

PAPER • OPEN ACCESS

Mitigation and adaptation to climate change on among stakeholder for sustainability: Evaluation a regional multistakeholder for an approach of the role of disaster risk management

To cite this article: I R Widiati and Irianto 2019 *IOP Conf. Ser.: Earth Environ. Sci.* **235** 012103

View the [article online](#) for updates and enhancements.



IOP | ebooks™

Bringing you innovative digital publishing with leading voices to create your essential collection of books in STEM research.

Start exploring the collection - download the first chapter of every title for free.

Mitigation and adaptation to climate change on among stakeholder for sustainability: Evaluation a regional multi-stakeholder for an approach of the role of disaster risk management

I R Widiati and Irianto

Department of Civil Engineering, Faculty of Engineering and Information System, Universitas Yapis Papua

E-mail: *iis.widiati@gmail.com*

Abstract. Mitigation of Climate Change can contribute to reducing vulnerability and risk to natural and technological disasters. Increased disasters from climate change, already taking attention many countries to reduce their vulnerability to weather and climatic hazards, such as floods, cyclones, heatwaves and droughts. This paper aims to evaluate the Multi Stakeholder Fora (MSF) on Climate Change in Eastern of Indonesia. MSF in Eastern of Indonesia is established as a learning and collaboration forum to manage the different perspective of all stakeholders in the field of social, economics (business), legal, politics and governance and gathering their common strength to deal with the impact of climate change to contribute in disaster risk reduction. The scale and quality of stakeholder involvement in the elaboration of a climate-resilient development strategy will determine its legitimacy, the feasibility of its financing and the effectiveness of its implementation. This calls for a multi-stakeholder approach that involves public officials, businesses, and individual citizens in the definition of the issues and in the identification of the solutions, and which also empowers them to sustain their own livelihoods and aspirations by acting on their capacities.

1. Introduction

The problem of climate change, however, is really about the potential effects on ecosystems, resources, and societies that depend on them. Adaptation and mitigation are the two main responses to climate change, mitigation seeking to address its causes and adaptation aiming to reduce its impacts. In the forest sector: (1) mitigation strategies comprise reducing emissions from deforestation; reducing emissions from forest degradation; increasing the role of forests as carbon sinks; and product substitution, such as using wood instead of fossil fuels for energy and forest products in place of materials whose manufacture involves high greenhouse gas emissions; (2) adaptation encompasses interventions to decrease the vulnerability of forests and forest-dependent people to climate change. By addressing these activities, some awareness has been increasing by partnership built through the Multi Stakeholder Forum (MSF)

The Multi-Stakeholder Fora (MSF) in Papua, the easternmost part of Indonesia province, facilitates partnerships between central and local government, civil society and the private sector in supporting relevant policy analysis and development. The terms ‘multi-stakeholder participation’ and/or ‘multi-stakeholder cooperation’ in governance to refer to a specific governance approach whereby a multitude of diverse stakeholders can participate in the collective development of cooperation. Multi-



stakeholder approaches tend to be favored either because supporters want a change in governance (usually by diluting the power of governments and/or companies) [1].

MSF Climate Change of the District of Papua has called in a meeting on Tuesday 11 February 2014, which brought in various reforms of MSF Vision and Mission. More importantly, the meeting was also used to prepare various agenda with regard to MSF activities each year and the induction of new MSF management.

The Multi-Stakeholder Fora (MSF) on Climate Change, located in easternmost of Indonesia's Province, is a learning and collaboration forum to manage the different perspective of all stakeholders in the field of social, economics (business), legal, politics and governance and gathering their common strength to deal with the impact of climate change.

MSF in term of climate change in Papua Province was established since 2012 and confirmed by the Decision Letter (SK). For example, by SK from the Bupati (Head of the District) No.186/2013 in July 2013 with its Vision, Mission, Strategy and Organizational Structure that consisted of 4 Sections or Task Force (SATGAS). The Decision Letter (SK) became the main reference for the Multi Stakeholder Fora (MSF) in the District of with regard to the efforts to manage a sustainable mangrove forest, climate change, and low emission development in the District. MSF activities began with measuring carbon stock followed by preparing the SEA/KLHS (Strategic Environmental Assessment / Kajian Lingkungan Hidup Strategis) and the discussion on the Regional Draft Bill on Mangrove (Ranperda on Mangrove).

2. Research Methodology

2.1 The Role of MSF Task

MSF's vision and mission were to put into place the sustainability of low land forest and mangrove forest for the benefit of the community in the District. MSF mission is as follows:

1) Advocating and developing adaptation policy and climate change mitigation. 2) Education and campaign on climate change adaptation. 3) Development of alternative livelihoods to boost the community income. 4) Monitoring, evaluating and promoting the best management practices on sustainable forest management. To achieve such a vision and mission, MSF has undertaken a number of strategies including campaigning, promotion, advocating and capacity building.

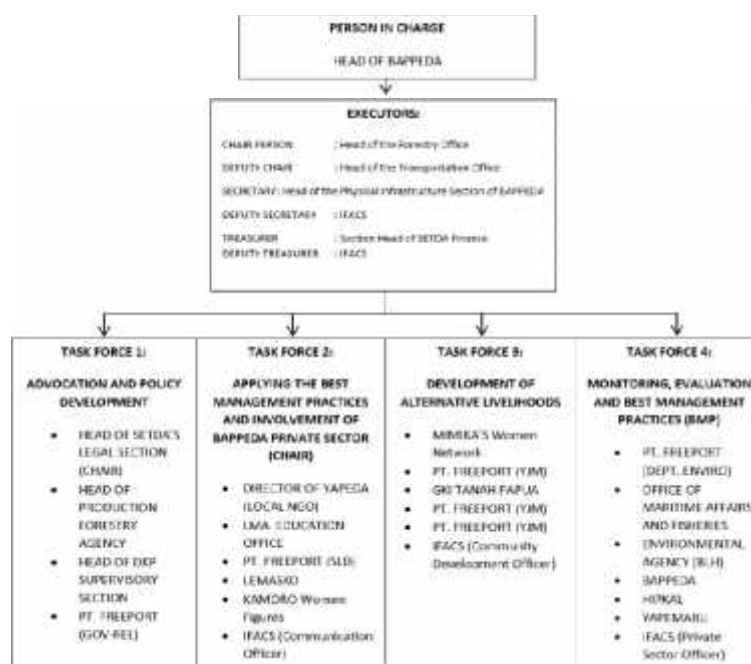


Figure 1. Organization Structure of MSF in Papua Province

In Mimika Districts, MSF is consisted of 4 SATGAS (Task Force) that act as the executor of MSF working plan. The 4 Task Forces are as follows:

1. Task Force – 1: Advocating and Policy Development.
2. Task Force – 2: Education and Campaign.
3. Task Force – 3: Development of Alternative Livelihoods.
4. Task Force – 4: Monitoring, Evaluating and the Best Management Practices (BMP).

MSF working agenda for the 4 Task Force consisted of 31 activities. Of the 31 activities, 12 of them are activities that are in Private sector work plan for South Papua Landscape. The remaining 19 are activities proposed and viewed as important undertaking by the new MSF management. MSF is a forum whose member is made up of representatives of the regional government (executor of SKPD), civil community, customary institution(s), community figures, customary leaders and figures, religious leaders, youth leaders and representatives of the private sector. MSF's organization structure is valid for 1 year. Members of the organization play a role in coordinating MSF's meetings and activities by involving the relevant parties in regular and nonregular forums. The following is the organization structure of MSF.

2.2 Methodology

This research evaluated MSF evaluation to measure the level of achievement of Multi-Stakeholder Fora (MSF) operational. Multi Stakeholder Fora (MSF) Evaluation is done by conducting in-depth interviews to the active members of this multi-stakeholder fora. The interviews were conducted in 7 Districts in Papua, Indonesia.

The Study was undertaken in a context where references to multi-stakeholder participation in decisions that impact in mitigation and adaptation of climate change. The primary objective of the Study was to contribute to a better understanding of the processes, localities and issues that are amenable to multi-stakeholder approaches. With the objective of producing an authoritative and influential knowledge resource for a range of stakeholders [2].

Deep interviewed has been done for MSF members include: Head of Production, Office of the Forestry; Association of Local Timber Entrepreneurs); (Chief of Villages); Deputy Chair of land and customary rights; Ministry of Forestry – Lorentz National Park); Regional Development Planning Board (Bappeda) in charge of Physical Infrastructure Section (transportation, road, bridges, and infrastructure) and Infrastructure Sub-Section (Spatial Planning) of the District; Forest Protection Agency.

3. Analysis and Result

3.1 MSF promote collaboration

MSF is the common forum for several institutions and agencies participating in activities organized by private sector (for instance, managing mangrove regions in Papua to reduce the climate change impact). Within this MSF, there are representatives of each SKPD (Regional Government Working Unit), i.e. the Agency of Maritime Affairs and Fisheries, the Forestry Agency, Bappeda (Bureau Regional Development Planning, LMA (Customary Institution) including LEMASKO (Customary Institution of the Komoro Tribe), women public figures, community figures, religious figures, etc. Each of these parties are submitting their respective aspirations that represent their view of the program during the decision making, drafting of the documents, public consultations, up to support during field implementation.

In the government sector, MSF has supported the government in the drafting of regional policy, Regional Regulation (Perda), (Strategic Environmental Assessment – Low Emissions Development Strategy) SEA/LEDS and (Landscape Conservation Plan) LCP. Bappeda felt benefited and helped by MSF, especially in the drafting of LCP. Furthermore, MSF has also extended their help to the government of in preparing those SEA/LEDS, in which the document has been ratified up to the legislative level. MSF also has a special legal drafting team to prepare Regional Draft Bill on Mangrove (Ranperda on Mangrove) involving Bappeda, the Forestry Agency Office, Legal office of the Regional Government, the Agency of Maritime Affairs and Fisheries, LEMASKO, LEMASA and IFACS. The legal drafting team is also assisted by other MSF Task Forces, which will publish, socialize and disseminate the information pertaining to the Ranperda.

The regional government through Bappeda has contributed government fund in support of MSF activities, for instance, to fund the legal drafting team operation (the fund is not only from private

sector but also from the District government). Within the rank and file MSF members, SKPD (Regional Government Working Unit) that actively worked toward achieving MSF vision and mission including Bappeda, the Agency of Maritime Affairs and Fisheries, and BLH. Each MSF activities shall be reported to the respective SKPD as input for developing future SKPD programs. Some of the SK (decision letter) that have been issued by the government in relation to MSF activities, including 1) SK on Team Coordination on the Strategy of Mangrove Ecosystem Management; 2) SK on Technical Team for the Preparation of Spatial Data Infrastructure; 3) SK on the Work Group on SEA/KLHS (Strategic Environmental Review). Moreover, MSF has also initiated the establishment of KKMD (Regional Mangrove Working Group) as an embryo in the District of Papua province.

Membership of MSF is dynamic in nature, which means MSF work plan will change each year and this change may be reflected in the composition of its management. The change will be adjusted to the activities that are already approved in MSF work plan. For example, if a particular MSF activity is related to watershed or drainage basin, then the relevant SKPD should be the Civil Works Agency (PU), Bappeda and Forestry.

In support of MSF meetings, the government is providing assistance in preparing the legal invitation letter. For MSF own internal meetings, for instance in the forest program, the invitation will be sent on behalf of the Head of Forestry Agency Office of the District who also chairs as the Head of MSF. For MSF external meetings, the chief of District will send the invitation.

Throughout this time, MSF has established good communication between task forces members, between task forces, with a strong support from the Chair of MSF. Furthermore, MSF also managed to build communication between its members, to the extent of providing positive influence between the SKPD that enabled them to respect and appreciate the duties, principle and function of other SKPD and eventually build a strong cooperation spirit and synergy between SKPD. Currently, the SKPD in this forum have a stronger communication than before. The planned activities are informed faster and it is easier to obtain positive response from other members. Each member of the task forces is keeping in touch with each other by providing the relevant information and reminding each other. In the event that a member is occupied by his routines (i.e. Head of a task Force or USAIDIFACS), another member shall remind him to start the activities that are already scheduled in the annual MSF agenda. In the event that a task force is confronted by an obstacle, such an obstacle will be reported to the Chair of MSF, which will then bring the issue for discussion in MSF evaluation meetings that usually is held once in 2-3 months. Communication with general public is also going well. MSF has published information pertaining to the programs, both by distributing leaflets and up to distributing books on Lorentz National Park, which was initiated by the Ministry of Forestry through MSF. Follow up and review of MSF activities have been carried out properly, therefore, each member understood the nature of his involvement and responsibilities in MSF activities. It is apparent during the meeting that reviewed and refocused on crucial points from the previous meet. From such a review, each member shall receive the relevant information either through e-mail or through other means.

3.2 MSF perspective in strengthening capacity

From the perspective of the SKPD (Regional Government Working Unit), MSF is a forum that bridges the community, the government and the business world together in a forum with an awareness of the need for a sustainable environment by empowering the local indigenous community. The involvement of the various interest and authorities is able to coordinate the various parties to collaborate in activities that focused on climate change and environmental conservation, such as protected forest. It is also claimed that MSF is a social endeavor where each of its members is expected to spend their energy, thought and work with their heart. The presence of MSF is in line with a good governance, since it will minimize the sectoral ego that may prevail between SKPD. This is crucial in the running of a good governance, since each SKPD will then be able to understand and appreciate the duties, principle and function of other SKPD. SKPD attitude that stay away from any form of sectoral ego can be established in MSF forum and it is expected this attitude will spread to other department in the government. Within the MSF forum, the authorities of various SKPD will engage, discuss and considered with a reasonable tolerance to prevent any overlapping, while still respecting and putting the common interest ahead above the personal interest. For example, in mangrove conservation activities, the Agency of Maritime Affairs and Fisheries sees the mangrove region as its domain, while the Forestry Agency may also feel that the mangrove is under its care.

These authorities can be unified in the Multi-Stakeholder Fora. Other examples, in the Ranperda on Mangrove that is currently under review, MSF is able to coax good coordination from its members in the discussion on coastal region by integrating each SKPD function within the scope of a Law that is transparent and harmonious in nature. The involvement of various SKPD in a project is able to push sectoral ego aside, promote exchange of ideas to reach an understanding for a fair and just agreement. In addition to SKPD, the drafting of Ranperda on Mangrove is also involved the customary and community institution as well as the private sector that are known to have high sectoral ego. Even here, MSF has successfully opened a coordination and communication forum and joining the various interests and setting the sectoral ego aside to reach an agreement that benefit all parties concerned.

From the perspective of the Lembaga Adat (Customary Institution), MSF is intended to unify the perception of the government and the local indigenous community in the supporting the KKMD (Kelompok Kerja Mangrove Daerah/ Regional Mangrove Working Group). Meanwhile from the perspective of Chief of villages, MSF is there to assist in managing various potential of nature products from the district level down to the village level. As for the business world (private sector) sees MSF purpose as protector of the forest to reduce the impact of greenhouse effect or global warming.

The government is quite appreciative of private sector for the efforts to drive this forum. This is quite apparent from SKPD activities that managed to carry out the best management practices when undertaking MSF activities. SKPD staff claimed that the trainings provided by MSF were quite effective and maximal. The positive item obtained by the SKPD from this training has made them able to build their skills and knowledge, capacity, performance and learning in their respective field. For example, the Spatial Planning SKPD of the Bappeda, the government staff is now able to process maps using software such as managing raster data using software and checking for land coverage. The GIS also can be used to review spatial planning plan in the region of Districts. For example, planning staff at the Unit work of Lorentz National Park claimed now he is able to apply spatial raster data management and carbon calculation through GIS trainings provided by MSF. This skill can be applied for calculating carbon emission in Lorentz National Park by observing the known data on deforestation flow. He claimed that the government has provided trainings to the staff, however it was quite subjective (the staff was elected for his personal relationship with his superior as the decision maker), without considering the requirement, duties, principle and function. Through MSF, the government capacity has been increased with the improvement of duties, principle and function of the respective staff.

The presence of MSF has provided easy access of government's documents for all of its members, although it still very much depends on the type of the document. If the document is the data on area of HPH from the Forestry Agency, then it is quite easy. However, if the document is deemed restricted or a secret, such as DPA (Document of government Budget program). To access this document, the data collector must be able to present a reason for requesting such a document. Data is not only obtained through observation conducted by MSF member in the field, but they could also be collected from secondary sources including relevant documents and maps that could be easily obtained from various institutions such as Bappeda, Forestry Agency Office, Agency of Maritime Affairs and Fisheries, the Transportation Agency and Private Sector. These data are usually used as reference in the drafting of Ranperda (Regional Policy draft), it is reviewed of other MSF planned activities. By referring government document(s) such as RTRW (Regional Spatial Planning), MSF members are basically synchronizing MSF activities in relation to RTRW and LCP, which will be socialized down to village level. Some of MSF member has enriched the data related to the study of bio-diversity for the Regional Government.

In addition to the government, other stakeholder within MSF has shown their active roles in support of MSF vision and mission. Support from the private sector, PT. Freeport Indonesia, has facilitated the transportation during the field visits by MSF. LMA (Customary Institution) is also quite enthusiastic in attending MSF activities by submitting their aspirations in each activity. Customary Institution along with HIPKAL (Himpunan Pengusaha Kayu Lokal)/Association of Local Timber Entrepreneurs) and village chiefs were actively campaigning to the community providing understanding to the community on the importance of sustainable forest. Meanwhile, others Customary Institutions has expressed the desire to fund the next MSF activity. Moreover, these NGOs also actively participating in MSF activities. These organizations are quite aware that there are numerous parties each with their own interest in the matter, from the business sector, investor and

other parties; therefore, it is necessary to prepare a sustainable mangrove forest management while maintaining the local wisdom through regional regulation (perda) or field visit and socialization.

HIPKAL, the Association of Local Timber Entrepreneurs member of MSF is quite enthusiastic in participating in the activities related to sustainable forest management. HIPKAL realizes the importance of efforts to reduce the impact of the greenhouse gas, and carbon emission. Through the MSF Forum, HIPKAL is invited to find out more about forest, how to protect the forest by applying an integrated and sustainable forest management. The Head of HIPKAL claimed that they already applying the rule on cutting and planting, in which whenever a tree is cut, 10 new trees must be planted. The rule is applicable to all HIPKAL members without exception. In the event of a violation, the violator will be expelled from the association and its business permit revoked.

3.3 MSF challenges and bottleneck

Based on MSF evaluation, there are a number of challenges and bottlenecks confronted MSF activities. One of them was the legal drafting team that did not involve some significant of the private sector; hence, the drafting process has taken a longer time. It's apparent during the socialization stage or public consultation, where a large number of parties were clearly showing that they were displeased with the content of the Perda's draft. Other obstacle from the government side that felt MSF activities were so tight they were hindering and disrupting the civil servant performances in carrying out their routine duties.

The shifting of responsibilities from the routine governmental or private business activities may have an impact to MSF activities, for instance, from PT. Freeport Indonesia was reassigned by his employer, PT. Freeport Indonesia to Tembagapura. As a result, coordination in has suffered.

Other potential challenges in the future are the prospect of MSF without private sector as the donor and the actor who run the MSF activities. Along this time, MSF is running smoothly because it can rely on private sector, which coordinate and actively drive MSF. The government has its doubt that MSF will continue to exist without the close support from private sector; it sees private sector as the drive that propel MSF forward and MSF is highly dependent on it. A number of task force are quite aware of this fact, they see a slowing down in activities, things are moving slower than the scheduled time line in MSF annual work plan. This is the result of each institution that put its respective duties and interest as the main priority. Without the presence of private sector in the future, it will be harder, considering private sector role as the initiator, coordinator and main drive for MSF activities.

Community representation as MSF member is still lacking, especially in the drafting of Regional Regulation (Perda). The lack of representation began during the drafting process of Ranperda. This lack of insight often leads to inefficiency with regard to achieving the targeted objectives of an activity. Substituting staff to attend scheduled meetings without providing them with the insight on MSF has reduced the effectiveness of such activities. To make things worse the substitute staff is not authorized to decide on behalf of his institution or agency.

The government wishes that MSF would be an independent institution. This wish is brought forward by a simple fact that the government in administering its authority is bound by numerous rules and regulations and vested interest of various parties, it needs an independent and neutral organization that does not take the side of one institution or SKPD, something that is not under the influence of an institution or agency and is able to supervise the running of programs that are transparent and right on target; programs that are oriented on the preservation of the environment and developing the capacity of the community to cope with the climate change. The government has expressed its wishes that MSF activities such as on mangrove conservation should be undertaken prior to Renstra (Strategic Planning), thus enabling the government to submit a proposal for the required fund to Regional or Provincial Budget Planning (RAPBD). The person chosen to be MSF member should be legitimate with strong leadership and able to convey the message to his group, thus the message can be put across efficiently (eliminating the need to repeating the same topic of discussion). Ideally, it would be preferable if the institution or agency entering a membership into MSF possesses an even stronger commitment. The transfer or substitution of member is often occurred without transferring the required knowledge from the previous member to the new one resulting in a difficult transition period regarding follow up actions and other activities. MSF must be strengthened to carry out its sustainable coordination function. There is a need to prepare a systematic membership rule and program, since the establishment of MSF has already been confirmed with SK (decision Letter) from the Chief of Region,

it is only appropriate that MSF has a more focused management system to carry it to next step and become an institution. The already agreed work plan must be carry out to the full extent (the first focus should be to complete the current work plan). Academician and legal scholars should be involved in the Legal Drafting Team (TLD) tasked with drafting the Regional Regulation (Perda) on Climate Change. It is expected that private sector will continue to exist to assist the local government. To support government activities on mangrove conservation and in coping with the effect of climate change in the Region.

From the Community suggestions, it would be ideal if the Ministry of Industry and Trade is included in MSF activities as an expression of a full and integrated government support. It is hoped that the Ministry of Industry and Trade will eventually supply the equipment to facilitate the coastal community in managing natural resource friendly such as Mangrove forest and Sago. There is a need to build a strong collaboration by involving the local community especially during the drafting of the work plan and formulating the relevant policy, i.e. by involving the villages chief, the tribal head, religious leaders and youth figures. Such a scheme will help in balancing between the common and personal interest for the benefit of all. MSF should facilitate the construction of a Mangrove Supervisory Agency in the District to ensure that the programmed activities will be right on target and is sustainable. MSF must be supervised by the government and NGO, with a better supervision MSF will be able to care, conserve, look after, and protect the environment in the region. It would be better if member of the parliament (DPR) also sits as member of MSF and get involved in MSF Activities. The parliament (DPR) acts as control and reinforcing the government and MSF activities.

From the private sector suggestion, for a sustainable existence of MSF without the close support from private sector, the government must be able to take the coordinating role of MSF and initiating MSF work plan. Other institution or agency may need to take over the responsibility to monitor and supervise MSF work program. If the government did not take the coordinating role, MSF will not be able to continue to its full extent because its organization capacity is still weak; its mentality is highly influenced by what its institutional member could achieve and what benefit it could get. MSF has access to official documents on government policy (i.e. Regional Budget/ APBD, Mid-Term Development Plan/ RPJMD, etc.) as evidence of improved transparency. It is also important to strengthens the MSF by broadening participation, including by women and other marginalized groups, and fostering dialogue and commitments by all stakeholders towards sustainable land use.

Linked to the values identified above, the following recommendations for legitimate multi-stakeholder participation can be highlighted such as 1) Awareness of the potential benefits of multi-stakeholder approaches should be improved; 2) Multi-stakeholder approaches need to be specifically tailored and designed to meet the unique requirements of each governance challenge; 3) Each governance challenge must be clearly framed and goals must be defined before action is taken; 4) Relevant and legitimate stakeholders should be identified and involved at the outset; 5) Multi-stakeholder working methods must be transparent and inclusive; 6) A diversity of platforms/stages must be provided for multi-stakeholder collaboration; 7) Multi-stakeholder processes and outcomes must be continuously evaluated; and 8) Further research is needed into the institutionalization and sustainability of multi-stakeholder governance experiences.

4. Conclusion and Recommendation

Government and other stakeholder awareness of the potential benefits of multi-stakeholder participation seems to have grown. The problem of climate change, however, MSF be the potential positive impact on ecosystems, resources, and societies. The MSF in Papua Province aims to put into place the sustainability of low land forest and mangrove forest for the benefit of the community through advocacy and developing adaptation policy and climate change mitigation; through education and campaign on adapting to climate change, developing alternative livelihoods to boost the community income, and to monitor, evaluate and promote the best management practices on sustainable forest management.

MSF work agenda is divided into 4 Task Forces with 31 activities in total. Of the 31 activities, 12 of them are activities that are in private sector activities for South Papua Landscape. The remaining 19 are activities proposed and viewed as important undertaking by the MSF management. Focus group participants who were involved in the process feel that the response adopted, namely to 'remain as open and transparent as possible. At the government level, MSF has supported the government in drafting the regional policy, the Regional Regulation (Perda), KLHS, RKBA or LCP.

Membership of MSF is dynamic in nature, which means MSF work plan will change each year and this change may be reflected in the composition of its management. The presence of MSF is in line with a good governance, since it will minimize the sectoral ego that may prevail between SKPD (Regional Government Working Unit). However, the government has its doubt that MSF will continue to exist without the close support from private sector (donor by USAID); it sees private sector as the drive that propel MSF forward and MSF is highly dependent on it. Community representation as MSF member is still lacking, especially in the drafting of Regional Regulation (Perda). Effective communication has been established between SKPD, in which a well-socialized MSF activity is to strengthen government capacity, building a better understanding, improving accountability, and fostering a similar perception with regard to a particular activity from all of its members.

The degree of participation and transparency of MSF as an organization is excellent; however, it still needs to develop a sustainable self-management and in undertaking long-term activities by applying self-assessment to continue its application after the termination of private sector projects.

There is a need to prepare a systematic membership rule and program, since the establishment of MSF has already been confirmed with SK (decision Letter) from the Chief of region, it is only appropriate that MSF has a more focused management system to carry it to next step and become an institution. MSF also need to strengthens the capacity by broadening participation and fostering dialogue and commitments by all stakeholders towards sustainability in climate change mitigation and adaptation.

References

- [1] Souter D 2017 *The What and Why of Multistakeholder Participation* (Guteng: Association For Progressive Communications (APC))
- [2] UNESCO 2017 *UNESCO Taking Forward the Multi-Stakeholder Debate at Rightscon 2017 Brussels* (Paris: UNESCO)
- [3] Internet Governance Forum 2015 *Best Practice Forum (BPF) on Strengthening Multistakeholder Participation Mechanisms* (Geneva: United Nations)
- [4] UNFAO 2013 *Working with Countries to Mitigate and Adapt to Climate Change Through Sustainable Forest Management* (Tajikistan: German Federal Ministry for Economic Cooperation and Development)
- [5] UNDP 2012 *Multi-Stakeholder Decision-Making: A Guidebook for Establishing a Multi-Stakeholder Decision-Making Process to Support Green, Low-Emission and Climate-Resilient Development Strategies* (New York: Environment and Energy Group)
- [6] Karin B 2006 multi-stakeholder partnerships for sustainable development: rethinking legitimacy, accountability and effectiveness *Wiley Intersci.* **16** 290–306
- [7] Yamini M 2016 multi-stakeholder participation in disaster recovery: a case study *Procedia Eng.* **159** 179-185
- [8] S. Mohammad and H. Mojtahedi 2014 stakeholders' approaches to disaster risk reduction in built environment *Disaster Prev. Manag.* **23** 356-369
- [9] Haigh R and Amaratunga D 2010 an integrativereviewof the built environment discipline's role in the development of society's resilience to disasters *Int. J. Disaster Resil. Built Environ.* **1** 11-24
- [10] Harrison J S, Bosse D A and Phillips R A 2010 managing for stakeholders, stakeholder utility function, and competitive advantage *J. Strat. Mgmt.* **31** 58-74
- [11] Hunt A and Watkiss P 2010 climate change impacts and adaptation in cities: a review of the literature climatic change *Clim. Change* **104** 13-49
- [12] IPCC 2012 *Managing The Risks of Extreme Events and Disasters to Advance Climate Change Adaptation: Special Report of The Intergovernmental Panel on Climate Change ed Field C B et al* (Cambridge : Cambridge University Press) pp 27-56