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# Low-emission strategy through effective planning and public participation in Merauke

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**Abstract.** Low emission is more critical to developed. This paper tries to describe how low emission strategy developed through effective planning and public participation. The methodology is a qualitative method with descriptive analysis. Collection data through an interview with local government, nongovernmental organization and community. The result shows that low emission development should be center when setting up the program in yearly planning district forum or it's called musrenbang. The implication of this research is public must be educated about mitigation and give an opportunity for public participation to develop their region based on specific potential area.

## 1. Introduction

Regional development planning is a part that cannot be separated from the stages of development in a region. Planning in the area is done to improve physical and non-physical facilities and infrastructure to support the acceleration of social and economic development of the people who occupy a region. Development planning at the district level is implemented in a forum called musrenbang. Musrenbang aim is to bring together the goals of development and the aspirations of community needs. In the implementation, there are issues and problems that should be considered in musrenbang.

Merauke is one part of Indonesia directly adjacent to the neighboring country of Papua New Guinea has different development issues in this area in comparison with other regions. Development issues are often a concern of local governments, namely social, economic and environmental. Merauke is currently still a growing area. Merauke has a land area of approximately 4.6 million hectares with land use for protected areas 52.5%, cultivation area of 47.5% [1]. The implementation of both physical and non-physical development in Merauke utilizes the land by conducting land clearing. The consequence that must be faced with the issue of land clearing to encourage the acceleration of development in the region is carbon emission. Carbon emission generated from the land sector can



accelerate global warming. The warming caused by this greenhouse effect can be felt by all beings on earth. The impact of the greenhouse effect is also felt in Indonesia. Green revolutions push institutional change in land used by a farmer [2].

According to democratic theory, a critical factor for the public interest is active participation in governmental planning and decision making [3]. Effective planning in every aspect of mitigation policy, like provide requirements for land using and incentive for planning, recommend public participation in low carbon development [4],[5].

Efforts to reduce the effects or impacts of global warming are by mitigation. Mitigation is an effort to reduce carbon emissions so that the greenhouse gas effect can be suppressed. Based on this, it is necessary to take the role of government to reduce carbon emission as a consequence of land-based development in Merauke. This research tries to explore how planning strategy to optimize low emission development in Merauke.

## 2. Material and Method

The type of study conducted is a descriptive study. Data collected through interview with local government, nongovernmental organization and community. This study outlines the government's efforts in realizing six mitigation actions to support carbon emission reductions in plantation planning units, production forests, mangrove forests, water catchments, agriculture, and terrestrial conservation.

## 3. Results and discussion

Efforts to reduce carbon emissions are the responsibility of all elements in a region. One of the government tasks, in the development planning activities, is to encourage financing mitigation program. Merauke Regency in 2017 compiled 6 mitigation actions which are expected to reduce the carbon emission of Merauke city in 2030 by 15.41%. Six proposed mitigation actions that are expected to reduce carbon emissions are: a) reduce emissions in areas with large potential openings by burning fires and preventing the conversion of local wisdom-based forests on plantation planning units; b) implementation of locally based plant-based agroforestry on unused land in production forest planning units; 3) increasing carbon uptake through mangrove planting in areas allocated as mangrove forests and preventing conversion of forest areas into other land uses; 4) maintain carbon stocks in forest areas and prevent conversion of forests into other uses in water catchment planning units; 5) maintaining carbon stocks in areas allocated as land reserves by preventing conversion of forest areas into other land uses; and 6) maintaining carbon stocks in the Merauke Agricultural Production Center area through increased production in productive agricultural land, utilization of non-productive agricultural land, implementation of agroforestry system. Realizing it all, it takes the commitment of local governments regarding realizing in the planning of sustainable development.

### 3.1. Low Emission Activities

The institution is one of the prerequisites in low emission development planning. Implementation of low emission is influenced by synchronization of the institution, institutional transformation and support both regarding human resources readiness and fund allocation. Institutional point of view in the implementation of low emission development is a cross-sectoral perspective because the development aspect is not only influential or influenced by one aspect but complex aspects of the region.

Low emission reduction activities in Merauke cover:

- a) Policy related to the regional spatial arrangement. The potential resources that have not been fully managed and some policy issues related to the use of space in Merauke will make potential emission problem increase. Therefore, the priority of the agency's focus on the spatial planning sector should be made. Institutions should be control of space allocation with utilization patterns that are considered to have an impact on increasing emissions. Also, land tenure issues are a fundamental challenge in the implementation process of low emission development and should be a priority for mitigating land tenure issues.

- b) Establish monitoring and evaluation procedures related to low-emission development planning concerning emission baseline and existing (monitoring, reporting, and verification) systems.
- c) The financial aspect is the aspect that needs to be considered especially regarding the identification of funding sources associated with the impact of the program. Needs to be calculated on funding needs compared to potential future emissions reductions. Funding management mechanisms for development also need to be managed not only regarding the identification of funding sources and fund-raising, but financial distribution must be transparent and fair.
- d) The concept of participation, especially the involvement of the community is a key to the successful implementation of the low emission development program. The community engagement process is carried out in all processes of the planning process, implementation to monitoring and evaluation. About the limited capacity of the community, there needs to be an increased capacity to locate the community according to its competence in a low emission development scheme. This is because the success indicators of the low emission development program are not only assessed in the products of activities but also the learning process and the fair involvement of all stakeholders, especially local communities.

The Low Emission Development Working Group of Merauke was established by involving elements of cross-sectoral local government, customary institutions, indigenous peoples, religious institutions, non-governmental organizations and private parties. The number of elements involved in this activity aims to enable all stakeholders to be actively involved in planning to program control. Strengthening the capacity of the working group, particularly in guarding the implementation of low emission development until the monitoring process must be carried out continuously to adjust to the development of existing policies.

One aspect that contributes to the success of low-emission development planning is the role of stakeholders in policy planners, technical policy implementers and those monitoring the policy. The identification of stakeholders and the role needs to be done in order to make synergy between parties in the planning and implementation of the program so that there is no gap or overlap of the program, in the presence of this synergy, independent and multiparty activities can be sorted so that program priorities can be implemented according to their respective roles.

### 3.2. *Future Low Emission Development Strategies*

Implementation of the emission reduction plan requires a strategy that is linked to Merauke strategic plan. The goal is that the policies and program plans that already exist in each agency, especially those related to the concept of low emission development can be prioritized maximally. The synchronization of priority mitigation action with the district strategic plan is a recommended strategy for policy and program plans to be adapted to local policies and is expected not to burden the region regarding program implementation, funding or capacity of the region itself.

Future strategies of low emission reduction plan in Merauke Regency are:

*3.2.1. Changes in land use planning paradigm.* Policy alignment related to land use planning. The growth of population will increase the importance of land use planning [6]. There are differences in policies related to the designation of areas such as differences in the delineation of protected areas and cultivation in maps of forest and water area designation and spatial planning map. When viewed regarding objects, both policies have the same object, but there is a designation of areas that have different classes. This will make the existence of policy reference difference especially in space utilization process especially separation between protected area and cultivation.

Differences of cross-sectoral interests are due to different approaches in planning and implementation of the program and on the other hand, there are similarities of objects and locations of program implementation. The result is the lack of maximum success rate of the program because the targeted product is only the product of the activity, not the process of achieving the activity. Also, the

supporting factors, especially regarding funding, human resources implementers and objects subject to activities will be considered less effective if each sector implements their programs without any coordination with other sectors. This is because of the repetition of the program with a different approach but same orientation.

The key to the success of this is the concept of transparency and participation, especially the involvement of influential and influential parties in each program. Policy alignment is a process that requires the effort of all sectors due to the need for full awareness to change the paradigm that has been happening in the bureaucratic circle.

#### a. Strengthening local capacity in land use

Knowledge and understanding of the territorial aspect have not become a priority in the era of regional autonomy, whereas the existence of regional authority in the management of regional potency gives local opportunity in managing its territory. Given this condition, the regional approach should be the approach used in regional development planning so that the development process takes into account the regional capacity for the physical and social impact to be minimized. Integrated mitigation program will reduce losses from hazards [7].

The use of the territorial approach begins with the enhancement of human resource capacity in the field of regional development planning, spatial management and modeling for regional planning for both policy makers and local technical personnel. After that, continuous studies or physical, social and cultural studies are needed as a basic study in the preparation of regional potentials and used as materials for the preparation of development planning. With a good understanding regarding stakeholders and technical personnel about the territorial aspect will be obtained data and valid information according to existing standards. Thus the data and information used as a standard in development planning process especially related to the use of land. Eco district evolves to become urban sustainability [8].

#### b. Optimizing non productive land for investment

Large-scale land used policies such as investment activities and other policies that use large-scale land use should be based on appropriate and valid regional data to avoid overlapping areas. Agrarian conflict in Indonesia occurs because of inequality of ownership of natural resources. [9]. To support low emission development, investment activities and other policies that require large areas of land need to be allocated in areas that do not have carbon stocks or areas with low carbon stocks. However, another study is needed if the area with low carbon stock is a natural ecosystem that will affect the habitat, species or other social cultural aspects.

*3.2.2. Legal Relating to Indigenous People.* Legality about the ownership of communal land is also a matter that needs to be prioritized considering that the land still under customary law is customary land and not state land. It is therefore necessary to have a detailed mapping of the land ownership, especially for compensation purposes, so that negotiations on land use will not result in horizontal or vertical conflicts. The process of gathering information on land ownership will not be separated from the information governance because it needs to be explored about the history and origin of the ancestors of the clan concerned. A participatory approach involving community-level components at the clan level is the most effective approach to this information inventory process.

*3.2.3. Micro Economic Development of the Community.* Program developments of community are:

#### a) Identify local potentials

The dependence of local communities on natural resources is due to the lack of understanding and capacity of local communities regarding developing economic alternatives. The development of economic alternatives tailored to the capacity of local communities and local potentials is considered to be more effective. The thing that needs to be a reference is that the success of developing alternative

economic is not judged by the macro economic growth but the emergence of economic alternatives at the village level. Differences in the potential of natural resources in the village and the capacity of human resources in the village will approach developing alternative economic will be different in each village. What needs to be prepared is the study and mapping of resource potentials at the village level such as local natural resources, human resources, infrastructure development and market access.

#### b) Involvement of academics and NGO

A large number of villages and the geographical distribution of geographical areas make it necessary for the involvement of all parties in the implementation of the alternative development of the village level economy. Potential studies to facilitate the implementation of the program should involve various parties such as academics, NGO and other strategic partners by creating standard procedures for assisting the development of alternative economic level at the village level as a reference for program implementation. Furthermore, the division of work areas for the development of economic alternatives by involving all these stakeholders

The development of economic alternatives for local communities that still use hunting and gathering systems will take a longer time so that a continuous mentoring process is an effective tool for successful program implementation. The concept of sustainability is a basic concept in the development of economic alternatives to change the point of view of the management of natural resources based on local wisdom into the development of alternative-level economic kampung that does not conflict with the concept of low-carbon development.

#### c) Capacity Building of Local Communities

The level of understanding and knowledge of local communities that are still limited to make the need for training and improvement of community understanding related to the concept of sustainable economy. There is a need for counseling personnel who stay in the area of assistance in the long term so that the training and capacity building process is not stopped due to limited access to information society at the village level. The two-way training model by adopting a local community resource utilization model based on local wisdom should be used so that the application of alternative economic development model is not contradictory to the traditions of local communities but still bring the local economic benefits. Besides, it is necessary to assist the financial management of village and household scope to support the successful development of local economic alternatives. The society also needs to educate mitigation emission, especially of the rice field [10] since Merauke has been declared to become food barns.

### 4. Conclusion

Mitigation actions carried out in Merauke regency are implemented in six land-based development planning units namely plantation planning unit, production forest, agriculture, terrestrial conservation, water catchment, and mangrove forest. In 2030 Merauke is expected to reduce emissions 15.41%. Low-emission development planning is used as the regional basis for developing a low-emission development planning program by incorporating the issue of sustainable development in the regional document. The strategies of low emission development of Merauke through effective planning are changes in land use planning paradigm, legal relating to indigenous people and micro economic development of the community.

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