Policy governance of climate change to strengthen national resilience in Indonesia

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Abstract. Economic growth has led to tremendous environmental changes including resulted pollution, overexploitation of natural resources (biodiversity), converted land/sea (reclamation) and increasing carbon emissions. How developing countries have ability to manage climate change impacts as committed in international climate agreement such as the Intended Nationally Determined Contributions (INDCs), UNFCCC, COP 21 and so on, is important to be analyzed. As middle income countries, most developing countries (such as Indonesia) have already dealt with other various issues – political, economic, social, etc – in which most government put their priorities and allocate most of their resources to solve those challenges. It is critical to provide policy framework on adaptation and mitigation of climate change impact to strengthen national resilience. As conceptual paper this study aims to analyse the policy governance that integrate the perspective of social and economic issues to address the impacts of climate change on particular case. By exploring global issues of multi level perspectives, this paper provides several propositions for policy makers to strengthen the key strategic policy in national and local contexts of climate change challenges.

1. Introduction
The influence of human beings on climate change is obvious and the concentration of greenhouse gas emissions has reached to the maximum that has caused widespread damage to all ecosystems. Most of the changes over a period are considered unprecedented. The warming of atmosphere, the melting of glaciers and rise in the sea level is obvious now. The change in emission of greenhouse gases due to economic and population growth is higher than ever. No such rise in the atmospheric concentration has been seen since last 800,000 years, and 20th century has observed maximum warming [1].

Now, the impact of climate change has caused impact on every continent and every ocean. Further warming will be observed in all components of climatic system that will increase the livelihood of severe, pervasive and non-reversible effect on all components of environment. The future project time of these emissions may differ due to socio economic development, policy of respective government and national resilience [2]. The risk assessment of respective government may vary and risks are not distributed evenly and are more for disadvantages of poor people. Further, these risks are more for developing nations due to poor management and technological avenues. Adaptations and mitigations are complementary alternatives for decreasing and managing the risks that are caused by climate change. There is a need to decrease the emissions and GHG’s for 21st century and beyond that will misuse prospects for future strategies, adaptations and will reduce the cost and challenges of mitigation so that sustainable pathways might be at proper place. However, it needs an effective decision making framework by involving analytical approach for evaluating an expected risks and benefits. Proper governance, ethical dimensions, economic evaluation, value judgments, equity and factors will play an
equal role in reducing the carbon footprint of the globe. Hence, it is widely argued that different adaptations and mitigation processes can address climate change and cannot be tackled by a single option and single policy. Almost in every sector, we have adaptation options, but their implementation context varies across all sectors. Mitigation measures will decrease energy use and the intensity of greenhouse of different sectors. Otherwise, it will be a threat for sustainable development. Keeping these factors into consideration and identifying the research gaps are needed to systemize the literature and make solid conclusions for the effective governance [3].

Issue on climate change is often perceived as a matter of “Life and Death”. Therefore, to raise this issue, we should consider another aspect as negotiation media and discussion for general public. Global organization concern on climate change issues such as OASIS, has to use its political will to negotiate with various country’s interests to meet their benefits. In the implementation of the Paris agreement, OASIS members have responsibilities to play a critical role in maintaining climate actions and negotiating the rulebook of such agreement. This is what has compelled 58 countries to become OASIS members. Some of the long term environmental issues like climate change, loss of biodiversity, and depletion of ozone are mentioned to be addressed. These critical challenges are required collective actions for finding the best solutions. This paper will explore the role of multi-level system of governance in dealing with decentralized adaptation in local governance communities. This analysis will also foster different network for the diffusion of good practices to intensify collective actions [4].

2. Conceptual framework and propositions
Multi Level Governance (MLG) can be defined as a framework advancing climate change governance across levels to minimize policy gaps in two different directions; (i) vertical integration between local action plans and national policy frameworks, and (ii) horizontal dimension between local and regional governments to support cross-scale learning. This type of approaches allows two-way potential output for local and national action enabling policy dialogue and lessons learnt of strategic implementation in efficient local context. There are several dimensions involved in power and authority that were identified by MLG; (i) devolution of power from central to local context, (ii) enhanced power sharing, and (iii) civil society and coordination mechanisms. There is no guarantee in learning and achieving the benefits to deal with complex ecosystems [5].

MLG as approach to integrate the different level of stakeholders, emphasize the number of actors and levels participating in decision making process. The more various actors engaged in this process, the better the generation of productivity of the players. Actors as the determinant in addressing specific context and environmental preferences will play key roles in producing outcome of policy. However, different critiques on MLG has precisely improved the way forward of the policy implication. Some scholars argued that it has limited in pursuing the role of actors in different governance levels. It also have been criticized that the concept contains vagueness and in term of hierarchy, it is still lack of clarity [6,7].

In the perspective of Multi-level policy networks, the main concern is likely related to the combination of various levels of policy makers and institutional arrangements. Working on different process, either government or non-government stakeholders, the execution of policy agenda at the respective jurisdictional level, will create responsibilities in their own policy domain to manage climate change issues. These approaches suggest that interactions among communities within and across level will facilitate cooperation, sharing resources, and enable wider communications [8]. The diverse pattern of interactions in policy domain will influence the output of the policy implementation. This is important to integrate those perspectives, to investigate the multi-level understandings and multi-dimensions of policy networks [9].

The bulk of literature available indicated that the coordination across different governing systems is crucial at every sector for climate change mitigation and adaptation. The dissemination of knowledge and information at various levels is a key factor to maintain trust and empower local stakeholders to deliver effective and sustainable carbon reduction mechanism. There is a need to remove the legal; barriers and tensions. The inconsistencies and barriers are due to the distribution of competencies at
different levels, for effective implementations of varied policies to remove the local barriers. The need to assess the most limiting factors of climate change evolved from higher authorities as interception patterns that differ across different domains. According to Brondizio et al. [10], these differences occur in different spectrum of measurements, including spatial dimension, period of time, and sectoral capabilities in dealing with the efforts of mitigation and adaptation. Thus, the first argument in MLG approach is proposed that “local actors are likely more engaged in sharing information and collaborating on adaptation issues while international and national actors discuss and collaborate more on mitigation”.

Another issue related to the process of MLG is political institutions. These sets of arrangements are important to govern policy problems (Climate Change) but sometimes they cause problems by their ineffective suggestions. Most of these problems were indicated from the context of socio-ecological systems (SES), at which there is a difference of thought among institutional, social and ecological connectivity [11]. In this second issue, it is stated that “Jurisdictional boundaries create barriers to cross-level interactions reinforcing mismatches between institutional responses and climate change realities”. Jurisdiction is defined as a part of institutional structure and specific level of institutions in different processes. This implies a learning process of policy design to provide possible solutions and overcome such barriers.

The difference in both issues is the level of poly-centricity that focuses on the distribution of authority from national to the lower levels as their stakeholders. In the process of policy design, there will be a requirement of systems as working space. The previous idea is more hierarchical and it is embedded in nested systems [12]. Therefore, the next idea of MLG should emphasize the different aspects of systems power for various levels of policy domain. This attention will create the identification of policy formulation in proposing climate change actions which is suitable with respected authorities.

An example from Brazilian federation highlighted structural level of different interests, from political, economic, and institutional contexts [7]. It indicates that policy design will be imposed as the emerging issues as well as the capabilities of the resources of the organization. Similarly, in Indonesia the rise of “the 1999 Act” on regional autonomy was widely given to most districts within regions. The change from sub-ordinate districts to provinces has not been fully implemented apart from the first issue and second issue. It is argued that there must be clear deduction in power from national to local level, and subsequently to municipal level, until district level. This sort of differentiation in policy actors will play an important agenda and program, and it will be comparable with prominent networks.

Regarding the need of facilitation of networking communities for cross level interaction, no level of policy making will simply apply decisions on the other policy makers. There is a need of legal framework as a tool of negotiations that subsequently as a matter of cooperation among different stakeholders at various stages. This framework will be a good source of information, knowledge, sharing and cooperation to facilitate decision-making process. This is not necessary that only members who are in power may take decisions, but power for policy actions will form the basis of this system. Those communities who divert decision making are referred as policy communities. Ingold [13] stated that the more active of interactions at different level, the more increased of local participation. The interactions of network communities across governance levels will create local initiatives and reduce the dominant authority of central level. Thus, it is important to consider in MLG that “policy domains where powerful network communities operate primarily at one governance level will experience major barriers to cross-level interactions”.

In practice, most of central government creates a policy action through the existing networks. However, to retain decisions for transition networks, they seem to divert climate governance networks according to their own interests. Most of the time, these government withhold access to information from other stakeholders. This is an indication that there exists high level of ownership policies, which is quite contrary to international and national ownership of policy process. As consequences, MLG emphasizes the idea that “in the absence of national ownership of climate change policy processes, international policy actors should dominate MLG network in the Global South”.

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3. Discussion
The term climate change is widely argued and debated with complex and multi scale nature [14]. The mobilization of varied spheres authority to different countries like emerging translational and local networks is seen as a forward step for strengthening climate action, after the failure of Copenhagen. The general argument is that adaptation management, improvement coordination and use of the boundary organization are useful strategies to address the challenges. Still weak channel for facilitation of power will affect the policy discussion making process that needs to be identified and addressed.

It is very clear now that international stakeholders will play a critical role in diverting MLG in Global South, particularly Indonesia as developing country. However, national players will keep the most important keys with them for cross level interactions and as such priorities between mitigation and adaptation have given different value. Currently, Global South considerably values more to adaptation strategies and very less to mitigation and climate change impacts which has been subsequently copied by the local stakeholders [15]. In this sense, there are several critical drivers that should be prioritized in analyzing cross level interactions; (i) “varied nature and interests of two sub domains of climate change” (Locatelli et al. 2015), (ii) “cross level power of differentials reinforcing mismatches between environmental and institutional problems”[16], and (iii) “Lack of cross level reach of dominant communities in MLG system”.

In term of economic values, the critical drivers of climate change is important to be defined with relevant parameters. Numerous studies of climate change impacts have been observed in various sectors, such as economy, health, social, environment and biodiversity. Agricultural sector is considered to be the most vulnerable sector of the climate change impacts, particularly in the influencing the number of poor people. A study by Hecht [17] combined prediction of climate change relatively influences the change in critical sectors such as agriculture, health and other sectors by 2050. The impacts include the changes in production output, number of cases of diseases, and other possible impacts direct and directly in certain provinces. One estimation to explore the impact of global climate change on the Indonesian economy is conducted by using CGE model focusing on agricultural sector [18].

This study revealed that a negative effect of climate change will significantly influence the economic sector of Indonesia by 2030, particularly agricultural sectors, rural areas and poor people. In this sense, the GDP growth slightly decreases, but the consumer price index increases as the result of agriculture and agro-based industries output decline. By increasing investment of agricultural research development, it will help to provide solutions for improving productivity growth of related sector. Therefore, a synergy between government and farmers in pursuing sustainable development of agricultural sector is important to adapt the climate change impacts.

Government needs to take actions seriously to enforce policies and initiatives in responding climate change adaptation and mitigation. There are main steps that the Indonesian government must take in order to handle the effects of climate change.

3.1. Priorities of governance level
The interactions of policy actors on climate change mitigation and adaptation can be recognized from the policy domain and policy network. The evaluation of these interactions is very necessary as it may help to decrease trade-offs and to build synergies among solutions of climate change actions [19]. There are wide differences in climate change mitigation and adaptation as far as prototypes of cross level association is concerned. The examples of such evidences can be taken from Brazil and Indonesia. Both of these countries have mitigation efforts as a priority domain in their agenda and hence they have engaged more local actors than national level actors [20]. In some extents, this evidence suggests that mitigation is a part of global action, while adaptation is mainly addressed local activities, and both these factors require support from all types of governance. In Indonesia and Brazil these agendas are getting less attention since local stakeholders are not influential [21]. Further, in Indonesia, at national level there are better specializations in climate change that is due to higher expertise and at the same time local people have knowledge that will help to address cross linkages together [22].
3.2. Different authorities and political institutions

Bache and Flinders [23] argued that there is a need to study formal as well as informal institutions to understand the role of jurisdiction in hierarchy, interdependence, and independence. MLG is considered as a political tool and it may help to tackle the conflicts of interest over different reasons of environment [24]. Scholars have different arguments to decide the most influential decision making power across governance levels [23]. Some scholars believe that MLG is a powerful tool among nations in relation to super national entities. Furthermore, the uncertainty of policy domain on climate change issue enhances the process of decision making. It is also a challenging activity particularly in estimating the most plausible decisions [25].

In the context of developing countries like Brazil and Indonesia, there are some limitations in the governance system across level in the implementation of climate change measures. First, the existence of jurisdictional boundaries is possible to cause difficulties for actors’ interactions, especially when the different levels have different functions and goals. Secondly, MLG as a framework to integrate different actors across level is argued to create confusions in its implementation, particularly when come up with finalizing goals of policy actions. Based on Ravikumar et al. [26], some thoughts concerning on adaptation context in Brazil and interaction with major NGO’s in Indonesia indicated that major hurdle lies with different level of governance systems.

3.3. The role of network communities

In understanding how MLG can be applied as a framework for managing governance system of climate change actions, we assume that there will be a synergy amongst actors in cross levels. The identification of determinant factors of this operation highly depends on the coordination and communication of the network communities. The role of powerful network communities in some developing countries will generate the implementation of policy actions at cross-levels. However, the different levels are much more clearly associated them, so that they may achieve to the national interest, but some countries realized that they have difficulties in empowering the policy implementation [20]. In addition, policy decisions in climate change actions face a great challenge not only from national or local levels. In both of these countries the role played by the adaptations and mitigations differs due to the role of international actors. In the case of Indonesia, international actors in this concern have a stronger presence in pursuing policy processes of climate change actions.

4. Conclusion

In conclusion, middle-income countries action on climate change is dependent on multilateral and bilateral funding that has both direct and indirect impact on the growth and development of country. It is critical to provide policy framework on adaptation and mitigation of climate change impact to strengthen national resilience. It is very essential to involve all stakeholders in the process of climate change actions at local, national, and international level in policy governance system to strengthen national resilience.

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