

Participatory Implementation within Climate Change Related Policies in Urbanized Area of Indonesia

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Abstract Geographically, Indonesia has been subjected towards various climate change related phenomena. This research aim at evaluation of participatory implementation towards climate change related policy which has been set in Indonesia. The research method derived from qualitative framework developed by UNESCO. The research took RAN-API or National Action Plan upon Climate Change Adaptation which has been established since 2013. The document has been integrated within National Medium Term Plan launched at 2015 up to 2019. The research revealed that participation has been inclusive to many stakeholder involved within climate change adaptation program. Furthermore, encouragement needs to be carried out at all level especially in urbanized area. Local to national government has pivotal role to introduce many activities engaged to climate change adaptation. At different array, the research also revealed that many participation has been initiated independently by non-government organization as well as local stakeholder which need to be documented in order to ensure its merits.

Keywords: climate change; urban; inclusive; policy

Abstrak Indonesia telah mengalami berbagai fenomena terkait perubahan iklim dikarenakan posisi geografisnya. Penelitian ini bertujuan untuk mengevaluasi implementasi partisipatif terhadap kebijakan terkait perubahan iklim yang telah dilaksanakan di Indonesia. Metode penelitian berdasarkan pada kerangka kualitatif yang dikembangkan oleh UNESCO. Penelitian ini menggunakan dokumen Rencana Aksi Nasional atas Adaptasi Perubahan Iklim (RAN API) yang telah ditetapkan sejak tahun 2013. Dokumen ini telah terintegrasi dalam Rencana Jangka Menengah Nasional (RPJMN) yang berlaku untuk tahun 2015 hingga 2019. Penelitian ini mengungkapkan bahwa partisipasi masih bersifat inklusif bagi banyak pemangku kepentingan (stakeholder) yang terlibat dalam program adaptasi perubahan iklim. Oleh karena itu, perlu adanya peningkatan motivasi keikutsertaan di berbagai wilayah terutama di daerah perkotaan. Peran pemerintah baik pusat maupun daerah sangat penting terutama untuk sosialisasi kegiatan terkait adaptasi perubahan iklim. Selain itu, penelitian juga mengungkapkan bahwa partisipasi juga telah diperkenalkan secara mandiri oleh organisasi non-pemerintah serta pemangku kepentingan lokal yang perlu didokumentasikan untuk memastikan manfaatnya bagi banyak pihak.

Kata kunci: perubahan iklim, perkotaan, inklusif, kebijakan

1. Introduction

Indonesia has documented series of natural disaster information using spatial-temporal approach. Among 17.000 islands across archipelagic Indonesia, there were 2.341 natural disaster occurrences, with total 47.442 damaged houses, 1.272 disrupted education facilities, 113 disrupted facilities, and 698 damaged religious facilities, while 337 losses of life and 3.5 million people impacted during 2017 (BNPB, 2017). In particular to climate change, Indonesia has documented mostly flooding, drought, typhoon, and abrasion also medium resolution of climate projection (BMKG, 2017). Urbanized areas across Indonesia has been subjected by climate change in many ways, i.e. subjected to rapid

precipitation pattern, thermal accumulation, increase in vector-borne disease, etc (Elsner, et al, 2008; Yusuf & Francisco, 2009; Bappenas 2010c; UN Habitat, 2014). In the case of Indonesia, most of climate change-related phenomena in urban area addressed increase of urban flooding, sea level rise and land subsidence due to massive land development. Hitherto, megacities in Java such as Jakarta, Semarang and Surabaya diagnosed to suffer from increasing risk potentials as such (Aldrian & Susanto, 2003; Ward, et al., 2011; Hizbaron & Marfai, 2016; BNPB, 2015). Furthermore, less dense urbanized area such as Padang in West Sumatra indicate increasing risk of extreme rainfall event as a result of the changing climate (Hermon, 2014). As for its management, report towards climate change normally adopted some keywords such as mitigation, adaptation, vulnerable urban areas, and increasing number and frequency of water related hazards i.e. flood, extreme events,

and drought (IPCC, 2012; Bappenas- JICA, 2012). To add, urbanized area at developing countries generally suffered from high concentration of population, growing accumulated asset investment at risk, which exacerbated by poverty, unequal access towards proper vital infrastructures such as water, sewage, drainage, power and or energy (Rozenweig, et al., 2011). Medium scale urban area or peri-urban area also subjected towards climate change-related impact. A previous research conducted at urban areas along North Coast of Java indicated that diverse scenarios upon sea level rise possibly impacted land use in many ways (Hizbaron & Marfai, 2016). Settlement area and irrigated paddy field in Tegal, Central Java exposed utmost towards sea level rise. Large area of seaport and settlement area surrounding coastal areas of Semarang, the capital region of Central Java predominantly impacted due to any potential of sea level rise. Demak, Central Java, provided another different concerns, which of the impact concentrated at agriculture land (Marfai, 2014; Joesidawati et al., 2017). Facts finding as such are in line to those vulnerability index drawn along Indonesian Coastal Areas (ADB, 2015). It is notably essential to pay attention towards North Coast of Java, since it has higher potential of vulnerability compare to other region in Java. Endowed with such natural characteristics, the archipelago of Indonesia requires more than political commitment via policy documents to tackle global impacts as such. The design of National Action Plan to Climate Change Impact Adaptation (Rencana Aksi Nasional Adaptasi Perubahan Iklim or RAN-API) within Indonesian Planning Policies is depicted in the following (Figure 1).

Indonesian Government has set long-term national policies, one of which is mainstreaming of climate change adaptation strategies at all sectors using action plan of national adaptation strategies for climate change from 2013 up to 2025. Herewith, the document

of RAN API elaborated distribution of climate change phenomena occurred in Indonesia, i.e. increase average of temperature, shifting pattern of consecutive wet and dry days, changing of rainfall pattern, sea level rise, also extreme weather (Bappenas, 2014). The documents covers input from many stakeholders, i.e. government, development partners, nongovernment organizations, as well as community and practitioners upon climate change adaptation strategies (Bappenas, 2013). National mandate engaged RAN-API into long-term regional plan, which then implemented differently in diverse sectors according ministries, regional and local government priorities. Having such policy, Indonesian Government has set monitoring and evaluation towards several case study areas as depicted in the following Figure 2, whereas most of it are urbanized area at Sumatra, Java, Bali, Nusa Tenggara and Kalimantan . There are several considerations regarding the selection of pilot activities location. One of the most important criteria is the availability of vulnerability assessment including potential impact and how many sectors are affected. Secondly, the selection highly reflects on government commitment to tackle climate change issue.

Monitoring and evaluation process revealed that Semarang City, located at Central Java Province, classified as middle-class urban resilience (total score 1.7), whereas health sector considerably vulnerable (42.38%). There are several variables to evaluate urban resilience towards climate change applied in Indonesia, such as economic, livelihood, ecosystem, special region and supporting facilities (Table 1). Moreover, details indicators in vulnerability assessment such as agriculture, freshwater, health, infrastructure, economy, settlement are available in other cities such as Blitar, Pekalongan, and Bandar Lampung.

The research emphasizes upon the observation towards implementation of RAN API at the coastal urban areas and small islands across Indonesia. It

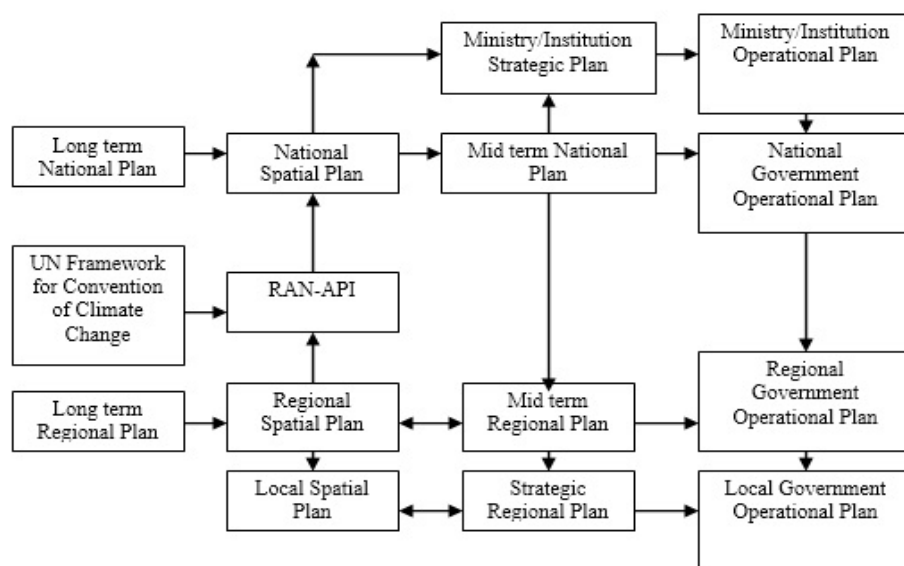


Figure 1. RAN-API within Indonesian Planning Policies



Figure 2. Pilot areas of RAN-API monitoring and evaluation

Table 1. Variable and indicator for Urban Resilience towards Climate Change

Variable	Indicator
Economic	Food security, food access, food utilities, availability and sustainability
Livelihood	Malnutrition index, mortality index, infectious disease, health facilities, environmental health, early warning and awareness index, regulation and institutional capacity.
Ecosystem	Typology ecosystem, green house emission
Supporting Facilities	Urban infrastructure, coastal and small island resilience

mainly observes set up priority areas objectives, i.e. management of coastal areas and small islands which vulnerable to climate change. Achievement of these conditions can be done with the contribution and integrity of all parties, government, private sector, and local communities via active participation. Involvement and contribution of all parties will have an impact on the success of a program because it will impact on the trust, effectiveness, and fairness of a program.

2. The Methods

Theoretically, decision-making process do not stop at the planning document per se. It is an iterative procedure, whereas, once the planning document generated and implemented, it should have a mechanism to be evaluated and to be monitored. The remaining question to the scientific realm is what will be the best method to do so? Decision makers are quite prominent to produce documents; however, sometimes it also generates pitfalls during its implementation. Dimension to influences pitfalls during implementation can be varied, one of which is participation of all stakeholders. The participation of various parties in the planning, implementation and evaluation process of a program can be assessing through an analytical framework for inclusive policy

(UNESCO, 2015). There are six dimensions to evaluate policy implementation, inclusion and or exclusion of multidimensional, relational, group and individual approach, dynamic, level and context also participatory. Analytical framework for inclusive policy in dimension 6 related to participation aims to evaluate process of various parties involved within planning, budgeting, implementation, monitoring, and development of any related policy in climate change adaptation (Figure 3).

The main idea within the evaluation is to discover inclusion and exclusion of specified stakeholder in each of the aspects within dimension 6. The identification should not delimit into particular administrative boundaries, since planning and development are tied up within such boundaries. However, scholar should pay attention towards any deterministic geography brought within the context. Simply, it refers to any heterogeneous characteristics of physical environment; cultural background and socioeconomic characteristics embedded in particular location, which may influence the implementation of a policy or program.

In order to simplify observation, there are procedural improvements and transformative participation according to UNESCO framework (Hauschild, 2017), which need to be identified during the whole evaluation process. Procedur



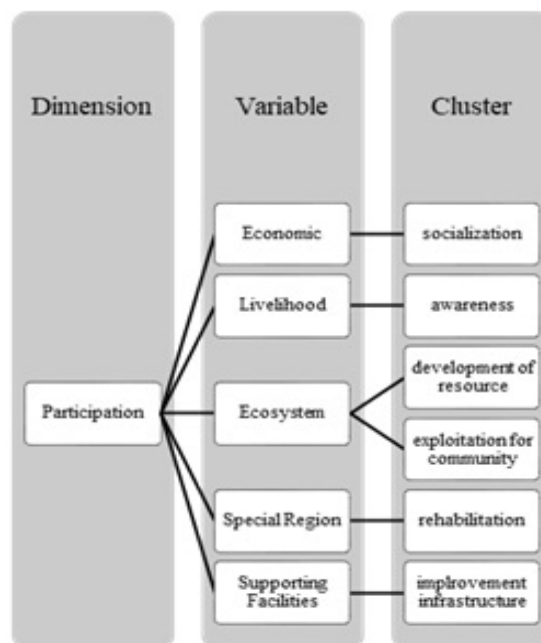
al improvements include participatory
Figure 3. Evaluated aspects of dimension 6
(participation)

as a normative goal, participation throughout the policy circles, guaranteed and institutionalized avenues. Meanwhile, transformative participation includes susceptibility to marginalization in participatory processes, leveling the field, and capacity to engage. Herewith, the policy implementation related to climate change concerns towards coastal urban areas especially in Java, and many other small islands across Indonesia. Specifically, participation embraced the following objectives:

1. Capacity building for coastal urban communities related to climate change issues.
2. Management and utilization of urban environment for climate change adaptation.
3. Implementation of structural and non-structural adaptation at coastal urban areas.
4. Integration of climate change adaptation into coastal urban development plan.
5. Climate change adaptation support system in coastal urban areas.

The first target or cluster, capacity development for coastal urban communities related to climate change issues is directed at four action plans and each action plan has several variables and clusters in it. Herewith, the research had ample consideration towards these following variables and clusters (Figure 4).

According to RAN API, the action plans within participation comprise from economic, livelihood, ecosystem, special region and supporting facilities variables. The economic and livelihood variable indicates by socialization and awareness of the community on the phenomenon and impacts of climate change, meanwhile the ecosystem variable express cluster of the development of coastal urban resources and exploitation for the community. Special region should address maintenance and rehabilitation of coastal water resources and improvement of infrastructure (electricity, clean, and communications)



in coastal urban areas using appropriate technology.
Figure 4. Research Framework

3. Result and Discussion

The research specifically observed the document of RAN API. At the early stage of its observation, the research revealed several findings. There are four action plans in cluster 1, includes: 1) improve community awareness regarding climate change and its impact, 2) small island and coastal area resources development plan for the community, 3) maintenance and rehabilitation of coastal area and small island's water resources, and 4) further infrastructure development (electricity, clean water, and communication network) in the coastal and small islands with proper technology. Regarding climate change program in regional level, local participation has been thrived by the national and regional government during first action plan. Either for the case of urban coastal areas or small islands, participation is profoundly established by government, while community stayed as mere object for some reason. Second action plan highlights regional commitment, whereas local commitment focused upon the object of the program rather than the objectives of the program. Meanwhile the role of the private sector has not been clearly stated. Furthermore, the document of RAN API allowed local commitment to get more support from either national, regional and mostly from local experts, with full access of local knowledge. In the transformative column below, the action plan suggested to have clear elaboration towards role of each stakeholder under particular climate change program. Procedural improvements cluster 1. In general this cluster intended to improve community awareness, set

Table 2. Procedural Improvements and Transformative Participation Analysis within RAN API Document Cluster 1

Action Plans	Markers of Inclusive National Action Plans for Climate Change Adaptation (CCA)	
	Procedural Improvements	Transformative Participation
Cluster 1		
The improvement of capacity of coastal and small islands communities		
Improve community awareness regarding climate change and its impact	The participation of local community emphasized on the object of program objectives while the role of the private sector has not been clearly stated	The capacity of participation provided by government and the community has been clearly stated in the program policies
Small island and coastal area resources development plan for the community	Central and local government as the person in charge/organizer of program activities meanwhile the community often become an object	Private sector can be a part of assisting in capacity building of the organization and approaches in local communities
Maintenance and rehabilitation of coastal area and small island's water resources	Activities carried out mostly by the central and local based on their authority	The public is empowered to be involved in the success of the program activities
	Improving community awareness could be done with local expert participation who have the experience and best practice lesson for certain knowledge including climate change	Local government need to provide data related to education level and skills owned by the community in order to assign them with suitable way to participate in all stages
Further infrastructure development (electricity, clean water, and communication network) in the coastal and small islands with proper technology	The need to identifying and mapping coastal and small island resources by using participatory method	Infrastructure development needs to consider physical aspect of each region as well as local community necessity
	Community participation should be included in the program evaluation (until the final stage of each program)	The need to engage key person of certain community in order to properly develop the technology

up the resources development plan, maintained water resources as well as infrastructure development (Table 2).

Improving community awareness inquires local expert participation that have the experience and best practice for certain knowledge including climate change. A critical idea added into the cluster would be the need to identify and map urban coastal resources and small island resources by using participatory method. Fundamental ideas of local stakeholder in terms of knowing their local resources shall increase their awareness towards further threat and shocks. To add, community participation should be included in the program evaluation (until the final stage of each program). An example: Jakarta Special Capital Region or Daerah Khusus Ibukota Jakarta is an enclave of mainland and small islands towards the northern part of Jakarta. Community

awareness as well as development plan towards the small island for sure could not be separated from any interference from many stakeholders, not specifically to the local island inhabitant per se. Therefore, terms of participation in here should be clearly defined in broader manners. Climate change is somewhat a generic cause of holistic yet boundless system, not inclusively caused by specified location. Therefore, it is indeed essential to look upon many stakeholder perspectives to put up with new development plan or mitigation strategies towards climate change.

Transformative participation cluster 1. RAN API has yet highlighted the importance of involving all stakeholders in many capacities development relevant to climate change. Ideally, private sector contributes tremendously within capacity development especially those culturally embedded societies (Burby, et. al, 2000).

In numerous occasion small islands potentials elaborated by international organizations or non-government organizations, promoted and evaluated regularly. Approaching local economy or local capacity to boost local awareness towards any potential of climate change has been very much differed from formal approach developed by government per se. Institutional approach from government has embellished local community participation praxis. Therefore, the success of climate change policy should not only approach its object from institutional perspective per se, it is important to consider implementation of local capacity approach. To add, local government need to provide data related to education level and skills owned by the community in order to assign them with suitable way to participate at all stages. Other transformative improvements to support inclusiveness of climate change policy are improvement of infrastructure development and baseline information upon key person in each area whose understands mechanism of technology, early warning system and centralized drill mechanism (Table 3).

Procedural improvements cluster 2. Improving environmental quality, ecosystem maintenance

and non-structural or natural coastal protection areas maintenance are among the key objectives within Cluster 2 (management and utilization of the environment and ecosystems for climate change adaptation). There are various environmental program in Indonesia, however not much to highlight regarding climate change. Hereafter, the RAN API emphasize on the importance of adaptation strategy (Table 3). Rehabilitation and conservation program towards urban coastal areas has been tremendous, especially in mega-urban areas, such as Jakarta, Semarang, and Surabaya. Unfortunately, the coastal urban area across Indonesia exposes to susceptible environment as well as vulnerable groups. According to national survey conducted in 2011, the Indonesian Government predicted high percentage of population resided in coastal areas (Figure 5). The sampling method indicated poverty occurs tremendously in each coastal areas, which classified into three categories, very poor, poor and nearly poor (Figure 6).

Ministry of Social Affairs informed 92.994.742 lives are poor people, distributed in three main cluster areas, such as urban poor, rural poor, and coastal and

Table 3. Procedural Improvements and Transformative Participation Analysis within RAN API Document Cluster 2

Action Plans	Markers of Inclusive National Action Plans for Climate Change Adaptation (CCA)	
	Procedural Improvements	Transformative Participation
Cluster 2 Management and utilization of the environment and ecosystems for climate change adaptation		
Improve community awareness regarding climate change and its impact	Full responsibility within the policy circle carried out by the central government on the basis of the prescribed authority	The capacity of local government, local government, private sector, and community involvement has not been explicitly stated in the design of activities due to technical nature
Identification, maintenance, and rehabilitation of coastal and small islands ecosystem	Need to be specify what kind of hazard/disaster which already or potentially occurs in specific area	The capacity of the involvement of the private sector and the community has not been listed, where the implementation of the activity can use the community approach as the subject and the object of the activity
Maintenance and rehabilitation of non-structural or natural coastal protected areas and the area behind it based on study result and identification of coastal ecosystems and small islands	In order to improve environmental quality and protect the ecosystem, status identification need to be carried out for each existing ecosystem in coastal area and small islands The willingness of local community to actively managed natural ecosystems of coastal and small islands, such as mangrove, wetland, seagrass, estuary, and coral reefs are very important but hinders with poverty issue	The capacity of engagement has taken into consideration for groups of people who has been exposed to climate change issues In order to obtain sufficient data and information, local institution partner and university expert need to be engage continuously for specific topics based on their expertise

small islands (Ministry of Social Affairs Decree No. 32/HUK/2016). Rooted from minimum access towards infrastructure and basic needs, the Ministry of Social Affairs highlighted several strategies to tackle urban and small island poverty, such as: boosting local economy, improvement of accessibility of funding and market, human resource development, incentives, database development, and empowering local networking.

Accumulated poverty in the coastal areas indicates basic primary needs for coastal communities should be improved. Better local economy support local commitment towards secondary and tertiary needs. In here, any budget invested for adaptation, mitigation and prevention consider as non-primary needs, which off course reflected in vague manner. Theoretically, strengthening local economy for coastal areas promotes better resource management for the area.

Transformative participation cluster 2. The idea to integrate better livelihood system in coastal area will improve environmental quality. At the same time ensure if there is a need of rehabilitation, conservation and mitigation strategy should be done either in community level and or individual or household level. Stronger local economy plays pivotal role in creating enabling environment towards better adaptation, conservation and mitigation. However, there are many other factors, such local capacity, local knowledge, and local support such as local institution partner and university expert whom need to be engaged continuously for specific topics based on their expertise.

Procedural improvements cluster 3. The Indonesian Government has published Ministry of Marine and Fisheries Decree No. 2/Permen-KP/2013 on Implementation of National Program on Marine and Fisherman Village Empowerment. The mandate of this national guideline supported development of Coastal Resilience Village (CRV) or Desa Pesisir Tangguh (Table 4). Scientific debate upon disaster management denotes importance of diminishing cause of vulnerability lead to strengthening capacity

which in turn reminiscing resilience (Kafle, 2011). To add, safer vital infrastructure such as harbors, docks and settlements are prior within resilience. Hitherto, coastal resilience village merely consider as centralized program, whereas local community yet gain more understanding towards its importance. It is a very good strategy for the RAN API to include agriculture resilience, since most of the people are engaged with the sector. Paddy fields and coastal ponds in small islands which affected by sea level rise can be identified directly by villagers far before any occurrence (Table 4). Another method will be to increase participation from students who reside within the area as agent of change. Community should be introduce how to take advantage of any navigation facilities to monitor sea related activity (such as waves, tides, storms) to support their work for example in fisheries and tourism purpose.

Transformative participation cluster 3. Fundamentally, there are spatial segregations within this policy. As the program emphasized upon coastal rural resilience, there is increasing need to understand pattern of coastal urban resilience. To put into the frame of human ecology, rural and urban are equally entitled as socio-system. The difference is more on the type of socio system serve by urban which more likely as consumptive socio system, while rural serves as production socio system. The theory of regional development indeed highlighted existence of urban and rural as integrated environment. Hereafter, rural and urban resilience should gain equal attention. For example, massive safer infrastructure development for urban area aimed at achieving sustainable and resilient environment. In this case, without proper rural infrastructure, the potential of hazard likely to receive by urban area are greater. Hence, the national program towards resilience better to include all stakeholder in the rural as well as in the urbanized area.

Procedural improvements cluster 4. This cluster embraces the importance of baseline information to support climate change adaptation and mitigation.

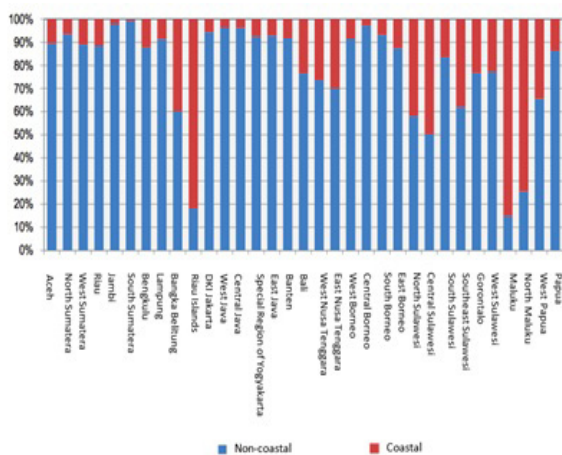


Figure 5. Population at Coastal Areas per Province, 2011

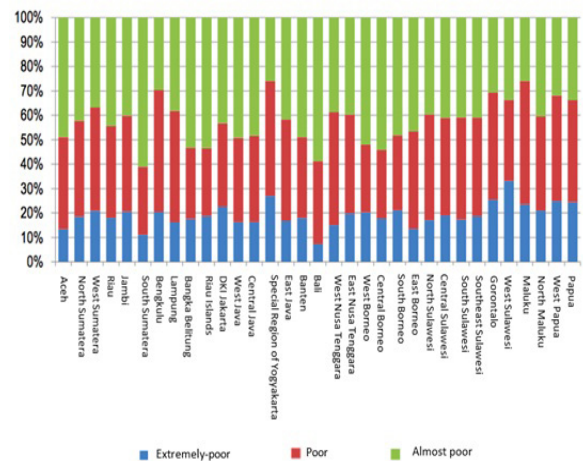


Figure 6. Poverty at Coastal Areas per Province, 2011

Learning from very first modern geographer, von Humbolt on developing baseline natural resource information, the modern approach on natural resource gain worldwide attention. The adaptation and mitigation strategy entitled for management. Herewith, the bigger picture towards its management is environmental management, gets down into natural resource management and squeezes into disaster management. People who reside in the small islands are the one who best understand the condition themselves. Thus they are the righteous party to compile small islands profile. The profile contains information towards local natural resources. Furthermore, local key persons need to be in charge with full participation in

all stage while prepare norm, standard, guideline and criteria (NSGC) document which contain standard and guideline for implementing climate change adaptation options for coastal areas and small islands.

The number of coastal areas and small islands which already owned risk and zoning maps of climate change adaptation can be identified directly by villagers as well. Another method will be to increase participation from university students who reside within the area as indirect educational form, however they need to follow specific guidelines for example the NSGC document. In here, the reality of baseline data collected in civic society merely coordinated by local and national government,

Table 4. Procedural Improvements and Transformative Participation Analysis within RAN API Document Cluster 3

Action Plans	Markers of Inclusive National Action Plans for Climate Change Adaptation (CCA)	
	Procedural Improvements	Transformative Participation
Cluster 3		
Implementation of structural and non-structural adaptation measures to anticipate the threat of climate change		
Development of Coastal Resilience Village (CRV) or Desa Pesisir Tangguh	Responsibility is carried out fully by the central government on the basis of its authority	The capacity of the involvement of private parties as well as local community groups/communities has not been contained because of the technical nature or program objectives are focused on the physical condition of the respected areas of climate change issues
Supporting facilities and infrastructure in the development of small islands	The person in charge of the policy circle covers the central and regional governments	The capacity of the involvement of private parties as well as the capacity of the community is included in the object of the program objectives, in which the community plays a role in the socialization process of various infrastructure that has been built
Increased resilience of agricultural resources and coastal ponds to climate change threat	Key persons need to be in charge with full participation in all stage while formulating the Concept of Resilience Coastal Village Development together with government	Infrastructure development needs to consider physical aspect of each region as well as local community necessity
Increased resilience of agricultural resources and coastal ponds to climate change threat	Paddy fields and coastal ponds in small islands, which affected by sea level rise can be identified directly by villagers. Another method will be to increase participation from students who reside within the area as indirect educational form.	Infrastructure development needs to consider physical aspect of each region as well as local community necessity.
Identification, development and maintenance of beach protection structures (seawall, groin, beach nourishment, tidal gate, etc.)	Community should be introduce how to take advantage of any navigation facilities to monitor sea related activity (such as waves, tides, storms) to support	Community members or local villagers in all age, gender, and provision of works need to be notified of continuous information and important updates in terms of new technology, recent

with full support from academic societies. Private sector generally involves via corporate social responsibility, which occasionally embraces specified location, i.e. industrial area, fast growing area, etc (Table 5).

Transformative participation cluster 4. This cluster consist of very political discussion. Management, plan, and decision-making process are somewhat top down in Indonesian case. The bottom-up mechanism has been developed since last decades via Musyawarah Rencana Pembangunan or Musrenbang (Development Plan Discussion). This meeting generally invites numerous stakeholders at local level. Throughout the process, local stakeholder have varied knowledge, background and understanding towards climate change in particular. The idea of the discussion is to plan local area for robust development growth. It is quite difficult to introduce

the hazard or disaster issue within the discussion due to local capacity, which are focusing upon growth, and development. In here, the suggested idea is to introduce more knowledge and understanding towards the climate change impact and adaptation. Village administration office staff should be involved and well informed while prepared the spatial plan documents and regulations. Government need to formulate simple yet routine know-how to actively assisted and supervised local community to manage the coastal and small island natural resources which potentially affected by climate change. Integration of climate change vulnerability and risk with spatial planning must be indicate and easily evaluate even by the community themselves

Procedural improvements cluster 5. The cluster emphasized improved support system of climate change

Table 5. Procedural Improvements and Transformative Participation Analysis within RAN API Document Cluster 4

Action Plans	Markers of Inclusive National Action Plans for Climate Change Adaptation (CCA)	
	Procedural Improvements	Transformative Participation
Cluster 4 Integratation of adaptation efforts into coastal and small island management plans		
Identification and mapping of small islands potencies	Responsibility is carried out fully by the central government by its authority	The role of local communities can be participatory in providing detailed information on assessing vulnerability and climate change risks
Preparation of climate change rehabilitation and adaptation's Norm, Standard, Guideline and Criteria (NSPK) document in coastal areas and small islands	The person in charge of the policy circle covers the central and regional governments	The capacity of the involvement of private parties and the community has not been listed in the program's series and objectives
Climate change risk assessment and adaptation in coastal areas moreover, small islands	People who reside in the small islands are the one who best understand the condition themselves. Thus they are the righteous party to compile small islands profile	Village administration office's staff should be involved and well informed while prepare the spatial plan documents and regulations which consist of climate change susceptibility, risk, and adaptation
Compile coastal area and small islands spatial planning and management document based on climate change risk assessment and adaptation result	Local key persons need to be in charge with full participation in all stage while prepare document which contain standard and guideline for implementing climate change adaptation options for coastal areas and small islands	Government need to formulate uncomplicated routine how to assist actively and supervised local community to manage the coastal and small island natural resources which potentially affected by climate change
Supervision and control for coastal and ocean spatial planning and zoning related to climate change	The number of coastal areas and small islands which already owned risk and zoning maps of climate change adaptation can be identified directly by villagers. Another method will be to increase participation from university students who reside within the area as indirect educational form.	The integration of climate change vulnerability and risk with spatial planning must be indicate and easily evaluate even by the community themselves

Table 5. Procedural Improvements and Transformative Participation Analysis within RAN API Document Cluster 4

Action Plans	Markers of Inclusive National Action Plans for Climate Change Adaptation (CCA)	
	Procedural Improvements	Transformative Participation
Cluster 5		
Improved climate change adaptation support system in coastal areas and small islands		
Enhancement of research and studies on coastal resources potencies	The person in charge of the policy circle includes the central government as the primary and regional responsibility holder as the person in charge of the supporters	The capacity of private parties and local communities can be a consideration in the subjects and subjects of science and technology development related to the reduction of climate change issues with social approach
Enhancement of research capacity about climate change phenomena and its impact on coastal area and small islands	Community should be introduces how the Early Warning System (EWS) tools and equipment for climatology and oceanography related hazard are utilized and being trained how to manage the tools as well	Capacity of community involvement has been included in the program series by considering gender equality
Development of Early Warning System (EWS) for climatology and oceanography related hazard		
Strengthening the institutional and cross sectors coordination on mitigation and adaptation in coastal area and small islands	In order for women (from certain coastal area and small island) to be actively participate in the adaptation process, the source need to be identified first including age, education level, basic skills such as reading and writing	Government need to identify first if there's already EWS tools being used by local community before introduce or install new EWS Decision-making process and coordination related to certain climatology and oceanography related disaster status/level not only between central/local institution in the coastal area and small island, but need to take account of education aspect such as teacher and student

(Table 6). The involvement from national and local government has been tremendous, especially with full participation from academics and local media coverage. The main challenge will be introducing the mechanism of updated support system to the community. Community should be introduces how the Early Warning System (EWS) tools and equipment for climatology and oceanography related hazards are utilized and being trained how to manage the tools as well. In order for women (from certain coastal area and small island) to be actively participate in the adaptation process, the source need to be identified first including age, education level, basic skills such as reading and writing. This is basic necessity in order to prepare woman to become agent of change in mitigation and adaptation strategy.

Transformative participation cluster 5. The transformation to pursue this cluster has been implemented in Indonesia. The current presidential cabinet has shift authority of Directorate of Higher Education from Ministry of Education and Culture. Hence, it went under Ministry of Research and Higher Education. Taking into such change, the involvement towards research development has been

expanded. The higher education plays pivotal role to engage not only with community but also with industry and multinational corporations. Their main findings, innovation throughout research will be main source of government to communicate with local community. The challenge will be to improve baseline information of existing support system, and to prioritize further support system need to be developed.

4. Conclusion

National Action Plan to Climate Change Impact Adaptation (RAN-API) document is one of the national policies which elaborated distribution of climate change phenomena occurred in Indonesia. Policy implementation could be evaluated by means of participatory aspect. While central and regional government roles in all clusters could be seen, the participation of the local community is more emphasized on the object of the program objectives. From the general perspective, there are some aspects which could be improves more especially the participation of various parties in the action plan in the first cluster. In the second action plan, community

participation should also be included in the level of program evaluation. The third and fourth action plans are classified as having very little participation. Activities are carried out mostly by the government (central and local government) based on their authority.

Based on the evaluation, the need to identifying and mapping coastal and small island resources by using participatory method are high. Community participation should be included in the program evaluation (until the final stage of each program). In addition, community participation as well as higher education (i.e. researcher from local university) ought to be included in the level of program evaluation.

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