



# Policy in Community-Based Environmental Conservation and Protection: A Comparative Study Between Brazil and Indonesia

**Diah Fitri Ekarini<sup>1</sup>**

School of Environmental Sciences, Universitas Indonesia, Jakarta, Indonesia

**Raldi H. S. Koestoer**

School of Environmental Sciences, Universitas Indonesia, Jakarta, Indonesia

Received : 6 July 2021

Accepted : 22 November 2021

Available Online : 30 April 2022

**Abstract:** Community-based environmental conservation and protection is one form of decentralization in the management of an area. Community-based initiatives are considered a sustainable collaborative alternative. The implementation of community-based initiatives can be found in various countries, such as the Voluntary Environmental Agents (VEA) in Amazon, Brazil and Social Forestry (SF) in Indonesia. This study aims to review the lessons learned from the CBC successful practice of VEA Program in Amazon, Brazil; determine whether these lessons can be adapted to enhance the positive impact of SF implementation in Indonesia, and; formulate relevant recommendations for SF implementation in Indonesia. A qualitative approach with descriptive-comparative method on references that are relevant to VEA and SF implementation was used in this study. There are several conditions that contribute to the successful VEA implementation: strengthening of local community initiatives, institutions, and capacities; formalization of community-based conservation schemes with supportive regulations; effective control system of the state; continuous support from external institutions, and; continuous and independent financing of activities. These conditions are relevant to be implemented in Indonesia. There is a fundamental difference between the implementation of VEA in Brazil and SF in Indonesia. Community-based initiatives in Brazil prioritized environmental sustainability to be able to “leverage” community’s economic and social sustainability in long term, while practices in Indonesia did not reflect this. This is illustrated by: lack of public awareness and concern for long-term environmental sustainability; negative impacts on the environment from SF implementation, and; vision of SF implementation which tends to be based on short-term targets.

**Keywords:** community-based; conservation; environmental protection; social forestry; Voluntary Environmental Agents

## Introduction

The concept of decentralization in natural resource management provides a “bottom-up” collaborative structure that is important for conservation efforts and

---

<sup>1</sup> Corresponding Author: School of Environmental Sciences, Universitas Indonesia, Jakarta, Indonesia  
Email: diahfitriekarini@gmail.com

enhanced area protection (Berkes, 2004). The initiatives balance the needs, empowerment, and cultural values of local communities with the preservation of nature integrity (Hockings et al., 2006). The participation of local communities and institutions in environmental conservation and protection becomes an economically viable and environmentally sustainable alternative (Ruiz-Mallén & Corbera, 2013).

Community-based conservation (CBC) initiatives have been implemented by communities in various countries around the world. One of the best practices from the CBC initiatives can be found in Amazon, Brazil, a home for numerous endemic and endangered species. A study published by Franco et al. (2021) emphasized the factors that determine the success of the Voluntary Environmental Agents (VEA) Program, a community-based environmental protection system in Amazon, Brazil. The VEA Program has been implemented for 25 years and proved its successful implementation in the area. The program is based on territorial monitoring, as well as sustainable use of areas and natural resources.

In Indonesia, CBC initiatives that have been legitimized by regulations and legal system can be found in the form of Social Forestry (SF) schemes. SF is a sustainable forest management system carried out by local communities or customary law communities as the main actors to improve their welfare, environmental balance, and socio-cultural dynamics in state forest areas or private forest/customary forests (Minister of Environment and Forestry Regulation No. 83 of 2016). SF is still facing various challenges and obstacles in its implementation. Despite its positive impact on social-economy aspects, SF implementation has inevitably negative impact on the environment (Putraditama et al., 2019).

There are publications which cover various topic related to the implementation of SF schemes in Indonesia, such as the environmental, social, and economy impacts of the specific SF implementation in Indonesia (De Royer et al., 2018; Kuncoro & Cahyani, 2018; Putraditama et al., 2019; Ruchyansyah et al., 2018; Safe'i et al., 2018; Wulandari & Inoue, 2018; Yustika et al., 2019); the policy analysis (Sahide et al., 2020). However, there are still few studies which concern on reflecting and comparing the SF implementation in Indonesia to other successful CBC implementation in other countries. The successful CBC implementation in other countries may give lessons that can be learned and implemented in Indonesia's SF. Factors to leverage the positive impact of CBC implementation need to be identified and taken into account to the existing strategy and policy. Therefore, this study aims to review the lessons-learned from the VEA Program implementation as one of the successful CBC practices in Amazon, Brazil; determine whether these points can be adapted to increase the positive impact of SF implementation in Indonesia, and formulate relevant recommendations to be implemented in Indonesia.

### Research Methods

A qualitative approach with descriptive-comparative method was used in this study. The main data and information used in this study were obtained from the literature study using relevant references. The relevant references used were consisting of previously published studies as well as regulations and policies related to CBC initiatives in Brazil (VEA Program) and Indonesia (SF schemes). Information on the VEA Program implementation and regulations in Brazil was mainly obtained from the findings of Franco et al. (2021) with supporting information from Koziell & Inoue (2006). Information on the SF schemes implementation and regulations in Indonesia was mainly obtained from the findings of Rakatama & Pandit (2020) with supporting information from Ekawati et al. (2020) as well as other relevant studies and regulations.

The analysis in this study was conducted descriptively for the information on CBC initiatives in Brazil (VEA Program) and Indonesia (SF scheme). The analysis focused on the factors contributing to the successful implementation of VEA Program in Brazil, also the strengths and weaknesses of VEA Program implementation. Based on these points, the lessons learned from the implementation of VEA Program in Brazil were reflected to the implementation of SF schemes in Indonesia. The recommendation to leverage positive impact of SF implementation in Indonesia (in form of concrete steps) then was formulated.

## Results and Discussions

### *CBC Practices in Amazon, Brazil: Voluntary Environmental Agents (VEA) Program Based on Franco et al. (2021)*

Since 1995, the Voluntary Environmental Agents (VEA) program has been implemented as one of the alternatives proposed to overcome budget and personnel limitations in environmental protection efforts in the Amazonia PAs, Brazil. The VEA Program enables communities to voluntarily undertake supervision, social mobilization, environmental education, leadership training, and conflict mediation. The VEA Program was introduced for the first time in two PAs: MSDR (11,240 km<sup>2</sup>) and ASDR (23,500 km<sup>2</sup>) in the Central Amazon. There are ±16,750 people in 344 settlements inside and around the two PAs. The primary economic and livelihood activities conducted by the communities around the area include fishing, hunting, farming, utilization of non-timber products, and logging.

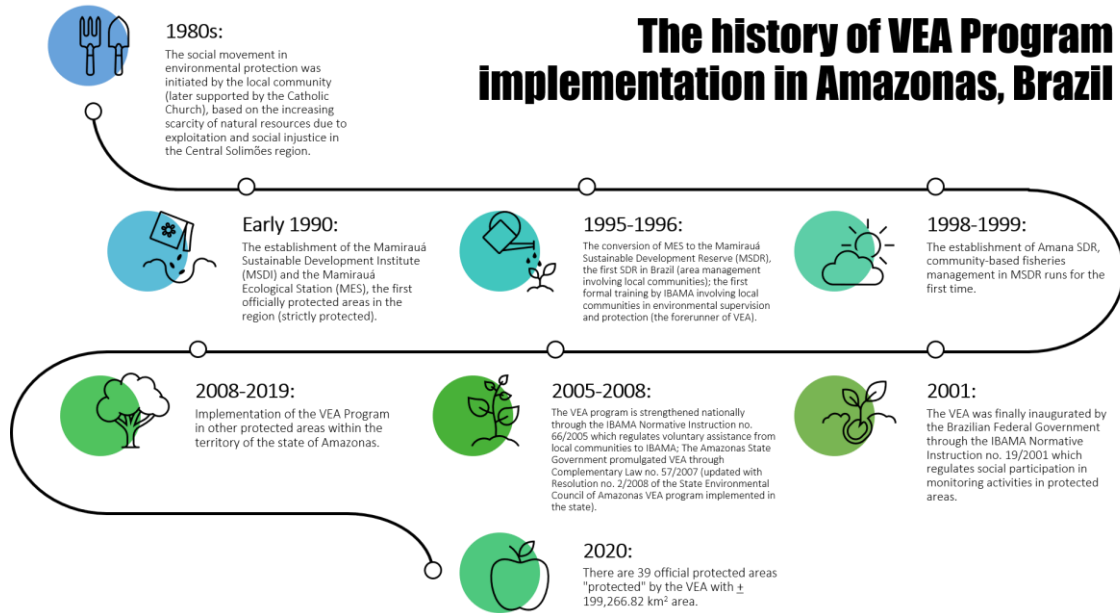
Franco et al. (2021) identified 13 legal documents in the federal and state levels that are relevant to community-based environmental protection in the Amazon, Brazil (Table 1), based on data gathered between 1995 and 2020. Reference documents also show that environmental protection in the Central Solimões (the origin of the MSDR and ASDR) dates back to the 1980s. This action is based on a social movement initiated by the local community, which is guided by the community's perception of rising scarcity of natural resources as a result of arapaima fish, crocodiles, and timber unsustainable exploitation, as well as social inequality in the area. Figure 1 depicts the timeline of VEA implementation in Amazonas, Brazil up to 2020.

Based on Franco et al. (2021), in 1995, the VEA Program implemented in only two MSDR sectors, covering an area of 798 km<sup>2</sup>. In 2020, the total of area which protected by VEA in the Amazon, Brazil, was 8,879.3 km<sup>2</sup> (Figure 2). There has been an increase in the area protected by VEA by 1,012.6% since 1995. Implementation of VEA Program in MSDR and ASDR has always been supported by IBAMA's local executive management, at least until 2011, when the local executive's term ended. This decline in government control and supervision ability led to a reduction in official environmental protection measures. This, however, did not jeopardize the sustainability and consolidation of VEA Program's implementation in new areas. Currently, 13 fisheries projects, 10 forest projects, one crocodile project, and one tourism project are managed by communities in VEA-protected areas around the MSDR and ASDR. Between 1992 and 1999, VEA is also known to have helped to the reduction of illegal logging (25.7% reduction) in the MSDR. The majority of the above-mentioned community-based management systems may provide full or partial support for VEA activities. This component is very crucial to the success and sustainability of program implementation.

**Table 1. List of Relevant Legal Instruments on the VEA Program Implementation in Amazon, Brazil**

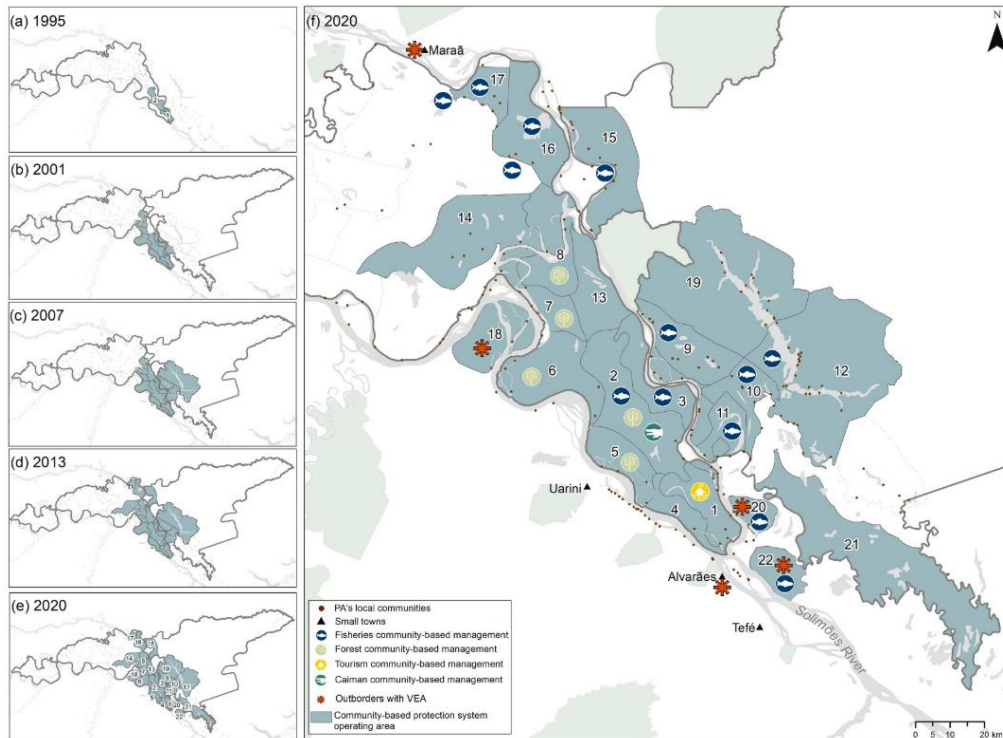
Year	Legal Instrument	Provisions	Governing Body	Administrative Level
1988	Brazilian Federal Constitution	Provides about the responsibility of the government and society to defend and preserve the environment (Article 225)	Federal Government of Brazil	Federal
1988	Resolution No. 03 (March 16, 1988)	Provides about social participation in the protection of natural resources through environmental efforts	National Environment Council (CONAMA)	Federal
1990	Decree No. 12.836 (September 03, 1990)	Creates the Mamirauá Ecological Station, which would be recategorized in Mamirauá SDR in 1996	Amazonas State Government	State
1998	Decree No. (April 08, 1998)	Creates the Amanã SDR	Amazonas State Government	State
1998	Law No. 9608 (February 18, 1998)	Provides about voluntary services in Brazil	Federal Government of Brazil	Federal
1998	Law No. 9605 (December 02, 1998)	Deals with the possibility of anyone detecting an environmental violation and reporting it to the environmental authorities	Federal Government of Brazil	Federal
2000	Law No. 9985 (July 18, 2000)	Establishes the National System of Conservation Units	Federal Government of Brazil	Federal
2001	Normative Instruction No. 19 (May 11, 2001)	Creates the Voluntary Environmental Agent category at the federal level	Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA)	Federal
2005	Normative Instruction No. 66 (December 05, 2005)	Creates the Voluntary Environmental Agents Program at the federal level	IBAMA	Federal
2005	Ordinance No. 19 (January 21, 2005)	Regulates voluntary actions within Protected Areas in Brazil	Ministry of Environment (MMA)	Federal
2007	Complementary Law No. 57 (May 06, 2007)	Created the State System of Conservation Units in Amazonas state and defines the Voluntary Environmental Agent category at the state level	Amazonas State Government	State
2008	Resolution No. 02 (September 26, 2008)	Creates the Voluntary Environmental Agents Program at the state level in Amazonas state	State Council for the Environment (CEMA/AM)	State
2013	Normative Instruction No. 09 (November 22, 2013)	Ceases the Voluntary Environmental Agents Program at the federal level	IBAMA	Federal

Source: Franco et al. (2021)



Source: Modified from Franco et al. (2021)

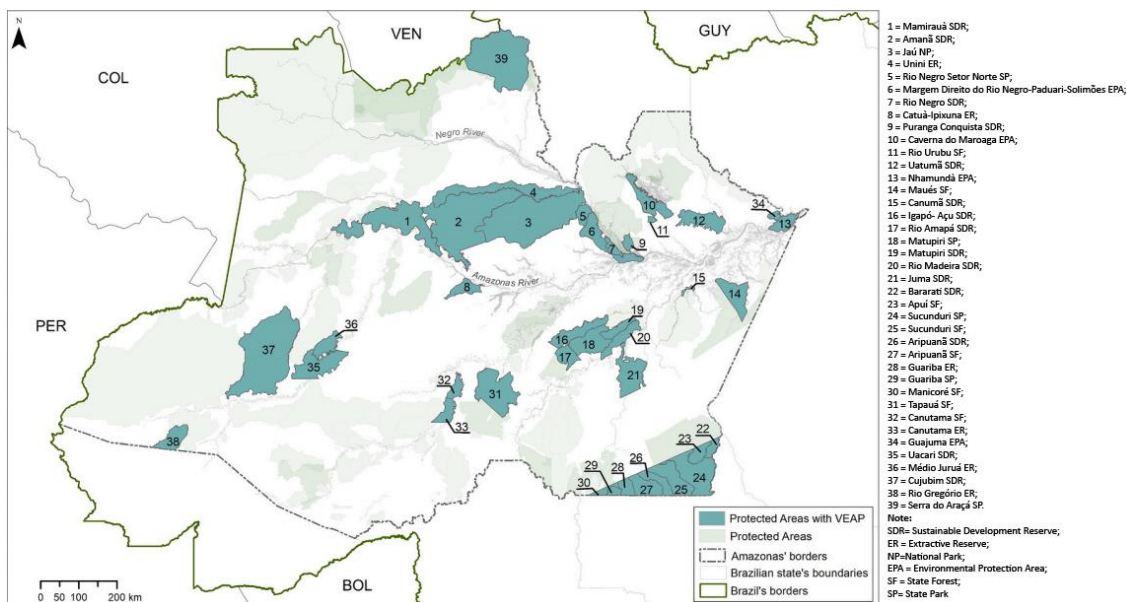
**Figure 1. The History of VEA Program Implementation in Amazonas, Brazil**



Source: Franco et al. (2021)

**Figure 2. Territorial Expansion of VEA Program in and around MSDR and ASDR, Amazon, Brazil, between 1995-2020**

The VEA Program was recorded to have been implemented in 37 new PAs (in addition to MSDR and ASDR) between 2008 and 2019. The VEA officially protects a total of 39 PAs. As of 2020, VEA was operating across a 199,266.82 km<sup>2</sup> area in the Amazon (Figure 3), where it preserves numerous habitats and species, also supports several of community-based resource management projects. The program encompasses hundreds of rural communities and touches thousands of local people's lives, showing rapid and successful expansion in 25 years.



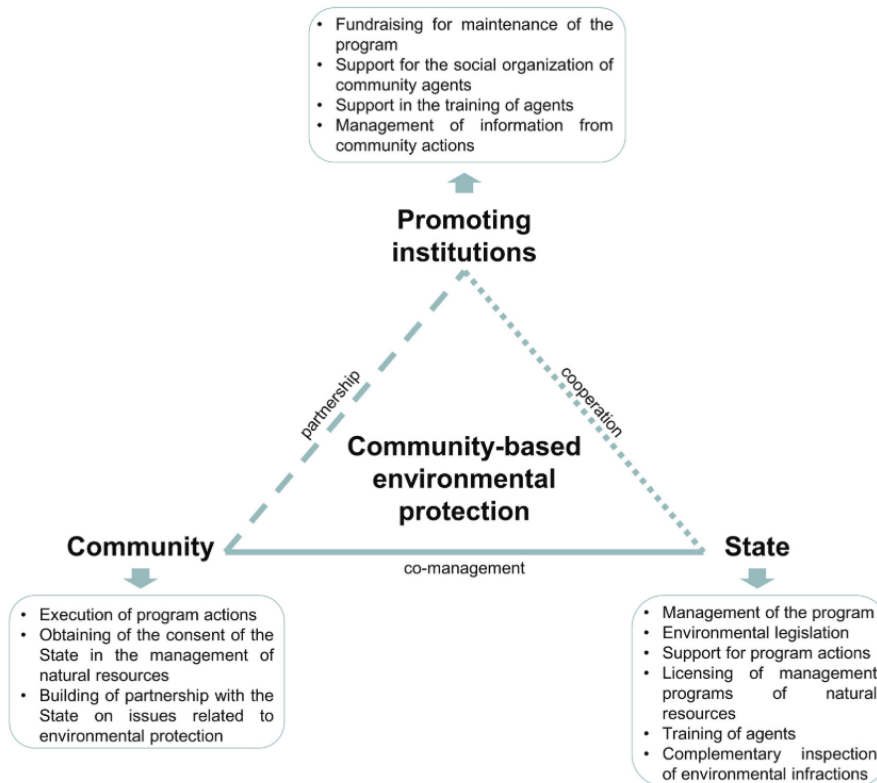
Source: Franco et al. (2021)

**Figure 3. PAs Implemented the VEA Program up to 2020 in Amazonas**

Several important learning points can be drawn from the successful implementation of VEA Program as one of the community-based conservation initiatives in the Amazon, Brazil, namely: (1) in Central Amazonia, collective efforts by local communities to protect natural resources began some 40 years ago, before legal regulations related to community-based conservation were enacted. This demonstrates the need of local community motivation and initiative in the effective implementation of environmental protection for proper subsistence management and extractive activities; (2) gender diversification is crucial to the success of VEA Program. At the start of VEA implementation, men outnumbered women and just a handful were indigenous people. Women and indigenous peoples got more involved in the VEA Program once it was fully regulated by the state of Amazonas. The key benefit of this gender diversification is the wider dissemination of VEA Program's aims in everyday places where women dominate; (3) the supportive regulations at various levels regarding to the VEA implementation was identified as another important factor. Regulations related to environmental protection have shown to be an effective means of legitimizing local demands and promoting better gender and ethnic equality in management; (4) community empowerment has developed a condition for local communities to strengthen their territories (through appropriation and access control), as well as increased compliance with management agreement rules. The development of "social ownership" in the VEA Program is fundamental to guaranteeing effective governance; (5) the participation from other governmental and non-governmental

institutions is essential. Throughout the history of MSDR and ASDR, communities have received support in developing protection systems and channelling demands for official regulation from the Catholic Church and local social organizations. Support from the Mamirauá Sustainable Development Institute (MSDI) as well as affiliated NGOs as external institutions is crucial, particularly in providing the financial resources required for the VEA Program’s operation and capacity building of VEA members; and (6) another important aspect for the success of this initiative is sustainable funding for community-based protections. To maintain regulatory compliance, resource resilience, and territorial integrity, community-based joint resource management activities necessitate effective environmental protection efforts. Although funding for protection activities was first acquired from external institutions, funding for the protection of PAs was later obtained through community-based resource management programs. The community-based management systems play a major role in increasing local people livelihood and providing sustainable environmental and socioeconomic benefits.

Community-based initiatives are an effective way to enact regulations for the use and protection of areas and natural resources, as well as to legitimate the local communities’ concerns. In the state of Amazonas, Brazil, the VEA Program is a successful legal-backed initiative for community-based natural resource protection and management. VEA Programs occur in multilevel governance, where the parties who compose it come from various social circles and act at different levels of organization and region (Figure 4).



Source: Franco et al. (2021)

**Figure 4. Institutional Framework of Community-Based Environmental Protection and Conservation**

### ***Strengths and Weaknesses of VEA Program as one of CBC Practices in Brazil***

From the VEA Program implementation as one of the community-based conservation practices in Brazil, Franco et al, (2021) succeeded in formulating recommendations in the form of generating enabling factors for community-based conservation, namely: (1) strengthening local community initiatives, institutions, and capacities in environmental conservation efforts; (2) formalization of community-based conservation schemes with the establishment of supportive regulations; (3) effective control system of the state; (4) continuous support from external institutions outside the government for capacity building of local communities; and (5) continuous and independent financing of activities from community-based resource management programs. These enabling factors are claimed can be replicated in any area that is managed collaboratively throughout the world, with the main condition: it has been adapted to the specific condition of the local context in each area.

According to the findings, the practice of community-based conservation in Brazil, in this context is the VEA Program, has prioritized the aspect of “sustainable environmental protection” in order to “leverage” the social and economic aspects of the community. The strong motivation, initiative, and awareness of the community in environmental protection and conservation contributed significantly to the sustainability of VEA Program in Amazonas, Brazil. However, behind the success story of its implementation, the VEA Program faced a classic and typical challenge (Koziell & Inoue, 2006), which is the lack of support from the government (particularly the Amazonas State Government), in the form of financial support and infrastructure or facilities for the more sustainable activity implementation. It is known that the funding for the operation of VEA Program (in the form of reimbursement for transportation costs and daily wages for agents conducting surveillance in PAs) initially provided by MSDI and some related NGOs, which when the support period expired, was later met by a resource management program implemented by local communities, such as fisheries management, forestry, or ecotourism. Although the community self-funding has proven to be capable of meeting the operational costs of VEA Program (and even contributing positively to the livelihoods of local communities), a solution to the problem of procuring supporting infrastructure (which incidentally requires a large amount of money) for the effective implementation of VEA Program in field, has not been found.

In field, the VEA does not have the legal power to directly “handle” environmental crime actors and is only responsible for the vigilance, recognition, and interception of perpetrators, while the legal procedures must still be carried out by the authorities. Meanwhile, the distance between the PAs and the nearest police station is quite far and can only be traversed using certain transportation mode. This is what makes supporting infrastructure, such as radio communications and fast boats, very much-needed for the effectiveness implementation of VEA Program. A locally sourced and managed system of VEA is likely to prevent “small scale” environmental crimes, however, it is unlikely that the VEA system will be able to prevent environmental crimes on a larger scale. Therefore, proper support from the government, authorities, and stakeholders at higher levels is required.

### ***CBC Practices in Indonesia: “Perhutanan Sosial” (Social Forestry)***

One form of community-based conservation that has been legitimized by regulations and the legal system in Indonesia is the Social Forestry (SF) schemes. The SF schemes implementation in Indonesia is based on several regulations (Table 2), with the Minister of Environment and Forestry Regulation No. 83 of 2016 concerning Social Forestry as the main regulation. Based on that regulation, SF is a sustainable forest management system



carried out by local communities or customary law communities as the main actors to improve their welfare, environmental balance, and socio-cultural dynamics in state forest areas or private forest/customary forests. The three main principles of SF, namely rights, livelihoods, and conservation (Maryudi et al., 2012), must be considered to ensure that the SF implementation in Indonesia can improve the community welfare while at the same time maintaining forest sustainability (Ekawati et al., 2020).

**Table 2. List of Relevant Legal Instruments on the SF Program Implementation in Indonesia**

No.	Legal Instrument	Relevancy with SF implementation	Stakeholders
1	Act No. 5/1990 concerning Conservation of Biological Natural Resources and Ecosystems	Describe the legal provisions of: <ul style="list-style-type: none"> <li>• The importance of conserving biological natural resources and their ecosystems</li> <li>• Responsibilities and obligations for conservation of biological natural resources by the Government and communities</li> <li>• Implementation of conservation of natural resources and ecosystems</li> </ul>	Government (Central and Regional), Private Sectors, Communities
2	Act No. 5/1994 concerning Ratification of the UN Convention on Biological Diversity	Describe the legal provisions of: <ul style="list-style-type: none"> <li>• Recognition that Indonesia cares about biodiversity issues</li> <li>• Increased conservation efforts to protect the diversity of germplasm, species, and ecosystems</li> <li>• The importance of the role of communities to keep the preservation of environment in each social-economic activity</li> </ul>	Government (Central and Regional), Private Sectors, Communities
3	Act No. 41/1999 jo Act No. 19/2004 concerning Forestry	Describe the legal provisions of: <ul style="list-style-type: none"> <li>• Forestry management</li> <li>• Forest control</li> <li>• Forest status and function</li> <li>• Forest management (including forest protection and nature conservation)</li> <li>• Community participation in forestry management (including the obligations to participate as well as maintaining and keeping the area of forest)</li> </ul>	Government (Central and Regional), Private Sectors (NGOs, etc.), Communities
4	Government Regulation No. 7/1999 concerning Preservation of Wild Plant and Animal Species	Describe the legal provisions of: <ul style="list-style-type: none"> <li>• The purpose of preserving plant and animal species</li> <li>• Efforts to preserve plant and animal species</li> <li>• Determination of plant and animal species (protected and not protected)</li> <li>• Protected plant and animal species</li> </ul>	Government (Central and Regional), Private Sectors, Communities
5	Government Regulation No. 8/1999 concerning Utilization of Wild Plant and Animal Species	Describe the legal provisions of the implementation of utilizing wild plant and animal	Government (via MoEF), Private Sectors, Communities
6	Government Regulation No. 45/2004 jo Government Regulation No. 60/2009 concerning Forest Protection	Describe the legal provisions of: <ul style="list-style-type: none"> <li>• Forest protection goals and principles</li> <li>• The implementation of forest protection (including increasing the role of communities in the activities of forest management)</li> </ul>	Government (Central and Regional), Private Sectors (NGOs, etc.), Communities

**Table 2 Continued**

<b>No.</b>	<b>Legal Instrument</b>	<b>Relevancy with SF implementation</b>	<b>Stakeholders</b>
7	Act No. 32/2009 concerning Environmental Protection and Management	Describe the legal provisions of: <ul style="list-style-type: none"> <li>• The importance of environmental protection and management</li> <li>• Rights, obligations, and prohibitions in environmental protection and management</li> <li>• The role of communities in the environmental protection and management</li> </ul>	Government (Central and Regional), Private Sectors, Communities
8	Government Regulation No. 28/2011 jo Government Regulation No. 108/2015 concerning Management of Nature Reserve Areas (KSA) and Nature Conservation Areas (KPA)	Describe the legal provisions of: <ul style="list-style-type: none"> <li>• The criterias of KSA and KPA</li> <li>• The implementation activities of KSA and KPA</li> <li>• The management of KSA and KPA buffer zones</li> <li>• Empowerment and participation of communities around KSA and KPA</li> </ul>	Government (via MoEF), Private Sectors, Communities
9	Act No. 18/2013 concerning Prevention and Eradication of Forest Destruction	Describe the legal provisions of: <ul style="list-style-type: none"> <li>• Responsibilities of central and local governments in preventing and eradication forest destruction</li> <li>• Participation of communities and partner institutions in preventing and eradicating forest destruction</li> </ul>	Government (Central and Regional), Private Sectors (LSM), Communities
10	Minister of Environment and Forestry Regulation No. 83 of 2016 concerning Social Forestry	Describe the legal provisions of the technical implementation of SF schemes	Government (Central and Regional), Private Sectors, Communities
11	Minister of Environment and Forestry Regulation no. P.20/MenLHK/SETJEN/KUM.1/6/2018 jo Minister of Environment and Forestry Regulation no. P.92/MenLHK/SETJEN/KUM.1/8/2018 jo Minister of Environment and Forestry Regulation no. P.106/MenLHK/SETJEN/KUM.1/12/2018 concerning Protected Plant and Animal Species	Describe the legal provisions of protected plant and animal species	Government (Central and Regional), Private Sectors, Communities

The SF schemes has been implemented since the 1990s in Indonesia. Up to 2020, more than 4.42 million hectares of forest in Indonesia have been managed by +895,769 families (6,798 units of SK) using the SF schemes (KLHK, 2021). The selection of SF schemes must be determined due to the biophysical, social, economic, cultural, and political conditions of the local community (Ekawati et al., 2020). The forms of SF schemes include: (1) community forest (“Hutan Kemasyarakatan” or HKm, state forest managed by community groups); (2) village forest (“Hutan Desa” or HD, state forest managed by the

village); (3) community plantation forest (“Hutan Tanaman Rakyat” or HTR, plantation in production forest built by community groups); (4) customary forest (“Hutan Adat” or HA, forest located within the territory of indigenous people); and (5) forestry partnership (“Kemitraan Kehutanan” or KK, cooperation scheme in forest management between the community and forest managers holders of business permits).

Based on the results of existing studies, in general, the SF implementation in Indonesia has been shown to have a positive impact on the economic and social aspects of local communities, such as strengthening local social institutions (Fisher et al., 2018; Harada & Wiyono, 2014), increasing the income of the community managing SF (Puspasari et al., 2017; Safe'i et al., 2018; Winarni et al., 2017; Wulandari & Inoue, 2018), increase community capacity (Fisher et al., 2018; Kaskoyo et al., 2017), and becoming a win-win solution for the problem of forest area encroachment by the community (Ekawati et al., 2020; Herawati et al., 2017). However, it turns out that there are unavoidable negative impacts of SF implementation, especially for the environment, such as the reduction of primary forest cover to open land (Putraditama et al., 2019; Safe'i et al., 2018), reduced soil fertility due to monoculture cultivation (Ruchyansyah et al., 2018), and reduced watershed area (Syam et al., 1997; van Noordwijk et al., 2002; Verbist et al., 2005).

The SF schemes implementation should be a solution in overcoming the problem of deforestation in Indonesia that has sustainable positive impacts on economic, social and environmental aspects. However, there are still many things that become challenges in the implementation of SF in Indonesia. Ekawati et al. (2020) and Rakatama & Pandit (2020) formulated several main challenges in implementing SF schemes in Indonesia, namely: (1) managerial and technical constraints in implementing SF are the main challenges in their implementation in Indonesia, such as the low level of knowledge, lack of expertise, poor judgements, low investment, and inadequate negotiation skills of local communities conducting SF schemes (Irawanti et al., 2014); (2) although the SF implementation are “heavily echoed” at the national level, SF has not become a priority program at the regional (provincial and district) level (Sanudin et al., 2016). This is reflected in the limited operationalization of national regulations at the regional level, for example in the form of regulations or decisions from governors or regents that specifically regulate the SF implementation in their regions; (3) technical assistance from the government and related parties has been provided to local communities in implementing the SF schemes but is still very limited and insufficient. It will be difficult to accomplish successful SF implementation without solid management, strategic plans, and adequate financial support (Maryudi, 2015; Setiahadhi et al., 2017); (4) Wibowo et al. (2013) show several policy constraints in the SF implementation, such as ineffective, confusing, and even contradictory policy communication. Various policy frameworks may not always allow communities to fulfill their aspirations and often disregard issues of local community recognition and participation (De Royer et al., 2018); (5) several studies state that environmental challenges in the form of weak public awareness and awareness of long-term environmental sustainability, such as illegal timber harvesting in protected forests (Arifin et al., 2009; Maryudi & Krott, 2012) still have the potential to occur in SF implementation in Indonesia; and (6) the monitoring and evaluation mechanism for the SF schemes implementation in field has not been well-implemented, manifesting in the number of SF permits that do not meet the main requirements stipulated in the policy (Safe'i et al., 2018; Sanudin et al., 2016). This condition reflects the difficulties in implementation, transparency, and the lack of firmness of sanctions for those who violate (Sumanto, 2009).

### ***Lessons Learned from Brazil's VEA and Indonesia's SF: Recommendations***

Reflecting on community-based conservation practices in Brazil and Indonesia, in general, it can be concluded that there is a fundamental difference. Community-based conservation practices in Brazil prioritized environmental sustainability to be able to “leverage” the economic and social sustainability of the community in the long term, while practices in Indonesia did not reflect this. This is illustrated by: the lack of public awareness and concern for long-term environmental sustainability; the negative impact on the environment from the SF implementation, and; the vision of SF implementation which tends to be based on short-term targets (the sustainability aspect not yet taking into account).

Recommendations from the study of Franco et al. (2021) are fundamental, important, and relevant to be strengthened in community-based conservation implementation in Indonesia. Concretely, the next steps for strengthening community-based conservation in Indonesia can be formulated as follows: (1) strengthening the local community initiatives, institutions, and capacities in environmental conservation initiatives to raise community awareness of the importance of environmental sustainability for their long-term economic and social sustainability; (2) strengthening the support and cooperation in implementing SF at the regional level from related parties (local government, relevant ministries or agencies, related NGOs, etc.) in a comprehensive and integrated manner, both in the form of regulations or policies, financial or monetary, and personnel, continuously; and (3) strengthening the country's system of control, monitoring and evaluation.

### **Conclusion**

Community-based environmental conservation and protection system is one of the collaborative management decentralization efforts. This system has proven to be successfully implemented in the Central Amazon, Brazil from 1995 to the present. Several conditions that contribute to the successful implementation of the system include: (1) strengthening initiatives, institutions, and capacities of local communities in environmental conservation efforts; (2) formalization of community-based conservation schemes with the establishment of supportive regulations; (3) effective control system of the state; (4) continuous support from external agencies outside the government for capacity building of local communities; and (5) continuous and independent financing of activities from community-based resource management programs.

The SF schemes implementation as one of the community-based conservation efforts in Indonesia, although it is proven to have a positive impact on the social and economic aspects of local communities, still faces various challenges. The main challenges faced by the SF schemes implementation in Indonesia, are: (1) the low level of understanding, experience, investment, negotiation skills, and institutions of local communities; (2) limited operationalization of national regulations at the regional level; (3) limited and insufficient technical and financial assistance from the government and related parties; (4) ineffective, confusing, even contradictory policy communication; (5) weak public awareness of long-term environmental sustainability, and (6) weak monitoring and evaluation mechanism.

The following are concrete steps that can be applied so that the community-based conservation implementation in Indonesia (in this context is the SF scheme) can run more sustainably: (1) strengthening the local community initiatives, institutions and capacities in environmental conservation initiatives to raise community awareness of the importance of environmental sustainability for their long-term economic and social sustainability; (2) strengthening the support and cooperation in implementing SF at the regional level from

related parties (local government, relevant ministries or agencies, related NGOs, etc.) in a comprehensive and integrated manner, both in the form of regulations or policies, financial, and personnel, on an ongoing basis; and (3) strengthening the country's system of control, monitoring and evaluation.

## References

- Arifin, B., Swallow, B. M., Suyanto, S., & Coe, R. D. (2009). A conjoint analysis of farmer preferences for community forestry contracts in the Sumber Jaya Watershed, Indonesia. *Ecological Economics*, 68(7), 2040–2050. doi:10.1016/j.ecolecon.2008.12.007.
- Berkes, F. (2004). Rethinking community-based conservation. *Conservation Biology*, 18(3), 621–630. doi:10.1111/j.1523-1739.2004.00077.x.
- De Royer, S., Van Noordwijk, M., & Roshetko, J. M. (2018). Does community-based forest management in Indonesia devolve social justice or social costs? *International Forestry Review*, 20(2), 167–180. doi:10.1505/146554818823767609.
- Ekawati, S., Suharti, S., & Anwar, S. (Eds.). (2020). *Bersama membangun perhutanan sosial*. Bogor: IPB Press.
- Fisher, M. R., Moeliono, M., Mulyana, A., Yuliani, E. L., Adriadi, A., Kamaluddin, ... Sahide, M. A. K. (2018). Assessing the new social forestry project in Indonesia: recognition, livelihood and conservation? *International Forestry Review*, 20(3), 346–361. doi:10.1505/146554818824063014.
- Franco, C. L. B., El Bizri, H. R., Souza, P. R. e., Fa, J. E., Valsecchi, J., Sousa, I. S. de, & Queiroz, H. L. de. (2021). Community-based environmental protection in the Brazilian Amazon: Recent history, legal landmarks and expansion across protected areas. *Journal of Environmental Management*, 287(March), 112314. doi:10.1016/j.jenvman.2021.112314.
- Harada, K., & Wiyono. (2014). Certification of a community-based forest enterprise for improving institutional management and household income: a case from Southeast Sulawesi, Indonesia. *Small-Scale Forestry*, 13(1), 47–64. doi:10.1007/s11842-013-9240-8.
- Herawati, T., Liswanti, N., Banjade, M. R., & Mwangi, E. (2017). *Merancang masa depan perhutanan sosial di Provinsi Lampung: dari skenario menuju aksi*. Bogor: Center for International Forestry Research (CIFOR). doi:10.17528/cifor/006558.
- Hockings, M., Stolton, S., Leverington, F., Dudley, N., & Courrau, J. (2006). *Evaluating effectiveness: a framework for assessing management effectiveness of protected areas* (P. Valentine, ed.). IUCN, International Union for Conservation of Nature. doi:10.2305/IUCN.CH.2005.PAG.14.en.
- Irawanti, S., Ginoga, K. L., Prawestisuka, A., & Race, D. (2014). Commercialising community forestry in Indonesia: Lessons about the barriers and opportunities in Central Java. *Small-Scale Forestry*, 13(4), 515–526. doi:10.1007/s11842-014-9268-4.
- Kaskoyo, H., Mohammed, A., & Inoue, M. (2017). Impact of community forest program in protection forest on livelihood outcomes: A case study of Lampung Province, Indonesia. *Journal of Sustainable Forestry*, 36(3), 250–263. doi:10.1080/10549811.2017.1296774.
- Kementerian Lingkungan Hidup dan Kehutanan. (2021). *Laporan Kinerja 2020 Kementerian Lingkungan Hidup dan Kehutanan*. Kementerian Lingkungan Hidup dan Kehutanan.
- Koziell, I., & Inoue, C. Y. A. (2006). *Mamirauá sustainable development reserve, Brazil: Lessons learnt in integrating conservation with poverty reduction*. London.
- Kuncoro, M., & Cahyani, D. (2018). Performance of social forestry on farmers' revenues: Lessons from Yogyakarta and Lampung, Indonesia. *The Business & Management Review*, 9(4), 275–289.
- Maryudi, A. (2015). An innovative policy for rural development rethinking barriers to rural communities earning their living from forests in Indonesia. *Jurnal Ilmu Kehutanan*, 8(1), 50–64. doi:10.22146/jik.8575.
- Maryudi, A., Devkota, R. R., Schusser, C., Yufanyi, C., Salla, M., Aurenhammer, H., ... Krott, M. (2012). Back to basics: Considerations in evaluating the outcomes of community forestry. *Forest Policy and Economics*, 14(1), 1–5. doi:10.1016/j.forpol.2011.07.017.
- Maryudi, A., & Krott, M. (2012). Local struggle for accessing state forest property in a montane forest village in Java, Indonesia. *Journal of Sustainable Development*, 5(7), 62–68. doi:10.5539/jsd.v5n7p62.

- Puspasari, E., Wulandari, C., Darmawan, A., & Banuwa, I. S. (2017). Aspek sosial ekonomi pada sistem agroforestri di areal kerja hutan kemasyarakatan (HKm) Kabupaten Lampung Barat, Provinsi Lampung. *Jurnal Sylva Lestari*, 5(3), 95. doi:10.23960/jsl3595-103.
- Putraditama, A., Kim, Y.-S., & Sánchez Meador, A. J. (2019). Community forest management and forest cover change in Lampung, Indonesia. *Forest Policy and Economics*, 106(July), 101976. doi:10.1016/j.forpol.2019.101976.
- Rakatama, A., & Pandit, R. (2020). Reviewing social forestry schemes in Indonesia: Opportunities and challenges. *Forest Policy and Economics*, 111(1), 102052. doi:10.1016/j.forpol.2019.102052.
- Ruchyansyah, Y., Wulandari, C., & Riniarti, M. (2018). Pengaruh pola budidaya pada hutan kemasyarakatan di areal kelola KPH VIII Batutegei terhadap pendapatan petani dan kesuburan tanah. *Jurnal Sylva Lestari*, 4(1), 100. doi:10.23960/jsl16100-106.
- Ruiz-Mallén, I., & Corbera, E. (2013). Community-based conservation and traditional ecological knowledge: implications for social-ecological resilience. *Ecology and Society*, 18(4), art12. doi:10.5751/ES-05867-180412.
- Safe'i, R., Gumay Febryano, I., & Nur Aminah, L. (2018). Pengaruh keberadaan gapoktan terhadap pendapatan petani dan perubahan tutupan lahan di hutan kemasyarakatan. *Sosiohumaniora*, 20(2), 109–114. doi:10.24198/sosiohumaniora.v20i2.14349.
- Sahide, M. A. K., Fisher, M., Nasri, N., Dharmiasih, W., Verheijen, B., & Maryudi, A. (2020). Anticipating a new conservation bureaucracy? Land and power in Indonesia's Essential Ecosystem Area policy. *Land Use Policy*, 97(December 2019), 104789. doi:10.1016/j.landusepol.2020.104789.
- Sanudin, S., Awang, S. A., Sadono, R., & Purwanto, R. H. (2016). Perkembangan hutan kemasyarakatan di Provinsi Lampung. *Jurnal Manusia dan Lingkungan*, 23(2), 276. doi: 10.22146/jml.725.
- Setiahadi, R., Pratiwi, D., & Ratnaningtyas, D. (2017). Deliberation process analysis of community based forest management policies implementation in Indonesia. *International Journal on Advanced Science, Engineering and Information Technology*, 7(3), 1076. doi:10.18517/ijaseit.7.3.2127.
- Sumanto, S. E. (2009). Kebijakan pengembangan perhutanan sosial dalam perspektif resolusi konflik. *Forestry Policy Analysis Journal*, 4(1), 13–25.
- Syam, T., Nishide, H., Salam, A. K., Utomo, M., Mahi, A. K., Lumbanraja, J., ... Kimura, M. (1997). Land use and cover changes in a Hilly Area of South Sumatra, Indonesia (from 1970 to 1990). *Soil Science and Plant Nutrition*, 43(3), 587–599. doi:10.1080/00380768.1997.10414785.
- van Noordwijk, M., Rahayu, S., Hairiah, K., Wulan, Y. C., Farida, A., & Verbist, B. (2002). Carbon stock assessment for a forest-to-coffee conversion landscape in Sumber-Jaya (Lampung, Indonesia): from allometric equations to land use change analysis. *Science in China Series C-Life Sciences*, 45(October), 75–86.
- Verbist, B., Dinata Putra, A. E., & Budidarsono, S. (2005). Factors driving land use change: Effects on watershed functions in a coffee agroforestry system in Lampung, Sumatra. *Agricultural Systems*, 85(3), 254–270. doi:10.1016/j.agsy.2005.06.010.
- Wibowo, L. R., Race, D. H., & Curtis, A. L. (2013). Policy under pressure: policy analysis of community-based forest management in Indonesia. *International Forestry Review*, 15(3), 398–405. doi:10.1505/146554813807700065.
- Winarni, B., Lahjie, A. M., Simarangkir, B. D. A. S., Yusuf, S., & Ruslim, Y. (2017). Tengkawang cultivation model in community forest using agroforestry systems in West Kalimantan, Indonesia. *Biodiversitas*, 18(2), 765–772. doi:10.13057/biodiv/d180246.
- Wulandari, C., & Inoue, M. (2018). The importance of social learning for the development of community based forest management in Indonesia: The Case of Community Forestry in Lampung Province. *Small-Scale Forestry*, 17(3), 361–376. doi:10.1007/s11842-018-9392-7.
- Yustika, R. D., Somura, H., Yuwono, S. B., Arifin, B., Ismono, H., & Masunaga, T. (2019). Assessment of soil erosion in social forest-dominated watersheds in Lampung, Indonesia. *Environmental Monitoring and Assessment*, 191(12), 726. doi:10.1007/s10661-019-7890-5.