Development of Bangkalan Biomass Model Project as Community based Integrated Wood Pellet Industry

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ABSTRACT

Indonesia has been promoting biomass energy development to improve its energy security effort. One of its strategies is promoting small scaled community based wood pellet industry (WPI). This research used qualitative design and aims to study the development of Bangkalan Biomass Model Project (BMP), a case of community based WPI which combines the issues of critical land rehabilitation, carbon sequestration, community development, and enhancement of local community's socio-economic condition. This research discuss about signs in project impacts, how its secure the partnership among involved stakeholders, and its supporting and constraint factors. Result show that Bangkalan BMP does shows adequately good sign on to critical land rehabilitation effort in Geger Sub Distric, Bangkalan although in small numbers. The partnership among involved stakeholders is found to be not effective due to local government's lack of participation and support. Project's multi-benefits and integrated concept and high social capital of geger bangkalan local community have identified as Bangkalan BMP's supporting factors while lack of finance, ineffective partnership, and under-developed wood pellet local market have been identified as project's constraint factors.

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1. Introduction

Indonesia has been more than one decade experiencing shortage in national energy supply and non-renewable energy source doination; creating complex problem involving energy security, climate change mitigation and poverty issues. Addressing the problem, Government has been promoting renewable energy (RE) development, targeting 23 % in 2025 national energy mix share compared to 6 % in 2014. It would be fulfilled from biomass energy (10%), geothermal (7%), hydropower (3%) and other NRE (3%) (MEMR, 2015).

Wood pellet is one example of biomass energy. It has advantages to other forms of biomass energy; including simpler production process; easy to use and

multiple use-including heating, cooking, industrial use, and power plant. Wood pellet's global market has been grown fastly: from 2 million tons total consumption in 2000 to 25 million tons in 2014 (Hawkins-Wright; 2015). However, the fast growing wood pellet industry (WPI), mainly big scaled and extensive ones- possess big risk on forest conversion, land grabbing, and food versus fuel issue (Casson, 2014). Thus, small scaled community based WPI became a viable alternative, as it can minimize disadvantages local community might have in big scaled, extensive WPI. It also can be seen as a form of community based RE initiative, which is akin to grassroots movement to energy transition (Sefyang, 2014).

This research took case study in Bangkalan Biomass Model Project (Bangkalan BMP) in Geger Sub

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District, Bangkalan, Madura. It was Indonesia's first community based WPI. Bangkalan BMP was first established in 2012 as two-year-project under collaboration of government (central and government), local community (forest farmers group named Forest Management Unit/ FMU Gerbang Lestari) and 3rd party (IDEAS Consultant, a consultation firm). It integrates community based WPI with biomass energy estate (BEE) development built in the region's critical/unproductive land, thus simultaneously deals with critical land rehabilitation and community development issues.

The first circle of the project ended in 2014 with mixed success- completing both WPI and BEE development goal but struggles financially and unable fulfill the objective of economic community development. The project is vacuumed until 2016, where it would continued under collaboration of community, private firm and 3rd party (the same consultation firm). This research objective is to understand the development of Bangkalan BMP project particularly in the first project circle (2012-2014) particularly in : (1) How does Bangkalan BMP project secure the partnership for managing the wood pellet industry (WPI) and improving local social-economy condition; and (2) What are supporting and constraint factors in the development of Bangkalan BMP?.

2. Theory

Community based renewable energy (CBRE) project according to Walker and Devine-Wright (2008) is one that driven and carried through by a group of local people through participatory in the process, which brings collective benefits to the local community. In other words, CBRE projects are renewable energy projects that both done by and for local people. CBRE projects involves cooperation and participation of government, community, and private sector as the project's stakeholder. The three stakeholders is the pillar of governance, hence it can be said that a certain minimum level of governance is required for successful CBRE implementation.

Partnership is basically "two or more groups...working collaboratively towards meeting common goals, while at the same time meeting their own individual goals". Shared vision/ common goal, equality, and openness/ transparency are three core principles influencing partnership development. (Tennyson, 2000). As CBRE projects include partnership among stakeholders; discussion on theory of partnership and participation helps in describing the form of participation each stakeholder have and describe partnership among them. Past researches shows that RE initiatives needs public awareness, strategic planning, support from government & interest groups as basic

enablers (Eswarlal, 2011); and commonly faces communication & coordination, expertise, institutional and social barriers (Allen et al; 2012).

Discussion on theory of community empowerment is included because the main actor in Bangkalan BMP project is community, and one of main objective of this project is to improve capacity of local community, both in social economic and institutional aspect.

3. Research Method

This type of this research is descriptive study using a qualitative approach, to describe the nature and phenomena happening on the research case. According to Creswell (2009:4) qualitative research is a mean for exploring and understanding the meaning of individuals or groups ascribe to a social or human problem. In Bnagkalan BMP case, the qualitative research metode is done to explore and understand how Bangkalan BMP's stakeholder develop partnership and develop the project istseft as a community based wood pellet industry.

Research was conducted in Bangkalan BMP i.e. within the scope of FMU Gerbang Lestari's area, which consists of community forests in Geger, Togubang, and Kombangan village in Geger Sub District. Research focus was on partnership among Bangkalan BMP stakeholders and the strategy to securing partnership in managing the wood pellet industry (WPI) and improving local social-economy condition; as well as describing strength and constraints factors of Bangkalan BMP Development. Stakeholders took part in Bangkalan BMP development was identified as follows: (i) Ministry of Forestry and ICCTF Bappenas as central government stakeholders (ii) Bangkalan Distric's Forest Office (Dishutbun Kab. Bangkalan) as local government stakeholder Community leaders; (iii) Private sector stakeholder responsible for Bangkalan BMP management (IDEAS Consultant).

Data was collected through interviews, observation, and document study.

4. Result and Discussion

4.1 *Developing and Securing Partnership among Involved Stakeholders in Bangkalan BMP*

4.1.1 *Partnership Development*

a) Common goal

Common goal(s) among stakeholders is the first step into building partnership. According to interview, the drive of each stakeholder in Bangkalan BMP development is as follows:

Table 1 Stakeholder's drive in Bangkalan BMP's partnership

	Central gov.	private	Community	Local gov
Critical land rehabilitation	V		V	V
Community forest development	V		V	V
Community development	V		V	V
Renewable energy development	V	V		
economy		V		

Source: interview with stakeholders, 2015

Bangkalan BMP's stakeholders share visions of critical land rehabilitation, community forest development, community development in Geger, Bangkalan. Meanwhile, climate change mitigation and renewable energy development issues are only mentioned as primary drive by central government. These two are quite complex concepts that need coupled with more relatable objective of community economy development.

b) Equality/ Equity

The principle of equality and equity means involved parties of a partnership should feel in parallel position in achieving agreed goals. In Bangkalan BMP, there are mix level of partnership among stakeholders as follow:

- Top lead: Bangkalan BMP is a CBRE project led by MoFor and ICCTF Bappenas, both part of central government. Both of them work together as linear-union partnership, which work together and distributes work and responsibility.
- Subordinate level: private sector (IDEAS Consultant) and community (FMU Gerbang Lestari)

Their partnership can be considered as subordinate union type of partnership. In Bangkalan BMP, there is a good level of information sharing, mostly through coordinate meeting and monitoring visits. Community are given chance to take a part in decision making on how project will be implemented. However, distance and long bureaucracy in MoFor is felt as weaknesses as it hinders project's efficiency.

The local government (Dishutbun Kab.Bangkalan) was not included in Bangkalan BMP formal organization. Thus, the partnership that intended to be built between local government and other stakeholders in Bangkalan BMP is linear collaborative partnership with highlight on complementary vision-mission and no distinguishing on the amount or volume, status, or the strength of the parties in partnership. However, this

arrangement is probably make disservice and make ineffective partnership due to lack of

In project designing, local government is expected give in kind support, especially monitoring and evaluation, mediation, and promotion and advisory. However, those expected support were not fully present in Bangkalan BMP development. Bangkalan BMP's project result is yet to be integrated into Regional Action Plan to Reduce Greenhouse Gases Emission (Rencana Aksi Daerah Penurunan Emisi Gas Rumah Kaca or RAD - GRK in Bahasa).

c) Transparency

Transparency means open and honest communication among stakeholders; which would increase partnership's trust level and efficiency. Transparency issue, including information and financial transparency; is among reasons behind ineffective participation between local government and other stakeholders of Bangkalan BMP. The root of this problem is the differences in understanding about the issue of income balance and decentralization in Bangkalan BMP as grant project. In local government perspective's, Bangkalan BMP is seen as APBN/ APBD project that can be directly managed by relevant office/ institute in local government; instead of centralistic project which directly granted to community. There is also problem of mistrust that comes from incident revolving on 'rent-seeking cost' from local government apparatus and frequent change of chief in Dishutbun Bangkalan Regency without proper information transfer and follow ups.

This case is similar with Marquadt's (2014) study. Marquadt identified local government, especially in regencies and municipalities, as the main obstacle of renewable energy project development due to complex corruption, lack of coordination among local government offices, and overall lack of awareness on the issue that leads to delays and uncoordinated activities.

The partnership between local government and other stakeholders can be considered as pseudo partnership of quasi partnership, where the involved parties formed alliance but not actually cooperate with each other.

4.1.2 Influence of Stakeholders' Partnership on Bangkalan BMP Development

Stakeholders partnership in Bangkalan BMP development is not effective due to long bureaucracy between project management ladder and lack of participation from local government; which influenced from (i) Lack of information transparency; (ii) Misconception on Bangkalan BMP being APBN/APBD project instead on grant project that directly distributed to community. (iii) Local Government not able to have

enough power to decide on project direction. Ineffective partnership makes insufficient support from stakeholders which is one of core base of CBRE (Eswarlal, 2011).

CBRE development as how it happened in Bangkalan BMP as in end of project, it unable to improve local community 's economy condition.

Interestingly, Bangkalan BMP's stakeholders put the lack of participation and support from local government as not as important as the lack of finance/ project budget. Community and project management put in high regard their community's social capital- especially the leadership influence of their community leader that can balanced out lack of support from local government. However, as Bangkalan BMP is projected to be duplicated in other regency in Madura to create Green Madura Community, lack of local government support also may hinder the fulfillment of this future objective.

4.1.3 Securing Partnership

Securing partnership among stakeholders ideally can be achieved through include all stakeholders from the start of project designing, and each stakeholders have share power in project steering and planning. There will always been risk of rent seeking behavior form local government, but it can be prevented and balanced out by encouraging community's active and critical participation, supported by strong leadership from community leader.

Project steering therefore should be consisted of MoFor, ICCTF-Bappenas, community leaders (as community's representative), and Local government (Dishutbun Kab Bangkalan and Disperindag Kab Bangkalan). Disperindag Kab Bangkalan should be included in order to support WPI further development so that it can develop into leading community based industry. Disperindag Kab Bangkalan shuld also be included in project monitoring and evaluation.

4.2 Strength and Constraint Factors in Bangkalan BMP Development

From interview with stakeholders, obtained several information about strength and constraints in Bangkalan BMP development as follows:

Table 2 Strength and Constraints of Bangkalan BMP Developments from stakeholders' perspective

Stakeholder's perspective	Strengths	Constraints
Government	Integrated concept & multi benefit, High social capital	Lack of finance
Private sector	Integrated	Lack of finance,

Stakeholder's perspective	Strengths	Constraints
	concept & multi benefit, ,high demand of wood pellet, High social capital	long bureaucracy lack of support from local government
Community	Support form government and other stakeholders, social capacity	Lack of finance, long bureaucracy lack of support from local government

Source: Interview with Bangkalan BMP's stakeholders, 2015

4.3 Supporting Factors

4.3.1 Bangkalan BMP's Multi-Benefits and Integrated Concept

Bangkalan BMP integrates concepts of critical land rehabilitation, climate chane mitigation, and community development in one single project and offers multi benefits which could appeal to wide number of people and stakeholders. It also serves as umbrella for its own objectives that maybe felt unattractive or too complex by several stakeholders.

4.3.2 High Social Capital of Geger Bangkalan Local Community

Geger local community's high social capital (high awareness, commitment, community bonds and is serves as strong foundation/support in community empowerment through Bangkalan BMP. In initial stage of Bangkalan BMP, Geger local community has functional participation, which is only as a necessity to achieve pre-determined project goals. The involvement is interactive and involve shared decision-making, but arises only after external agents (MoFor, ICCTF) have already made major decisions. As project develops, gradually Geger local community's participation grows into interactive participation where they participate in joint analysis, development of action plans and formation of strengthening of local institutions.

4.3.3 Community Leadership

Bernard in Kouzes and Posner (2007) describes the nature of leadership, as it is a power that transforms potential into reality. Therefore, effective leadership is a key factor in the life and success of an organization.

In Bangkalan BMP case, development of Bangkalan BMP is closely related with Geger community leaders, consists of FMU's leader, a senior forestry facilitator for Dishutbun Bangkalan, and a kyai/ religious leader who serve in project development as

facilitators and part of project management. Their leadership influence are vital, especially related to characteristic of Madurese community in which Influence of the Kyai or religious leaders are enormous- from the simplest daily life affairs to politics, economy, and legal affairs. With their charismatic leadership; Kyais are important figures that have inertia for signs of social changes. In this case, Geger Community leadership is seen as their leadership style can be included as a combination of transformational leadership and participative leadership. As transformational leaders, they 'sell' the vision that Bangkalan BMP will help community in rehabilitation effort, community forest udevelopment, and also improving ther economy condition. As participative leaders, they led forest farmers in FGD to include their thoughts in part of project's decision-making process.

Community leadership influence is shown for example when several community forest farmers show discontentment with WPI being unable to improve their income due to production setback. Several forest farmerst shows their discontentment with burying their BEE plots However due to ther respect to their leadear, these farmers stopped their actions. In the end, forest farmers in FMU Gerbang Lestari agreed to keep continuing develop Bangkalan BMP.

Geger Bangkalan's local community strong bonds and leadership from its leader is advantageous for Bangkalan BMP furher development. The network of Kyais from various pesantren across Madura also can be starting point in project's duplicating and scaling up process in other regency in Madura.

4.4 Constraints

4.4.1 Lack of Finance

Bangkalan BMP's finance problem especially in WPI management budget is the source of its production setbacks. Lack of finance affects project's efficiency and sustainable growth and return of investment.

4.4.2 Innefective partnership

There are innefective partnership in Bangkalan BMP development, due to (i) long bureaucracy in government; (ii) ineffective communication among stakeholders and (iii) lack of participation from local government. Innefective partnership among stakeholders make lack of support system for Bangkalan BMP development; which is one of base variable of CBRE development (Eswarlal;2011) Thus provide less than successful CBRE development as how it happened in Bangkalan BMP as in end of project, it unable to improve local community 's economy condition. It also may hindering the future objective of Bangkalan BMP, which is its duplication/ scaling up on other regency in Madura in order to creates Green Madura Community.

4.4.3 Wood pellet local market is stil under developed

Developing wood pellets as renewable energy needs comprehensive plan to develop robust local market to ensure that wood pellet produced will actually incorporated to substitute national fossil energy consumption especially in industry sector and electricity generating sector- and therefore reducing national carbon emission rate.

However, marketing aspects of wood pellets in the local market is still yet to reach its potential because There still lack of policy/ regulations that encouraged wood pellet producers to sell their product in local market instead of to export them, or to force local industry sectors and power generating sectors use renewable energy such as wood pellet. Feed in tariff policy and carbon tax policy is examples of these policies. Producers would be more interested to export their product to gain more profit in wood pellet international market. If it is the case, development of wood pellet industry as form of renewable energy in Indonesia will be no use, because it fails to support reducing national carbon emission rate.

5. Conclusion

Stakeholders partnership in Bangkalan BMP development is not effective due to long bureaucracy between project management ladder and lack of participation from local government; which influenced from (i) Lack of information transparency; (ii) Misconception on Bangkalan BMP being APBN/APBD project instead on grant project that directly distributed to community. (iii) Local Government not able to have enough power to decide on project direction. Innefective partnership makes insufficient support from stakeholders which is one of core base of CBRE (Eswarlal, 2011).

The ineffective stakeholders partnership affects project's ability in achieving its objectives, including improving local community's economy condition. In other hand, the result shows strong influence of local leadership in Bangkalan BMP development process- especially in crisis management among farmers and in balancing the rent seeking pressure from local government.

Bangkalan BMP's stakeholders partnership can be secured through including all stakeholders (including community and local government) from the start of project designing, and each stakeholders have share power in project steering and planning. Community active participation and community's leadership also should be encouraged to balance out the risk of rent seeking behavior in local government.

Strength factors in Bangkalan BMP development are Bangkalan BMP's multi-benefits and integrated

concept and high social capital of geger bangkalan local community. Meanwhile, the development are constrained by lack of finance, ineffective partnership, and under-developed wood pellet local market are identified as constraints of project's development. For Bangkalan BMP further development, It is important to improve communication between the parties (Central Government, Local Government, Parliament , local government in district/regency level to village level, as well as an influential public figure).

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