Monitoring and evaluation effectiveness in flood early warning system project in Semarang City

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Abstract: Semarang is classified as a vulnerable area towards climate change. As stated in vulnerability assessment conducted by ISET et al. (2010), Semarang experiences significant flood and sea level rise. Government of Semarang City in cooperation with several stakeholders conduct flood early warning system (FEWS) project, focusing on Bringin drainage sub-system in 2012–2014. Monitoring and evaluation (M&E) team is one elements of the project team. This paper aims to find out the effectiveness of M&E based on the stakeholders' perception during project implementations. The results show that M&E team has been effective in four indicators: 1) ensure the planned outcome is achieved; 2) increase and support the project management; 3) create a common understanding with the stakeholders; 4) ensure the project accountability. Four other indicators that should be improved-include: 1) produce new knowledge and learning support; 2) motivate the stakeholders; 3) capacity building of related parties; 4) encourage public and political support.

Keywords: monitoring and evaluation; climate change and flood early warning system; FEWS.

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1 Introduction

Semarang is the capital city of Central Java Province. The city has been developing with a high rate of population growth. An important capital city that is located in a coastal area, industrial and service activities has been contributing a dominant role to the Semarang development in addition to the fact that the city has been facing a serious environmental problem. Impacts of climate change have been further heighten the degrading environmental condition of the city (National Development Board, 2014).

Semarang is classified as a vulnerable area, with an index of 0.16–0.58[1]. According to Institute for Social Environmental Transition, 1% of total Semarang area is classified as a high risk area, 5% area as medium-high risk area, and 58% area as a medium risk area. Only 36% is categorised as low-very low risk area. Flood, coastal inundation, subsidence are types of hazard that is common taken place in a coastal area of Indonesia including in Semarang (Marfai et al., 2008).

There was a flash and tidal flood from Bringin drainage sub-system that caused six causalities and over a hundred people living in five sub-districts injured in 2010 (Semarang City Team, 2012a). The unavailability of early warning system and flood disaster preparedness becomes one of its reasons.

Based on this situation, climate change project has been implemented to further reduce impacts of the climate change during 2012–2014. It focuses on the establishment of flood early warning system (FEWS) and community development in Bringin drainage sub-system. The project involves various stakeholders from national to local level, representing government, academics, and non-governmental organisations (NGOs).

The FEWS project has monitoring and evaluation (M&E) team. It consists of several actors outside the project. They are from academics and government. Academics are represented by Diponegoro University team, while government representatives are from City Disaster Risk Reduction Board (CDRRB). Furthermore, there are representatives from city team to assess the project implementation. City team was established based on the mayor's decree in 2010. The team aims to develop resilience towards climate change. It provides resources that related to climate change context by giving inputs to the project implementer during the project.

M&E is important for a project. Kusek and Rist (2004) state that M&E can bring a strong influence. They also ensure that project implementation with M&E will be different with project without M&E. Project implementation without M&E only focuses on the output achievement without concern with the project management implementation. Meanwhile, project implementation with M&E does not only focus on the output achievement, but also on outcome and impact achievement, and even concern with the project management implementation. Furthermore, M&E gives a different colour for the project performance through two ways:

1 it can be an instrument to assess the progress of the project implementation; the achievement of outcomes and impacts; the suitability between plan and implementation; the cooperation among project team; and the accuracy of implementation time schedule

2 M&E team can also participate to control the project implementation from beginning until the end of the project, together with project manager.

With this situation, it is clear that M&E is expected to be able to ensure the project transparence through increasing performance and creating a good management in project (Woodhill, 2000).

The FEWS project implements participatory M&E as its concept. Participatory M&E increases the passion of involved stakeholder because it offers new and more inclusive ways of assessing and learning from change (IDS Policy Briefing, 1998). Participatory M&E differs from traditional M&E by attempting to include all stakeholders in all aspects of the process (McKenzie, 2006). Moreover, it gives more opportunities for the involved stakeholders to explain point of views and aspirations. It leaves paradigm the project implementation with top down approach.

There are two theories to assess M&E effectiveness. First, Woodhill (2000) states that M&E effectiveness can be assessed through its purposes. He explains that purposes of M&E are determined by eight indicators. They are:

1 ensure the planned outcome is achieved

2 increase and support the project management

3 create a common understanding with the stakeholders

4 produce new knowledge and learning support

5 capacity building of involved parties

6 motivate the stakeholders

7 ensure the project accountability

8 encourage the public and politic support.

Second, Chapman (2014) develops framework for M&E to assess social process and environmental programs. The framework has six components:

1 program needs

2 program activities

3 pathway process variable

4 moderating process variables

5 outcomes

6 program value.

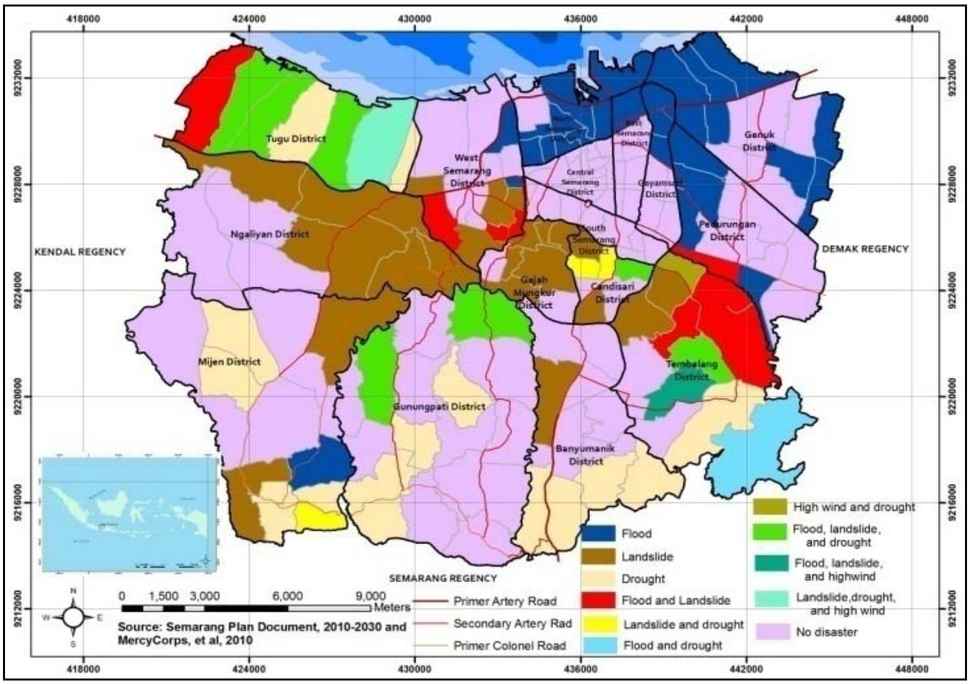
From those two theories, researchers choose to use eight indicators from Woodhill to assess M&E effectiveness in the FEWS project. Those indicators are more precise and definite to do. Moreover, they can be used generally in many projects.

Based on two theories, this paper aims to find out the effectiveness of M&E during two years of the FEWS project implementation. The M&E effectiveness is based on the stakeholders' perception, so that the advantages and disadvantages of M&E can be figured out. Otherwise, this study can be a learning process to increase performance of the stakeholders to manage the other disaster risk reduction projects in the future.

2 FEWS project in Semarang City

Based on topography characteristics, Semarang is prone of various disaster risks. Tidal and flash flood are two of them. Based on the flood risk map of Semarang issued by Geospatial Information Agency, Meteorological and Climatology Bureau, and Ministry of Public Works in 2010, it can be seen that Semarang has medium and high level of flood (Semarang City Team, 2012b). The FEWS project focuses on the reduction of flood risk in the west of the city, with a case study in Bringin drainage sub-system.

Figure 1 Disaster types in Semarang (see online version for colours)



Source: Government of Semarang (2010) and ISET et al. (2010)

The FEWS project in Semarang is implemented in Bringin drainage system which includes five villages in Ngaliyan sub-district and two villages in Tugu sub-district. Those seven villages are prone of flood disaster from Bringin River, and two of them are also prone of tidal flood. The unavailability of early warning system and preparedness at the community level in those seven villages causes damages and loss. Based on the fact, this project focuses on developing preparedness to reduce flood risk as an effort of disaster risk management at community level.

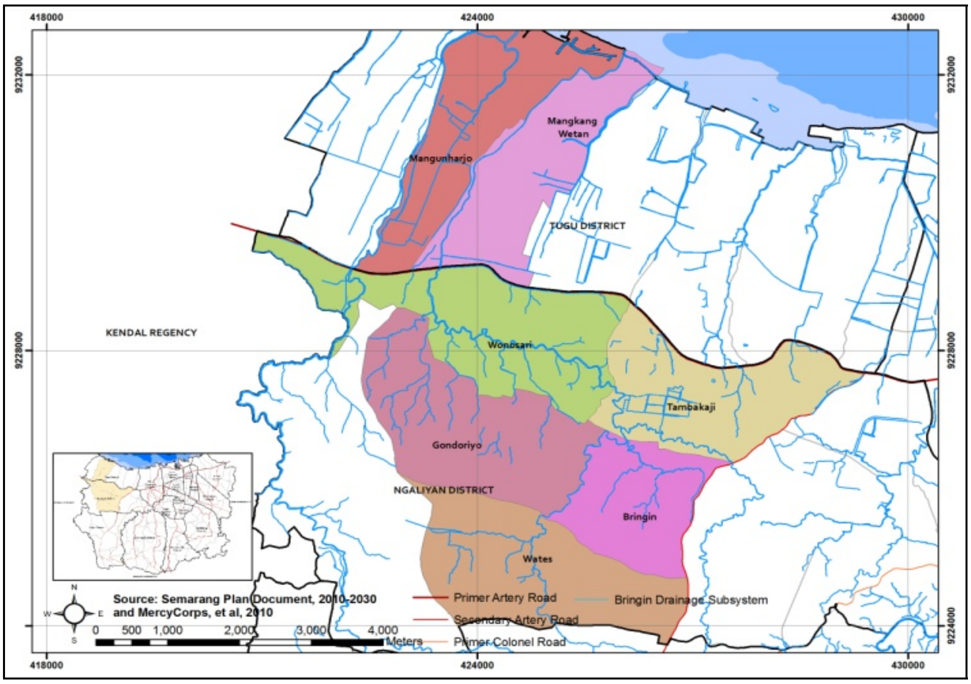
The project has a goal to reduce vulnerabilities, injuries and casualties by strengthening community and local government's response and preparedness through the development of a flood information system. To achieve the goal, there are three objectives expected to be achieved at the end of the project. They are:

1 communication and coordination mechanism of city among the sectors and multi-stakeholders for facilitating flood disaster preparedness which consider the future climate change and land use change

2 implementation of flood forecasting and early warning system which provides sufficient time for community to respond and disseminated to them

3 increase community capacity through establishment of local disaster response group.

Figure 2 Bringin drainage sub-system (see online version for colours)



Source: Government of Semarang (2010) and ISET et al. (2010)

M&E roles in ensuring the goals and objectives achievement in this project. In achieving goals and objectives, M&E certainly coordinate with all stakeholders. Communication and discussion bridges the ideas and concepts of the stakeholders. Those methods are carried by M&E team to achieve the goals and objectives based on quality and punctuality. In this paper, stakeholders assess M&E effectiveness based on M&E role in supporting goal and objectives achievement of the project.

The FEWS project involves many stakeholders with different tasks and responsibilities. Those stakeholders are divided into: city team, project implementer, local partner and project external partner:

1 City team consists of many stakeholders. They are local government institutions, universities, and NGOs in Semarang.

2 Project implementer consists of various parties with different background. They are City Planning and Development Board (CPDB), Bintari (local NGO in Semarang), Urban and Regional Planning – Diponegoro University, and Civil Engineering – Diponegoro University. CPDB takes role as project implementer coordinator and Bintari as a project manager. Under coordination of project manager, there are three project implementer teams:

a Urban and Regional Planning – Diponegoro University is responsible for flood risk assessment, training module development, documentation and publication

b Civil Engineering – Diponegoro University is responsible for establishment of flood forecasting model, early warning system, and evacuation system, including the evacuation shelter

c Bintari is responsible for community development for community adaptive capacity strengthening for disaster preparedness system.

3 Local partner is the institution supporting the implementation and having responsible for particular tasks in the project. Besides contributing in data provision, information, resources and facilities that are needed in the project, they also get the project's benefits and at the same time are responsible for maintaining and managing it after the project finish. They are Water Resource Management Agency (WRMA), Meteorological and Climatology Bureau (MCB), CDRRB, Indonesian Red Cross (IRC), social agencies and health agencies.

a WRMA and MCB support and involve in flood forecasting development and FEWS

b CDRRB and IRC support and involve in community adaptive capacity strengthening

c social agencies and health agencies support in evacuation strategy.

4 Project external partner is an organisation or institution at province, national and international level that take roles in giving supports/technical assistances, suggestions and inputs in project implementation. They are Mercy Corps, ARUP, Asian Disaster Preparedness Center (ADPC), National Disaster Risk Reduction Board (NDRRB), and CDRRB of Central Java

5 Community members in seven villages in Bringin drainage sub-system. They join in local disaster response group.

Besides the teams above, there is also M&E team. It is an independent unit, outside of the project implementer team. Consisting of team from Urban and Regional Planning Engineering Diponegoro University, city team and CDRRB, this team monitors and evaluates the performance of project and team.

3 M&E instruments

M&E team needs instruments to ensure every activity in a project running as planned. The instruments are also as evidence for the donors, so that they can assess the project implementation sustainability. M&E instruments are evidence of achievement and also findings of M&E team. The result from the instruments should be published to all stakeholders, especially national NGO and PIU. In correlation with the assessment of M&E performance, stakeholders can also assess M&E responsibility of the project that is evidenced by updating progress of the project through the result of instruments and findings.

There are four instruments in this project:

1 logical framework/log frame

2 tracking table

3 evaluation framework

4 monthly report

The following are the explanations.

3.1 Logical framework (log frame)

Logical framework is used to monitor periodically the objective achievement of the project. Log frame contains:

1 goal

2 objectives

3 output of the project

4 activities

5 objectives' indicators

6 measurement method to achieve the objectives' indicators

7 target level

8 level of indicators achievement.

All of them, except the level of indicators achievement, were determined and agreed by all of the project team, while the level of indicators achievement were completed by M&E team every three months based on the progress of project.

Goal and objectives of the project must fulfil 'SMART' criteria. The following is SMART definition (Larson and Liana, 2009):

- S (specific): what condition is exactly to be achieved
- M (measurable): whether or how far it has been achieved
- A (achievable): realistic given the circumstances and resources
- R (relevant) : relevant to the overall objective/strategy, to the stakeholders, and to the people responsible for achieving them
- T (time-specific): realistic time-frames for achievement.

Table 1 the example of logical framework:

Table 1 Log frame in climate resilience project

Log-frame										
Project name										
Project objective										
Impact and objective	*Output*	*Main activity*	*Assessment method*	*Verification*	*Baseline*	*Method of collecting data*	*Target*	*Monitoring quarter 1*	*Monitoring quarter 2*	*End line 31 December 2012*
							Level 2: project replication around the project pilot	Level 1: still on the replication initiation step		

Source: Adapted from Semarang City Team (2012a)

Table 2 Tracking table in climate resilience project

Activities	*February*				*March*				*Status based on reporting period (accomplished/in progress/ in planning)*	*Coordinator/PIC*		*Supporting institution*	*Output*	*Data source (meeting report, attendance, documentation)*	*Method of collecting data (literature study, observation)*
	1	*2*	*3*	*4*	*1*	*2*	*3*	*4*		*Plan*	*Actualisation*				

Source: Adapted from Semarang City Team (2012a)

3.2 Tracking table

Tracking table is used to monitor the output achievement in every activity. This table is a project manager's standard to identify the progress of the project. M&E team is responsible for the tracking table, which its outcome is verified by the project manager.

Tracking table contains:

1 activities
2 activities timetable
3 activities status
4 activities' coordinator
5 output
6 data source
7 method of collecting data.

M&E team will update some data which consists of accuracy of activities implementation schedule, activities status, activities' coordinator, data source, and method of collecting data. Table 2 is the example of tracking table:

Tracking table is linked to logical framework in certain ways. Tracking table focuses on monitoring the output achievement through progress of each activity every month, while logical framework focuses on monitoring the objectives achievement through its indicators. Based on the progress of outputs achievement in tracking table, M&E team can identify the objective achievement in log frame. If the activities in tracking table can run as planned, the outputs can be achieved, so that the objective achievement in log frame can be accomplished, and vice versa. In addition, the importance of these two instruments can be seen when there are sequential activities in the FEWS project. If M&E team finds out that there is sequential activity delaying its implementation, it is certain that the following activities can not run as planned. It can then bring a consequence that the objective achievement can be delayed, too.

3.3 Evaluation framework

Evaluation framework is an instrument to evaluate the whole project, especially the project sustainability that meets the criteria from the donors. Evaluation framework aims to assess the project implementation in four phases:

1 pre-project
2 mid-project
3 end of project
4 post-project.

Table 3 Evaluation framework in climate resilience project

Phase	*Evaluation implementation*
Pre-project	a Project team planned and designed the activities implementation b Project team identified the responsibility of every involved stakeholder c Project team identified the aims and the objectives of the project d Scoring assessment became a part of the project assessment. With an expectation that the activities output can be assessed quantitatively
Mid-project	a Evaluation aims to identify the progress of activities implementation to meet the target b This evaluation aims to observe the interference during the project and to look for the solution. So, there will be a more precise output achievement follow-up in the future
End of project	a This evaluation aims to assess the output achievement at the end of the project b The output of this project can be published to other stakeholders, anything that has achieved and is beneficial for Semarang
Post-project	Evaluation was held six months, one year, and two years after the project is completed. It aims to ensure the project sustainability and the goal achievement and also the precise objective

Source: Adapted from Semarang City Team (2012a)

3.4 Monthly report

Beside the tracking table, there is a monthly report that must be reported by M&E team every month. This report captures the activities that have been implemented by the project team in a month, including focus group discussion (FGD), training or workshop; and the activities that will be implemented in the following month. This report also allows M&E team to communicate the challenge and obstacle that are experienced by the project team, and also to recommend the strategy that can be done.

4 Method

4.1 Method of collecting data and questionnaire distribution

This study focuses on the stakeholders' perception in assessing the effectiveness of M&E based on eight indicators. Those stakeholders consist of Project Implementation Unit, project manager, project implementer, local NGO, National NGO, and city team. They assess the effectiveness of M&E based on their point of view. They give their assessment by giving score and opinion for each indicator.

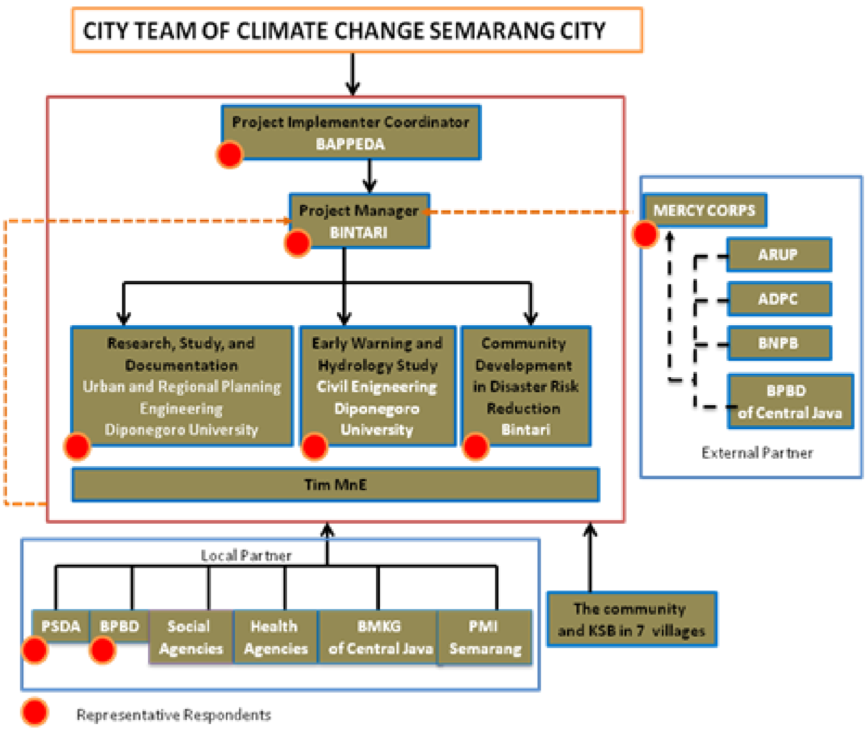
Before distributing the questionnaire and interviewing the stakeholder, contribution of every stakeholder in this project must be taken into account. The stakeholders having big contribution in this project will get a bigger proportion in questionnaire distribution and interview than those whose contribution is smaller in it. In Table 4 are the number of population and sample in this study:

Table 4 The number of population and sample for questionnaire distribution and interview

No	*Respondent*	*Number of population*	*Number of sample*	*Proportion*
1	PIU coordinator	1	1	100%
2	Project manager	1	1	100%
3	Implementer	3	3	100%
4	Local partners	6	3	50%
5	Local NGO	3	3	100%
6	City team	6	3	50%
7	National NGO	4	3	75%
	Total	24	17	

Based on Table 4, it can be seen that identification a number of respondents are varied. PIU, project manager, implementer, and Local NGO represent 100% as samples. Those are evidence that they have bigger contribution than the others. Figure 3 explains the representative respondent based on the organisation structure of the FEWS project:

Figure 3 Representative respondents based on the organisation structure of the FEWS project



Source: Adapted from Semarang City Team (2012a)

4.2 Method of processing data

This study uses eight indicators from Woodhill as primary data to assess the M&E effectiveness. These indicators will be assessed in three grades, those are:

1 has not fulfilled

2 partly fulfilled

3 fulfilled.

Those eight indicators are (Woodhill, 2000):

1 Ensure the planned outcome is achieved

   M&E aims to determine how well the project meets its objectives/outcomes. It is also a way of systematically measuring and tracking the project activities and outputs.

2 Increase and support the project management

   M&E can increase and support the project implementation by providing accurate M&E report that informs management and decision-making to improve project performance (International Federation of Red Cross and Red Crescent Societies, 2011).

3 Create a common understanding with the stakeholders

   M&E aims to create a common understanding about the project, including new knowledge created during the project implementation.

4 Produce new knowledge and learning support

   M&E can help to create new knowledge and promote learning based on M&E findings and sharing experiences between stakeholders. Then, it translates into analytical, reports that can influence decision-making (PSC, 2008).

5 Capacity building of involved parties

   This indicator is related to producing new knowledge and learning support. M&E results that generate new knowledge, promote continuous learning and guide action is an important means of capacity development [UNDP (2002) in Kusek and Rist (2004)]. In addition, UNDP in Handbook on M&E for Result said that capacity building is related to learning process, decision-making and accountability. M&E results can be a continual learning material for the stakeholders, so that they can make a better decision in the future.

6 Motivate the stakeholders

   Motivation of the stakeholders is important for a project, so that the project objectives can be achieved. Sharing the M&E results among the stakeholders can allow them to learn new knowledge, so that they can improve their performance.

7 Ensure the project accountability

   Accountability is important for a project can run as planned. M&E provides the information in a structured and formalised way, so that allows scrutiny of all stakeholders (PSC, 2008). Accountability of the project can be ensured if there is an external and independent M&E team. If the results of M&E team are made available to stakeholders, they can strengthen stakeholders' engagement processes by increasing transparency and promoting trust among the stakeholders (http://www.ifc.org/envirolessons).

8 Encourage the public and political support.

   A project needs public and political support in order to be able to give some benefits to broader audience. If the success of the project can be documented through M&E findings, it will be easier to gain the public supports. These findings even play an important role in advocacy support. They can provide a means for supporting argument for continuation and adjustment of a project, promoting understanding of the objectives and underlying the logic of policies, and also documenting project implementation (PSC, 2008).

This study uses methods of quantitative statistic and qualitative descriptive to analyse the stakeholders' perception about M&E effectiveness. Utilisation of quantitative descriptive method focuses on analysing data from questionnaire. Researcher focuses on the interpretation of mean, median and standard deviation obtained from descriptive statistic analysis:

- Mean is the sum of all the elements of a set divided by the number of elements in the set. In this study, mean is obtained from the sum of values from all the stakeholders in a certain indicator, divided by the number of the stakeholders.
- Median is the middle value of a set. In this study, median is obtained from the middle value of a certain indicator.
- Standard deviation describes the dispersion of values in a dataset. In other words, it describes how much the values of the dataset differ from the mean. If the standard deviation is less, it can be said that the dispersion in assessing the indicator is not too varied, and vice versa.

This interpretation is also supported by frequency bar chart to explain the result. Meanwhile, qualitative descriptive method focuses to interrogate the data from interviews. It is expected that the result of this analysis can be a supporting explanation of the descriptive statistic analysis.

Utilisation of the two analysis methods in assessing the M&E effectiveness is similar to other researches. O'Donnell and Galat (2008) used quantitative descriptive analysis to evaluate success criteria and monitor the project of river quality improvement in adaptive management framework. Kayser et al. (2013) used scoring analysis to monitor water quality and sanitary risk. With this fact, the utilisation of quantitative descriptive and qualitative descriptive methods is common in many M&E assessment.

5 Monitoring and evaluation effectiveness

Eight indicators are used to assess the effectiveness of M&E based on the stakeholders' perception. Table 5 is statistics count result about stakeholders' perception on M&E Effectiveness in the FEWS project.

Table 5 Statistic count result about stakeholders' perception on M&E effectiveness

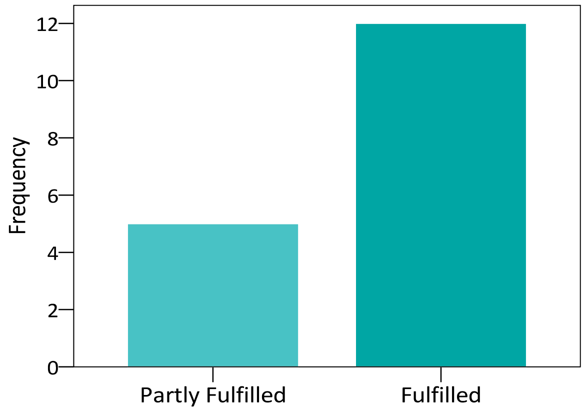
		Aspect 1	*Aspect 2*	*Aspect 3*	*Aspect 4*	*Aspect 5*	*Aspect 6*	*Aspect 7*	*Aspect 8*
N	Valid								
	Missing								
Mean		2.7059	2.6471	2.5294	2.4118	2.1765	2.0588	2.7647	1.8824
Median		3.0000	3.0000	3.0000	2.0000	2.0000	2.0000	3.0000	2.0000
Std. deviation		.46967	.60634	.51450	.61835	.39295	.65865	.56230	.69663

M&E effectiveness based on the stakeholders' perception will be discussed per indicator as follows:

5.1 Ensure the planned outcome is achieved

Ensuring the planned outcome is achieved means that how M&E determines the project meets its objectives/outcomes. Based on the questionnaire distribution, it can be found that mean is approaching of 2.7, median is 3 and standard deviation is 0.47. Meanwhile, 69.23% stakeholders said that M&E team has fulfilled the indicator and the rest of 30.77% said that M&E team has partly fulfilled it. From these facts, it can be concluded that M&E team in the FEWS project is succeed in ensuring the planned outcome is achieved.

Figure 4 Stakeholders' perception on M&E effectiveness based on 'ensure the planned outcome is achieved' indicator (see online version for colours)



The results from the questionnaire are similar with those from the interviews. Generally, almost all of the stakeholders said that M&E team works as its roles. City team said that in the beginning of the project, M&E team has a big contribution to determine the objectives indicators of the project and to measure them. It is related to the opinion of the Abes, Blauert and Quintanar, Rutherford, Sidersky and Guijt, and Torres in Estrella et al. (2000). They explain that the way to measure a success of a project is by determining the indicator of objective achievement at the beginning of the project. During its implementation, M&E team is also responsible to remind the project manager and the implementers about the project targets. Furthermore, one of the implementers said that M&E team also ensures the project implementation is run as planned. M&E team uses tracking table and logical framework as guidance. There is a coordination meeting that is held every month to find out the target achievement, constraints, and the future potencies. Through this coordination, M&E team can give some inputs about the progress of the project.

However, one of the stakeholders from NGO said that although M&E team has run its roles, it still needs an improvement. M&E team only focuses on ensuring the targets and outputs' achievement, but has not yet ensured its quality. As consequences, the project is too output oriented achievement. This opinion seems to be related to the Woodhill (2000). It explains that the assessment of project logic can be described in two situations. They are:

1. clear goals, purposes, results, activities and inputs
2. the stakeholders' willingness to increase the quality of a project.

The first situation has been fulfilled by the determination of the objectives by M&E team together with the project team in the beginning of the project; while the second situation has not yet be fulfilled if the quality of the project is not the focus of the project team. Therefore, the cooperation between the project manager and M&E team in ensuring the quality of the project is necessary. The M&E team should focus not only on the output achievement, but also on its quality. Then the results should be delivered to the project manager, so that it can discuss them to the implementers. With this scheme, it is expected that the outputs quality can be ensured.

5.2 Increase and support the project management

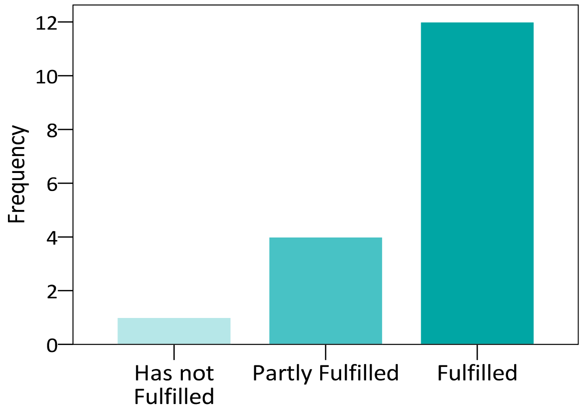
Increasing and supporting the project management means that M&E team can provide accurate report that informs management and decision-making to improve the project performance. Based on the questionnaire distribution, it can be found that the mean, median and standard deviation are 2.6, 3, and 0.6 respectively. Meanwhile, from the chart, 69.23% stakeholders said that M&E team has fulfilled the indicator, 23.08% said partly fulfilled, and the rest of 7.69% said that M&E team has not fulfilled the indicator. From this information, it can conclude that almost all the stakeholders think that M&E team in the FEWS project is succeed in increasing and supporting the project management.

The results from the questionnaire seem similar to those from the interviews. Almost all of the stakeholders said that M&E team has a big contribution in project management. According to PIU coordinator, M&E team can support the project by monitoring and evaluating the target and output achievement, ensuring the project schedule can run as planned, etc. Without M&E, a project will be difficult to achieve its objective. The opinion of the PIU coordinator is also supported by other stakeholders. The stakeholder from national NGO said that M&E team can increase and support the project management through log frame. This instrument contains the objectives, indicators, details of activities, and other supported factors that allow M&E team to use it in order to remind the project team about the initial plan. Therefore, the project can run as planned on project implementation plan (PIP).

However, there is a quite different opinion about the M&E team's performance related to the increasing and supporting the project management. City team argued that project management in the FEWS project is the responsibility of the project manager.

Meanwhile, M&E team is responsible in project M&E. The progress of the project is periodically delivered by M&E team in log frame, tracking table, and monthly report. They are then reported to the project manager in order to be able to be discussed with implementer team. Based on this opinion, the city team said that M&E team has not fulfilled the indicator of 'increase and support the project management'.

Figure 5 Stakeholders' perception on M&E effectiveness based on 'increase and support the project management' indicator (see online version for colours)



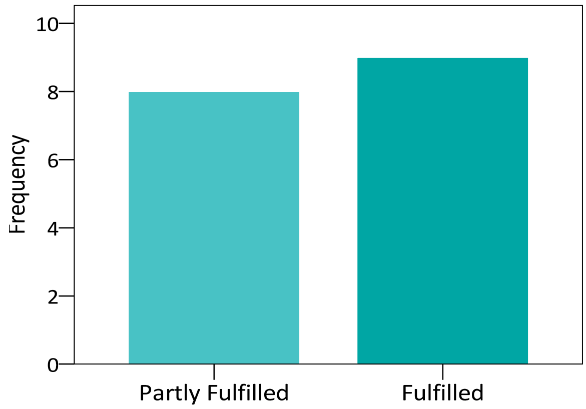
Beyond those different opinions of the performance of M&E team on the FEWS project, it seems that M&E should be able to increase and support the project management. Weiss (1972) said that M&E can support the increasing of project management performance.

5.3 Create a common understanding with the stakeholders

Creating a common understanding with the stakeholders means that M&E results should be able to create a common understanding about the project. It includes new knowledge created during the project implementation. The result of the questionnaire distribution shows that the mean is approaching 2.5, the median is 3; and standard deviation is 0.5. From the chart, there is no stakeholder argued that M&E team has not fulfilled the indicator; 47.1% stakeholders said that M&E team has partly fulfilled its role to create a common understanding with the stakeholder, and 52.9% stakeholders said that M&E team has fulfilled it. From these data, it explains that M&E team has basically run its role.

Questionnaire results can be explained through the interviews. All of the stakeholders said that in general M&E team has run its role to create a common understanding with the stakeholders. There is a coordination meeting that held by M&E team every month to discuss the progress of the project, includes bridging the perception gap among the project team. This condition is similar to the statement of Blauert and Quintanar, Espinosa, Hamilton et al., and Lawrence et al. in Estrella et al. (2000). They said that M&E team should roles as the facilitator to accommodate and bridge ideas and perspectives from the stakeholders. Then, M&E team conducts discussion forum to determine the findings from their ideas and perspectives. The expectation is that the findings can be a new knowledge in the project which is actually from their own ideas and perceptions.

Figure 6 Stakeholders' perception on M&E effectiveness based on 'create a common understanding with the stakeholder' indicator (see online version for colours)



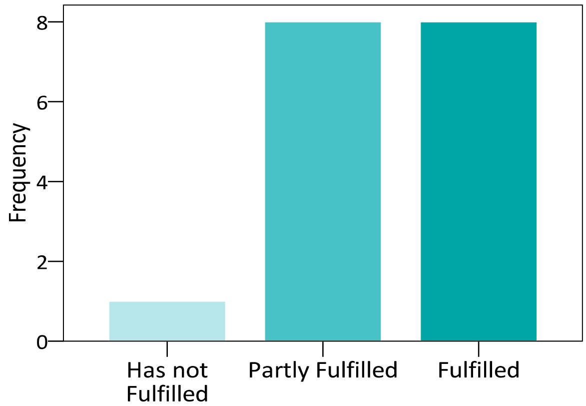
Unfortunately, creating a common understanding among the stakeholders sometimes is not easy to do. It needs a long time to get new knowledge and explore the ideas and perceptions of the stakeholders that is caused the various disciplines and interests of the stakeholders. The stakeholder from national NGO even said that a common understanding in the FEWS project is still in project manager controlling. PIU Coordinator also suggests that M&E team should take into account the coordination management in order to be more effective. NGO solution is M&E team should write a brief summary about the findings from progress of the project. This summary should be sent to all of the stakeholders before the coordination meeting started. The expectation is that this summary can help all of the stakeholders to focus on the findings and discuss them in a coordination meeting.

5.4 Produce new knowledge and learning support

Producing new knowledge and learning support means that M&E findings can produce new knowledge and learning for the stakeholders. With this new knowledge and learning, an effective decision-making can be created. Based on the questionnaire, it obtains that mean and median are lower than the three previous indicators. They are 2.4 and 2 respectively, while the standard deviation is 0.6. Meanwhile, the chart shows that the proportions of fulfilled and partly fulfilled component are similar. It can conclude that M&E team should be increased in encouraging new knowledge and learning support in the FEWS project.

Based on the interview, all of the stakeholders state that basically there is new knowledge and learning support produced by M&E team in the FEWS project, especially in M&E and project itself. Before being involved in the FEWS project, the stakeholders are involved in the other projects without M&E implementation. In this project, they learn a how to develop and achieve the outputs and outcomes through M&E instruments. Regarding new knowledge and learning support about the project, M&E team facilitates the discussion forum where stakeholders from various disciplines share their knowledge and science. M&E team also bridges the conflict of interest that possibly occurs among them. It uses participatory concept to encourage new knowledge and learning in this project.

Figure 7 Stakeholders' perception on M&E effectiveness based on 'producing new knowledge and learning support' indicator (see online version for colours)



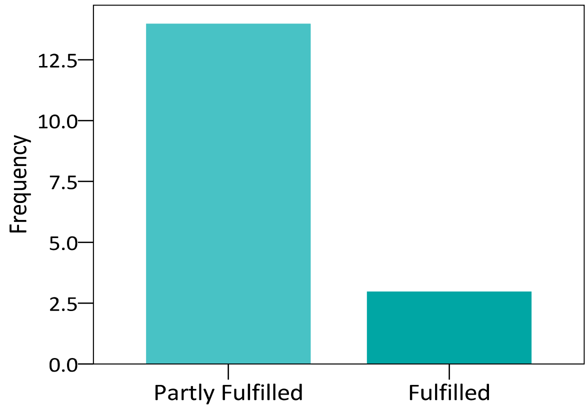
However, several stakeholders argued that there is no significant knowledge transfers occur intensively and regularly during the project. Knowledge transfer is only held by National NGO as donor. The stakeholders then suggest that M&E team should develop documentations about all of the new knowledge and learning support in the FEWS project. These documentations then can be distributed and shared with them.

5.5 Capacity building of involved parties

Capacity building of involved parties is related to producing new knowledge and learning support. This indicator means that M&E can develop the capacity of involved stakeholders by creating new knowledge and promoting learning process based on this knowledge. The questionnaire distribution shows that mean, median and standard deviation are 2.2, 2 and 0.39 respectively. These values mean that almost all of the stakeholders thought that M&E team has partly fulfilled the indicator. Figure 8 shows that only 23.08% stakeholders stated that M&E team can optimally build the capacity of the involved parties. It means that M&E team has not yet enough built the capacity of the involved stakeholders.

The result of interviews with the all stakeholders shows that basically there is a capacity building of involved parties held by M&E team. Meeting coordination held regularly becomes a means of this process. Stakeholders share each other their own ideas based on their discipline and background. Moreover, they learn to use participatory concept. There is learning process that is embedded by M&E in project. It is similar with IDS Policy Briefing (1998) explaining that in a project, M&E team should be able to create a learning process based on its finding during the project implementation. New findings, knowledge and experiences become something that can increase the stakeholders' capacity. Hermans et al. (2012) also said that in participatory approach, participants share their knowledge and information, communicate their various values and objectives, and ideally, arrive jointly at agreed strategies to employ their resources. It becomes M&E team portion to keep exploring something new in the project, so it can be a beginning in creating better changes.

Figure 8 Stakeholders' perception on M&E effectiveness based on 'capacity building of involved parties' indicator (see online version for colours)



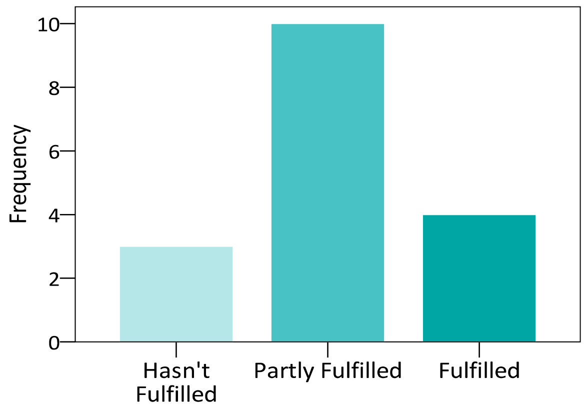
However, the stakeholders argued that M&E team performance is not effective enough to build their capacity. It seems that coordination meeting is not enough to be the only means to increase their capacity. There should be other means, such as site visit or developing brief documentation about M&E results that can be easily understood. Furthermore, stakeholder from national NGO suggests that capacity building through coordination meeting seems can be more effective if there are more experts in the same field joining in the meeting. Beyond this result, it seems that stakeholders' perception about this capacity building will increase if it does not only involve the stakeholders, but also the community as the beneficiaries and the Government of Semarang City. The community should be involved in this project because it is the part of participatory process.

5.6 Motivate the stakeholders

Motivating the stakeholders means that M&E results should allow the stakeholders to learn new knowledge, so that they can increase their motivation and improve their performance. Data from questionnaire distribution shows that mean, median and standard deviation of this indicator are 2.1, 2 and 0.66 respectively. Most of 61.54% stakeholders said that M&E team has partly fulfilled the indicator, while only 23.08% who stated that M&E team has fulfilled it and even there is 15.38% stated that M&E team has not yet fulfilled it. These data means that M&E team performance in motivating the stakeholders needs to be improved.

From the interviews, it shows that M&E team has actually motivated the stakeholders in the FEWS project. Almost all the stakeholders said that reminding the stakeholders is one of the ways. Reminding the targets and its schedules regularly through coordination meeting and personal approach makes the stakeholders can find out their performances toward the targets achievement. According to the city team, neutral position of M&E team in the FEWS project allows it to be able to give an enlightenment and new understanding to the stakeholders. Furthermore, one of local partners said that besides reminding the stakeholders, M&E team also monitor the quality of the project implementation.

Figure 9 Stakeholders' perception on M&E effectiveness based on 'motivate the stakeholders' indicator (see online version for colours)



However, there is different opinion from other implementers. They said that motivating the stakeholders is actually the responsibility of the project manager. M&E team can give some suggestions and evaluations to the project manager. The project manager then can share them with the stakeholders. Thus, it is expected that they can be more motivated and their performance can be increased. Beyond those differences of stakeholders' opinions, the M&E team performance needs to be improved. Developing an interactive dialogue more intensively with the stakeholders seems to be one of the solutions.

5.7 Ensure the project accountability

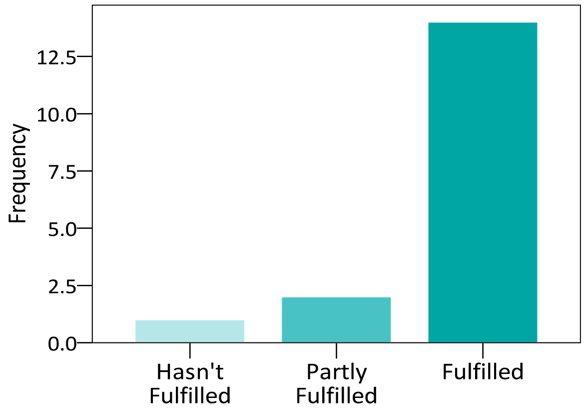
Ensuring the project accountability can be created if M&E should be able to provide the information in a structured and formalised way and made them available to stakeholders. As a result, there will be increasing transparency and promoting trust among the stakeholders, so that decision-making can be made and accountability of the project will be created. From the questionnaire distribution, it shows that mean, median and standard deviation are 2.7, 3 and 0.56 respectively. It means that almost all of the stakeholders argued that M&E team can ensure the project accountability. It is proven by the bar chart, showing that 76.92% stakeholders said that M&E team can fulfil the indicator. However, there are still few stakeholders (7.69%) said that M&E team has not yet fulfilled it.

The result from questionnaire distribution about the M&E performance in ensuring the project accountability is supported by stakeholders' statements in the interviews. According to the one of the implementers and PIU coordinator, one of the accountability forms in the FEWS project is when M&E team always assess the quality of the project implementation and the output achievement. The results of the assessments are then delivered to the project manager in order to be able to be discussed with the project team through coordination meeting. However, city team has a different opinion about the project accountability. He argued that M&E team is not responsible to ensure the project accountability. The one who should be responsible is the project manager.

Based on the different opinion about the M&E and project accountability, Rossi and Freeman (1988) have their own theory. The role of M&E team to ensure the project accountability is actually varies. There is a project that places the M&E as outcome evaluation, and there is also a project that places it as management or accountability.

According Woodhill (2000), accountability consists of two dimensions. The first dimension is the accountability that only control the project implementation based on the determined plan and more emphasises on the outputs achievement, while the second dimension more notice the accountability of the whole project management. The intended accountability is design and project plan, funding, outcomes, outputs, and achievements.

Figure 10 Stakeholders' perception on M&E effectiveness based on 'ensure the project accountability' indicator (see online version for colours)



The project accountability in the FEWS project is the authority of project manager and also M&E team. However, project manager and M&E team have different responsibility. Project manager is responsible towards quality control of the whole project management including the financial. To run its responsibility, project manager coordinates each other with the whole team. Meanwhile, M&E team monitors and controls the implementers' work. Comparing with the theories of Rossi and Freeman (1988) and Woodhill (2000), M&E team has a responsibility in the first dimension. It helps the project manager to control the activities in the project and output achievement, and also to control objectives and impact achievements.

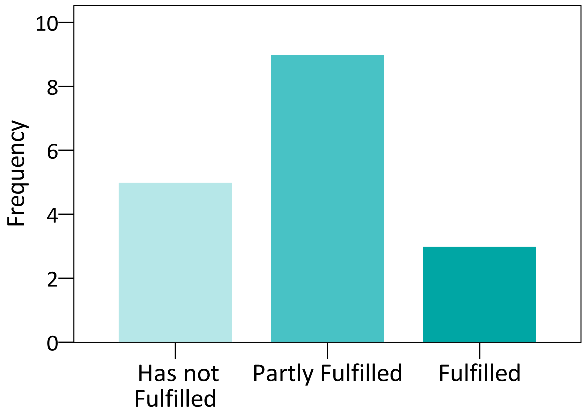
5.8 Encourage public and political support

Encouraging public and political support means that the M&E results should be able to be a means for gaining the public support, such as for getting financial support or for mobilising greater personal commitment, as well as for advocacy support. Data from questionnaire distribution shows that M&E team's performance is not good enough in encouraging public and political support. It is proven by mean, median and standard deviation values are 1.9, 2, and 0.7 respectively, and also only 23.08% of stakeholders said that M&E team has fulfilled the indicator, 46.15% said that M&E team has partly fulfilled it, and the rest (30.77%) stated that M&E team has not yet fulfilled it.

The results of the interviews are similar to those from questionnaire distribution. Almost all of the stakeholders said that there are only few forms of public and political support from M&E team during two years of the FEWS project implementation. PIU coordinator even said that encouraging the public and political support is not the M&E team responsibility, but the project manager. Meanwhile, stakeholder from national NGO said that community development team has a bigger role in public support than M&E

team. The stakeholder then suggest that M&E team should have a bigger interaction with the community by recording the success of the project and delivering it to the community.

Figure 11 Stakeholders' perception on M&E effectiveness based on 'encourage public and political support' indicator (see online version for colours)



Regarding the response of the stakeholders, M&E team seems have not yet had a big role in encouraging the public and political support in the FEWS project. There are two reasons. Concerning the public support, in fact, M&E team has a big interaction with the community through regular recording the benefits derived by the communities before, during and after the certain activity implemented. Besides, M&E team also takes part into several communities' activities to recaps the community involvement. Concerning the political support, in fact, M&E team has done its part to encourage the political support since the first year of the project implementation. But, there is low progress during three years of project implementation due to the binding regulations and bureaucracy in Semarang. However, PIU and project manager advocate continually to council members and mayor. They expect that the results can support either during the project or after the project is finished. It seems that advocacy to the council members and mayor should be done more intensively.

6 Comparison among indicators in assessing the M&E effectiveness in the FEWS project

After analysing each indicator in the M&E effectiveness of the FEWS project, comparison among those indicators is identified to find out the performance of M&E team. Its reasons and the indicator that M&E team needs to improve based on the stakeholders' perception.

Figure 12 shows that M&E team has succeeded on four indicators based on stakeholders' perceptions. They are:

1 ensure the planned outcome is achieved

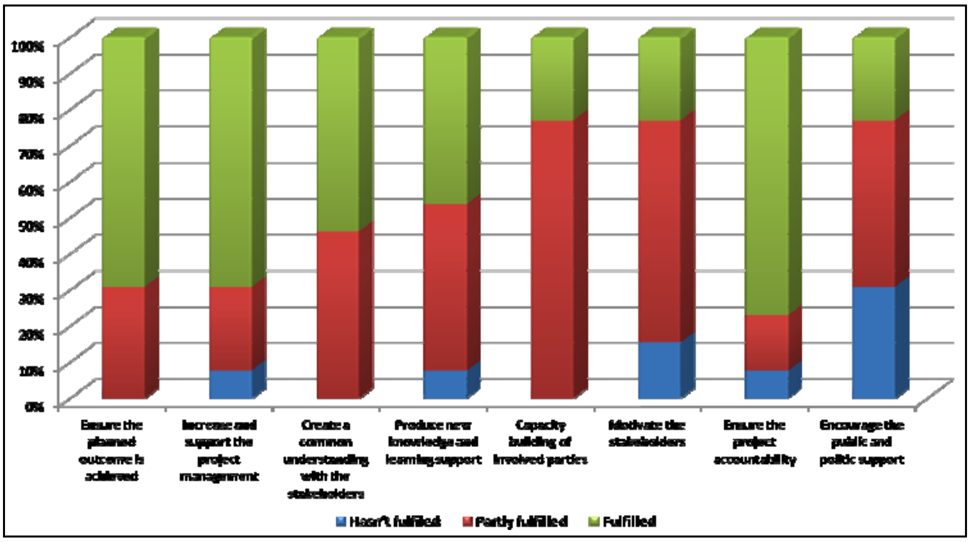
2 increase and support the project management

3 create a common understanding with the stakeholders

4 ensure the project accountability.

This succeed is indicated through the percentages of fulfilment M&E team's performance in each indicator which is more than 50%.

Figure 12 The proportion of M&E effectiveness in eight indicators (see online version for colours)



The comparison among indicators in assessing the M&E effectiveness can be divided into two types: internal and external indicator. Internal indicator consists of those that affect directly the internal project, include its management and team. External indicator consists of those that affect not only the internal project, but also the stakeholders outside the project, such as community and the city government. Based on these definitions, internal indicator consists of:

1 ensure the planned outcome is achieved

2 increase and support the project management

3 create a common understanding with the stakeholders

4 produce new knowledge and learning support

5 motivate the stakeholders

6 ensure the project accountability.

Meanwhile, the external indicator consists of:

1 capacity building of involved parties

2 encourage the public and political support.

M&E team succeed in internal indicator rather than the external one. 'ensuring the planned outcome is achieved' is the most successful internal indicator than others. M&E team has been effective in this indicator for some reasons:

1 this indicator is the most important roles of the M&E team that is emphasised by all stakeholders from the beginning of the project

2 M&E team conducted indeed its role during the project implementation.

M&E team also ensured the outputs achievement, outcomes and reminded the implementers about the activity status (completed, ongoing, or delayed) during the project implementation. With these facts, the stakeholders agree that M&E team has helped on targets achievements and deliverables. NGO adds that M&E team can improve their performance in this indicator through ensuring achievement that is not only based on target and output, but also its quality.

The second group of indicators that M&E team performs best consists of 'increase and support the project management' and 'ensure the project accountability'. M&E team has actually been effective in these internal indicators. M&E team as an independent unit allows the project can be transparent and accountable. The BTC Pipeline Project: Lessons of Experience, IFC (2006) stated that accountability and transparency are the keys of project success. Therefore, it needs external monitoring which is trusted and technically capable in order to create the accountability and credibility of the project. External monitors should come from NGOs, government regulators, academics and scientists, community representatives, technical experts, or eminent persons. The external monitoring is also contracted by Chad Cameroon pipeline project, operated by ExxonMobil (http://www.ifc.org/envirolessons). This project contracted External Monitoring Group (ECMG) to monitor and evaluate the performance of the operator and governments in implementing their environmental commitments. ECMG assess the effect of the project on the environment by collecting information from the affected populations, NGO'S, and all stakeholders that become part of the project. All the results of M&E are a public document and published.

The third group of indicator that M&E team well in its performance is creating a common understanding with the stakeholders. The assessment result shows that basically M&E team has been effective enough in this internal indicator. M&E team roles as facilitator to accommodate and bridge ideas and perspectives from the stakeholders. It also roles as facilitator to discuss new knowledge, that can be found at coordination meeting. PIU expects coordination meeting to be more intensive. National NGO adds that M&E team should write and share a brief summary about findings and updating progress in coordination meeting.

The fourth group consists of an internal indicator that M&E team has not well enough performed. It is producing new knowledge and learning support. Stakeholders suggest that M&E team should not only hold a discussion forum, but also conduct comparative study and site visit more frequently. It is expected that sharing knowledge between project team can be more effective.

The fifth group of indicator that M&E team should improve consists of 'motivating the stakeholders' and 'capacity building of involved parties'. The first is internal indicator while the second is external one. The first indicator means that M&E team, through its findings, should allow the stakeholders to learn new knowledge, so that they can increase their motivation and improve their performance in a project. It means that this indicator becomes one of the challenges for M&E team on the next projects. In the FEWS project, M&E team has basically motivated the stakeholders by reminding the targets and its schedules through coordination meeting and personal approach. However, this method seems less effective. During the project implementation, M&E team only delivers directly the M&E result about progress of the project to project manager and donors. The results are then communicated by the project manager in coordination meetings. The stakeholders suggest that, besides being reminded about the target achievement, they need the results is delivered directly to them, so it can be a motivation in achieving the targets.

The 'capacity building of involved parties' indicator means that M&E can develop the capacity of involved stakeholders by creating new knowledge, promoting learning process based on this knowledge, and guiding action. It is one of the external indicators that still being a challenge for M&E team as it involves not only the stakeholders in internal project, but also the communities and city government.

The last group of indicator that needs most improvement from M&E team is encouraging the public and political support. In the FEWS project, M&E team has basically run its role, but it seems that it takes quite long time to see the results. In encouraging the public support, M&E team has a big interaction with the community in regard of the project beneficiaries, while in encouraging the political support, M&E team has done some advocacy to the council members and mayor since the first year of the implementation.

Several efforts can be done by M&E team in encouraging the public and political support. First, M&E team can raise national issue that related to international issue, for example the MDGs' achievement. M&E team can bridge the local stakeholders, donor agencies, communities and others to achieve the MDGs' purpose. Related to this project, the poor and the group that are vulnerable towards disaster becoming the beneficiaries of the project at once the target of MDGs. M&E team then can develop the indicators that related to the increasing ability of the poor and vulnerable in reducing disaster. Second, M&E team can share the project achievements to the communities and their role in the project through community development team. This information is important for them because this project is a result of many parties' collaboration and participation. This distribution of information to the communities is similar with the statement of Hermans et al. (2012). He states that the characteristic of participative approach is that all stakeholders who involved are given a chance to share the information, knowledge about benefits, purposes and project objectives. Participatory approach also needs to be accompanied by an awareness of these risks and adherence to principles, such as building trust and inclusion of marginalised groups (Hermans et al., 2012). Participatory M&E needs carefully planned that is begun by analysing possible risks and pitfalls and then identifying involved stakeholders (Hermans et al., 2012).

Furthermore, the Global Environment Facility (GEF) project in 2010 conducted M&E in two levels: portfolio and project. Portfolio monitoring focuses on national GEF project. Meanwhile, portfolio evaluation focuses on the importance of evaluation to identify problems, delays, management support, strategic targets, etc. M&E team in GEF project uses these portfolios to encourage the support of public and politic aspect. Meanwhile, M&E in the GEF also use log frame, indicators, and M&E plans. M&E team in the FEWS project can take some lesson learned from them, namely:

1 implement the utilisation of portfolio to improve the M&E performance in encouraging the support of public and politics aspect

2 M&E team should share the results of M&E among the stakeholders and partners.

7 Conclusions

M&E team's performance in the FEWS project is effective enough. There are two reasons. First, M&E team can create an conducive atmosphere to the project. Second, it involves a lot of stakeholders with various disciplines and backgrounds. Considering these reasons, M&E team's performance for two years of the FEWS project implementation should be highly appreciated. The process and result of project will be different without M&E. Notably, the implementation of project will not have a clear schedule. In addition, project achievement will not be in accordance with the PIP because there is no monitoring during the project. Moreover, there is stakeholder egocentric due to limited communication among stakeholders.

The findings of this study show that from eight indicators, M&E team has been effective in running its role in four ones. Including to internal indicator, they consist of:

1 ensure the planned outcome is achieved
2 increase and support the project management
3 create a common understanding with the stakeholders
4 ensure the project accountability.

'Ensuring the planned outcome is achieved' is the only indicator that M&E can give its best performance. M&E team actually can also perform its best in the second and fourth indicator. 'Creating a common understanding' is also another indicator that M&E can well perform. M&E results can be new findings that are discussed among the stakeholders, so a common understanding among them can be created.

Four other indicators are those that M&E team needs to improve. They are:

1 produces new knowledge and learning support
2 motivate the stakeholders
3 capacity building of related parties
4 encourage public and political support.

The first and second are the internal indicator, while the third and fourth are external one. M&E team basically has run these indicators, but it is not effective enough. Based on its finding in the FEWS project, M&E team has not yet contributed in increasing new knowledge and learning for the stakeholders. M&E findings also have not yet motivated the stakeholders to increase their performance. 'Encourage public and political support' is the only indicator that need more improvement than others. It seems that this indicator takes a long time in its process. In addition, it seems that M&E team more focused on the output and outcome achievement, so that its roles on the external indicator still need to improve.

This article provides new insight for Semarang government because M&E is necessary for government's projects and programs, especially project which the involvement of various stakeholders. M&E can guarantee outputs and outcomes of achievement that consider quality and punctuality. In addition, M&E with participatory concept will give equal portion for the involved stakeholders because M&E team is as a bridge to realise the expectation of involved stakeholders.

Acknowledgements

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Notes

1 The index value for the vulnerability village in Semarang show that the baseline condition (2005), vulnerability index ranged from 0.16 until 0.53, in 2025 VI ranged between 0.17–0.55, while the projection for 2050, VI ranged from 0.17 to 0.58 (ISET et al., 2010).