

Village Based Climate Change Adaptation and Mitigation Activities Development in Indonesia: Challenges and Opportunities

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Abstract

Government funds which are distributed to village government in Indonesia by Law No. 6 Year 2014 on Village is a national policy alternative to finance development of climate change adaptation and mitigation activities. According to pilot development in several regions on agro-forestry, bio-energy development, green seaweed industry, and restoration of reservoir; they were designed on development plan in the village and regional level which interconnected to national development plan. Adaption and mitigation activities should strengthening community based green social enterprises and engaging inter-village cooperation development programs for starting up or up-scaling green businesses. It managed as activity of social enterprise, so-called Village Organization Owned Enterprise called Badan Usaha Milik Desa (*BUMDes*) or Joint Villages Organization Owned Enterprise (*BUMDes Bersama*), or as the co-operative. The government funds could be blended in such a way with other funds sources (blending finance) for developing adaptation and mitigation of climate change activities.

Keywords: community based green social enterprises, village based adaptation and mitigation of climate change, blending finance, BUMDes, BUMDes Bersama, co-operative

1. Introduction

Development in Indonesia has been expanding authority to village government for developing rural community. Through Law No. 6 Year 2014 on Village, the local community is setting to identify and manage potential resources assets and village development fund which are directly disbursed through the mechanism of government development fund and managed by village government as the bureaucratic forefront of development. In 2015, the number of village organization of all the islands in Indonesia in has been recorded to as much as 74,093 village government with diverse potential ecological villages. In Fiscal Year 2016, there were an estimated 74,754 villages (the number increase compared to 2015) going to manage the financial funds by an average amount is 1.115 billion rupiah. In the village financial allocation roadmap Year 2014-2019 are shown in the allocation of funds for village finance will increasing until 2019 (Ministry of Finance of the Republic of Indonesia, 2016). Therefore, climate change adaptation and mitigation activities need to be considering a variety of activities of village asset and financial management.

Village government should arrange the utilization of assets and village resources planning and formulate development and budget plan to gain the government funds. Village development plan need to organize development activities by sector and spatial aspect, and also apply monitoring and evaluation by village government. Initiatives of climate change mitigation and adaptation also should be included as the part of Village Medium Term Development Plan.

According to an existing arrangement, village government has a various income sources for village and inter-villages cooperation development. Sources of village government income might be derived from various sources, such as village funds, the allocation of government budget as part of the results of local taxes and levies imposed by the regency/city, allocations of fund village, financial assistance from local authorities (Articles Provincial income and Expenditure and Budget Regency/city), grants, and donations are not binding on third parties as well as the village of legitimate income. Those income sources managed to strengthen the local

economy through community based business activity either by Village Organization Owned Enterprise called *Badan Usaha Milik Desa (BUMDes)* or Joint Villages Organization Owned Enterprise (*BUMDes Bersama*).

This paper intends to show the opportunities of village government for: 1) Developing adaptation and mitigation pilot and its activities included on development plan; 2) Encouraging village government to design development plan that includes the actions of adaptation and mitigation; 3) Designing governance forms in accordance with the rules and strengthening the capacity of communities in developing adaptation and mitigation of climate change; 4) Finding how to optimize the funding to sustain those activities.

2. Method

This paper is a policy studies. The method use community-based green social enterprises approach to design governance of village government based activities of adaptation and mitigation development. Community characteristic and village government is different. Community described as rural community, while village government as the part of governmental element which has authority to organize the community. Community is a group of people living in an area and has ties to interact with each other (Hillery jr, 1955). The community identified as symptoms of organization belong to small residential population (smallness) which has an obligations and cultures in certain geographical, independent (self-sufficiency), similar among its member (homogeneity), different from one community to others (distinctiveness), and *gemeinschaft* (Redfield, 1955; Baldridge, 1986; Ife & Fiske, 2006; Tjondronegro, 1977).

Rural community can be shift as an urban society. It continues to change towards a more rational, classical theory (Tonnies, 2001). This process is accomplished in several stages starting from the awareness or the emergence of new ideas and finally changing as community which has urban society characteristic (Lewin, 1851; Lippitt, 1958; Rogers, 1983).

Community initiative government support approach tries to empower local community and institutions. The community is given a direct control for planning, decision, implementing, as well as evaluation and monitoring including investments and activities. It is done by inclusive participation and management process (Haider, 2009). Community initiative government support encourages rural community to become as urban society characteristic by involving creativity, initiative, independence and participation of community. Participation is the step for community empowerment (Mayo & Craig, 1995; Kolopaking, 2014).

Adaptation and mitigation pilot development is developed by community initiative government support approach. According to Rubin (1993), there are five basic principles that implemented for pilot development. First, every profit from activities needs to be distributed back to community for maintaining the existence. Second, community-based development needs to involve community participation from the planning to implement the activities. Third, community-based development is inseparable from capacity building and physical development. Fourth, community-based development maximizes the natural resources, especially in funding. Fifth, community-based development institutions need to be functioned as catalyst that links the government and community interests. Beside those principles, experience in some countries in Asia such as Taiwan, Thailand, and the Philippines in rural development using incorporation of technology strategies, reorganization of existing institutions and technocratic perspective (Winarno, 2003). Therefore, the pilot is developed by community. The fund provider has allocated a budget that can be used by the community and encourage community initiatives to take advantage of the budget through the proposal activities (Mansury & Rao, 2004). This mechanism is chosen due to many rural communities in Indonesia had experience with National Program for Community Empowerment from Central Government.

In order to maintain the sustainability of the pilot program, the pilot concept will be included into the village development plan and inter-villages cooperation. It applied on Focus Group Discussion (FGD) and also on the participatory training for the village officials. As a public enterprise this pilot organized as a social enterprise, known as a community-driven enterprise, not merely for profit-oriented but also bringing the benefits among society.

The development process is performed on a community-based rather than government intervention. The Government is expected to play a role as a supporter in development (supporting role). In accordance with Law No. 6 Year 2014, the central government will provide funds to villages for village development activities in order to improve the welfare of society. The funds can be managed by BUMDes or BUMDes Bersama as a form of social enterprise. Funding for climate change mitigation and adaptation activities have been widely offered by various international institutions (Boer, 2010).

Social enterprise is a new form of company, in Ireland, the socio-economic and social enterprises terms generally refer to the initiative to produce goods or services but by involving the social side, not merely aimed at obtaining profit or for commercial purposes (O'Hara, 2001). In Italy, the number of social cooperatives has been increasing since 1991. This has positive implications for employment. Therefore, the emergence of social cooperatives led indirectly to positive impact on the economy of Italy (Borzaga & Santuari, 2001). Social enterprises are at the intersection of the cooperative (the real component of the social economy) and Non-Profit Organization (NPO) (Defourny, 2001). Social enterprise is aimed to generating income and welfare of businesses and communities around site activities. Social enterprise is not only emphasized on efforts to generate profits only (strictly for profit only), but also has the benefit that empowers communities, bring the innovative solutions to communities in the face of social problems and creates welfare. Before 2014, there was no legal status of social enterprise and 200 organizations have fully character of the world concept. In Vietnam, there are 165,000 entities with activities related to social, charity, and non-profitable causes. Average social enterprise created jobs and incomes, improved living standard, and also other social and environment values. Social enterprises discover the social problems or issues lead to establish business model or activity to solve social problems or issues (Thuyen, 2015).

The first point leads to competitive advantage in business world which is changing the paradigm that put consumer in the first place and the other went after (value chain thinking). The orientation of the value chain is not started from the conditions of supply but consumer needs/market (demand pull) (Fearne et al., 2009). In this context, communities should be able to capture the needs of consumers, no longer confined to the supply-owned.

Green social enterprise approach is intended to provide a business management alternative which is considering people, planet, and profit simultaneously (mutual-empowerment economic) (Rosset & Martinez-Torres, 2014). So that, the business not only generate profit but also benefit that valuable for community and environment around the business site (green development).

To distribute funding not only refer to the supply, but also refer to a great framework that covers and conduct all business activities. It becomes a process of transfer of information and knowledge (mentoring) and funding (financing). In the context of rural development, government funds can be used to create a strong pilot project. After being a business, other sources of funding can be entered into the financial system. Therefore, the activities of mitigation and adaptation will be included into village and rural development plan in the form of proposals, called Community-Based Green Social Enterprise (CBGSE).

Location studies used as mentoring area include Bandung Regency in West Java Province, Banyu Asin Regency-South Sumatera Province, West Sumbawa Regency-West Nusa Tenggara Province, and Cianjur Regency in West Java Province. See Figure 1.

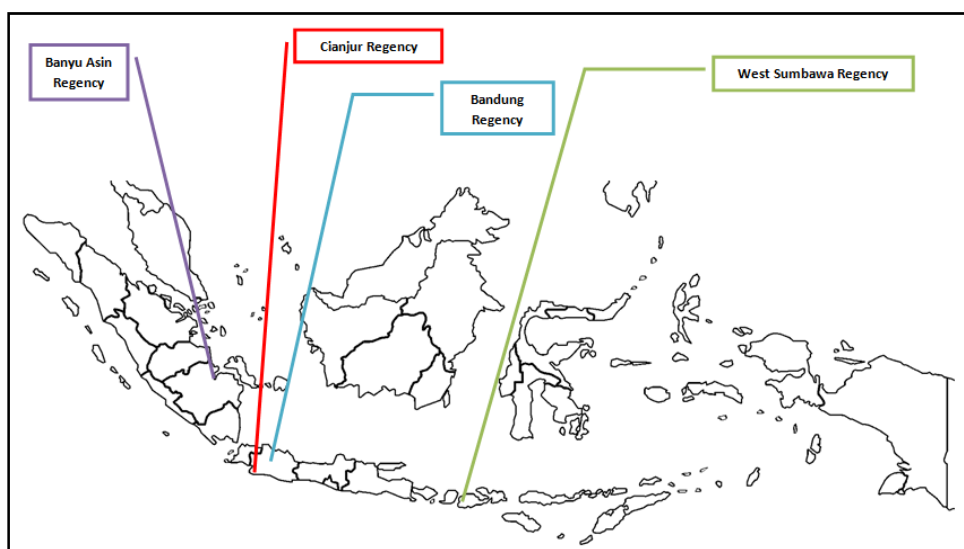


Figure 1. Four locations of adaptation and mitigation activities in Indonesia

3. Results

Arrangement of the village based activities of adaptation and mitigation development should be structured in accordance with village assets management. It is developed into a sustainable business which is expected to improve the welfare of the community. Based on the new patterns of village and rural development (Law No. 6 of 2014 concerning Villages), the village has an opportunity to conduct adaptation and mitigation activities in order to optimize the village potential to be sustainable.

3.1 *Developing Adaptation and Mitigation Pilot*

There are one mitigation and three adaptation pilot activities described above. Mitigation pilot is a reforestation of damaged areas because of cultivated horticulture in the mountains by provided timber seeds. The activity conducted through the coffee based agro-forestry model in Bandung Regency-West Java Province. While, the adaptation pilot activities include: Firstly, the development of renewable energy through biogas of animal husbandry organized by the rural community in Banyu Asin Regency-South Sumatera Province. Secondly, the upstream watershed management for flood prevention while maintaining continuous availability of water to the seaweed industry in the downstream in West Sumbawa Regency-West Nusa Tenggara Province. Thirdly, the adaptation activity is the sediments utilization of Cirata Reservoir as fertilizer to provide a timber plant seeds to be planted in the damaged upstream area around the reservoir to prevent erosion and flood in Cianjur Regency-West Java Province.

3.1.1 Coffee Based Agro-Forestry Model

Climate change mitigation activities undertaken in Pangalengan-Bandung Regency in the reforestation form of damaged areas because of cultivated horticulture by provided timber seeds, is followed by the development of luwak coffee business. This activity involves 140 farmers covering 55.3 Ha areas of 9 villages. Raw material for production activities *luwak* coffee produced by farmers gathered at the level of farmers' groups, and then distributed to the traditional markets (direct sale) and agro-industry to refine the process into a market-ready luwak coffee. The production process in every level will certainly generate by-products and waste. These products can be further processed in such a way that it can generate a profitable sale value. The production process to the utilization of by-products and waste coming into green social enterprise formed. Then the resulting product is green social enterprise on the market to market local products. Institutions are established in the form of cooperative efforts at both the production of raw material and final products.

The model built must be supported by relevant stakeholders including local governments in order for the system to run well, independently, and achieve the intended purpose (i.e., to empower local communities). The model built may synergize all parties involved in the forest namely farmers, governments, entrepreneurs, and the local community. In addition to benefiting on mitigation activities undertaken, luwak coffee production enterprises can provide economic value to local communities. Benefits of this activity include capturing carbon by changing coverage area from horticulture to wood and coffee.

3.1.2 Community Based Bio-Energy Management Model (Field School of Animal Husbandry Community)

Field School of Animal Husbandry Community originated from problems arising by shortage of national meat supplies by local breeders (30 breeders). It covers 2 ha areas in 3 villages. Local breeders do not have a strong bargaining position compared to foreign beef producers (import origin). The primary cause of poor local farmer's bargaining position is the majority local breeders are small scale and are not well managed. Bogor Agricultural University and the Ministry of Agriculture establish collaboration with the main goal of improving local breeder's welfare. The farmers should assemble their own groups (forming a community) to do business together, independently, and creating intelligent breeders, so that they can improve their welfare.

Community-Based Bio-Energy Management Model developed a utilization of waste products from the production of beef to produce bio-energy. Similar to the previous model, the process involves the production of small to large-scale enterprises. At the local community level, production outcome includes semi-finished products, by-products and waste. Institutional economics built on this level is the Inter-Owned Enterprise villages. Semi-finished products are then distributed to the larger scale slaughterhouses and meat processing industry to produce frozen beef as the primary product. Institutional effort can be either private or Inter-Owned Enterprise villages.

By-products (leather, offal, bones, etc.) and waste (manure) generated by green social enterprise will then be accommodated accordingly. Then, they are sold in the local product market. Benefit of this activity is capturing carbon through emission reduction from manure used in production activities. Management form which is

developed is village owned enterprise. This model should be supported by all parties in order to run in accordance with the rules.

3.1.3 Community of Forest Management in Up-Stream and Seaweed Industry Management Model

Forest management in upstream areas is done through reforestation activities to absorb and store water reserves. This activity involves 100 farmers covering 25 ha of 5 villages. Water management is important because it has a strong relationship with the seaweed industry in the downstream area. Similar to the model previously described, the production process in this model is divided into two tiers. First, the production process of semi-finished products of the forestry industry and the seaweed industry. Second, is the production process of the final products (furniture and *carrageenan*). The second stage of the production process, produces by-products and waste. This product can be further processed so as to have a sale value which is then marketed to local product market by green social enterprise.

Institutional business will be applied to Joint Villages Owned Enterprise for the production of semi-finished goods level. While the production level of the final product may be established in the form of Joint Villages Owned Enterprise and it is also accessible by private businesses. Benefit of this activity is Capturing carbon by saving protected forest and coastal area.

3.1.4 Restoration of Reservoir Model

Climate change adaptation activity is the sediments utilization of Cirata Reservoir as fertilizer to provide a timber seeds. The pilot activity invites rural community to planting a timber seeds in the damaged upstream area around the reservoir. This activity involves 25 farmers covering 2 ha areas in 2 villages. The farmers take sediments on reservoir to be supplied to the sediments processing industry. Then the processed sediment products are marketed directly by the farmer groups to local markets or distributed to the processing industry and green fertilizer cooperative.

The production process will produce by-products and waste. The production stage of semi-finished products, may lead to the development of local varieties of rice seed business. Business institution suitable for development is either cooperative or Village Owned Enterprise. Whereas at this stage of the final goods production, by-products generated are distributed to the green social enterprise. Business institutions established at this stage is Joint Villages Owned Enterprise. The products produced by green social enterprise marketed to market local products. The system in this model must be supported by all parties involved. Benefit of this activity is capturing carbon by saving protected forest and coastal area.

There are four adaptation and mitigation activities described above, the forms of business organization which are applicable in villages or rural areas are: cooperatives, BUMDes, or BUMDes Bersama. This is described in Table 1.

Table 1. Forms of business institution in village and rural area

	River Basin			
	Citarum, Regency	Bandung Regency	Banyu Asin, Banyu Asin Regency	Brang Rea, West Sumbawa Regency
Type	Mitigation	Adaptation	Adaptation	Adaptation
Activity	Agro-forestry	Community Based Bio-energy Management	Forestry Maintenance in Water Upstream and Seaweed Industry Management	Restoration of Reservoir
Activity's Scale	9 villages	3 villages	5 villages	2 villages
Area	55.3 ha	2 ha	25 ha	26 ha
Management Form	Cooperative	Village Owned Enterprise	Joint Villages Owned Enterprise	Joint Villages Owned Enterprise
The number of people involved	140 farmers	30 breeder	100 farmers	43 farmers
Benefit	Capturing carbon by changing coverage area from horticulture	Capturing carbon by reducing emission from manure which is used to productive activities	Capturing carbon by saving protected forest and coastal area	Capturing carbon by using sediment as fertilizer for

to wood and coffee

reforestation and
reducing
community
pressure on forest

3.2 Village Based Development Plan

Adaptation and mitigation pilot development is developed either by community initiative government support approach or CSR Fund. Sustainability of the pilot plan is included into the village development plan. Medium-Term Development Plan is arranged by village government including the utilization of assets and village resources planning, development activities by sector and spatial aspect organizing, as well as monitoring and evaluation applying. Then, the Medium-Term Development Plan is arranged annual Village Development Work and Budget Plan.

This plan is forwarded to the rural area level. Rural area is an area consisting of several villages borders directly to each other in one district. Area development plan includes: 1) Participatory spatial plan; 2) Inter-villages growth center; 3) Community capacity development; 4) Institutional and economic partnership; and 5) Inter-villages infrastructure construction.

Furthermore, it is forwarded to the regional development and budget plan until action plan in accordance with regional spatial plan. At the district level, there are stakeholders forum consisting of government and private sector connected with the rural area. The formation of this forum aims to improve the quality stakeholder's communication, so that the plan might include all parties and properly implemented. This plan is forwarded to the central government level. This explanation can be seen in Figure 2.

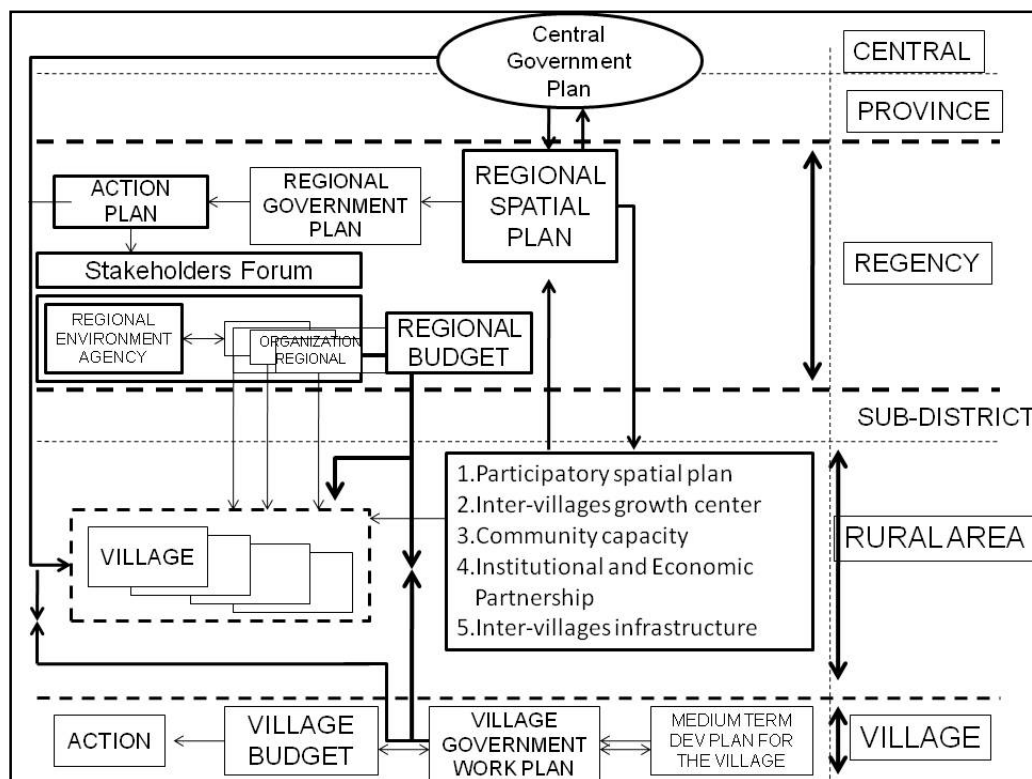


Figure 2. Connected development planning

3.3 Community-Based Green Social Enterprise (CBGSE)

To initiate village based climate change activities, community empowerment is needed to establish CBGSE. Thus, CBGSE is expected to bring communities initiatives in response to any opportunities for village development.

Communities that exist in the villages around the river basin are expected to make changes in order to become more independent and more active than before. Thus, the ideas that are owned by the communities can enter into the village or rural development planning. Changing is not short and easy process but it does not mean that it cannot be done, but rather it needs more support from all the parties concerned. In addition to internal changes in the community, this community is expected to be one example or driver of the village to support village or rural development.

The adaptation and mitigation activities of climate change in the villages around the river basin can be used for village development programs or inter-villages cooperation. In accordance with Law No 6 Year 2014 on the village, the village development aims to improve the welfare of rural communities and the quality of life and reduce poverty through the fulfillment of basic needs, rural infrastructure development, local economic potential development, as well as the utilization of natural resources and the environment in sustainable manner, meanwhile one of the inter-villages cooperation activities in the Law is the development of joint venture owned by the village to achieve competitive economic value.

Then, the activities are designed through the strengthening of the value chains of community based green social enterprise. Then, the activities are designed through the strengthening of the value chain green economy efforts of the community. The value chain is a set of collective activities (inbound logistics, operations, outbound logistics, marketing and sales as well as services) and support activities (infrastructure companies, human resource management, technology development and the effort to obtain it) (Porter, 1985). Green social enterprise in this case is defined as a business based on sustainable development which is in practice can improve human well-being and social equity, as well as to reduce the risk to the environment significantly. Thus strengthening the value chains of community-based green social enterprise can be defined as the strengthening of the primary activities and support activities of a business managed by the community based on sustainable development which is in practice can improve human well-being and social equity, as well as to reduce the risk to the environment (Figure 3).

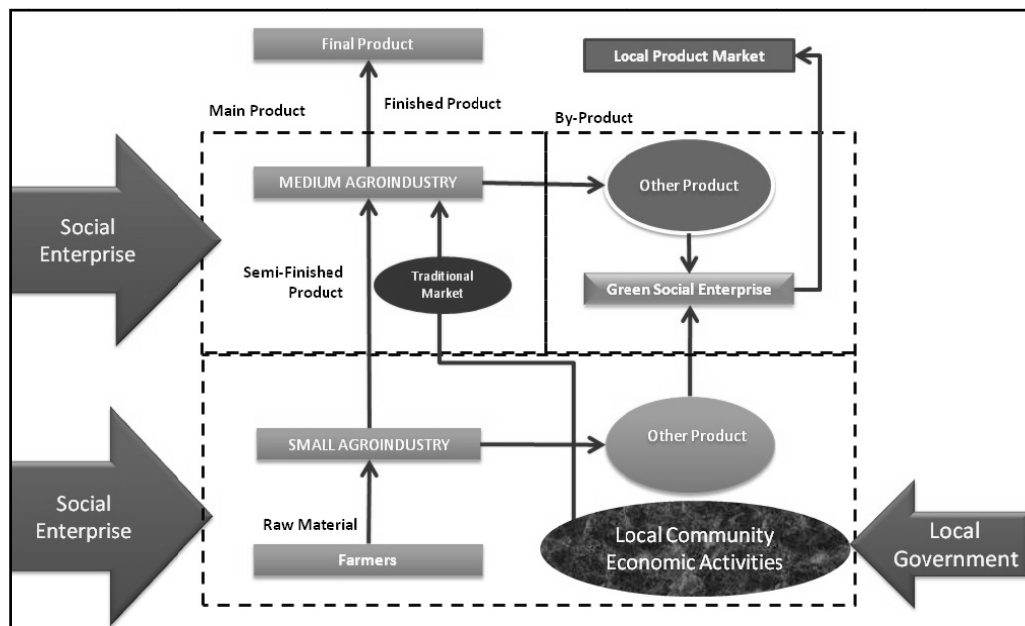


Figure 3. Value chains of community-based green social enterprise

Communities that do these activities can make better planning and include more details, therefore they are able to give clear information to the public and other relevant stakeholders. Moreover, these activities are expected to be a business/business community that is capable to improve community's welfare. Therefore, establishment of business must have the force of law.

Law No 6/2014 on the village of Article 87 states that the village may establish village owned enterprises backed by the spirit of brotherhood and mutual cooperation for the welfare of rural communities. In the Regulation of Minister of Rural Development, Disadvantaged Regions, and Transmigration (*Permendes*) No. 4 Year 2015 on the Establishment, Management and Administration, and Dissolution of the village owned enterprises Article 2 states that the establishment village-owned enterprises intended as an attempt to accommodate all the activities in the field of economic and/or public services managed by the village and/inter-village cooperation which is stated in Village and /Inter-village Regulation.

Meanwhile, Article 6 states that in order for inter-village cooperation and inter-village service to be transformed into inter-villages owned enterprises that belong to two or more villages are set in the Joint Rules of Village Chief. One purpose of the village-owned enterprises establishment in the Law and *Permendes* is to improve the welfare of communities. This is to illustrate that the purpose of the village-owned enterprises establishment is not only to generate a profit but also to attain the benefits that can empower communities. This is in line with the objectives of the social enterprises.

Social enterprise approach is used to define BUMDes, which is not only profit-oriented as business endeavor as usual but also the social benefits (NPO activities) that they provide for community and environment around the business site. BUMDes is owned and managed by village government using village assets to generate profit which is used for community needs. Professionals are hired by village government to manage BUMDes business unit. BUMDes funds are provided from various sources, such as *dana desa*, CSR funding, bank, and international funding.

One of community-based activities which were conducted by Center for Agricultural and Rural Development Studies IPB in collaboration with the Ministry of Home Affairs is to facilitate the implementation of Community Training in Community-Based Rural Development. The training is divided into three stages, namely the Year I, Year II and Year III. These stages including, socialization of Community-Based Rural Development policy, Community Empowerment Cadre preparation for Community-Based Rural Development, up to the formation of PKPBM forum on the proposed inter-village level included in the Rural Areas Development Plan. This activity has involved 51 regencies in Indonesia.

3.4 Financial Institution Funding Mechanism

Based on the Village Law and the institutional business that has been described, recommendations have been made on the mechanisms on where the use of village funds have to be mixed with funds from other sources (blending finance) as a source of financing the economy to strengthen the capacity of communities in developing adaptation and mitigation of climate change. Sources of income in the village as stipulated by the Village Law, include among others: 1) Own-source revenue; 2) The allocation of the State Budget (APBN); 3) Part of the results of local taxes and charges levied by Regencies/Cities; 4) The allocation of village funds that are part of the equalization funds received by Regency/City; 5) Financial assistance from the Regional Budget (APBD) Regency/City; 6) Non-binding third party grants and donations; 7) other legitimate income of the village.

The fund sources of climate change mitigation and adaptation above includes CSR and local government. The source of mitigation pilot fund originates from CSR and local government. The source of first adaptation pilot fund originates from government and local government. The second adaptation pilot funding sources are from government, local government, and CSR. The third adaptation pilot funding sources are from CSR and government. The Fund Sources of Mitigation and Adaptation Pilot are described on Table 2.

Table 2. The fund sources of mitigation and adaptation pilot

	River Basin			
	Citarum, Bandung Regency	Banyu Asin, Banyu Asin Regency	Brang Rea, West Sumbawa Regency	Citarum, Cianjur Regency
Type	Mitigation	Adaptation	Adaptation	Adaptation
Activity	Agro-forestry	Community Based Bio-energy Management	Forestry Maintenance in Water Upstream and Seaweed Industry Management	Restoration of Reservoir
Activity's Scale	9 villages	3 villages	5 villages	2 villages
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Benefit	Capturing carbon by changing coverage area from horticulture to wood and coffee	Capturing carbon by reducing emission from manure which is used to productive activities	Capturing carbon by saving protected forest and coastal area	Capturing carbon by using sediment as fertilizer for reforestation and reducing community pressure on forest
Fund	<ul style="list-style-type: none"> • CSR • Local government 	<ul style="list-style-type: none"> • Government • Local government 	<ul style="list-style-type: none"> • Government • Local government • CSR 	<ul style="list-style-type: none"> • CSR • Government

The mitigation and adaptation activities of climate change can be incorporated into the village or rural planning program through cooperatives, village owned enterprises or joint villages owned enterprises so that they can utilize a variety of funding sources, such as village funds, the state budget, provincial/regional budget, and other legal funds. The village funds committed by the government are around IDR 110 trillion, calculated from the number of villages (74,045). The funding amount is very significant and there are potential funding opportunities to be used by the community in conducting mitigation and adaptation of climate change activities. After implementing the activities and in case of the need to increase the business scale, then another activity planning is prepared in order to attract other funding sources, including CSR funds and funds from international sources. Therefore more source of funds available for the communities to implement activities that support the development of villages and rural areas. Based on the pilot experience known financing scheme that allows developed can be seen in Figure 4.

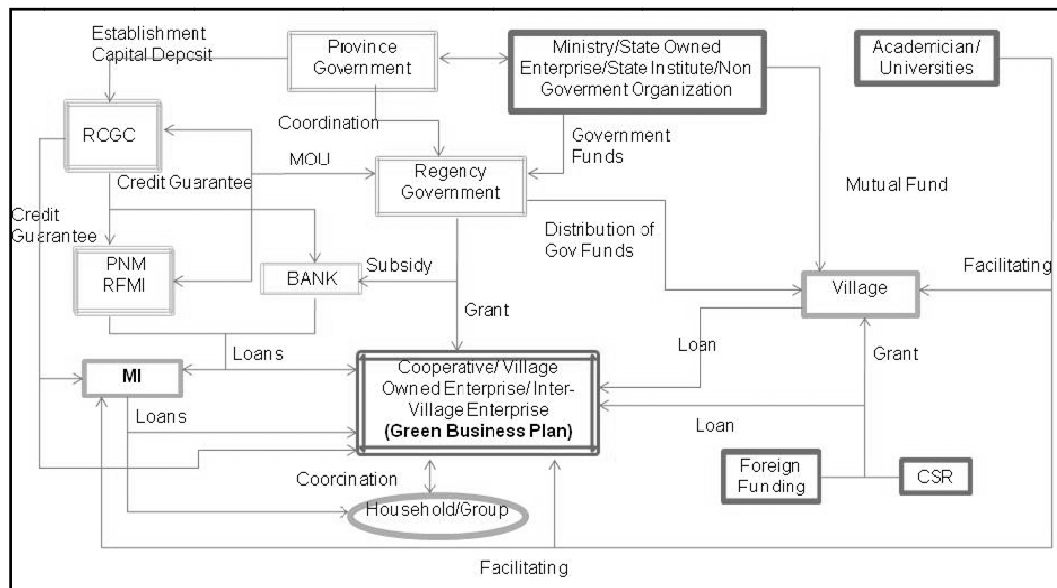


Figure 4. Economic-funding scheme which empowers the communities

Notes:

- RCGC: Regional Credit Guarantee Company.
- MI: Microfinance Institutions.
- PNM: PT Permodalan Nasional Madani (Persero).
- RFMI: Revolving Fund Management Institution-Cooperatives and Micro, Small & Medium Enterprises.

4. Discussion

Pilot development should be approached through a participatory approach in which the initiations of the community successfully got local government support. Pilot sustainability is maintained through entering the pilot ideas into development and budget plan from the village up to the central level. Community must take the initiatives and find ways to make the activities of mitigation and adaptation into village or inter-village development program.

The pilot activities should be developed into a business through Community-Based Green Social Enterprise (CBGSE). It can be defined as the strengthening of the primary activities and support activities of businesses managed by the community based on sustainable development. In reality it has the potential to improve human welfare and social equity, as well as to reduce the risk to the environment. These activities are expected to be a business community which may lead to the improvement of people's welfare. The establishment made must have the force of law. Forms of business entities which are applicable in village and rural areas may be in the forms of cooperatives, Village-Owned Enterprise, or Joint Village Owned Enterprise. This is in accordance with existing regulations.

Funding scheme can be developed might be hybrid and blending finance. Until now, the central government has been transferring funds to the village of 100 trillion. However, there is a tendency village became depends on the provision of funds. Therefore, adaptation and mitigation of climate change activities is becoming the business community who utilize the funds that go into the village to reduce the dependency of financing of village development only from government funds.

Future plans have been designed by the State Universities in Indonesia through a joint movement or studies, exchanging experience by various parties in developing villages and rural areas. By following the new development patterns (Law No. 6 of 2014 on Village), this movement will be encouraged to include the mitigating and adaptation activities as well as rural development. Furthermore, the forum is expected to have agents that will encourage villages to include mitigation and adaptation program in village planning activities on ongoing village programs. IT-based village network forum is established to facilitate the communication and sharing of information among members of the forum across distance and time. The next step is to utilize the

funding allocated to the village for the activities of adaptation and mitigation that goes into the planning of the village which is made possible in accordance to the rules as part of an effort of village and rural development.

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