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Indonesia – Evaluation of NAPA in Agricultural Sector

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ABSTRAK

Perubahan iklim telah menjadi isu global dan Indonesia termasuk Negara yang harus secara serius melakukan proses adaptasi akan dampak buruk perubahan iklim. Salah satu sektor yang krusial dan diprioritaskan di Indonesia adalah pertanian. Melalui studi literasi, tulisan ini membandingkan dan mengkritisi rencana aksi nasional – adaptasi perubahan iklim di sektor pertanian dengan lima indikator kebijakan adaptasi perubahan iklim yang ideal. Hasil dari evaluasi ini diharapkan mampu memberi masukan bagi rencana adaptasi sektor pertanian yang baru. Disimpulkan bahwa meskipun kebijakan adaptasi perubahan iklim Indonesia banyak memiliki nilai positif, namun juga disertai beberapa kelemahan yang berasal dari perencanaan dan implementasi kebijakan.

***Kata kunci*:** evaluasi, kebijakan, adaptasi, iklim, pertanian

ABSTRACT

Climate change has been a global issue and Indonesia is a country that should fervently respond over the hazards of climate change. One of crucial and prioritised sectors in Indonesia is agriculture. Through literature study, this paper compares and criticises National Action Plans – Climate Change Adaptation with five indicators of ideal climate change adaptation policy. The result hopefully could provide inputs for the new action plans. It is concluded that Indonesia's climate change adaptation policy has benefits, however, there are some weaknesses come from planning and program implementation.

***Keywords*:** evaluation, policy, adaptation, climate, agriculture

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1. Introduction

Indonesia is experiencing the negative impacts of climate change, such as coastal abrasion due to the increase of sea level, crop failure, prolonged droughts and floods because of the changing patterns of rainfall, and more extreme events like storms (Ministry of National Planning (Bappenas), 2014). Southeast Asia is one of the regions most vulnerable to the climate change. The figure below shows the level of climate change vulnerability in Indonesia.

Based on this forecast, the southern region is more vulnerable than the northern region. This information is important because as well as Indonesia's population being concentrated in this area, it is also a centre of national food production. Given this situation, the central Government has responded by developing climate change adaptation (hereafter referred as to CCA) policy to address climate change, namely the RAN-API. The RAN-API prioritises several sectors including agriculture, energy, health, settlement, infrastructure, ecosystems, cities, coastal zones and small islands, and supporting systems (Bappenas, 2014).

The main focus of this paper is the CCA policy in relation to the agricultural sector, although in the discussion it will connect to other sectors, as CCA actually requires interventions by multiple sectors (Dovers & Hezri, 2010). The agricultural sector is important because many Indonesian people rely on agriculture for their livelihood, including communities who live in rural areas and indigenous people who commonly live in remote areas. These groups account for around 35-37 % of the total population of Indonesia (Ministry of Agriculture (MoA), 2013a). Commonly, people working in the agricultural sector are economically marginalised, and vulnerable to climate change (hereby referred as to CC) impacts. From Figure 2 and 3 below, it can be seen that agricultural actors are highly vulnerable to CC because they have low adaptive capacity to CC. In addition, addressing CCA in this sector is important because it could help the Government to achieve Sustainable Development Goal 1 (SDG 1): alleviate poverty, SDG 2: combat hunger, and SDG 13 (combat CC) (Campbell, 2015). Some co-benefits, therefore, could be attained here.

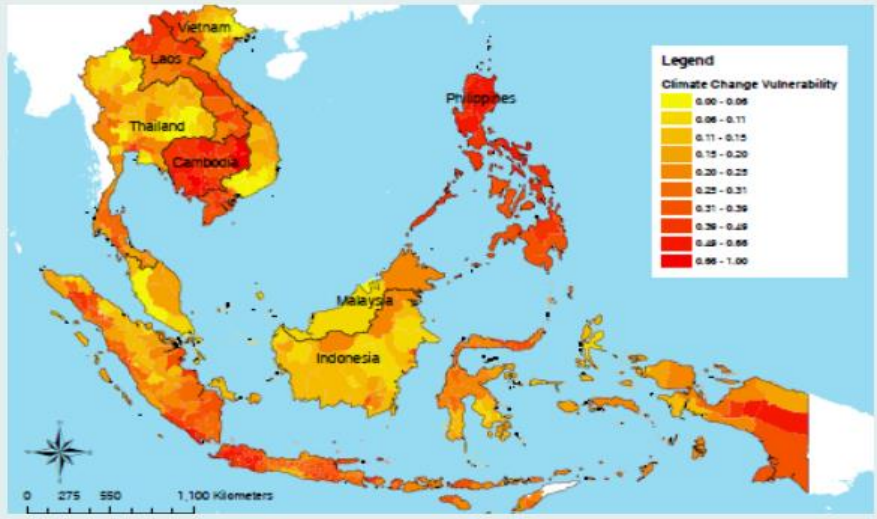

Figure 1. Multiple Climate Hazard in Indonesia and Other Southeast Asia Countries (Adapted from Yusuf & Francisco, 2009)

In terms of economy, the agricultural sector contributes around 14-15 % of national income (MoA, 2013b). Bappenas, as the planner of national development, has put the agricultural sector as one of their priority sectors and put it into the economic resilience pillar (Bappenas, 2014) (see Figure 4). Considering that this sector is important in the Indonesian context and that it is also susceptible to the negative impacts of CC, this paper aims to evaluate how effective the strategies proposed by Bappenas through the Indonesian National Action for Climate Change Adaptation Plan (the RAN-API) will be in addressing the challenges of CC.

Figure 2. Distribution of Farming Households in Indonesia (per unit) (Adapted from Statistics Indonesia, 2013)

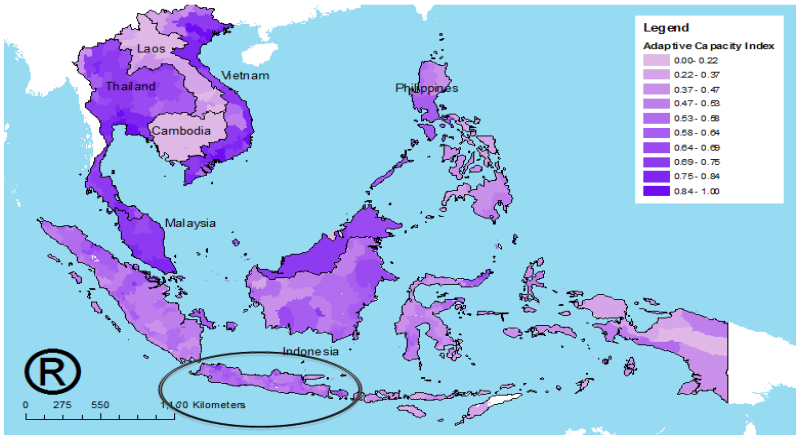

Figure 3. Adaptive Capacity Index of Climate Change in Southeast Asia (Adapted from Francisco *et al.*, 2009)

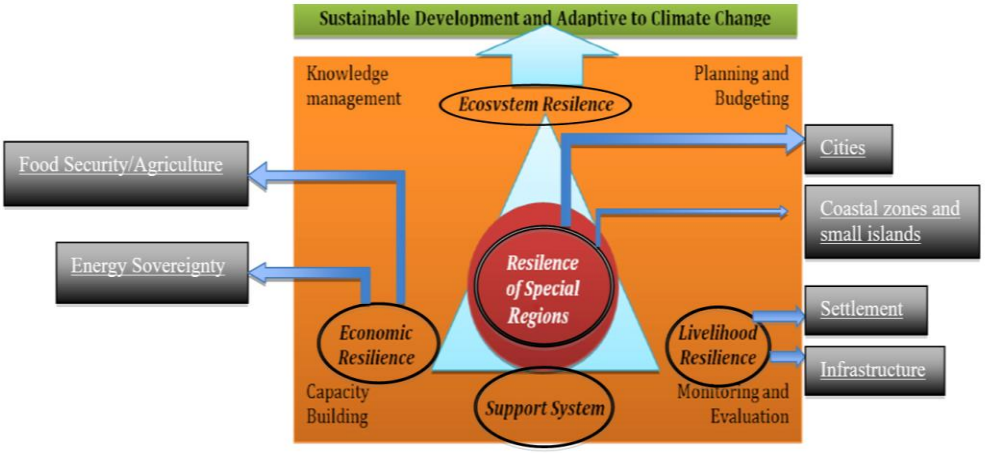

Figure 4. Main Goals and Prioritised Sectors of The RAN-API (Adapted from Bappenas, 2013)

2. Methods of Evaluation

2.1. The criteria being used for the evaluation

There are five criteria with several indicators that have been applied to evaluate the RAN-API in the agricultural sector. Using these criteria, this paper will assess the seven main programs of CCA in this sector.

1. Community involvement

- "Policy from the top must support adaptation at the bottom, community adaptation should circle upwards to influence policy strongly" (Adhikari & Taylor, 2012)
- To abandon false solutions to CC that negatively impact Indigenous Peoples' lives, policy should ensure the full and effective participation of Indigenous and local communities in adaptation relating to impacts of CC (the Anchorage Declaration, in UNFCCC (2009).
- As local communities have their own knowledge, collaborative research and action between indigenous peoples and research institutions should be implemented (The Asia Indigenous Peoples Act, 2012).

2. Cost effectiveness

A program tends to be more effective if the responsibility is shared between stakeholders (Pérez et al., 2010), and in this case are central and local Government. In Indonesia, cost effectiveness also strongly related to human and technological capacity, whether they are competent or not. Therefore, it is required to reveal what kind of dominant adaptation approach applied. By doing so, we can map the possible constraints may occur.

3. Equity

Equity here based on Stern (2007), which in this context is manifested by how well the adaptation plan is able to reach all people whose livelihood is dependent on agriculture, either ordinary communities or Indigenous peoples.

4. Being an ecosystem-based adaptation

"Ecosystem-based Adaptation (herein referred as to EbA) integrates the use of biodiversity and ecosystem services into an overall strategy to help people adapt to the adverse impacts of CC" and in many cases derives some co-benefits, like disaster risk reduction, livelihood sustenance, biodiversity conservation, carbon sequestration and sustainable water management (Colls et al., 2009).

5. Funding

In the new global CC regime, finance of adaptation programs from developed countries to developing countries is a key element (Stern, 2009).

2.2. Brief overview of Indonesia

Indonesia is the largest archipelago in the world (Dahuri & Dutton, 2000) and has the second longest coastal lines after Canada (Riyadi, 2004). In terms of Gross Domestic Product (GDP), today, Indonesia is ranked 16th of all G20 nations (International Monetary Fund, 2015). This rank is predicted to rise in the near future (Asian Development Bank, 2015). However, in terms of Human Development Index (HDI), Indonesia ranks 108th rank among 187 countries (UNDP, 2014). Therefore, besides the challenge of geographical factors, the adaptive capacity of Indonesian people to respond CC could be a hindrance. Thus, the Indonesian people need the assistance of the Government to cope with this environmental phenomenon.

Since entering the decentralisation era in 1999 (Shah & Thompson, 2004), Indonesia continues to develop its governance system because there is a discrepancy of development and human resource quality between central-regional/local and urban-rural areas (i.e. Daryanto, 2003; Hartono, 2008). Decentralisation puts regional/local government as the spearhead of development; in fact, there are some weaknesses in many aspects there. So, the role of

central government remains influential, especially with funding.

This situation also affects the CC response by local government, where mostly local government would follow on policy determined by central government. In CCA, the RAN-API is the policy of central government. However, no one local government has imposed a regional policy or a Regional Action Plan for Climate Change Adaptation (RAD-API). The situation is different with CC mitigation, where all local governments have their own regional plans. Therefore, it is necessary to assess or criticise the National Planning, because it would be resembled in all levels of government. The picture below gives an overview of the governance of CCA in Indonesia, which is implicitly included into the development planning. Local government is not the one that is experiencing problems associated with CCA. In central government, CCA remains a new thing. So far, mitigation has been paid greater attention than adaptation. In terms of CCA funding, this remains an issue. Therefore, the Government integrate CCA with national development and even with mitigation actions. This process is called mainstreaming and as it is a new approach of development planning, even leading Ministries responsible for CC issue remain adapting with this process.

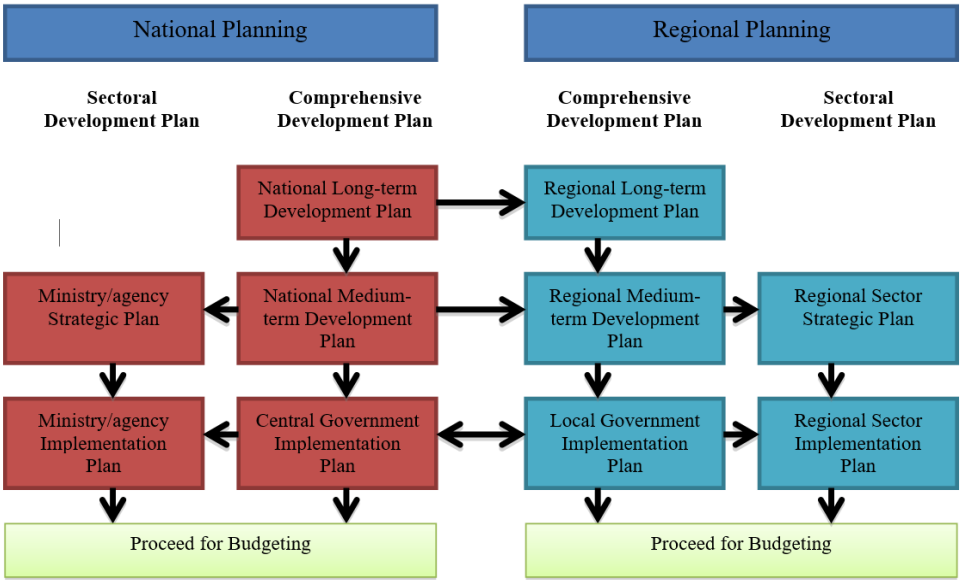

Figure 5. Mechanism of Development Planning in National and Regional Level (Adapted from Bappenas, 2012)

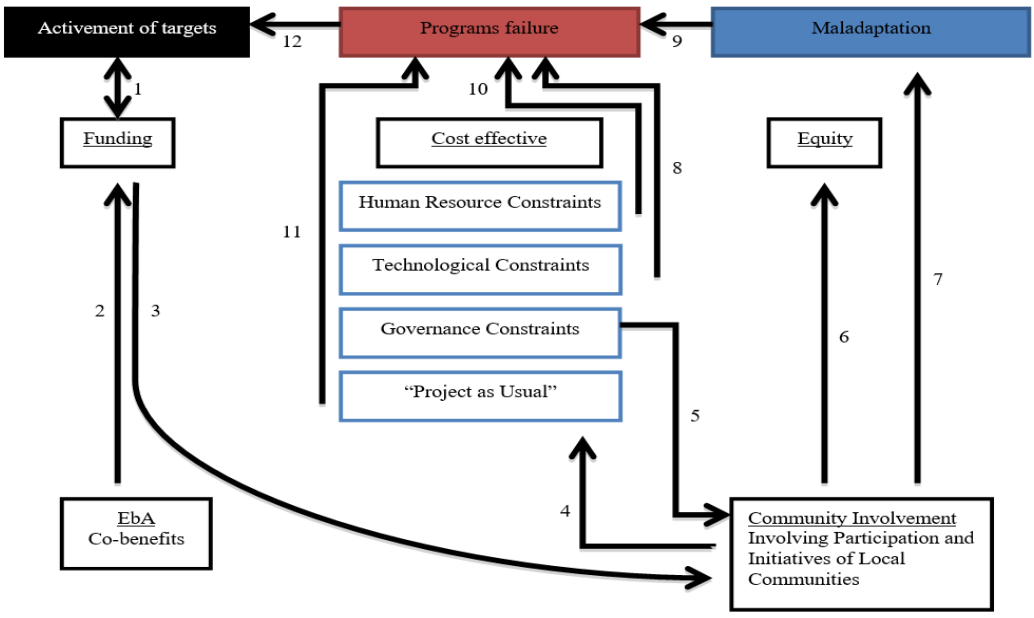

Figure 5. Relationships Between Evaluation Criteria in Indonesian Climate Change Adaptation

3. Result of Comparison

Table 1. Comparison of CCA Actions in Agriculture to Five Criteria of Good CCA Policy

No.	Plan of Actions	Evaluation Criteria				
		Community involvement	**Cost effectiveness**	**Equity**	**Being ecosystem-based adaptation**	**Funding**
1	Adjustment of food production system to climate change and variation	• All programs apply top-down approach • Do not explicitly and/or implicitly reckon local aspiration. People as an object, not as an equal partner • Do not explicitly and/or implicitly consider local knowledge	• All programs lead by Central Government • Role of Local Government is not clear • Development of technology for supporting programs is still on going • Development of infrastructure is still on going	• Some programs are conducted in all provinces, but not explicitly present which community that will be assisted • Small portion of programs is carried out in certain prioritised areas	• One program uses EbA • Potential co-benefit for livelihood sustenance, crops failure risk reduction, and carbon sequestration	Domestic Funding (It means funds come from central Government)
2	Expansion of food agricultural area	• All programs apply top-down approach • Do not explicitly and/or implicitly reckon local aspiration. People as an object, not as an equal partner • Do not explicitly and/or implicitly consider local knowledge	• All programs lead by Central Government • Role of Local Government is not clear • Development of infrastructure is still on going and dominant • Development of technology for supporting programs is still on going, but only small portion	• Some programs are conducted in all provinces, but not explicitly present which community that will be assisted • Small portion of programs is carried out in certain prioritised areas	• Two programs use EbA • Potential co-benefit for livelihood sustenance and better water management (not only from EbA, but also comes from technological adaptation)	Domestic Funding
3	Restoration and development of agricultural infrastructure that is *climate proof*	• All programs apply top-down approach • Do not explicitly and/or implicitly reckon local aspiration. People as an object, not as an equal partner • Do not explicitly and/or implicitly consider local knowledge	• All programs lead by Central Government • Role of Local Government is not clear • Development of infrastructure is still on going and dominant • Development of technology for supporting programs is still on going, but only small portion	• Some programs are conducted in all provinces, but not explicitly present which community that will be assisted • Small portion of programs is carried out in certain prioritised areas	• One program use EbA, some use Technological Adaptation, but derive same potential co-benefit: better water management	Domestic Funding
4	Acceleration of food diversification	• All programs apply top-down approach • Do not explicitly and/or implicitly reckon local aspiration. People as an object, not as an equal partner • Do not explicitly and/or implicitly consider local knowledge	• All programs lead by Central Government • Role of Local Government is not clear • Development of robust management system is still on going	• Some programs are conducted in all provinces, but not explicitly present which community that will be assisted • Small portion of programs is carried out in certain prioritised areas	• Programs dominantly apply EbA and provide education by training and demonstration plots • More potential co-benefits: livelihood sustenance, water management, crops failure risk reduction, and carbon sequestration	Domestic Funding
5	Development of innovative and adaptive technology	• All programs apply top-down approach • Do not explicitly and/or implicitly reckon local aspiration. People as an object, not as an equal partner • Do not explicitly and/or implicitly consider local knowledge	• All programs lead by Central Government • Role of Local Government is not clear • Development of technology for supporting programs is still on going and dominant	• Some programs are conducted in all provinces, but not explicitly present which community that will be assisted • Small portion of programs is carried out in certain prioritised areas	• Programs dominantly apply technological development • Potential co-benefit: livelihood sustenance	Domestic Funding
6	Development of information and communication system (climate and technology)	• All programs apply top-down approach • Do not explicitly and/or implicitly reckon local aspiration. People as an object, not as an equal partner • Do not explicitly and/or implicitly consider local knowledge	• All programs lead by Central Government • Role of Local Government is not clear • Development of robust management system is still on going	• Some programs are conducted in all provinces, but not explicitly present which community that will be assisted • Small portion of programs is carried out in certain prioritised areas	• Programs dominantly apply technological approach • Potential co-benefit: livelihood sustenance, drought risk reduction	Domestic Funding
7	Supporting system	• All programs apply top-down approach • Do not explicitly and/or implicitly reckon local aspiration. People as an object, not as an equal partner • Do not explicitly and/or implicitly consider local knowledge	• All programs lead by Central Government • Role of Local Government is not clear • Development of robust management system is still on going	• Some programs are conducted in all provinces, but not explicitly present which community that will be assisted • Small portion of programs is carried out in certain prioritised areas	• Applying EbA, but programs tend to be repetitive from other six cluster plan • Most of the programs could be integrated with other action plans. It tends to be repetitive	Domestic Funding

4. Discussion

4.1. System of thinking

Criteria used in this assessment actually are interconnected. The figure below shows how the system of thinking is presented, with a detailed explanation of the relation between flows on the table below. This relationship may only apply in Indonesia and does not suit for other countries.

Table 2. Description of The Flows

No./ Flows	Description
1	In adaptation, funding is crucial. When self-funded programs of Government are successful, donors could be more conceived to dispense their financial support.
2	When an adaptation program generates co-benefit for other sectors or programs, it would minimise funding for some program as it has been encompassed. It is strongly related with efficiency.
3	There is a discourse that community should have a right to manage or access directly the funds. This is one of recommendations from The Asia Indigenous Peoples Act (2012). However, this idea remains debatable.
5, 4, 11, 12	The care and sensitivity of Government, especially local government, to actively accommodate local communities' input for the appropriate programs is necessary. When they implement a program without considering local peoples' aspiration, the program then has a top-down approach. This approach has been criticised because usually it does not take into consideration what local communities need (Tempo, 2015). Therefore, it provides no sense of belonging for people to that program, and when project is over, community would not continue it (i.e. Wartaagro, 2015). There are many lessons learned from past projects that should be taken into account.
5, 6	In decentralisation era, the role of local government to accommodate people's aspiration is necessary. Therefore, when they fail to do so, information received by Central Government about what actually people need would be unclear. In CCA adaptation program, without clear information, the program unlikely to cover all areas that actually need their assistance or the programs are inappropriate.
7, 9, 12	By using and acknowledging local knowledge as well as their socio-cultural-historical background in CCA programs, maladaptation could be minimised. When it occurs, it would not only undermine the achievements of programs, but also create new problems.
8, 12	Applying technological adaptation, like the idea to build a big dam, could fail or lead to an environmental debate when it is not appropriate to local culture
10, 12	There is a discrepancy of human resource quality between central and local Government as an impact of imbalance development. It seems not possible to central Government employee to handle or supervised all programs because its limited number of staff. Therefore, the ability of local government for planning, implementing, monitoring, and evaluation process in CCA programs are influential to achievements of CCA programs.

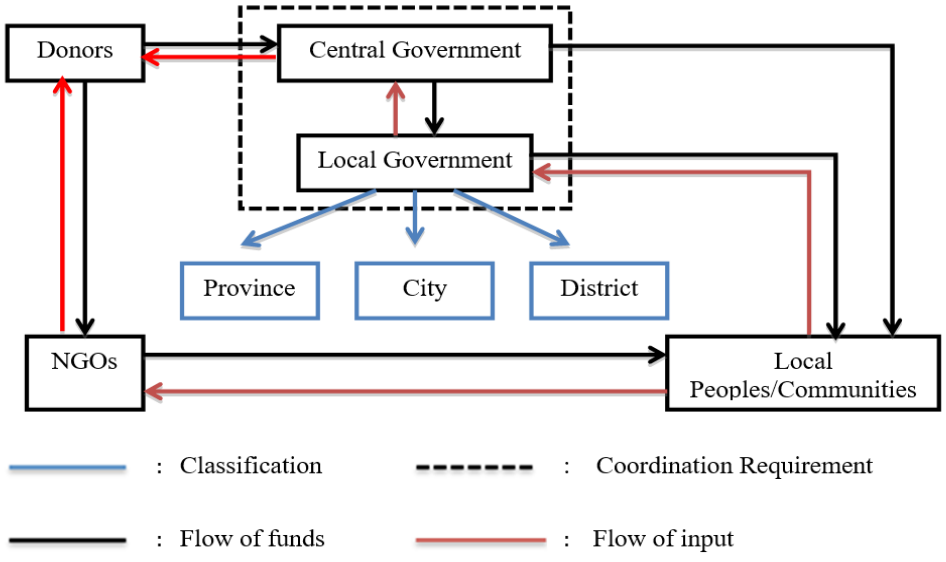

Figure 6. Ideal Condition of CCA Program in Indonesia

4.2. Points of Criticism of Indonesian CCA in Agricultural Sector

Before criticising CCA in the agricultural sector, it is noteworthy to understand the ideal framework of CCA implementation in Indonesia (see Figure 7). By doing this, it could be easier to evaluate and find any gaps in the current policy.

Climate change adaptation policy in Indonesia is manifested in the RAN-API, which in detail explains the targets, strategies, programs and its leading institutions and targeted locations (Bappenas, 2014). It, therefore, should be evaluated whether the policy facilitates all previously mentioned criteria or not. The RAN-API should embrace all people in all social strata, especially poor people (either Indigenous community or agriculture-dependent people, herein referred as to local people), as they require more intense assistance to respond CC and they are one of the main targets of national development. However, there is no program that indicates that the targeted community is Indigenous people, who are usually economically marginalised and reside in disadvantaged locations (International Fund for Agricultural Development (IFAD), 2012). In addition, they have the least responsibility for CC, but in the mean time, they suffer most (Green & Raygorodetsky, 2010). The RAN-API also does not take into account local knowledge that local people have, even though it actually could be valuable when formulating appropriate actions (Nyong *et al.*, 2007). Working together, experts and local people could generate more robust recommendations. This partnership could also minimise maladaptation because local people may have socio-cultural issues as well as history that possibly hinders the implementation of programs.

In terms cost effectiveness, the role of robust planning and coordination between stakeholders is crucial. However, from the explanation of each program, it indicates that there are some missing databases, whereas complete databases are necessary to produce a robust plan. The second point is coordination. The RAN-API does not clearly explain how responsibility will be shared between institutions and it is noteworthy that institutional culture is a classic issue here (Kartakusuma, 2009). Weak coordination could lead to programs not being well run between institutions and to institutions not supporting each other; therefore, the result would not be optimal.

A cost-effective program could bring long lasting positive impacts for people, empowering them to have more adaptive capacity. Therefore, when the program is over, they are more able to cope with new challenges. Given that role of local people to achieve more cost-effective program is necessary, the "project as usual" approach should be avoided. The "project as usual approach" has long been an issue in development, where the Government impose and carry out some program without reckon inputs from other stakeholders and only be based on their own assessment and consideration. However, this approach does not usually address the challenges faced by people nor empower local communities. As this kind of approach has continued over a long period of time, it has changed the people's mindset about the government projects. They tend to perceive that projects will only provide temporary jobs for them and when the project is finished, they would not want and / or be able to continue or improve the program. So, in terms of CCA programs, it would be better if the Government listened to all ideas from the local community on adapting CC. The result could be more beneficial.

In addition, the RAN-API possibly derives co-benefits. Co-benefits include supporting livelihood sustenance, disaster risk reduction, reduction of crop failure, improved water management, and increase carbon sequestration. Applying an EbA increases the likelihood of co-benefits and lessens the probability of environmental problems. By this co-benefit, it actually could also minimise the funds that initially should be allocated for another sector or program. For example is how the Ministry of Environment and Forestry integrates programs of mitigation and adaptation. However, the CCA program is integrated with national development, thus, the Government tends to prioritise infrastructure development rather than EbA.

Funding resource has been mentioned in the RAN-API; therefore, it is clear how the Government could gather funds. Local governments could work together with companies through Corporate Social Responsibility (CSR) or NGOs for instance. This is a good point because it opens opportunities of NGOs to conduct and support autonomous adaptation, and lessen the funding dependency from central Government.

5. Conclusion

The RAN-API is the response of Indonesian Government to CCA. There is no perfect policy; therefore, this policy should be evaluated. Some criteria have been used, including community involvement, cost effectiveness, equity, whether the adaptation is an ecosystem-based adaptation or not, and whether the funding is secure. Although the RAN-API provides some options to address CCA challenges in the agricultural sector, encompasses many aspects, potentially derives some co-benefits, and opens for many funding resources, there are some weaknesses with the policy, which could lead to maladaptation and program failures. Problems come from planning and implementation of the policy.

In planning, access and effective use of robust databases remains an issue. Also the government is not talking the initiative to embrace local people participation and acknowledge their knowledge. In implementation, RAN-API does not clearly mention about how the responsibility should be shared between Governments and between institutions. Therefore it could lead to weak coordination. In terms

of equity, the RAN-API seems not address Indigenous communities' interests, whereas they suffer the most from CC impacts. Increasing the capacity of technology, human resources and financial support are challenges for the CCA program because there is a discrepancy between central and local government, therefore the role of central Government seems more dominant. It could be a drawback, as despite having qualified employees, there are not enough qualified people to cover the whole country. Another issue is that the relationship between the central Government and local people tends to be weak, but at the same time local governments, which tend to have a stronger relationship with communities, usually do not address CC issues and have less capability to conduct programs. Therefore, the "project as usual" approach seems to be applied, which actually could hinder the achievement of CCA targets. This assessment hopefully could be an input to the new Indonesia CCA policy in the agricultural sector.

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