy season has also been observed to start earlier, and the extreme rainfall events have increased. The 14 global climate models (GCMs) have projected that rainfall increases might be experienced in the wet season and especially in the coastal regions, whereas the rainfall during the dry season is projected to be reduced.

Climate change in Bandar Lampung is present in such a complex set of circumstances that it influences the lives of the local communities in the coastal and hinterland regions [54-56]. The first one is that the predictability of the rainy and dry seasons is low, thus affecting the planting schedule of farmers. Second, excessive flooding can easily be caused by intense rainfall in short intervals, which is enhanced by a change of land use and increase in coastal settlements, narrowing rivers, and poor drainage and sanitation systems in highly populated regions. Third, access to clean water has been getting scarcer through decreased river discharge, spring disappearance, decreasing groundwater levels, intrusion of seawater, and water quality degradation in the uplands as the catchment areas are transformed into residential and industrial areas. Fourth, climate change has led to increased temperatures on the surface of the sea, and this means that fish colonies will have to move to the poles, which will lower the catches of tropical fisherpersons and impact their livelihoods, such as in Indonesia or Bandar Lampung. Fifth, good climate and temperature conditions promote the breeding of disease-carrying mosquitoes like those that transmit dengue fever, malaria, and filariasis, and this depicts vast public health effects of climatic change.

### 4.4 Political governance adaption to climate change

The review of the political governance in regard to climate change adaptation policies within the City of Bandar Lampung reveals that tangible measures have been established by the city government since the year 2009. Such participation occurred following the choice of Bandar Lampung as a partner city of the ACCCRN, which is an initiative of Mercy Corps Indonesia and the Rockefeller Foundation. The main agenda of ACCCN is to enhance the resilience of the cities in Southeast Asia, especially those harboring vulnerable and low-income groups, in dealing with the effects of climate change. The assistance of ACCRN in Bandar Lampung covers a number of major steps, the first of which is the preparation of the Vulnerability Assessment, and the second step is pilot project adaptation, sectoral studies, and the ongoing organization of Shared Learning Dialogues (SLDs) [57]. These accomplishments were then incorporated and advanced further by drafting the City Resilience Strategy (CRS), the City Resilience Indicator document, and a number of concept notes of small-scale interventions.

The document of the City Resilience Strategy (CRS) is the strategic base on which the efforts have been planned to make Bandar Lampung City more climate resilient in the 2010-2030 period. CRS serves as a roadmap of actions that helps direct the city on the worst-case climate change scenario preparation, at the same time showing the local government's willingness to deal with the issue of climate change adaptation. According to Mukhlis and Perdana, the key point about the CRS is the description of the connection with urban development plans, coordination and learning processes, and active participation of vulnerable groups in the process of identifying and undertaking adaptation measures [54]. Besides, the CRS outlines an accountability, coordination, and monitoring mechanism framework by measuring urban resilience indicators. The greater concern of climate change threats has also prompted the Bandar Lampung City Government to consider climate factors during the development of a more formal and comprehensive system of managing disasters, as the current infrastructure lacks the ability to respond to the growing number and severity of extreme weather phenomena [58, 59].

Also clearly expressed in the planning framework of the urban development planning is the insertion of the climate change adaptation policies in the Regional Regulation No. 10 of 2010 on the Bandar Lampung Regional Medium-Term Development Plan (or RPJMD) 2010-2015. Adaptation activities that were incorporated in the government programs in the city were determined based on the appropriateness of the areas of development, regulatory conformity, realistic implementation time, and local capacity. Formulation of the RPJMD was done through a sequence of workshops and internal meetings between the City Climate Change Resilience Coordination Team and the RPJMD drafting team and the adoption of the regional regulation. The lessons learned during this experience are valuable in terms of the intrinsic complexity of interactions between urban systems (ecosystems, economy, society, infrastructure, institutions, and governance) and climate change as well as vulnerability. Since mid-2010, ACCCN has passed on to the third phase, which is the implementation of adaptation programs, such as the Integrated Solid Waste Management Master Plan (2011), the Empowerment and Capacity Building Program for Teachers and Students, and Groundwater Conservation through Biopores (2012-2014).

Among the characteristics of institutional designs that contribute to the improvement of inclusiveness, some mechanisms can be distinguished in Bandar Lampung. First, the membership regulations of the City Climate Change Resilience Coordination Team expressly cover not only the local government agencies but also NGOs, universities, and representatives of the vulnerable communities. The plural participation and diminished dominance of a single

institutional actor are secured by this composition. Second, the decisions are made by consensus using the SLD mechanism, in which all the stakeholders evaluate priorities and actions proposed to be taken in a common context before implementation. According to one of the government representatives, every meeting begins with an exchange of data, and each member of the group, including NGOs and academics, is invited to express their opinion before making any final decision (Interview, DMP, BAPPEDA, 2023). Third, it is advisable to have rotating facilitation of meetings, which will enable different institutions to be at the helm of discussions, which will again create a feeling of ownership among actors.

These aspects of inclusive design enhance procedural and substantive inclusivity. One of the NGO informants emphasized that we were not invited to attend but rather, our contributions related to the coastal communities were consulted to modify the program design (Interview, Mashabi, Mitra Bentala, 2023). Inclusiveness is therefore not an ideology in Bandar Lampung but rather inherent in its institutional structure of decision-making.

The results of the CRS, RPJMD, and City Resilience Indicator (CRI) documents of Bandar Lampung report show that climate change has been identified as a strategic concern in the regional development sectors and later transferred into the sectoral road maps in the Work Unit Strategic Plan. Despite the differences in the degree of concern between the Regional Work Units, urban resilience-specific measurement tools have been designed that are no longer the traditional regional government assessment tools like LAKIP. Additionally, the action plans are decided to be undertaken in systematic SLDs, where stakeholders are involved in the process from the initial stages of vulnerability identification up to the incorporation of the adaptation measures into the development plans. The concrete results of this process are represented by obligations and rules, including the Mayor Regulation on Rainwater Utilization (2013), Climate Change Resilience Education Learning Materials (2014), and an organization of the Community of Teachers Caring about the Environment and Climate Change (2015). Moreover, the process of evaluating the awareness of stakeholders on climate change, especially with the use of education programs in formal schools [60], is an optimistic move towards amplifying awareness and increasing the response level to climate changes the next time.

During the collaborative process, there were also power asymmetries between the local government and the NGOs. During the initial stages of the ACCCN, the local NGOs were not influential in the budgetary allocation and setting of the agenda. According to one of the NGO representatives, initially, the draft plan was finalized, and only then did we get consulted (Interview, Mashabi, 2023). This disparity was as a result of disparities in institutional power and resource access. Nevertheless, the imbalance was slowly reduced through the facilitative leadership of the Mercy Corps Indonesia. Mercy Corps was a mediator in which all stakeholders were able to put forward their evidence and ideas on even footing. As a representative of Mercy Corps, it was their job to ensure that the city team was not overwhelmed by the government—all decisions were to pass through a discussion and consensus process (Interview, 2023).

This change was also noticed by government representatives, who add that one of them said, "We understood that local NGOs can be much more precise about the community vulnerability than we are in our offices" (Interview, Dirmansyah, Tourism Office, 2023). The result of this process of mutual recognition and developing trust resulted in a more balanced cooperation, as strategic documents were co-authored and adaptation projects shared. Through this, asymmetries were not eliminated but proactively managed through transparency, joint leadership, and reiteration.

All in all, the adaptation governance in Bandar Lampung continued to be inclusive, not only by the way the institution was designed but also by the fact that power relations were negotiated over time. It shows that inclusivity in collaborative governance involves both formal structures (for example, membership principles, consensus rules) and relational practices (for example, dialogue, facilitation, trust-building).

### 4.5 Administrative governance climate change adaptation

This is the discussion of administrative governance through the implementation of climate change adaptation policies in Bandar Lampung City with an emphasis on factors that support the implementation, including leadership, the presence of certain institutions, and funding collaboration possibilities [60]. Leadership, which is the quality of being able to influence and bring people together towards the shared purpose, has proved to be critical here. Observations in Bandar Lampung show that the significant role of regional leadership has been integrated into the strategies of the mayor in terms of engaging various stakeholders at each of the phases, including planning, as well as execution of adaptation measures. Such participation involves the development of regional policies, budgetary allocation, and the complete delegation of power to the appropriate institutions to implement the adaptation activities. This is trusted, as it promotes the participation of different stakeholders in the process of realizing the urban resilience goals.

At the institutional level, ever since 2009, the City of Bandar Lampung has created the Climate Change Resilience Coordination Team as a specialized organization that is directly mandated to mainstream the issue of climate change into the local government. It is a multi-stakeholder team that is completely empowered by the mayor, which is mandated to input into the policy, develop regulations, provide programs, and facilitate internal and external partnerships to enhance the speed at which adaptation actions are put in place. Even though the capacity of the team is more individual than it has been completely institutionalized in all the related agencies, improvement has been seen in the city planning, financing, coordinating, and implementing resilience strategies. The primary feature of the team job is that the team is conscious of the fact that climate change is a common concern and that they should come up with wide knowledge-sharing systems. The credibility of the mayor has given it the leeway to enable effective teamwork.

The interdependence between local governments, the private sector, non-governmental organizations (NGOs), and academics is deemed to be a key to reducing the possible threats and effects of climate change on society. The governmental assistance is in the form of the resilience-building policies, and the practitioners and scholars offer the input based on the research. The private sector involves the climate-responsive CSR programs, and NGOs take part in supporting and lobbying the community. Of great significance are the awareness and accommodative practices of the local

community. The City Team has been successful in developing all these stakeholder collaborations in Bandar Lampung. The various parties' synergy expressed through adaptation activities, regulations, and supporting policies will more likely provide more resilience to climate change in the city, which is more sustainable.

### 4.6 Policy dynamics in Indonesia based on Four Is factors

Climate change adaptation policy dynamics at both the national and regional levels in Indonesia can be fully analyzed based on the Four Is Theoretical Framework (Ideas, Interests, Institutions, Individuals) proposed by Peters [61] as a third-level policy change determinant. This method, with the flavor of the longitudinal study approach of Sabatier and Jenkins-Smith [62], has its significance in time as a factor of independent and dependent variables in the policy change process [63]. Moreover, policy community and policy network concepts are critical in learning about the policy process and its results, and they could also act as the foundation of the choice of the research informants. The structure and behavior of a policy network also depend on variables like the number and types of membership and the roles of knowledge and information.

In Indonesia, climate change adaptation efforts have been witnessed in some cities at the regional level. Eight cities (such as Bandar Lampung, Semarang, and Tarakan) are members of the ACCCRN, a program sponsored by the Rockefeller Foundation that has been held since 2009. ACCCRN aims at improving the urban climate resilience, especially among the vulnerable population, in reaction to unparalleled disasters like rising sea levels, severe storms, altered rainfall patterns, and changes in temperature. These issues add to the already existing city issues such as erosion of the coasts, salinization of aquifers, the growth of diseases, lack of water, and the threat of food security. The ACCCN pilot cities are selected on the basis of their vulnerability level and their willingness to reduce the effects of the climate changes. Moreover, the Government of Indonesia (Indonesia Supervisor: Niki Frantzeskaki, PhD, DRIFT; Co-supervisor) has also chosen eight cities or regencies that are pilot areas of the implementation of the National Action Plan on Climate Change Adaptation (RAN-API).

Several findings were worth noting in the case study on Bandar Lampung City, which is among the pilot cities of ACCCRN and RAN-API [54]. To begin with, there is good communication of risk in adaptation planning, which will enable an exchange of learning and deliberative practices between the government and the community. It is defined by the all-inclusive involvement and integration of scientific knowledge and local wisdom, which promotes risk awareness as the basis of the adaptation measures. Second, it has an innovative risk governance, which is characterized by the creation of a Climate Change Resilience Coordination Team validated by the mayor, experimentation with coordination processes, the development of new regulations, and special budgets on adaptation. Third, institutionalization and sustainability of the adaptation planning whereby adaptation measures are considered as innovations by the local government. To a great extent, this sustainability is based on good local leadership, specific procedures of mainstreaming adaptation in the city policies, social learning of all the stakeholders involved, and the acknowledgment of the government innovation by different parties.

However, the initial research conducted in Bandar Lampung has also revealed that there are also a number of substantial differences in how the city reacts to adaptation incentives. First, the difference in the compliance level with exogenous incentives is present. The initiatives being led by international institutions (via ACCCRN) have been touched upon faster and in a holistic manner compared to those led by the central government (via RAN-API), as witnessed by the lack of the Regional Action Plan of Climate Change Adaptation (RAD-API) document. Second, the institutionalization is more organized, with the Climate Change Resilience Coordination Team within the ACCRN framework (supported by the Mayor's Decree) being established by a greater number of stakeholders, whereas the RAN-API working group is not formally organized yet. Third, not everything that the city government did in terms of policies and adaptation is the extraordinary implementation. Most of them are normative practices or routine governmental tasks that ought to be carried out irrespective of the influence of the outside environment, for example, reforestation, planting mangroves, developing biopore infiltration holes, and harvesting rainwater. These results indicate that the dynamics of adaptation policies are a complicated process shaped by various motivations and local reaction competencies.

On the more general analytical level, the given empirical results support the theoretical application of the Four Is model to the context of collaborative climate governance. The interplay between ideas, interests, institutions, and individuals in Bandar Lampung shows that instability of institutional inclusiveness and adaptive leadership plays significant mediating roles between regulatory dynamics and policy outcomes. In particular, the introduction of the variables of collaborative governance, including facilitative leadership, participatory institutional design, and balanced power between stakeholders, operationalizes the two offered dimensions, namely the general institution and other interests, in a developing world setup. This study thus adds more layers to the Four Is framework other than its initial Western-centric policy lenses by incorporating the framework into the context of decentralized governance and civic engagement in Indonesia. This contextualization makes the study theoretically valuable by demonstrating that adaptive collaboration and negotiated power relations are vital feedback mechanisms to enable policy learning and resilience to governance of climate change adaptation individually.

## 5. CONCLUSIONS

The Bandar Lampung City Government has a good example of governance relating to climate change adaptation, as it has been revealed through the successful mainstreaming of the matter in the systems of development planning and governance. This has been made possible through leadership that encourages the innovative acts of adaptation, creating a sense of trust between a government and the community and the formation of the Climate Change Resilience Coordination Team. Moreover, the long-term intervention, which is a sustainable innovation governance, is focused on adaptation planning with the help of effective leadership, clear processes, and ongoing social learning in the area.

Moreover, Bandar Lampung City is exceptional in communication and knowledge governance, as it enables the exchange of ideas and cooperation between stakeholders due

to open forums like SLDs. Another major aspect of climate change that the city has incorporated in the elementary and junior high school curriculum is compulsory. Lastly, good institutional governance in place through the Climate Resilience Coordination Team, which is authorized by the mayor, and good cooperation and control of the budget guarantee that there is good coordination, new regulations, and adequate budgetary allocation to adaptation measures by both the Regional Budget (APBD) and outside funds.

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