The role of stakeholder to support the development of competitive commodities on peatlands: case study in Pulang Pisau Regency, Central Kalimantan Province

F J Salaka, D Djaenudin, N Parlinah, Indartik, E Y Suryandari, A S Kurniawan and M Iqbal

Center for Research and Development on Social, Economy, Policy and Climate Change, The Ministry of Environment and Forestry, Jl. Gunung Batu No. 5, Bogor, Indonesia

Email: fentiesalaka@gmail.com

Abstract. In developing a food security business model, support from various related stakeholders is required. The success of this program cannot be done by a single actor but should be a collaboration among actors. The purpose of this study is to identify and analyze stakeholders and their roles in developing a partnership model to support the development of competitive commodities in peatland area. This study was conducted in 2020 at the villages of Buntoi and Mantaren 1, Pulang Pisau Regency, Central Kalimantan Province. Data analysed are primary and secondary which are collected through in-depth interviews and online questionnaires. The data are analyzed using stakeholder analysis. The result of the study shows that several actors have the potentials to become key players in the development of superior commodities in peatland area, there are five actors at the district level (Official of Agriculture, Official of Food Crops, Official of Regional Planning and Development, Official of Trade, Cooperatives, Micro, Small and Medium Enterprises, and Official of Community and Village Empowerment), two actors at the provincial level (Official of Food Crops Services and Official of The Food Security), an actor at the site level (Forest Management Unit (FMU/KPH)), and one institution at the village level (the joint business group (Kelompok Usaha Bersama/KUB) or the social forestry business group (Kelompok Usaha Perhutanan Sosial/KUPS). KUB or KUPS can be the main social actor of the village to support the development of value chains for competitive products. The Village Government can form BUMDes to accommodate KUB, KUPS, or the other farmer groups in managing their business for both marketing and financing purposes. The local government plays an important role in being the leader in supporting the developments along the value chain for the products. In addition, it also requires good cooperation with other institutions such as financial institutions, industries, and universities.

1. Background

Peatlands do not only have environmental and production functions. Indonesian peatlands, especially peat swamp forests, provide significant benefits at local and global scales [1]; the area could provide socio-economic benefits for community in national to local scale [2]. Utilization of peatlands into productive land can be a source of state income and improve the economy of local communities [3]. Peat swamp forests play a very important role in supporting social and economic systems through the
functions they provide [4]. Management of peatlands with export value crops adds to the role of peatlands in the country's economy through foreign exchange earnings.

One of the programs executed by the Indonesian government to restore peatlands is revitalization of livelihoods [5]. This activity is carried out through friendly peatland development competitive commodities [6]. In addition, this program is also expected to support food security programs in Indonesia.

The types of plants grown on peat provides the potential for high economic benefits, depending on the commodity and market developments provided [7]. The limited market share and labor cause farmers not willing to develop their business because their marketing is highly dependent on middleman [8]. In addition, to meet the market demand, issues of efficiency, productivity, and quality must receive attention. One solution is support from existing institutions in the surrounding area. Identification of parties and mapping the tasks and roles of each stakeholder can be done to build potential partnerships. Collaboration among the available stakeholders play a crucial role in delivering beneficial outcome from agricultural technologies to farmers, especially to ensuring that technology gets to farmers efficiently [9]. Therefore, stakeholders involvement is an important aspect that should be analyzed to support the development of competitive commodities produced on peatlands. The purpose of this study is to identify and analyze stakeholders and their roles in developing a partnership model to support the development of competitive commodities in peatlands. Stakeholder analysis is important because their interest and influence have always changed over time [10]. In this study, several stakeholders related to the development of superior products from sustainable peatland management are analyzed and mapped based on their influence and interests. Renard [11] narrates that stakeholder identification and analysis provide a basic understanding of the social and institutional context in which the planning process will take place. The scope of this study is stakeholders in province level; district, and village are not included as stakeholders at the national level.

Stakeholder analysis are now arguably more important than ever because of the increasingly interconnected nature of the world, including in natural resource management [12]. Reed [13] describes that in policy, development, and natural resource management, stakeholder analysis is seen as an approach that can empower marginal stakeholders to influence decision-making processes. Grimble [14] states that stakeholder analysis can highlight the needs and interests of people who are under-represented both politically and economically. Stakeholder analysis can help us to investigate the objectives and interests of various stakeholders in managing and utilizing the environment, the trade-offs there may be between objectives, and the costs and benefits of change and intervention at both macro and micro levels [15]. Stakeholders are not only the users of natural resources, but include people and institutions that impact both directly and indirectly on the resources even without using them, and include people who may not even be aware that they have a stake in the management of these resources [11].

2. Methodology

This study was conducted in 2020 at Buntoi Village and Mantaren 1 Village, Kahayan Hilir Subdistrict, Pulang Pisau Regency, Central Kalimantan Province (Figure 1 and Figure 2). These two villages are included in the peatland restoration program launched by the government of Indonesia, Peatland and Mangrove Restoration Agency (Badan Restorasi Gambut dan Mangrove/BRGM). One of the programs implemented is the revitalization of local livelihoods.

There are 82 people respondents selected purposively. This research implements snowball methods. The respondents are local community, village government officials, government officials at district/regency and provincial level, academicians, industry practitioners, and other personnel in some institutions.

This research analysis both primary and secondary data that are collected through in-depth interviews, focus group discussions (FGD), and online questionnaires. Secondary data are collected through document and literature review. Data and information collected from stakeholders and analyzing their roles, influence and interests related to the development of competitive commodities produced from peatlands.
The data are analyzed implementing stakeholder analysis [13]. In this analysis, Reed [13] categorizes stakeholders into four, they are:

1. Key players i.e. stakeholders who have high interest and influence,
2. Context setters i.e. stakeholders who have low interest but have high influence,
3. Subjects i.e. stakeholders who have high level of interest but low influence,
4. Crowds i.e. stakeholders with low interest and influence.

Figure 1. Map of administrative area of Mantaren 1 Village, Kahayan Hilir Subdistrict, Pulang Pisau Regency, Central Kalimantan Province, Indonesia (Source: BRG, 2018a)

Figure 2. Map of the administrative area of Buntoi Village, Kahayan Hilir Subdistrict, Pulang Pisau Regency, Central Kalimantan Province, Indonesia (Source: BRG, 2018b)

3. Result and discussion
3.1. Stakeholders identification
Stakeholders are important part in realizing the goals of a policy or of an organization. The implementation of the national food security policy involves various stakeholders, namely government institutions, the community, NGOs (Non-Governmental Organizations), and private sectors. Based on data analysed from the questionnaires and literature review, this study identifies 27 stakeholders that are
involved in the development of superior commodities on peatlands at the provincial level, district, village, and other supporting institutions (Figure 3). There are 10 institutions at the provincial level, 8 district government institutions, 5 stakeholders at the village level, and 4 other supporting stakeholders.

Mitchell et al. note that working with a large number of stakeholders can be 'bewilderingly complex for managers' [16]. Therefore, collaboration among stakeholders is needed so that all programs could run well and are beneficial for the economic development of the community. Effective stakeholder engagement promises to yield better decision-making, increased social learning, and clearer communication among scientists, managers, and the public at large [17].

**Figure 3.** Identification of stakeholders in supporting competitive commodities value chain on peatland in Pulang Pisau Regency, Central Kalimantan Province
3.2. Stakeholders mapping

In this study, the role of stakeholders is mapped based on the main tasks of each actor and the existing activities in the field (Table 1). The results of the study show that the role of each stakeholder regarding the development of competitive commodities in peatlands has not been maximized. Likewise, coordination and collaboration among stakeholders are also still lacking. Some of the obstacles faced are limited human resources and funding. To increase the effectiveness of developing competitive commodities on peatlands, coordination and collaboration among stakeholders are demanded. Collaboration among stakeholders will prevent overlapping programs or activities and can also support cost efficiency. Collaboration should start from program planning to implementation. Usually, collaborative planning seeks consensus, ensures that all participants are heard and respected, and ensures that discussions are based on interests, not predetermined positions [18]. Collaboration is an effective means of producing significant additional benefits such as improved stakeholder relations, skills, and knowledge [18].

On the other hand, the property rights characteristics of the cultivated land and the products produced by the community in the research location are private property. As an implication, the community has full authority over the resources they have to use according to their preferences. Private property means that the range of discretion open to the owner(s) is fairly extensive and will include the right to control, the right to transfer, the right to use, and several other aspects signifying relative autonomy for the owner [19].

The characteristics of this private property also influence the decision on how to manage the land. Even though there are certain prohibition policies related to land management, the opportunity to not follow the regulations still exists. The choice of the type of commodity is highly dependent on the owner's decision. This decision is based more on economic benefits than on other benefits. This decision is influenced by land conditions, economic and social factors [20,21]. Involvement and collaboration among stakeholders is required. This is required so as the selection of superior commodity types cultivated by farmers and land management methods are in line with national food security policies and pay more attention to environmental aspects.

Stakeholders at the provincial and district levels are government institutions that can support developments along the value chain of superior products to be developed. At the village level, the village government, farmer groups, cooperatives, and Bumdes are the main assets possessed at the village level for the development of superior product value chains. Besides the institutions mentioned above, other stakeholders, such as financial institutions, industries, traders, and universities, also play a very important role in creating added value and in developing superior products on peatlands.

| Nr | Stakeholder | Role |
|----|-------------|------|
| 1  | Official of Forestry | Coordination, technical guidance, coordination of community businesses, facilitation of capital, land rehabilitation, technical policies, and coaching |
| 2  | Official of Food Security | Coordination, facilitation, mentoring, infrastructure support such as seeds, policy formulation, coaching, and processing industry policies |
| 3  | Official of Food Crops Services | Coordination, facilitation, technical guidance, coaching, training, infrastructure support, and policy formulation |
| 4  | Official of Plantation | Coordination, technical guidance, coordination of community businesses, facilitation of capital, land rehabilitation, technical policies, and coaching |
| Nr | Stakeholder                                                                 | Role                                                                                                                                                                                   |
|----|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5  | Official of Cooperatives, Micro, Small and Medium Enterprises                | Coordination, facilitation, technical guidance, infrastructure support, policy formulation, commodity buyers, and assisting product marketing                                                  |
| 6  | Official of Community Empowerment                                           | Coordination, technical guidance, coordination of community businesses, facilitation of capital, technical policies, and coaching                                                      |
| 7  | Official of Investment and the One Stop Service                             | Facilitation, mentoring, licensing, and investment climate policy                                                                                                                      |
| 8  | Official of Marine Affairs and Fishery                                       | Facilitation, mentoring, licensing, investment climate policy, environmental policy, capital assistance, buyers, sellers, and distribution of commodities                                    |
| 9  | Official of Trade and Industry                                              | Technical policies, coaching, coordination, and capital facilitation                                                                                                                   |
| 10 | Forest Management Unit                                                      | Coordination, facilitation, technical guidance, coaching, training, infrastructure support, policy formulation, and program implementation                                                |
| 11 | Official of Regional Planning and Development                               | Coordination, facilitation, technical guidance, coaching, training, infrastructure support, policy formulation, and program implementation                                                |
| 12 | Official of Agriculture                                                      | Coordination, facilitation, technical guidance, coaching, training, infrastructure support, policy formulation, and program implementation                                                |
| 13 | Official of Fishery                                                         | Technical policy and coaching                                                                                                                                                    |
| 14 | Official of Food Security                                                   | Coordination, facilitation, technical guidance, coaching, training, infrastructure support, policy formulation, and program implementation                                                |
| 15 | Official of Industry, Trade, Cooperatives, Micro, Small and Medium Enterprises | Coordination, facilitation, technical guidance, coaching, training, infrastructure support, policy formulation, and program implementation                                                |
| 16 | Official of Community and Village Empowerment                               | Coordination, facilitation, technical guidance, coaching, training, infrastructure support, policy formulation, and program implementation                                                |
| 17 | Official of Investment and the One Stop Service                             | Facilitation, mentoring, licensing, and investment climate policy                                                                                                                   |
| 18 | Official of Environment                                                     | Facilitation, mentoring, licensing, and environmental policy                                                                                                                        |
| 19 | Village government                                                          | Coordination, facilitation, technical guidance, infrastructure support, and policy formulation                                                                                         |
| 20 | Cooperatives                                                                | Facilitation, capital assistance, mentoring, buyers, sellers, and distribution of commodities                                                                                  |
| 21 | Farmer groups                                                               | Producer                                                                                                                                                                             |
| 22 | Village-owned enterprises (Badan Usaha Milik Desa/ Bumdes)                  | Facilitation, capital assistance, mentoring, buyers, sellers, and distribution of commodities                                                                                  |
| 23 | The joint business group (Kelompok Usaha Bersama/KUB) or the social forestry business group (Kelompok Usaha Perhutanan Sosial/KUPS) | Coordination, facilitation, technical guidance, infrastructure support, policy formulation, buyers, and assisting product marketing                                                    |

Stakeholders at the village level

| Nr | Stakeholder                                                                 | Role                                                                                                                                 |
|----|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 19 | Village government                                                          | Coordination, facilitation, technical guidance, infrastructure support, and policy formulation                                    |
| 20 | Cooperatives                                                                | Facilitation, capital assistance, mentoring, buyers, sellers, and distribution of commodities                                                                                  |
| 21 | Farmer groups                                                               | Producer                                                                                                                                 |
| 22 | Village-owned enterprises (Badan Usaha Milik Desa/ Bumdes)                  | Facilitation, capital assistance, mentoring, buyers, sellers, and distribution of commodities                                                                                  |
| 23 | The joint business group (Kelompok Usaha Bersama/KUB) or the social forestry business group (Kelompok Usaha Perhutanan Sosial/KUPS) | Coordination, facilitation, technical guidance, infrastructure support, policy formulation, buyers, and assisting product marketing |

Other supporting stakeholders
Stakeholder mapping contains the responsibilities and interests of each stakeholder regarding their roles and duties. Furthermore, it is necessary to integrate the roles and duties of each stakeholder. Integration can be carried out through joint action regarding the development of peatland commodities and without destroying the sustainability of the peat ecosystem. The result of the study shows some potential actors to become the key players in the development of competitive commodities in peatlands (Figure 4), they are:

1) two actors at the provincial level, namely Official of Food Crops Services and Official of The Food Security,
2) five actors at the district level, i.e.: Official of Agriculture, Official of Food Crops, Official of Regional Planning and Development, Official of Trade, Cooperatives, Micro, Small and Medium Enterprises, and Official of Community and Village Empowerment,
3) one actor at the site level, namely Forest Management Unit (FMU/KPH),
4) one institution at the village level, namely the joint business group (Kelompok Usaha Bersama/KUB) or the social forestry business group (Kelompok Usaha Perhutanan Sosial/KUPS).

Figure 4. Matrix of stakeholders mapping based on the level of interest and power to the development of competitive commodities on peatlands in Pulang Pisau Regency, Central Kalimantan Provinsi
The stakeholders involved have various degrees of importance and influence. Key players play the roles in determining policies or programs that directly affect land management activities, processing, and marketing of commodities produced by the community or farmers. These stakeholders also play the role in coordination, facilitation, mentoring, technical guidance, and assisting in commodity marketing. Key players, with their vision-mission or main tasks and functions, have a high interest so that the program could run well. As one of the key players, the local governments who have the roles such as providing information and training to farmers needs to be improved. The local government should also offer training covering access to resources, administrative management, cultivation and processing technology, and marketing. Local governments should be able to create partnerships and alliances, to find synergies and complementarities for mutual support, and to devise strategies relevant to the particular conditions of their community (The Federation of Canadian Municipalities [22]).

Subjects are other stakeholders who have a high interest in the success of the creation of a food security business. These stakeholders are actors who are directly involved in the production, processing, and marketing of food produced by farmers, as well as fostering and assisting farmers. Despite having high importance, the level of influence from these stakeholders is low in terms of policy formulation and determination. These stakeholders are the implementers of various policies that have been set by the key players and context setters. It is important to support and enhance subjects’ capacity to be involved, especially when they may be affected by findings [12].

Context setters are stakeholders who have high influence in determining the direction of product development policies in the context of sustainable-peatland management. High influence can be traced from programs, policies, vision and mission, and the main tasks and functions of each stakeholder. The roles of these stakeholders include coordination, technical guidance, technical policies and capital facilitation. However, context setters do not have high importance in developing products from sustainable peatland management. This stakeholders may have a high degree of power over the future of the organization, particularly in terms of influencing the future context within which its strategies will need to operate [16].

Crowds are not directly involved in product development activities from peatlands. But without their support, this process could not run well. The crowd can be seen as potential stakeholders, although the effort involved in both raising their interest and increasing their power usually outweighs the benefits [16]. The roles of these stakeholders include planning, technical policies, licensing, investment policies, and capital assistance.

4. Conclusion
There are 27 stakeholders related to the development of superior commodities on peatlands in Pulang Pisau Regency, Central Kalimantan Province, such as the provincial, district, village, and other supporting institutions. This means that cooperation, coordination, and synergy are needed to realize the sustainability of competitive product development from the peatlands. Although in reality, it is not easy to create cooperation, coordination, and synergy, this is seen as more profitable than competition among institutions.

Based on the results of this analysis, local government stakeholders, both provincial and district governments, play an important role in becoming a leader in developing competitive products of peatland. KUB or KUPS can be the main social agents of the village to support the development of value chains for competitive products. The Village Government can form BUMDes to accommodate KUB, KUPS, or the other farmer groups in managing their business for both marketing and financing purposes.

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