

THE ASSESSMENT FRAMEWORK FOR PARTICIPATORY PLANNING TOOLS

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Water System and Global Changes

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Table of Contents

Acknowledgement	2
1. Introduction	5
1.1 Participatory Planning Tools	5
1.2 Evaluation of Participatory Planning Tools	6
1.3 Problem definition	7
1.4 Research questions	8
2. Process steps	9
2.1 Updating the assessment framework	9
2.2 Testing the assessment framework in Bangladesh workshop setting	10
3. Research Design	12
3.1 Conceptual framework	12
3.2 Criteria for the assessment framework	14
3.3 How to evaluate the assessment framework	15
Questionnaires	15
Observations	16
3.4 Analysis data	17
3.5 Participatory Planning Tools in the Bangladesh Training Workshop	18
DENVIS	18
Design Charrettes	19
Participatory Scenario Development (PSD)	19
MOTA	19
4. Results and Findings	21
4.1 Updated the assessment frameworks	21
4.2 Tested the assessment framework in Bangladesh workshop setting	23
Observation during the training workshop (activity)	24
Participants' and tool developers' expectations, goals, and direct results (input and result)	26
5. Discussion and Conclusion	32
5.1 Possible limitation and how this research deal with it	32
5.2 Evaluation of the assessment framework	33
6. Reflection and Recommendations	36
6.1 Updating the assessment framework	36
6.2 Reflections and recommendations	36

References	39
Annex 1. Questionnaire for Participants.....	41
Questionnaires Aims for Participants	41
Pre-Questionnaire for participants	42
Background	42
Context-related characteristics.....	42
Criteria	43
Open-ended questions	44
Post-Questionnaire for participants (result).....	46
Criteria.....	46
Open-ended questions.....	48
Post-Questionnaire for participants (effect).....	50
Criteria.....	51
Open-ended questions.....	53
Annex 2. Questionnaire for Tool Developers.....	55
Questionnaires Aim for Tool Developers.....	55
Pre-Questionnaire for tool developers	56
Criteria	56
Open-ended questions.....	58
Post-Questionnaire for tool developers (result).....	59
Criteria	59
Open-ended questions.....	61
Post-Questionnaire for tool developers (effects)	63
Criteria.....	63
Open-ended questions.....	65
Annex 3. Observation Guide	66
Context.....	66
Interpersonal dynamic within groups	67
Interaction with the tools	68
Role of facilitator.....	69
Tools function	70
Annex 4. Timeline.....	71

1. Introduction

There has been increasing interest to involve public more in the decision-making process. The reasons for the rise of interest in public participation could be derived from either as a justification of democracy and human rights or merely to increase the legitimacy of the policy product (Rowe and Frewer 2003). However, the ability, attitudes, beliefs, and motivations of the public to participate in the complicated decision-making process are questionable (Earlel and Cvetkovichl 1997; McCallum and Santos 1997). Therefore, the traditional view still sees that technical issues should be left to the experts and scientist to avoid failure in the decisions.

Still, the disagreement towards the traditional view grows stronger over time (Basco-Carrera et al. 2017; Hassenforder, Smajgl, and Ward 2015; McEvoy et al. 2018; Rowe and Frewer 2000; Thissen and Twaalfhoven 2001). Arguments among the scientists' community itself often have different opinion about issues, solutions, and risks, making society ask themselves "whom do we trust" and/or "whom do we listen to". Actually, (Fisher 2000) explained that citizens are aware of their dependency on specific expert institutions and their inabilities to take a full charge of their situation (Wynne 1992 in Fischer 2001). The public wants to be more involved in deliberative choices to evaluate risk management process rather than purely alternatives presented by experts. Nevertheless, Willards (1996) in Fischer (2001) proposed that high levels of public ignorance and low levels of public participation offer the participatory activity little encouragement. However, the public also can behave differently at a different time that could result in its low level of public ignorance and high level of public attention (McCallum and Santos 1997). As a result, there is an indication that the public is theoretically capable of being involved in the decision-making process, even if it is not in all stages (Rowe and Frewer 2004).

1.1 Participatory Planning Tools

The current research focused on the effect of public participation towards designing better public participation with better evaluation component in every sector, including delta management. The involvement could be through different mechanisms, such as focus group, questionnaires, training exercise, or workshops. These participatory exercises can be used to bring knowledge and experiences from local and national experts, local and national governments, citizens, and/or NGOs to learn from each other in order to manage a common resource (Jones et al. 2009), which in this case is the delta resource. Participatory planning activity offers co-production of solutions by a wide range of stakeholders (even from stakeholders who hold contrast views on how to formulate problems and solutions for some common resources) to reach an understanding or collective common solution.

The word "participation" is conceptually broad. It can range from low participation until high participation. Low participation is divided into three groups: one group acknowledges the issue, one group giving information about the issue to other groups, and one group asked about their opinion regarding the issue. High participation is also divided into three groups: discussion, co-design by committed to the results, and co-decision making to act as described in ladder or participation (Hassenforder, Smajgl, and Ward 2015). The level of participation that aims to be reached by participatory planning tool (including a participatory planning workshop in Bangladesh) are high participation where participants will be requested to be actively involved in the process in the hopes to trigger discussion by sharing knowledge and experiences from various stakeholders and learning from each other.

The participatory planning tool is one of the types of public participation processes that aims to involve public. Participatory planning tools are defined as “*tools and approaches that enable a variety of actors to participate in the planning process*” (Seijger et al., 2016). These tools are developed and used in Delta planning process to facilitate and support high participation between stakeholders and possibly reach consensus (Evers et al. n.d.). Participatory planning activity category in literature can be broad, ranging from evoking stakeholders’ opinions and interaction, such as focus group and scenario development, to evoking decisions of performance and alternatives from which actual policy might come from, such as consensus conferences (Goosen, Janssen, and Vermaat 2007; Rowe and Frewer 2000).

A participatory activity that this research used as a study case is a training workshop in Bangladesh. The workshop was held in cooperation with Khulna University and *The Center for Environmental and Geographic Information Services (CEGIS) in Khulna city for five days starting from 8th until 12th July*. The workshop can be considered as the tool itself; it may also be called multi-tools because it consists of several different tools (such as design charrette, participatory scenario development, and Delta Envisioning Support System (DENVIS)). Also, the workshop will be seen as a participatory planning tool as well as a participatory planning activity, therefore there will be no differentiation between those two in the current report as described in McEvoy (2017).

1.2 Evaluation of Participatory Planning Tools

This research is part of the “Strategic Delta Planning Project: Strengthening strategic delta planning processes in Bangladesh, the Netherlands, Vietnam and beyond,” in which IHE Delft Institute for Water Education is the project leader. IHE is the institute that focuses on broad fields of water engineering, water management, environment, governance, and sanitation in educational, research and institutional strengthening activities. The Strategic Delta Planning Project is one of the running projects in IHE since March 2015 that aims for “better understanding the dynamic delta planning processes within a longer time-frame and the roles of stakeholders, experts, and policy-makers therein” (IHE DELFT 2018). One of the project’s vital element is the role of knowledge and tools that support participatory processes which is one of the reasons of this research: to get a better understanding of the participatory planning tool impact on the participants and tool developers learning through evaluation of Participatory Planning Tools.

There is lack of consideration and lack of attention towards the quality of the participatory planning tools to achieve participation in a broader purpose, not only evaluation around technicalities (Evers et al. n.d.). The purposes of the tools can be different, evaluation criteria to evaluate the planning activity systematically can be defined and specified. This report presents an assessment framework developed for evaluating participatory planning activity and trying to test it in one case in Bangladesh. The criteria will be designed based on previous attempts in Vietnam workshop, interview with experts, recent scientific literature, and the previous assessment framework that was made by Van der Stroom (2017) (adapted from (Thissen and Twaalfhoven 2001)) and his recommendations.

The objective of the research is *to improve the assessment framework for evaluating **Participatory Planning Tools effectiveness by analyzing the previous attempts and re-testing it in the workshop***. The assessment framework and evaluation criteria are intended to be generic to allow evaluation of the effectiveness of different participatory planning tools, or at least in similar participatory planning exercises. The aim is to assess to which extent the participatory planning tools support to the collective decision-making process, facilitate exchange of knowledge and fair of all participants’ involvement.

1.3 Problem definition

Participatory Planning Tools effectiveness can be anything depending on how we define the effectiveness. Some criteria might reflect the complexity of the problem but not the efficiency of the proposed solution. Assessing the quality of criteria generated could involve value judgments being applied to those ideas whereas focusing on the development of group consensus might detract from the diversity of opinions that may have value in their own right, or at least should be made public as part of the transparent process (Rowe and Frewer 2004). This research tries to change the assessment to include group behavior, and the quality of solutions produce, hence the assessment will take multiple criteria into account.

The definition of effectiveness was hard to define because of a wide variety of perspectives and interpretation of what should be included or excluded in participatory exercise. Overall, one should be aware of the generalization of evaluation criteria, for which the participatory activity is considered adequate. The evaluation criteria can be substantially different between participants and organizers. Also, there is a need to be aware of outcomes and process of participatory tools. The outcome is related to what extent the participatory tools affect a participant that might benefit of the overall planning and implementation of the project, for example, increase in participants' knowledge or attitudes while the process is more related to the fair involvement of all participants during the participatory process, for example, information transparency and freedom of speech during the process. The focus of evaluation can be on the outcome (Carr and Halvorsen 2001), the process (Halvorsen 2001), or both (Rowe and Frewer 2004) depending on how effectiveness is defined in the research. The outcome, however, can be difficult to determine because the results may have already started to manifest during the exercise or only seen after months or years. Therefore, time consideration needs to be considered carefully in carrying out the evaluation. The consideration to time was included in this assessment framework by measuring the effect directly after the workshop and eight months after the workshop.

From a democratic perspective, a useful exercise would be to try to include everyone's opinions to describe the problem and reach a solution in a fair way, therefore some criteria that are related to actively involved participants might be prioritized. From a decision-making perspective, a better output might be weighed more than other conditions, therefore some criteria related to decision quality would be prioritized. Likewise, from an education perspective, a learning process for participants to discuss their knowledge and perspectives about the issues in the exercise is considered more vital. In this case, the criteria related to support group dynamic would be prioritized.

Each perspective tries to cover the full range of participation exercise. It might even be argued that every exercise is unique and ought to be evaluated according to very specific objectives. Therefore, even though this assessment ought to be a general assessment framework for all participatory planning activity by using the training workshop as an example of its implementation, the different contexts can result in different performances of the tools. The relationship between participants and participatory planning tool can differ from what tool developers intend to use. Participants can give a different meaning that was not intended by the tool developers depending on their interest (Evers et al. n.d.). Aside from giving a different meaning, participatory planning tools can give different state of perception in both participants and tool developers towards the participatory planning process in general. This study aims to get a better understanding on the different meanings and state of perception both by participants and tool developers.

In the following section, I explain the process that I took to develop the assessment further. In section 3, I describe the methodology for this study which mainly focuses on questionnaires and observation guide. Section 4 describes the findings and results from an effort to update the assessment framework and to test it in the Bangladesh training workshop. In section 5, I discuss the results and make a conclusion based on the discussion. Lastly in section 6, I establish the reflections and recommendations from the testing of a manual guide (questionnaires and observation guide) in Bangladesh training workshop.

1.4 Research questions

General question: “How can Participatory Planning Tools performance be evaluated in a structural way through an assessment framework?”

Sub-questions:

1. What is the component of the assessment framework? (recent literature and previous report)
2. What are the criteria to assess **Participatory Planning Tools?** (recent literature and previous report)
3. **How are the criteria measured?** (recent literature, previous report, and interview)
4. What are the goals of **the training workshop for each tool developer?** (pre-questionnaires)
5. What do participants expect from **Participatory Planning Tools?** (pre-questionnaires)
6. What do participants learn directly (results) from **Participatory Planning Tools?** (post-questionnaires and observations)
7. What do participants learn for a short-term future (effects) from **Participatory Planning Tools?** (post-questionnaires and observations)
8. What can be learnt from the application of the **assessment framework for both participants and tool developers?** (all questionnaires, interview with experts, and literature)

2. Process steps

In this chapter, I will explain the steps that I took over the four months working in this internship project. I updated the assessment framework that was developed by the previous student who worked on this project and the team (Van der Stroom, 2017). I divided the process into three steps: firstly, updating the assessment framework itself based on the previous recommendations, literature, and what I found lacking from it. Secondly, testing the framework in Bangladesh workshop setting that contained the same four participatory tools similar to the Vietnam workshop in 2016 which is also part of this project. Thirdly, analyzing the data from questionnaires and observations and creating an evaluation of the assessment framework based on the participants and experts' feedback and my first-hand experience in applying the assessment framework. This final part will be explained in detail in the "How to evaluate the assessment framework" sub-chapter.

2.1 Updating the assessment framework

The important activities that I did to update and evaluate the assessment framework for participatory planning activity are summarized in table 1. Table 1 consists of all the important activities that I did during the internship for four months especially related to interviewing experts. Other activities were a presentation of the internship result as well as participating and testing the assessment framework in Khulna, Bangladesh. The result of discussion and interview can be found in chapter 4.1.

Table 1. An important activity in updating and evaluating the assessment framework

No	Activity	Time (2018)	Topic of activity	Additional information
1	Brainstorming with Jaap Evers	End of April	Discussing participatory planning activity, participatory planning tools used in the training workshop, and the gap in knowledge of its effectiveness	Supervisor, the person in charge for Bangladesh workshop, and facilitator for MOTA tool
2	Interview with Jarl Kampen	Mid-May	How to design this research and discuss the feasibility of the methods that could be used given limited time.	Experts in statistic and methodology and Assistant Professor at WUR
3	Meeting with all tool developers	Early June	Discussion on Bangladesh workshop schedule, detailed content of the participatory tools, and the TRM issue in Pakhimara and Khulna region.	Consisting of Jaap Evers, Maaïke van Aalst, Clim Soree, and Like Biljsma.
4	Email communication with Rica Martyna	Mid-June	Testing and discussing the first draft of questionnaires	Master student at water system and global changes chair group WUR
5	Email communication with Wisya Aulia P.	Mid-June	Testing and discussing the first draft of questionnaires	Master student at environmental system analysis chair group WUR
6	Interview with Like Biljsma	Mid-June	Discussing the first draft of questionnaires and DENVIS tool goals and how it works.	Facilitator for DENVIS tool and experts from PBL
7	Interview with Clim Soree	Mid-June	Discussing the second draft of questionnaires and design charrettes tool goals and how it works.	Facilitator for design charrettes tool and urban planner from Bosch en Slabber

8	Participating in Strategic Delta Planning workshop in Bangladesh	8 th July – 12 th July	Participating in a five-day workshop in Khulna and testing the assessment framework	I was testing the pre-questionnaire and post-questionnaire (result) at the beginning and at the end of this training workshop respectively. There was a field trip on the second day to Beel Pakhimara area
9	Meeting with Jaap Evers	Mid of July	Discussing the evaluation of the assessment framework, feedback of training workshop, and lesson learnt.	Supervisor person in charge for Bangladesh workshop, and facilitator for MOTA tool
10	Presentation	26 th July	Presenting the internship results and discussing on what can be done better for the assessment framework	Consisting of Jaap Evers, other members of the project: Wim Douven, Shahnoor Hasan, and Juan, and other colleagues

2.2 Testing the assessment framework in Bangladesh workshop setting

The testing includes pre- and post-questionnaires as well as observation. The pre-questionnaire is handed out to the participants one week before the workshop, while the post-questionnaire is given on day 5 of the workshop for the result and eight months after the workshop for effect. Before this actual application on the field, I interviewed experts to test the questions in the questionnaires to ensure that the language used in the questions are easy to understand and coherent. The observation is done using a semi-structured observation guide to enrich the data from the questionnaires.

The framework is tested in Bangladesh workshop setting for five days starting from July 8th until 12th 2018 titled “Participatory Planning Tools for Strategic Delta Planning and Management”. The aim of this training workshop is not only to introduce different participatory tools and how to use it (training for trainees) but also to identify feasible approaches and methods for Beel Pakhimara Tidal River Management (TRM) issue in Khulna region. This workshop is part of the more significant project “Strategic Delta Planning: Strengthening strategic delta planning processes in Bangladesh, the Netherlands, Vietnam and beyond.” Based on the glass hour framework in (Seijger et al. 2017), participatory tools are part of plan formulation in strategic delta planning process. Participatory planning tools may help to facilitate communication between stakeholder participation and social learning and support the implementation of strategic delta plan because they will actively be involved in shaping and directing the decision-making process.

The main issue was related to stakeholder conflict between local citizens and farmers with government agencies on an implementation of TRM programs to create inundation on Beel (often using agricultural area) for a specified period of 2 years in order to decrease sedimentation on the river and to increase the land height by trapping sedimentation on the land (de Die 2013). Most of the local citizens and farmers rejected the idea of their area, including agricultural areas, to be intentionally flooded for years for others to live flood-free. The figure 1 created by J. You and V. Altounian in (Cornwall 2018), the figure 1 can serve as an illustration of how TRM works in Beel Pakhimara.

The Bangladesh workshop consisted of four tools developed by tool developers for the participatory planning tools: MOTA, DENVIS, design charrettes, and participatory scenario development (explained further in chapter 3.5). These tools are used by participants on the third and fourth day. On the second day, an excursion to Beel Pakhimara near Khulna city was held to better capture the problems in the field. On the final day, the training of trainer session was conducted on how to design/organize/ facilitate a

participatory planning tools and the role of the tools and evaluation and feedbacks for this training workshop.

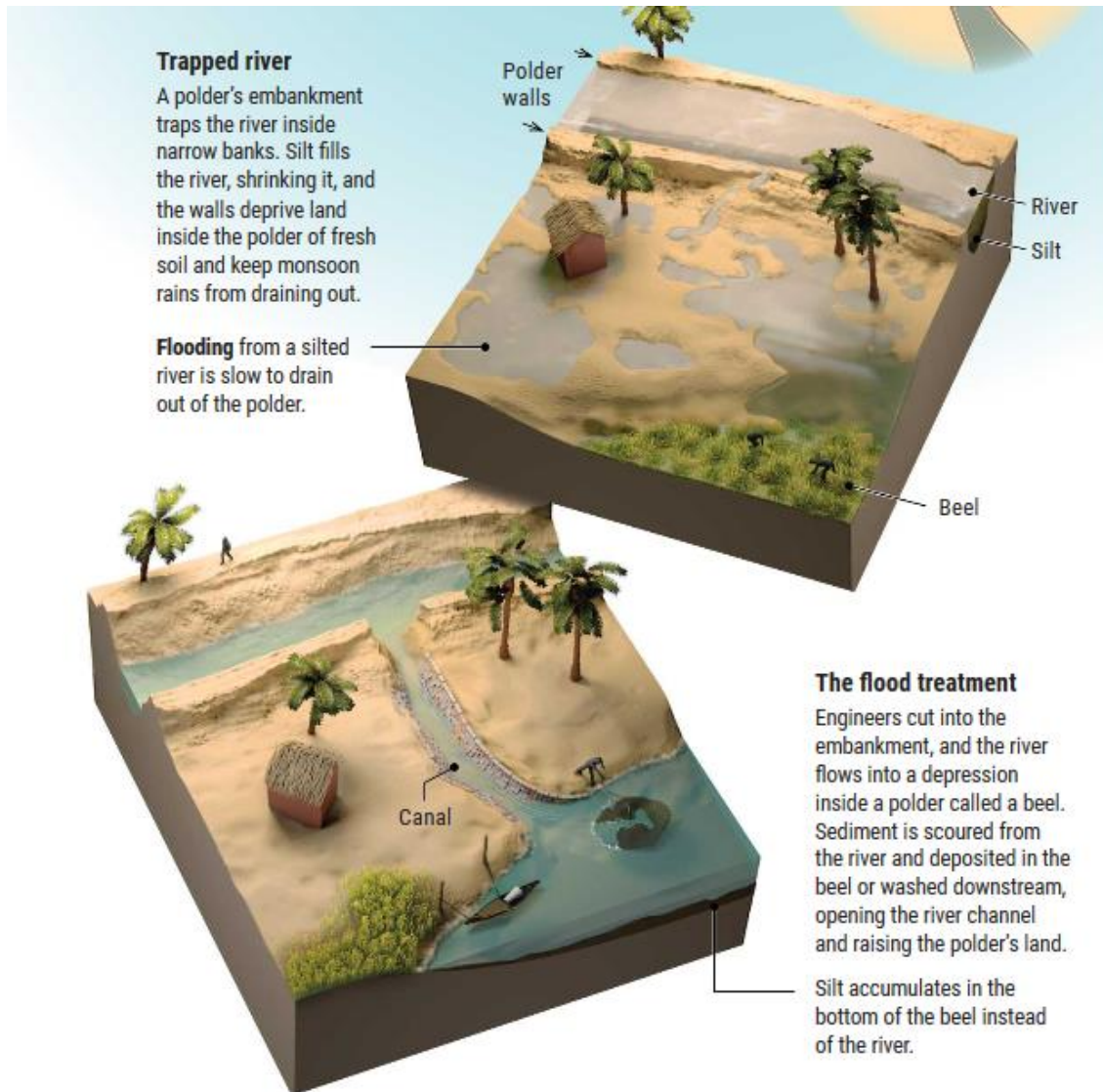


Figure 1. Illustration of silt cycle issue in Beel Pakhimara, Bangladesh (Cornwall 2018)

3. Research Design

3.1 Conceptual framework

The basis of a conceptual framework that was used in this article was developed by (Thissen and Twaalfhoven 2001) to evaluate policy analytic activities. An analytic policy activity is explained as an analytical process of specific policy activity in specific time and place. It can also be used as an assessment framework to evaluate participatory planning tools. Often, many tools are evaluated based on how well the function is working in level of doing what the tools intended to do by tool developers, not on systematic evaluation to assess the effectivity of the tools in some aspect. Later, Van der Stroom (2017) adopted this framework like presented in figure 1 that I also used for this research. The feedback loops in the original framework in Thissen and Twaalfhoven (2001) is deleted in Van der Stroom (2017) because this framework focuses on a single participatory planning activity. It can be argued that the framework is sufficient to evaluate participatory planning activity because the framework meets these three participatory goals or advantages compare to other tools (Barreteau, Bots, and Daniell 2010; Smajgl and Ward 2013)

- a) Local + scientific knowledge (**Participatory Planning Tools**)
- b) Directly experience new system and readily translated into short-term improved actions or decision (**results**)
- c) Facilitate system learning to develop a foundational understanding that can be applied in the long term (**effects**)

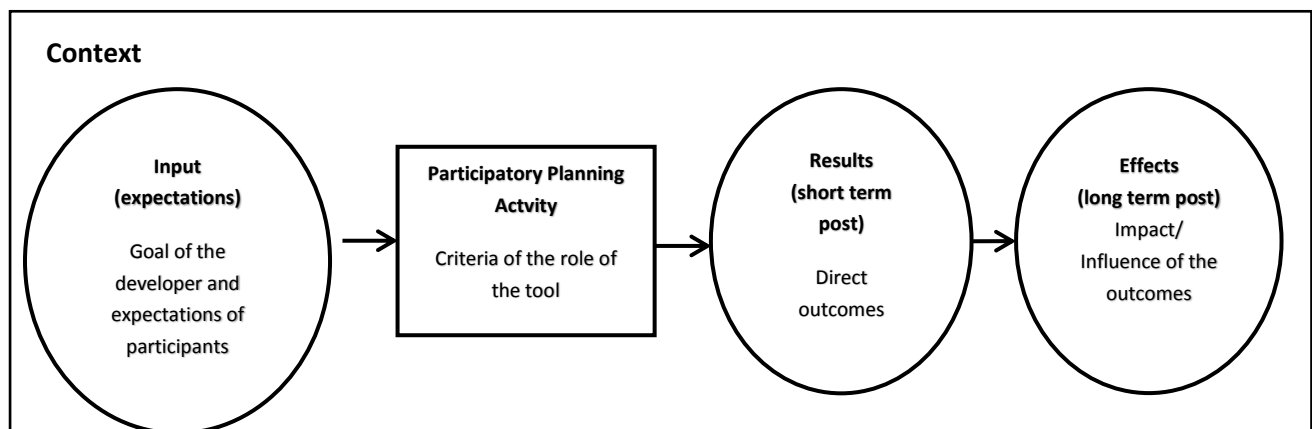


Figure 2: Framework to analyze participatory planning tools (adapted from Van der Van der Stroom, 2017, based on Thissen and Twaalfhoven (2001))

The assessment framework uses linear input-output process model. It consists of four steps as presented in figure 2. The first step is the **input** which is the expectations and goals of tool developers and expectations of the participants. The second step is the performance of the participatory planning tools by using six criteria that are explained in the next sub-chapter. The third step, **results**, is a direct outcome which is evaluated immediately after the participatory planning activity. The fourth step, **effects**, is the impact and influence of the participatory planning activity in the long-term process (in this case, 8-months after the workshop). Outside the framework, the assessment framework also adds context to analyze what factors in the group environment that might affect group behavior. In this framework, we have three

moments of measurement: Input, Results, and Effects. Context will be measured in the input, and the performance will be measured by the differences between inputs, results, and effects.

In the framework above, a distinction is made between content and process. **The process** is defined as “criteria that relate to analysis process and its organization, e.g., the transparency of the organization, the cooperation among and/or involvement of various parties, the internal and external communication during the activity, and the use of resources, time, and money” (Thissen and Twaalfhoven 2001). While, **content** was defined as “criteria that relate to the content of analysis, e.g., the appropriateness of the subject on which analysis was focused, the validity of the analysis method used, and the variety of alternatives and criteria that were considered in the analysis” (Thissen and Twaalfhoven 2001).

In the framework, this research intended to assess the goal of the tool developers and the expectation of the participants, the participatory planning tool activity itself, the direct outcome as a result of the activity, and influence of the outcomes in the long-term. In short, this research intended to find out whether there are changes in participants characteristics before and after the participatory planning activity. Due to a characteristic of the workshop that deviates from the formal planning process, this research focuses more on **effects phase** to see whether the participatory planning tools had an impact on the participants in the actual decision-making process. Even though in effects phase (long-term impact), causal relationship is difficult to conclude, we still can get the information whether the participants from the workshop used the whole product, the idea, part of the idea, or if it only triggered them to establish other innovations in their daily lives or even in a broader spectrum.

In addition, a **context** where the participatory activity is held also become part of the assessment framework. Context is not directly related to the activity, instead it is more part of the input that might affect the activity and the result of it. **Context** used in (Pinsonneault and Kraemer 1990) refers to “factors in the immediate environment of the group rather than in the broader organization environment, e.g., behaviors, and motives of individual group members, the relationship among members of the group and technological support.” The context in this research consist of five elements that were developed based on literature (Basco-Carrera et al. 2017; Hassenforder, Smajgl, and Ward 2015; McEvoy et al. 2018):

- **Participants’ background:** either nation, province, city, or village government body, researcher, NGOs, etc.
- **Participants’ understanding of the issues:** Sectors/policy areas/knowledge fields that participants consider as their expertise and as their interests?
- **Another past intervention attempt:** Similar training or situations that participants previously experienced
- **Pre-existing relationships among participants:** Relationship among participants before the workshop starting with no pre-existing relationship, high-degree distrust, moderate trust, and conflict, to the good pre-existing relationship. It can affect willingness to cooperate.
- **Motivation and willingness to participate in the workshops:** Participants’ involvement in the workshops sessions whether it is based solely on interest (activity as a goal), act as a company or government representatives, or hope to learn about participatory planning tool in the delta (activity as a means)

3.2 Criteria for the assessment framework

This sub-chapter described six criteria that were created to assess participatory planning activity. Many factors affect the performance of participatory planning activities. Based on Van der Stroom's (2017) criteria, literature review, interviews with participatory planning tool developers, and other experts, six criteria were identified for the tools assessment framework. Five of the criteria will be the same as in Van der Stroom (2017) except for sharing knowledge. Work product was added as one of the criteria. The six criteria are:

1. **Facilitating communication** (Abelson and Gauvin 2006; Goosen, Janssen, and Vermaat 2007; Rowe and Frewer 2000; C. Seijger et al. 2017; Van der Stroom 2017; Thissen and Twaalfhoven 2001) can be defined as the exchange of ideas and thoughts among participants and between participants and the instruments. The instruments support a vital aspect in participatory planning tools. Therefore, the ability of instruments to facilitate communication among participants and between participants and the instruments must be checked on its easiness for less-technically minded stakeholders. For example, using the tool instrument such as a drawing on a map to support participants to visualize their thought and interest of thematic topic in spatial criteria in a simple way.
2. **Social learning** (Abelson and Gauvin 2006; Basco-Carrera et al. 2017; Hassenforder, Smajgl, and Ward 2015; Krywkow 2009; McEvoy et al. 2018; C. Seijger et al. 2017; Van der Stroom 2017; Volk et al. 2010) : "Collective action introducing individual resources, knowledge, and experience that undergo a modification with the potential to adapt previous goals and intentions" (Krywkow 2009). Tools can be used to help frame and reframe perceptions to result in social learning. Tools also can help as a prefix in discussions to reveal different stakeholder perceptions and motivation. In short, it can support the better understanding of shared values, interests, and perceptions toward the issues from different individuals with different backgrounds.
3. **Power sharing** (Basco-Carrera et al. 2017; Goosen, Janssen, and Vermaat 2007; Krywkow 2009; Van der Stroom 2017; Volk et al. 2010): "Making the rules of how to participate clear and ensure participants are not withholding any views or opinions during the workshop" (Rasche et al. 2006 in Krywkow 2009). It relates to the interpersonal dynamics within a group in working together. Tools can be used to give freedom of speech and transparent information for all participants regardless of their background. At the same time, the tools' contribution in decreasing power play that affected participants discussion also will be analyzed.
4. **Integration** (Carr and Halvorsen 2001; Goosen, Janssen, and Vermaat 2007; Halvorsen 2001; Van der Stroom 2017; Volk et al. 2010) can be defined as stimulating the integration between sectors and providing insight in side-effects or trade-offs of policy options. Tools can facilitate stakeholder engagement and enhance participation, and through this, the tool can contribute to a more integrated approach and understanding of problems and strategies in the area. Shared language may be developed in the process. It can result in increased trust and reduced conflict among stakeholders from different sectors and levels which lead to cooperation opportunities between actors.
5. **Level of agreement** (Goosen, Janssen, and Vermaat 2007; McEvoy et al. 2018; Van der Stroom 2017): relates to the acceptance of final decision based on how much the participants' interests

are considered in the final product. Tools can be used to identify and resolve conflicts and create consent. By taking into account the values of each stakeholder, it is expected that the level of conflict can be reduced. The tools' contribution to creating high participation level is also determined by looking at the level on which it can generate participation, whether it be a discussion, co-production of knowledge, or co-decision making to act.

6. **Work products** (Bickerstaff and Walker 2001; McEvoy et al. 2018): is defined as the outcome of activities that a specific participatory planning tool intended to produce. The product from the workshop is not the final product, and it may not even be used in the final decision-making process. Therefore, the importance of product quality is arguable. However, participants' perceptions about the quality of the product might be an essential factor.

3.3 How to evaluate the assessment framework

The six criteria were evaluated through questionnaires and observations. The first step of the framework, **input**, is examined through a questionnaire for tool developers (1 month before the workshop) and participants (1 week before the workshop). The questionnaire that was collected in the **input** process is called pre-questionnaire. The second step of the framework, **the activity** (in this case training workshop), is inspected through observation by me both as an observer and as participant. This means I participated actively in the group as a participant and at the same time observed people's behavior based on an observation guide that I prepared before. The third step of the framework, **result**, is studied through a questionnaire for the participant that was given directly at the end of the workshop. The questionnaire that was collected in the results process is called post-questionnaire-1. The fourth step of the framework, **effect**, is determined through a questionnaire for the participant that will be given 8 months after the workshop. The questionnaire that is collected in this results process is called post-questionnaire-2.

All the questionnaires and observation guides are intended to be used as a manual to assess participatory planning activity in general. Some wording is specified to be fit into the context training workshop in Bangladesh. Therefore, some sentences might have been changed to suit the context of other participatory planning activities where this assessment framework will be implemented. In the end, this research also intended to find out how well the questionnaires and the observation guide work when applied in a real-life situation, in this case training workshop, and to establish recommendations to make it better.

Questionnaires

In general, the questionnaire consists of two type questions: open-ended questions and closed-ended questions. All questionnaires contain the question regarding the six criteria to determine the effectiveness of the participatory planning tool and context-type questions. The consistency of asking the same questions for pre- and post-questionnaire are essential to be able to compare the changes in participants' behavior. Otherwise, they cannot be compared directly since different questions could give different perceptions and therefore resulting in a different outcome. Therefore, there is one question with more than ten sub-questions that asks the same questions in all questionnaires. All questionnaires are presented in the Annex of this article.

In addition, there will be a set of questions that will be asked one time in each step of the questionnaire. In pre-questionnaires, there will be questions regarding the participant's background and context and also two to three additional open questions regarding their expectations of the workshop. The background and context questions are important to check potential correlations of specific answers or score to certain

characteristics that participants had. For example, participants from national governments tend to give a higher score in every aspect of the tools compared to other participants. Also, the expectation questions will be compared between the expectation of participants and tool developers and what participants gained after the workshop that will be asked in post-questionnaires.

In post-questionnaires, there will be two questionnaires: post-questionnaire 1, directly after the training workshop to capture the “result” (read the basic framework for further explanation) and post-questionnaire 2, 8 months after the training workshop to extract the “effect” (read the basic framework for further explanation) of participatory tools to participants. In post-questionnaire 1, there will be questions regarding any possible outcome that tools might result in closed-ended type question and open-ended type question and their opinions and experiences of using the tools in open-ended type questions. By asking these questions, the specific knowledge, experiences, or relation that participants gained from the workshop can be learned and it can be compared with the expectation of the outcomes that the tool developers had. Furthermore, their opinions of using the tools can help to improve the tools further and to possibly analyze if there is a connection between certain trends with their opinions towards the tools. In post-questionnaire 2, as an addition of post-questionnaire 1, there will be questions regarding the long-term effect of the training workshop for the participants.

Also, there is also one pre-questionnaire and one post-questionnaire (only for “result”) for tool developers. The pre-questionnaire questions are related to their expectation of the outcome of training workshop and their tool goals. Meanwhile, the post-questionnaire is related to their perceived successfulness of the training workshop. There is also one same question dedicated to both questionnaires similar to the questionnaires for participants.

Closed-ended questions in questionnaires will be used for quantitative methods. A 7-point Likert scale range will be used as a method, using 1 for totally disagree, and 7 for totally agree. Previously, in Van der Van der Stroom (2017), He used a 10-point scale, however, the results were hard to interpret due to the small score differences between pre- and post-questionnaires. After consulting with an expert in research methodology from WUR, it was decided that for this research, a 7-point scale is used with the hope to catch a small difference without decreasing the consistency to analyzed. The aims of all these questionnaire questions are explained in more detail in the next sub-chapter.

Observations

Observation has the advantage of gathering first-hand data about what people actually do rather than what they tell and feel. The structured observations chosen for this framework have two characteristics: a fixed number of criteria to inspect and it is applied in pre-determined situations. Structured observation is defined as “a method of watching what is happening in a social setting that is highly organized and follow systematic rules for observation and documentation” (Neuman, 2014). Structured observations are befitting into this framework because it does not need a skillful observer to describe the situation, it can be used in situations where the observer is also the participants of the participatory planning, and most importantly the result can be compared easier to tally the results.

However, one has to be aware that people often have different behavior than usual in the presence of an observer. People may act according to the expectation of an observer and/or show their best behavior. For this training workshop, I participated as one of the participants. This research will move to a different group for each tool that used (total four tools will be used) to generate more data to be analyzed. The purpose of this observation is to gain information on:

1. **The context:** the context here is the relevant situation and condition where participatory planning activity took place and how it is organized.
2. **Interpersonal dynamics within groups:** description on discussion dynamics in the group, such as how the decision is made and how they organize the work, is crucial to find out whether participants' answers in questionnaires are due to certain conditions in how the discussion works
3. **Interaction with the tools:** Clarity and usefulness of information that is provided by the organizers for participants are vital to consider because it can significantly affect discussion and more importantly, the outcome of the participatory planning activity.
4. **The role of facilitator:** the facilitator can possibly affect participants' answers to questionnaires because a facilitator has the power to create smooth and fluid discussion on the groups. Based on Van der Stroom (2017) observation in strategic delta plan Vietnam Workshop, facilitators have functions on guiding discussion and continuing to challenge participants about their vision on the issues, involving everyone in the discussion and giving a chance for participants who are less dominant, and providing ideas for problems or solutions on the issues.
5. **Tools functions:** in addition to questionnaires, tool functions are based on the six criteria that were developed in this research and are also assessed through observation to enrich them and double-check information.

The observational data is relevant to collect not only to compare it with participant feedback using questionnaires but also to capture phenomena that cannot be grasped through questionnaires. In order to avoid bias from the observer, observation guide will be made beforehand (presented in the Annex) and reviewed by another person. The observation guide contains a general list of the behavior of someone/group showing the low or high level of the outcome.

3.4 Analysis data

For the data from closed-ended questions, data analysis will be done using the two methods below:

1. **Descriptive statistics** to summarize and explain large numerical data in a more meaningful way by measures of central tendency and measure of variability. **Measures of central tendency** describe the central position of a frequency distribution (the number or percent of cases in each category) in a data group, usually by using mode, median, and mean. This frequency distribution will be used to get a grasp of a pattern of participants' responses to certain questions. For example, the mean of participants chooses "neutral" for a question on how important for participatory planning tools to accommodate "social learning." Meanwhile, **measures of variability** describe how a data group disperses from a central tendency, usually by using range, interquartile range, variance, and standard deviation. For example, how many participants choose "slightly agree" or "strongly disagree" answer to rate how important participatory planning tools is to accommodate "gathering knowledge."
2. In the previous attempt (Van der Stroom 2017), they used average score of post questionnaire – average score of pre-questionnaire for each criterion, but it is difficult to interpret something confidently from the result. Bivariate analysis: **The Mann-Whitney U test** is used to compare the differences between two independent variables when the data is ordinal but not normally distributed to see whether those two groups statistically different or not. For example, we could use the Mann-Whitney U test to understand whether opinions towards the usefulness of

workshop (dependent variable) differ before and after the training workshop (independent variables).

On the other hand, data from open-ended questions in questionnaires and data from observation will be analyzed using **content analysis**. Content analyses are used to generate the knowledge about experiences of using the tools to achieve several process goals in **criteria**. Qualitative data is important to describe the change in participants' opinion or knowledge before and after the workshop as direct results and effects of using participatory planning tools. Different from quantitative research that conceptualizes concepts to measure variables, qualitative research creates new concepts that are grounded in the data. Analyzing qualitative data can begin by organizing data based on themes, concepts, or similar features (for example, "greenish" theme as a category of categorizing trees, dividing trash practices, etc.). In coding process, raw data will be translated into conceptual categories and create themes or concepts that are connected or unconnected in a specific manner. The research questions will be used to guide the process, but new research questions may come up in the process that could be more exciting or useful. The **analytic memo writing** will be useful for discussion of the concept or theme, and the content of the notes will be included (Neuman 2014):

- How themes, maps, outlines create is written.
- Thoughts and ideas have to be written.
- Links concrete and raw data to abstract and theoretical thinking.
- Reflection on thinking about the data and coding

3.5 Participatory Planning Tools in the Bangladesh Training Workshop

For additional information, this sub-chapter describes four participatory planning tools used in the workshop session by project partners: DENVIS (Delta Envisioning Support System), design charrettes, participatory scenario development, and MOTA (Motivation-ability) framework.

DENVIS

DENVIS (Delta Envisioning Support System) is a tool developed by PBL in the Integrated Planning and Design in the Delta (IPDD) project. DENVIS contains a serious game designed to deal with spatial planning support instruments. This tool contains different kinds of techniques that were used in the workshop such as design charrettes and participatory scenario however DENVIS puts emphasis on stakeholder analysis. The tool aims to match the reasoning of the stakeholder interest with how they influence and profit from the plan (Biljsma, personal communication, 2018). In a game situation, a group of participants will take a different stakeholder role in one group and then discuss the planning issue to reach a specific solution. The solutions could be in term of compromise, arrangement, cooperation, compensation, or any other solutions to satisfy all stakeholders that are involve or affected by the plan (Meyer and Marchand 2015). In short, DENVIS's idea is to "connect people, connect interests."

In the actual decision-making process, DENVIS has been applied once for the planning process in Haringvliet, the Netherlands where there was a mismatch between the municipality's plan and national agenda, also resistance from regional economic sectors to implement the environmental plans. The process took a two-week workshop, a month of negotiation, and another week of workshop to finally sign agreements between stakeholders.

Design Charrettes

Design charrettes is a creative process to attract stakeholder attention to the issue during the process through drawing solutions on spatial decision support, such as a big map. The idea of Design Charrettes is bringing together different people with different knowledge on a known issue. The tool works with a map to visualize and help stakeholders understand each other. The map also functions as a reminder to the participants of spatial limitation. Design charrettes can be used on large scale or small scale depending on how detailed the design would be.

The meeting process consists of participants from different backgrounds to create an integrated design for a particular area, for example, a plan to solve flooding issue in an agricultural area along the river. The participants have to finish a very complex problem immediately, which puts on pressure to collaborate and come up with a design or drawing. The results of the Charrettes are integrated and sustainable concepts and ideas that should be interpreted as substantiated designs can be used in a later stage in the design process. Design charrettes are often used by landscape architects, for example, *Bosch+Slabbers* (one of the project partners in this training workshop).

Participatory Scenario Development (PSD)

PSD is “a systemic method for thinking creatively about possible complex and uncertain futures” (Peterson, Cumming, and Carpenter 2003). PSD enables multiple stakeholders to develop multiple plausible future developments. Scenarios are not prediction nor vision, but rather a description about the future based on the interpretations of the presents. This “description” could contain numbers, graphs, diagrams, descriptions, or maps. With scenario planning, we try to simplify reality by only taking into account key drivers that have enormous impact and are highly uncertain. These key drivers could use external variables, such as climate change rate and socio-economic development, or internal variables, such as the effectiveness of policy implementation and economic diversification (Seijger et al. 2017). These drivers are brought together to reach a common view on possible futures for the study area (Enserink et al. 2007). PSD has been used in the Dutch Delta Program, Mekong Delta Plan, and Bangladesh Delta Plan to assess the uncertainties of climate change impacts and to gain insight into which adaptation and management strategies may be most appropriate. PSD typically have two keys driver to establish four plausible scenarios within two extreme axes, for example scenario 1 (rapid climate change and stagnant economic development), scenario 2 (slow climate change and stagnant economic development), scenario 3 (rapid climate change and significant economic development), and scenario 4 (slow climate change and significant economic development).

MOTA

The MOTA (Motivation-ability) framework helps to understand the basis for action in the implementation process. The gaps between plan objectives and the outcomes realized in implementation are generally determined by the actions of two different types of actors, and hence by two different types of MOTA: direct plan implementation (I-MOTA) and subsequent societal adaptation (A-MOTA). The first type of actors is the government and the corporate actors who are its agents in supporting the first and most direct stage of implementation of the official plans: the construction of a dam, and the proclamation and enforcement of new protocols and procedures. The second type are the actors who are assumed to adapt to the changes induced by this first step of plan implementation. Usually, these are the societal actors such as communities, groups of households, citizens, consumers, and farmers. How do these actors respond to a change in their environment, once others have effectuated these changes? For instance, a

dike can be built successfully (I-MOTA) but does not necessarily translate into the desired objectives for all expected beneficiaries, unless these beneficiaries can adapt to the change and reap those benefits (A-MOTA) (Phi et al. 2015)

In the process, those various stakeholders will put it together to determine the level of their motivation and ability for a few alternative solutions available. Figure 3 below displays a MOTA map developed in Strategic Delta Planning training workshop in Ho Chi Minh City, Vietnam by participants that acted as a various stakeholder. The figure shows that even though the participants' motivation to implement alternative solution A1 is high, their ability to implement it is limited compared to solution S1. The illustration presents the importance of assessing the overall implementation maturity of a plan.

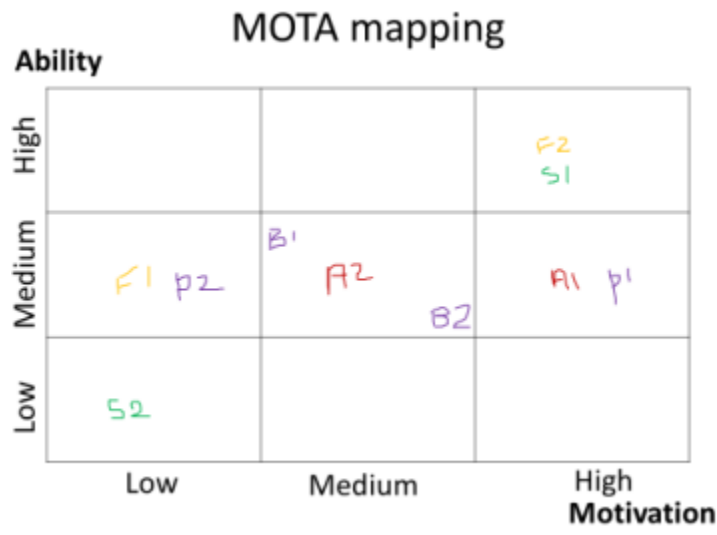


Figure 3. MOTA Map example (Stroom 2017)

4. Results and Findings

In this chapter, results and findings of updating the assessment framework and testing the framework in the training workshop will be explained. The first part will be detailed the insight that gained from different interviews, meeting, and pre-testing of questionnaires to update the assessment framework. The second part will be focused on describing the results and findings from testing the questionnaires and the observation guide in the training workshop on “Participatory Planning Tools for Strategic Delta Planning and Management” in Khulna, Bangladesh.

4.1 Updated the assessment frameworks

In this section, there will be an explanation about the interview that has been done and what insights extracted from it to be further developed the assessment framework, the criteria, and an easy-to-use manual guide to evaluate Participatory Planning Tools. The detailed chronology of the interviews, meeting, and pre-testing of questionnaires for this study has been mentioned in table 1. After this interview and pre-testing, the questionnaires, I drastically changed questions in all the questionnaires to make it simple to use and to understand (all the questionnaires can be seen in annex 1 and annex 2)

Brainstorming with Jaap Evers at the beginning of the internship resulted in:

- A brief explanation current assessment framework that developed by (Stroom 2017)
- A summary of the tools that will be used in the training workshop: DENVIS, Participatory Scenario Development, Design Charrettes, and MOTA.
- To find out Likert scale point that will be used whether 5-point, 7-point or 10-point scale
- To find out on the impact of small population study issue on validity and reliability of the results.
- To find out how to analyze the data statistically correct for this study.

Interview about research design with Dr. Jarl Kampen resulted in:

- A 7-point Likert scale is better to use for this study.
- Recommendation to focus on close-ended type questions and avoids using open-ended questions. If open-ended questions are needed, limit the questions to only one or two questions. Even though, in the end, I decided to use 2-3 questions to cover all the answer I need.
- It would be beneficial to pose the same questions for pre-questionnaire and post-questionnaire to make it comparable statistically. I took the suggestions and I used a question “When you think of the participatory planning process, to what extent do you agree that the following statement is important:” in all my questionnaires for both participants and tool developers. The reason it to make the questions comparable to measure the changes in perception towards participatory planning process before and after the training workshop.
- Aside from main topic that is important, inclusion of side topic it vital to avoid boredom in filling the same type of questions.
- Recommendation to use observations as one of the methods. The observation guide should be standardized (semi-structured or structured observation) to avoid bias between observers. I

followed the suggestion and I created an observation guide (see annex 3) to be tested in the training workshop.

- A suggestion to use Kruskal-Wallis/ Mann-U Whitney and/or descriptive methods in data analyzing.
- Even though a number of participants was small, the results would be still statistical correct as long as we refer our group of participants as a "study population" and not a "sample".

Meeting with all tool developers and Jaap Evers to discuss the training workshop schedule in Bangladesh resulted in:

- We discussed Bangladesh training workshop schedule. It decided to avoid putting one whole day for presentation of participatory planning tools instead the presentation will be put directly before each participatory planning tools will be used in that day.
- The settings of the training workshop will be mainly in a big room with the table but without chairs to stimulate participant actively move and involve in discussion during the process.
- Detail content of the participatory tools, such as participatory scenario development will use internal factors (factors that can be possibly affected directly by stakeholders) for key drivers to create scenario instead of external variable
- The main issue raised is related to Beel Pakhimara where there is a conflict between local citizens and farmers with governmental agencies regarding Tidal River Management (TRM) project. Local citizens opposed the idea to inundation their land for years.

Interview about DENVIS tool and questionnaires with Like Bijlsma from PBL resulted in:

- The questionnaires put too much focus on the social aspect rather than context-related, and it would be great to change that perspectives and at that time questionnaires were too much and too difficult to understand.
- A reminder that training workshop is different from the participatory planning activity in the actual decision-making process. Limited time to maximize the usefulness of the participatory planning tools and role-playing stakeholders might not represent the real functioning of the tools. Therefore, it would be essential to avoid a tendentious judgment to the tools.
- Questions "functions of the tools" should be included in open-ended questions.
- Explanation on how the DENVIS works and what are the goals that she wanted to achieve by applying this tool in training workshop. The goals of DENVIS are 1. Facilitate the planning process, 2. Connect people and connect their interest and 3. Find a solution that satisfies all stakeholders involved

Interview about design charrettes tool and questionnaires with Clime Soree from Bosch+Slabber resulted in:

- Correction of some errors in the grammar in the questionnaires.

- Suggestion to put an open-ended question related to how the outcome of training workshop can be incorporated into the actual decision-making process.
- The outcome of the training workshop might be not crucial, but participants' thoughts on the outcome are vital.
- Explanation on how the design charrettes work and what is the goals of design charrettes. The goals of design charrettes are 1. To put a solution from various sectors in limited spaces, 2. Develop a shared vision for the issues, and 3. Gathering knowledge from different stakeholder from multiple sectors

Email conversation with Rica Martyna and Wisya Aulia, fellow master students, for pre-testing all the questionnaires:

- Fixing some grammatical error in the questionnaires
- Pointing out that the questionnaires have too many questions related to self-reflection that do not become relevant to the aims of the questionnaires.
- Combining two questions in pre-questionnaires part because both questions are similar.
- Suggestion to reduce the number of question in all questionnaires because it took a long time for them to fill in the questionnaires.

4.2 Tested the assessment framework in Bangladesh workshop setting

The training workshop held in Khulna City that located 230 KM southwest of the capital city of Bangladesh, Dhaka. The participants are stakeholders from Khulna region. In total 24 participants involved in the workshop (excluding 1 and four tool developers) with 13 people came from academics and researchers background, 8 people from NGOs, and 3 people from governmental agencies. All of them have more than one expertise with 60% have expertise in environmental management, 34% have expertise in water management and social development. Their interests also varied with all of them have more than one interest topics, 56% in nature conservation, 47% in water systems and 39% in governmental system and administration. Interestingly only 1 participants have interests and background in hydraulic engineering, and only 3 people have expertise in the rural development and 4 people interested in rural communities. Most of the participants not knowing each other (less than 25%) and the participants who know other participants are comfortable to work with them (more than 75%). Also, most of the participants have an experience less than three times in real participatory planning activity. Figure 4 is a picture of participants discussion on the issues by using participatory scenario development on the first day.



Figure 4. Several participants in the Bangladesh training workshop were discussing a vision for the Khulna City based on the given scenario

Observation during the training workshop (activity)

In this following part, I summarize the results of the observation guide that I created beforehand in relation to context, interpersonal dynamic within groups, interaction with the tools, the role of facilitators, and tools functioning. The training workshop held in one spacious room for the five days. In the day 1, 3, and four of the participatory planning tools were applied. In the day 2, there was fieldwork to observe TRM site directly in Beel Pakhimara. In the day 5, there was a critical reflection of the training workshop. In each day, except in day 2, there was two session, morning and afternoon with a small break in morning and afternoon and lunch break in between session. The room settings were set differently in each session, and it helps to make participants more actively involved, for example, by getting rid of the chair when the discussion within the group began. 24 participants most of the time divided into three groups for the activity (the same group for five days), except in the last activity where participants split into four groups depends on their stakeholders' role in role-playing. The participants had responsibility and encouraged to engage actively in the discussion.

I moved to a different group in each session to find out interpersonal dynamic within a group among participants. Comparing the group that I have been observed, only one group has a tendency where one person is dominating the discussion and disrupted other participants' mood to engage in the discussion. Other participants were not involved, and their ideas are completely being ignored by a dominant person to the point other participants' temporarily move to other groups to sightseeing. This dominant person is more senior than others in that group. I also noticed that in another group, the senior person who listened to others tend to silent. They only occasionally intervened in some important discussion as to steer the discussion but let younger people do most of the discussion. Consequently, often younger participants asked senior participants to get a confirmation before they put something on the paper. Meanwhile, in

the third group, the discussion goes smoothly similar to the second group. However, there is no gap between senior and junior in this group, almost all of the participants are working together to reach a solution. Overall, nearly all the participants seem actively involved in this training workshop.

In each day, especially in day 1, 3, and 4 where participatory planning tools were used, the information regarding the tools and the tasks were given by tool developers in a presentation. In addition, necessary equipment, such as map, marker, transparent paper, icons, were given depends on what tools and participants needed. The equipments were helpful for participants in discussing the issues within the participatory planning tools framework. For example, transparent papers used to visualize a vision for Khulna district in 30 years and also used to communicate with other participants.

Four tool developers that involved in the training workshop had another task of being facilitators to help participants in understanding the task and initiating the discussion. On the first day, tool developers stayed among participants, but on the next day, they were walking around the room to move from a group to another. Facilitators gave fewer attentions towards the group dynamics; however If the discussion not started or got stuck, facilitators gave support in generating ideas to enable adoption of activity. Facilitators were providing an example by using the available equipment. For example, one facilitator giving an option to put icon “urbanization” for a particular area in participatory scenario development.

As mentioned in chapter 3, aside of using questionnaires as feedback from participants and tool developers about the performance of the tools in the training workshop, I also used structured observation guide to rate on how tools functioned. The structured guide is shown in table 2 below. The table was made based on the six criteria that I used to evaluate the participatory planning tools. The performance of the tools was categorized into three points of scoring: low (score 1), medium (score 2), and high (score 3). I gave a score for each session of the tools and presented the average in figure 5.

Table 2. Structure observation guide for tools functioning

Intensity criteria	low	medium	high
Facilitating communication	The activity was frustrating and it does not support participants to visualize their thought.	The activity was not support interaction among participants, but the activity was running relatively smooth and the instruments support participants to visualize their thought in limited way	The activity was a comfortable place for discussion and the instruments help participants to visualize their interest
Social learning	Participants remains insist on their own opinions towards the issues and other participant’s opinion	Participants could under-stand other participants views with whom they disagreed, but unwilling to compromise	Participants could reach consensus with other participants with whom they disagreed to deal with the issues
Power differences	Participants opinion can be possibly being ignored by others.	Most participants’ opinion are taking into account and have an effect in the outcome.	All suggestions will similarly be incorporated in the outcome
Integration	There is no shared language and thematic topic in participants discussion.	Sometimes participants using a few shared language and thematic topic in participants discussion.	Participants using shared language in discussion to be able understand each other.
Level of agreement	Discussion not going smoothly because participants did not take into consideration other opinions	Discussions was dominance by one or a few participants and neglect other opinions.	Almost all participants actively involved in discussion and respect other opinions
Work products	Only limited number of participants look satisfied with the outcome	A few participants look satisfied with the outcome	Most participants look satisfied with the outcome

As depicted in figure 5, facilitating communication, work product, level of agreement, and social learning had a score of more than two which means the training workshop had functioning above medium. Meanwhile, the score for integration and power differences was below medium. A relative lower score for integration was affected by a few shared languages was used by participants in the discussion. Often,

a shared language only has been used by a few participants at first but vanished in further discussion. For power differences, the lower score was caused by dominating participants in groups.

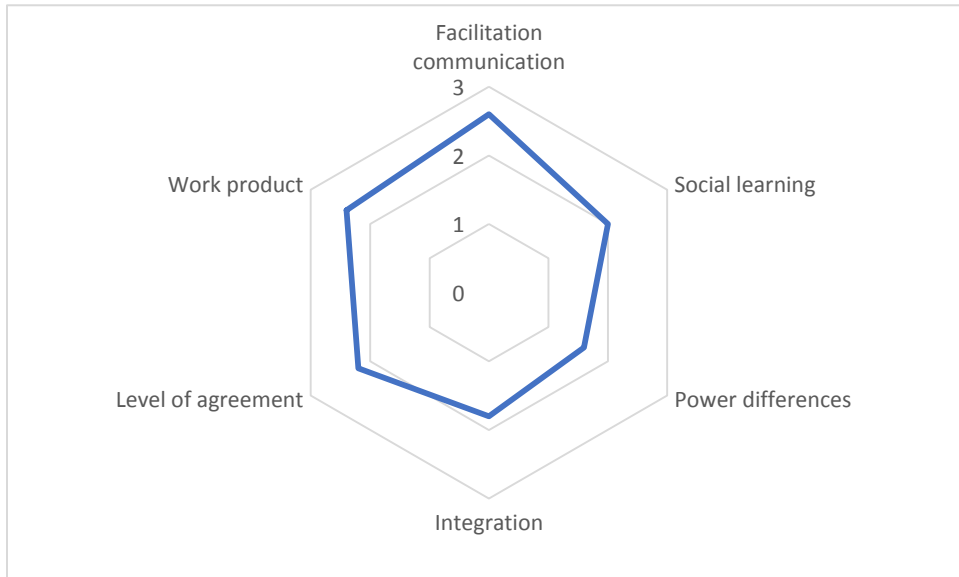


Figure 5. The result of Structure observation guide for tools functioning

Participants' and tool developers' expectations, goals, and direct results (input and result)

In this section, I assess and compare the input and the direct results of the workshop for participants and tool developers. Table 3 shows an average score of how participants and tool developers rate the important level from the statement related to six criteria before the workshop in the morning of day 1 (input) and directly after the workshop in the morning of day 5 (results).

Overall, the score for all criteria is higher than five. This means participants and tool developers mostly gave scored of slightly agree, strongly agree, and totally agree to the statements given in the surveys (see annex 1 and 2 for complete questionnaires), except for work product criteria score from tool developers. There is a relative contrast difference on the score of criterion work product between participants and tool developers. Tool developers rate "the outcome should be innovative and unique" and "the outcome should be directly useful to apply in the actual decision-making process" as a less crucial element on the participatory planning process, while participants rate it as a more vital element. It makes sense because participants tend to seek a better outcome compared to the tool developers that emphasize on the process.

The score of input and result of participants toward the importance of the six criteria in participatory planning process shows similar answer with an only slight difference, except for the level of agreement display that input had a higher score than the result. For the tool developers, the scores are more varied. There are clearer differences in integration, level of agreement, and work product in input and results for tool developers. The trend of the answer of participants from different backgrounds, expertise, interests, experiences, and their relation to each other before the training workshop showed a similar proportion on the scoring. However, I cannot conclude anything because the number of participants was too limited.

Although the differences are minimal, participants and tool developers gave a higher score for the performance on the tools in relation to the six criteria compare to their thought on the importance of six criteria to be in the participatory planning tools. It means the performance of the tools of facilitating

communication, social learning, power differences, integration, level of agreement, and work product are exceeding on what they think are important to have in participatory planning tools. Perhaps, this fact indicates the successfulness of the training workshop as a participatory planning tool both for participants and tool developers.

Table 3. Overview average outcomes of questionnaires

Questionnaires	Facilitation communication	Social learning	Power differences	Integration	Level of agreement	Work product
Input participants	6.06	5.74	6.21	5.88	5.71	5.63
Result participants	5.99	5.87	6.26	5.83	5.28	5.57
Performance of the tools by participants	6.42	6.30	6.48	6.30	6.22	6.26
Input tool developers	6.25	6.17	6.25	5.75	5.38	4.13
Results tool developers	6.08	6.25	6.25	6.50	6.25	4.75
Performance of the tools by tool developers	6.50	6.35	6.75	6.50	6.13	5.13

Mann-Whitney U test was used to examine the difference in the score between two groups, input and results for both participants and tool developers and also for the performance of the tools. Mann-Whitney U test is used to compare the differences between two independent variables when the data is ordinal but not normally distributed to see whether those two groups statistically different or not. Table 5 shows the comparison between input and result from participants. From table 5, it can be concluded that score for the **input** (before the workshop) of participants was statistically the same compared to the **results** (after the workshop) of participants towards the importance of participatory planning tools to have good performance on almost all selected six criteria. Except for category “stimulate cooperation across stakeholders of various sectors and level of government” which part of **the level agreement** criteria where the input participants significantly higher than the result participants ($U = 178, p = .026$). The average score of **level agreement** in the input is higher compare to the results for tool developers (table 3), and based on statistical analysis, those two groups also significantly different. This means there were changes in participants perception towards participatory planning tools in criterion **level of agreement** which they rated lower compare to before the workshop.

Table 5. Mann-Whitney U test between input and results from participants

Test Statistics ^a												
	Gathering knowledge	Facilitate participants to visualize their thought and interest in the issue	Provides the instruments to support interaction among participants	Improve participants' system understanding	Improve participant's understanding towards other interests and motivations	Increase collective insight into the problem and possible solutions	Encourage all participants to make an input freely	Increase trust among participants	Stimulate cooperation across stakeholders of various sectors and levels of government	Developing solutions that satisfy all participants is more important than developing a good quality solution based on your criteria	The outcome should be innovative and unique	The outcome should be directly useful to apply in the actual decision-making process
Mann-Whitney U	254.500	247.500	271.500	261.000	252.500	236.500	251.500	253.000	178.000	232.000	246.000	272.000
Wilcoxon W	530.500	523.500	571.500	561.000	552.500	536.500	551.500	553.000	454.000	508.000	522.000	548.000
Z	-.506	-.664	-.101	-.355	-.523	-.909	-.567	-.516	-2.227	-.985	-.662	-.089
Asymp. Sig. (2-tailed)	.613	.507	.920	.723	.601	.363	.571	.606	.026	.324	.508	.929

a. Grouping Variable: Group

It is visible in table 6, the comparison between input and result from tool developers. From table 6, it can be concluded that score for the **input** (before the workshop) of tool developers was statistically the same compared to the **results** (after the workshop) of tool developers towards the importance of participatory planning tools to have good performance on almost all selected six criteria. Except for category “the outcome should be innovative and unique” which part of the work product criteria where the input tool developers significantly higher than the result tool developers ($U = 2, p = .002$). The average score of integration, level of agreement, and work product in the input (before the workshop) from tool developers are lower compare to the result (after the training workshop) by more than 0.6, but statistically, the result before and after the workshop was not significantly different except for a criterion of **work product**. This means there were changes in tool developers’ perception towards participatory planning tools in criterion **work product** which they rated higher compare to before the workshop.

Table 6. Mann-Whitney U test between input and results from tool developers

Test Statistics ^a												
	Gathering knowledge	Facilitate participants to visualize their thought and interest in the issue	Provides the instruments to support interaction among participants	Improve participants' system understanding	Improve participant's understanding towards other interests and motivations	Increase collective insight into the problem and possible solutions	Encourage all participants to make an input freely	Increase trust among participants	Stimulate cooperation across stakeholders of various sectors and levels of government	Developing solutions that satisfy all participants is more important than developing a good quality solution based on your criteria	The outcome should be innovative and unique	The outcome should be directly useful to apply in the actual decision-making process
Mann-Whitney U	40.000	45.000	39.000	44.000	36.500	22.000	47.000	47.500	40.000	33.000	2.000	41.000
Wilcoxon W	340.000	55.000	339.000	54.000	336.500	322.000	57.000	57.500	50.000	43.000	12.000	51.000
Z	-.592	-.225	-.630	-.309	-.785	-1.867	-.076	-.035	-.576	-1.059	-3.095	-.488
Asymp. Sig. (2-tailed)	.554	.822	.528	.758	.433	.062	.939	.972	.565	.289	.002	.626
Exact Sig. [2*(1-tailed Sig.)]	.635 ^b	.874 ^b	.590 ^b	.825 ^b	.465 ^b	.095 ^b	.975 ^b	.975 ^b	.635 ^b	.355 ^b	.000 ^b	.681 ^b

a. Grouping Variable: Group
b. Not corrected for ties.

It is shown in table 7, the comparison between the performance of the tools from participants and tool developers. From table 7, it can be concluded that score for the input tool developers was statistically the same compared to the result participants towards the performance of the tools at the workshop in almost all criteria. Except for category “the outcome should be innovative and unique” part of the **work product** criteria where the input tool developers significantly higher than the result tool developers ($U = 8, p = .006$). The average score of **work product** in the performance of the tools from participants is lower compare to tool developers (table 3), and statistically, it was significantly different (table 7).

Table 7. Mann-Whitney U test between the performance of the tools from participants and tool developers

Test Statistics ^a												
	Gathering knowledge	Facilitate participants to visualize their thought and interest in the issue	Provides the instruments to support interaction among participants	Improve participants' system understanding	Improve participant's understanding towards other interests and motivations	Increase collective insight into the problem and possible solutions	Encourage all participants to make an input freely	Increase trust among participants	Stimulate cooperation across stakeholders of various sectors and levels of government	Developing solutions that satisfy all participants is more important than developing a good quality solution based on your criteria	The outcome should be innovative and unique	The outcome should be directly useful to apply in the actual decision-making process
Mann-Whitney U	45.000	46.000	39.000	42.000	37.000	33.500	37.000	39.000	41.000	37.500	8.000	20.000
Wilcoxon W	321.000	56.000	315.000	52.000	313.000	43.500	313.000	315.000	51.000	47.500	18.000	30.000
Z	-.079	.000	-.536	-.301	-.696	-.985	-.713	-.536	-.396	-.625	-2.740	-1.914
Asymp. Sig. (2-tailed)	.937	1.000	.592	.763	.486	.325	.476	.592	.692	.532	.006	.056
Exact Sig. [2*(1-tailed Sig.)]	.974 ^b	1.000 ^b	.669 ^b	.818 ^b	.576 ^b	.409 ^b	.576 ^b	.669 ^b	.767 ^b	.576 ^b	.006 ^b	.082 ^b

a. Grouping Variable: Group
b. Not corrected for ties.

Besides the quantitative measures, this study also used qualitative measures to find out the goals of the tool developers, expectations of the participants, achieved goals of the tool developers point of view, fulfilled expectations of the participant related to the tools, unexpected learning experiences of participants, and participants thought regarding negative elements of the training workshop. Table 8 displays a summary of the above variables.

In table 8, it displays that participants do not have expectations for facilitating communication, social learning, power differences, and level of the agreement but participants unexpectedly learn that the tools help them to communicate their opinions to other participants. Social learning and level of agreement performance, even though not explicitly written in the surveys answers of the participants, it showed in the final product that all the groups came up with almost similar plan to emphasize the use of TRM to solve the water logging problems (see figure 6). It can be seen as participants improve understanding towards the issue and other participants interests (one of the indicators for social learning) and as the development of shared language (one of the indicators for the level of agreement). However, these similar plans might relate to the big proportion of people have expertise in environmental management while only less than three people have expertise in hydraulic engineering and rural development. Therefore, in the plans, participants favor heavily towards using TRM compare to more engineered methods such as dredging.

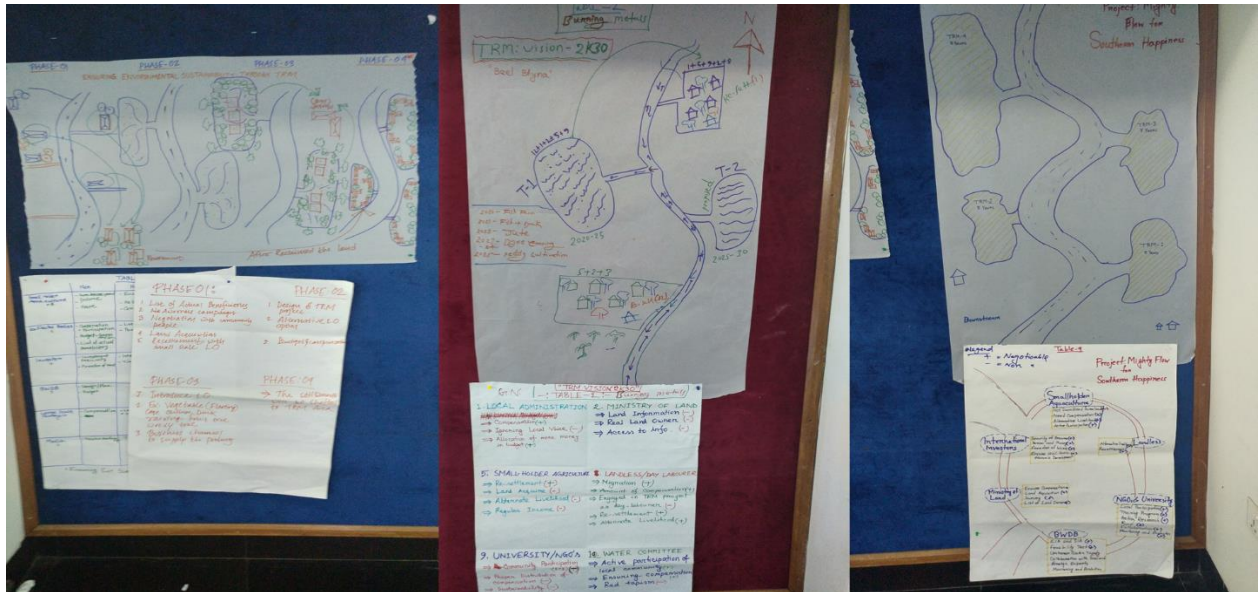


Figure 6. The similar outcome from three groups of designing TRM project for the next 30 years in the training workshop

Table 8 also shows that tool developers achieved all their goals by different way depends on the goals. One tool developer mentioned that it was hard to determine whether the goals of the tools are achieved or not because all the tools were totally integrated. She later emphasizes that the successfulness of integration tools in the training workshop was one of the main lesson learnt for tool developers. Also, a new valuable insight regarding the solution of TRM issues, thinking across sectoral boundaries, and social learning were a valuable lesson learnt for tool developers.

Interestingly, there are no goals and expectations from tool developers and participants regarding the power differences visible in table 8. There is no clear rule on how the workshop deals with the power

relationships among participants and participants not expected it to be there. During the activity, I noticed that tool developers/ facilitators had less intervention on the interpersonal group dynamic as described in the observation part. Only once tool developer intervenes on a discussion where a tool developer reminded the participant in one group to involve every participant in the group.

However, there is one criterion that I described it as **enabling insight** in the column, where I did not put as one of the criteria, but important to be mentioned because it appears in the goals, expectations, achieved goals and expected and unexpected learning process from tool developers and participants. Many participants main lesson come from this criterion, such as increasing knowledge of TRM issue in Bangladesh, the use of participatory planning tools, and the possibility of combining different tools.

There are two negatives note in this training workshop from participants: lack of data and DENVIS tool was not practical in real life. From the answers of participants in questionnaires, I do not find the negativities toward the tools due to their dissatisfaction with the tools or to the facilitators. Through the observations comparing the four groups that I had been into, only one group the discussion was halted due to power differences. Even though, when I asked personally to the participants who looks dissatisfied, it was more related to the dominance of one person.

The important highlight for this qualitative measure is 25%, and 33% of participants were leaving blank the question number 3 and 4 (in the previous version). The questions were “How does each of participatory planning tools function to supportt participants in the workshop?” and “Are there any tools that would you apply it in daily practice? If yes, why would you apply that particular tools? If no, why would you not apply all the tools?”. Both questions leave four boxes to fill (one box for one participatory tool used in the workshop). It seems participants had difficulties on understanding the questions.

Table 8. Summarize of result from qualitative measures in questionnaires

Criteria	Goals from the tool developers	Achieved goals from tool developers point of view	Expectations from the participants	Achieved expectations from participants	The unexpected learning experience of participants	Notes of the negative elements of the workshop
Facilitating communication	Drawing and discussing	By drawing to visualize participants thought and communicate with others	-	-	The tools are helping as a media to communicate with other participants and create participatory communication	1. More data and research are needed to develop a better solution 2. Some participants said DENVIS was not practical in the real practice
Social learning	Understanding different interests and capacities	By learning each other's idea an understanding of different motivations and interests	-	-	The similar final plan from all groups in developing a solution for TRM issue (can be seen as participants improve understanding toward solutions and other interests	
Power differences	-	-	-	-	-	
Level of agreement	Create consent and developing mutual understanding	By creating a general consent of the direction of development in relation to TRM	-	-	Similar final plan from all groups in developing solution for TRM issue (can be seen as development of shared language)	
Integration	Bring together all disciplines and find out possible collaboration	By putting different ideas together and collaboration of participants' skill	Networking and sharing experiences	Know people from different disciplines and share information and experiences	Some people recognized a new network	
Work product	Drawing solution for TRM and implementation feasibility	By developing four final plans and finding out motivation and ability of each stakeholders	Applying knowledges in practices	Applying Participatory planning tools in TRM issue	-	
-	Enable insights: new thinking	By putting together knowledges from constructing problems to implementation across sectoral temporal and spatial boundaries.	Learning Participatory Planning Tools, Delta management, and TRM	Learning different participatory planning tools	Possibility in combining different tools, learning stakeholder analysis, scenario planning, identifying problems in the landscape, identifying SWOT from stakeholders.	

5. Discussion and Conclusion

Currently, many research focuses on designing a better public participation in every sector, including in delta management. Participatory planning tools are used as one of the methods in public participation. However, there are lack of consideration and lack of attention towards the participatory planning tools quality to achieve participation exercise in a broader purpose outside the technicalities of the tools (facilitation of communication, social learning, decrease of differences in power, increase of agreement level, promote integration, and good quality work product) and in a structural way (pre and post activity). Of course, different tools have different purposes. However, evaluation criteria to evaluate the planning activity systematically can be defined and specified. The assessment framework and the criteria in this study are intentionally designed to evaluate participatory planning tools in a structural way and in a broader purpose. The assessment framework and the criteria were designed based on the previous assessment framework that made by Stroom (2017) (adapted from (Thissen and Twaalfhoven 2001)) and his recommendations, the previous attempt in Vietnam workshop, interview with experts, and recent scientific literature. To find out the usefulness of the updated framework, I tested the assessment framework it in one case of a training workshop in Bangladesh.

5.1 Possible limitation and how this research deal with it

There are some crucial limitations to this research which can affect the results. Firstly, small participant group size (N=24) cannot be extrapolated to describe the behavior of the population outside the study population. However, the results can be used to explain whether the knowledge changes of study population before and after the participatory process is random or systematic. Furthermore, this result can promote the usefulness of this assessment framework in other similar situations or real participatory planning tools. The reason to test the usefulness of this assessment framework also goes for the observation where I am the only observant that might intentionally and unintentionally get biased on the answer. Again, the aim of the testing is mainly for testing the usefulness of this framework and the observation proved to be useful to inspect the situation, the role of facilitators, the interpersonal dynamic within groups, and the performance of the tools from the third party.

Secondly, the consequences of this workshop not actual participatory planning are the participants might discuss more freely beside the previous relationship or their actual power, but their conflict interest might not come up to surface due to the label of the workshop (practice). Therefore, a negotiation that usually appears strongly through cooperation and conflict management in the group dynamic also possibly subtler (Basco Carrera et al. 2016). This “exercise” training workshop also might be the reason why power differences criterion did not come up on the answers of tool developers and participants because almost everyone can voice their opinions freely without any real “stakes” exposed. However, this research assumes that people who invest 5-days for the workshop are, at the very least, interested and want to learn something from the workshop will show cooperation and conflict to a certain degree. To support this assumption, participants motivation and willingness were asked in the questionnaires and were evaluated through observation guide.

Lastly, the conceptual framework uses an underlying structure such as arrows like in this framework based on the assumption that there is a causal relationship between the criteria and the proxy (criteria that are only indirectly observable). Consequently, if some effects of the criteria cannot be observed, observation during activity and direct result on evaluation may become the benchmark for the quality of the participatory process. The possible pitfall is a high or low score on criteria related to the activity does not imply effect-related criteria. It means it would be hard to determine whether something other than the

treatment occurred between the pretest and the posttest to cause the outcome, especially in the posttest 8-months after the training workshop where observation cannot be done. This fact is critical and must be taken into account in the discussion part when the feedback for post-questionnaire-2 (effect) has been collected.

5.2 Evaluation of the assessment framework

This testing is only done to test the usefulness of the assessment framework, and the questionnaires and the observation guide that created along with the framework. Keep in mind that this training workshop is a simulation, not actual planning process. So, the results cannot be used to judge whether the outcome is bad or good, but only explain what the outcome is. Also, the assessment framework and the questionnaire only done until the third step “result” from the fourth step. The last step to find out the “effect” will be done later in 8 months after the training workshop by Jaap Evers.

Regarding the “effect,” it would be interesting to find out and to compare the answer of post-questionnaire-2 to get what influence of the participatory planning tools has in a long-term (8 months) for participants and tool developers. The statically analysis might or might not show a contrast different between the state of perception whether higher or lower in average score. Even though, it is challenging to imply a direct connection from the training workshop to the changes because there might be various interventions in between post-questionnaire-1 and post-questionnaire-2 that might be affected the participants’ and tool developers’ perception. The lesson learnt from long-term (effect) will be included later 8-months after the workshop.

The main lesson learnt from the test in Bangladesh training workshop and this study are: At first, I assumed, the workshop can be considered as the tool itself; it may call multi-tools because it consists of different tools (such as design charrettes, participatory scenario development, and Delta Envisioning Support System (DENVIS)). However, in the training workshop, participants had difficulties to differentiate the function of each tool in the training workshop. Also, the training workshop itself is designed to integrate all the tools into one continuous activity. Therefore, I concluded the workshop itself is better recognized as a single tool. Each tool in the training workshop cannot be easily replaced because it might lead to different results and different learning experience from participants and tool developers, including different unexpected learning process that not intended by either participants or tool developers.

Secondly, I noticed the importance of having a good leader who is giving everyone chances to speak up their opinions and a chance to be listened in the groups, which not happened in the first group due to a dominance person control the entire discussion. In other groups, the discussion went more smoothly due to the capability of the leader or the one who participants listened to manage the discussion. Also based on my observation, the facilitator tends to give less intervention in the discussion to avoid dependency on the facilitators which happened on the first day. In the first day, when the facilitator took the initiative to draw or write something on the paper, participants always tried to have a confirmation from the facilitators before making the decision. In the middle of an activity, I notice that facilitators change their approaches and limit themselves in taking initiatives on drawing something and just giving examples until it clears for the participants. These facts showed that the answer in the surveys might affect by the role of the facilitator as well as the role of leader of the group.

Thirdly, I realized that the goals from the tool developers and the expectations of the participants towards the training workshop are different (see table 8). Tool developers cared about the process (facilitating communication, social learning, level of agreement) as well as the outcome of the training workshop, while the participants were giving more attention towards the outcome of the training workshop to gain

more knowledge. This occurrence was strengthened by how tool developers rate the work product as a less crucial element on the participatory planning process compare to the participants (see table 3 for the score and table 7 for statistical analysis). Perhaps, it caused by tool developers believed that the participatory planning process is only one of the several processes to decide the actual decision-making process as the tool developers' emphasis in the reflection in the day 5. However, the different motivation and expectations and different lesson learnt among participants and tool developers are important to be understood as a proof that participatory planning activity is affected by both participants and tool developers. Therefore, it was essential to evaluate the participatory planning tools from both sides which I reflected on my next lesson learnt.

Fourthly, as mentioned previously, the assessment framework is used to help not only participants but also tool developers in critically reflecting on what they learned from this training workshop. Often in other research for evaluating specific participatory planning tools such as in (Basco-Carrera et al. 2017; Hassenforder, Smajgl, and Ward 2015; Mayer et al. 2005; McEvoy et al. 2018), the focus was to get feedback solely from the participants, but not from the tool developers. It could be beneficial to support tool developers on critically reflecting their desired aims with the answer from participants. Perhaps it will help tool developers to specify their tools to be better fit depends on the context for the future.

Fifthly, I realized that the six criteria in this assessment framework are not perfect. There was a criterion that I grouped in enabling insights that presented in goals, expectations, and learning experiences of tool developers and participants (table 8). This criterion is made to accommodate the learning experiences that resulted in new thinking both from participants and tool developers. As I realized that participants and tool developers extracted several new insights, it varied from possibility in combining different tools, learning stakeholder analysis, scenario planning, identifying problems in the landscape, identifying SWOT from stakeholders. Enabling insights is essential finding to capture the performance of the tools that affected criteria that created beforehand. Still, I believe this combination of criteria are enough to capture the whole range of spectrum from process until the outcome on what (Evers et al. n.d.) research called 'beyond a tool's design' performances of participatory planning tools. Other criteria that pop out such as this enabling insight can be used as additional criteria to analyze in the discussion because if more criteria are added into the framework, it will become too complicated and unusable.

Finally, A manual assessment framework in an easy-to-use format (through questionnaires and observation guide) for others to easily use is proven can be used effortless but it still can be improved further using the reflections and the recommendations after this testing. The manual offered a potential to use the framework to evaluate participatory planning tools systematically. The same questions on "When you think of the participatory planning process, to what extent do you agree that the following statement is important:" proved to be vital to get a better understanding how the training workshop affect participants' and tool developers' perception. So far, the statistical analysis showed no differences almost in all criteria in participants and tool developers; the outcome might be different in the assessment for long-term "effect" in post-questionnaire-2.

In conclusion, Participatory Planning Tools can be assessed through an assessment framework by developing an easy-to-use standard guideline (questionnaires and observation guide) to help in evaluating the activity. By testing the assessment framework in the Bangladesh training workshop, this study received some reflections and recommendations to be taken to improve the standard guideline further. I will be explained further the reflections and recommendations in chapter 6.

The assessment framework was offering the opportunity to evaluate the training workshop or the participatory planning tools in general systematically not only for participants but also for tool developers. Both feedbacks are important in better understanding of the performance of the tools in participatory planning activities. The limitation that this study defined before such as limited participants and this workshop was not an actual planning process, theoretically will be solved if the assessment framework is applied in the real planning process. However, it needs to be tested in the actual decision-making process that involved participatory planning tools first to get a better understanding on how the assessment framework behave in “actual” participatory planning tools. A better understanding on how the tools performed will be helpful in making more meaningful and effective plan formulation and decision-making process.

6. Reflection and Recommendations

In this section, I will explain on reflection in updating an assessment framework to assess Participatory Planning Tools and recommendations for further application of the assessment framework.

6.1 Updating the assessment framework

In updating the assessment framework, first thing I realized that it was difficult to not stuck in the previous work of this assessment framework, including in developing the questionnaires and criteria. My point of view was limited to the recommendations and findings of Van der Stroom (2017) report. Due to the realization, I tried to find an alternative framework that I can use. In the end, I decided to use an existing framework to make better use of the available framework to see further improvement of the framework. I adjusted the framework based on the recommendations of the previous report and from literature. I put the important of context element in the assessment framework, and I decided to put one additional criterion (work product) to it. This additional criterion gives another dimension on evaluating the outcome of Participatory Planning Tools aside from the process that previous work heavily focuses on. Still, there is a trade-off of choosing criteria that I want to evaluate that resulted there are other criteria that not included in the framework. However, it is important to limit the criteria to a certain number to make it doable and less complex, yet comprehensive enough to be useful.

Secondly, I did revise almost totally the previous questionnaires and I created observation guide as a part of the assessment framework. The questionnaires can be tested statistically now, and the observation guide is proven to be fruitful in observing the activity. After the testing, I believed it can be applied for other Participatory Planning Tools and it even will be performed better if it used for evaluating an actual participatory planning tools in decision-making process.

Finally, now I recognized the important of having pre-testing and interview of tool developers. I constructed the questionnaires and the observation guide to be as general as possible to be applied to all kind of Participatory Planning Tools but keep in mind the aims of this training workshop. By interviewing tool developers, I can incorporate they need to get the feedback of their tool. Therefore, even though the manual (in annex 1 and annex 2) can be used by others to evaluate Participatory Planning Tools, the manual can also be tailored to include a specific question that related tool developers hope to get feedback to or related to the tool goals. The context-related questions in the surveys help to take into account backgrounds, expertise, interests, and experiences differences when tools are applied. In addition, pre-testing the questionnaires and the observation guide to other who not familiar with the topic can enhance some phrases and languages to be readily understood by people from different background.

6.2 Reflections and recommendations

Training workshop held in Khulna City, Bangladesh, from 8th – 12th July entitled “Participatory Planning Tools for Strategic Delta Planning and Management” hosted by Khulna University, CEGIS, and IHE Delft. I got an opportunity to participate in the workshop directly as a participant and as an independent researcher (not as part of tool developers) to test out an assessment framework that I updated previously. Due to minimal involvement in arranging the training workshop, I can assess the training workshop more objectively.

In my opinion, the most extraordinary experienced that I got during this study was when I visited Bangladesh for the training workshop. I learned a lot from the firsthand experience of Tidal River

Management (TRM) in Bangladesh and its conflict between various stakeholders in the field regarding the implementation of the TRM project. To be able collecting conflicting opinions in the real world (not from papers or books), is a beneficial experience for me as a student who did not have any “real” job previously. I knew from some courses that every stakeholder had different opinions regarding the project, but to experience how different is it in the field was surprising. I learned that there is no straight answer to response on whether some plan is good or bad. After all, it depends on who you asked. This knowledge about the conflicting opinions of stakeholders could create the implication to find better alternative solutions for the issues at hand.

In relation to the testing assessment framework, I noticed several aspects that could be reflected and further improved for future study:

- The facilitator has a big role in the Participatory Planning Tools as well as the leader of the group. Both persons could influence the score in the questionnaires. Therefore it is important to do the observation during the activity to find out the interpersonal dynamic in the group and the role of facilitators. The observation itself ideally done by more than one person to avoid bias from the observers, even though semi-structured and structured are made in this study to minimize the effect of observers.
- At first, I intended to gain feedbacks for each tool in question 3 and question 4 and to get a feedback for the whole training workshop in question 5. The reasons are to capture better how each tool play a role in the training workshop and how the training workshop functioned for the participants. However, apparently it was difficult for participants to differentiate between one and other tools (I asked almost all participants about it). As explained in the introduction, the training workshop is considered as one integrated participatory tool rather than separated tools. Therefore, if the participatory tools are treated as one integrated participatory tools as in this workshop, it will be better to keep the questions for the whole activity. Meanwhile, if using different tools that are detached from each other, questions for each tool might be required. Questions 3 and question 4 in the post-questionnaire one could be asked for each participatory tool or one integrated participatory tool. For a note, I already improved the question number 3 and 4 (see annex 1) to make it easier to understand and to fill which I asked the feedback on general manner instead for each tool that involved
- In observation guide, I reduce several questions that related to what participants’ feels or opinions. I was realized that it was not possible to know what participants think by only observing them. I already deleted the parameters that not needed. Furthermore, at least two observers are needed to the observation to avoid a bias. If the human resources are limited, asking participants beforehand to do the observation might be one solution.
- Ideally, a questionnaire should take only 5 minutes and a maximum of 15 minutes to fill. In the training workshop, I found out that the time required to fill the pre-questionnaires was 5-15 minutes, while for post-questionnaire it took longer, 10-30 minutes. Participants explained that they were confused in writing down the answer for the post-questionnaire-1 because there are so many boxes to fill. It showed in 25% of participants only answer good or (++++) for the question 3 and 33% of participants was leaving blank the question 4. These facts coupled with the fact that participants difficulties to differentiate between one and other tools make filling questionnaires took longer timer than 15 minutes. An explanation on how to fill questions in the questionnaires

beforehand and a short review of the tools that have been used would be minimized the possibility of misunderstanding questions and it will be reduced the time to fill questionnaires significantly.

- Surveys manual that created in this study are intended to develop a set of standardized questions to make it possible for the users to use it easily and even establish comparison across studies. This could give tool developers and/or the users more learning experiences on how their tool performed to compare to other tools using the same criteria. Further testing of this assessment framework is needed to find out how the assessment framework functioning in a different type of Participatory Planning Tools and make further improvement to create a better evaluation for Participatory Planning Tools.

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Annex 1. Questionnaire for Participants

Questionnaires Aims for Participants

The pre-questionnaire aims:

1. To find out whether participant's background, knowledge, interests, and experiences have a connection with their answer on the questionnaires
2. To find out whether one participant relationship with other participants affect their judgment on the answer of the questionnaires
3. To find out how participants rate the importance of the six criteria that are assessed for the planning activity
4. To find out whether participants motivation relates to the expectation and the overall answer for this training workshop
5. To find out whether there are changes in participants' state of perception of how they rate the importance of the six criteria that are assessed for the planning activity

The post-questionnaire (result) aims:

1. To find out whether there are changes in participants' state of perception of how they rate the importance of the six criteria that are assessed for the planning activity
2. To find out what participants get in this training workshop in relation to the six criteria
3. To find out on how the participants perceived and participants feedback for each tool in this training workshop
4. To find out what participants learned from the training workshop/planning activity

The post-questionnaire (effect) aims:

1. To find out long-term effect of the training workshop to the participant's views, behavior, and decision-making process about Delta management or other sectors.
2. To find out whether there are changes in the state of perception of how participants rated on the importance of the six criteria that are assessed for the planning activity
3. To find out participants feedback on the training workshop
4. To find out whether the outcome of the training workshop is taken into actual decision-making/planning process or other daily professional practices

Pre-Questionnaire for participants

We kindly ask you to fill in this questionnaire about your background and expectations on the role of participatory tools in the training workshop *Participatory planning tools for strategic delta planning and management in Khulna City*. This questionnaire is part of an assessment framework to evaluate participatory planning tools. At the end of the training workshop, a second questionnaire will be distributed to obtain your feedback.

The last four digits of your phone number only will be used as an identification number. Your anonymity will be guaranteed in the processing thereof. Thanks in advance for your cooperation! The questions 1 to 6 are close-ended questions on your background, your experiences, and your relationship with other participants before the training workshop

Background

1. What is your professional background? (Please tick only one box per question)

- Non-governmental organizations
- National government agencies
- Province government agencies
- Local government agencies
- Academics and researchers
- Others:

2. What are the sectors / policy areas / knowledge fields you consider as your expertise? (you can tick multiple boxes)

- Environmental management
- Water management
- Hydraulic engineering
- Information and communication technology
- Government administration
- Economic development
- Social development
- Urban planning
- Rural development
- Agriculture
- Others:

Context-related characteristics

3. What are the policy areas / knowledge fields that you want to improve? (you can tick multiple boxes)

- Nature conservation
- Water systems
- Hydraulic infrastructure development
- Data management
- Governmental system and administrative execution
- Labor and industry
- Livelihoods and migration

- Housing and zoning
- Rural communities
- Irrigation and crop management
- Other:

4. Did you participate in official participatory planning processes in the last 5 years? *(Please tick only one box per question)*

- More than equal to five times
- Less than equal to three times
- None

5. What percentage of participants in this workshop did you already know before the training workshop? *(Please tick only one box per question)*

- More than 75%
- 50-75%
- 25-49%
- Less than 25%

6. What percentage of participants do you feel comfortable to work with among the participants? *(Please tick only one box per question)*

- More than 75%
- 50-75%
- 25-49%
- Less than 25%

Criteria

Question 7 contains statements on the goals and influences of the training workshop that you expect to fulfill. The questions are related to the 6 key dimensions in the assessment framework that will be also assessed in the post-workshop assessment. You may rate the statements on a 1-7 scale by encircling a number (1 = totally disagree, 7 = totally agree). Please encircle only one box.

7. When you think of the participatory planning process, to what extent do you agree that the following statement is important:

Opinion statements	Totally disagree	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Totally agree
Gathering knowledge	1	2	3	4	5	6	7
Facilitate participants to visualize their thought and interest in the issue	1	2	3	4	5	6	7
Provides the instruments to support interaction among participants	1	2	3	4	5	6	7
Improve participants' system understanding	1	2	3	4	5	6	7

Improve participant's understanding towards other interests and motivations	1	2	3	4	5	6	7
Increase collective insight into the problem and possible solutions	1	2	3	4	5	6	7
Encourage all participants to make an input freely	1	2	3	4	5	6	7
Increase trust among participants	1	2	3	4	5	6	7
Stimulate cooperation across stakeholders of various sectors and levels of government	1	2	3	4	5	6	7
Developing solutions that satisfy all participants is more important than developing a good quality solution based on your criteria	1	2	3	4	5	6	7
The outcome should be innovative and unique	1	2	3	4	5	6	7
The outcome should be directly useful to apply in the actual decision-making process	1	2	3	4	5	6	7

The questions 8 and 9 are additional open questions on the motivation and personal goals to participate in the training workshop

Open-ended questions

8. What is your motivation to join this training workshop?

9. What do you expect to learn or gain from this training workshop?

We are grateful for your efforts to fill in this Pre-activity Evaluation. Should you have any questions, please do not hesitate to contact us in person or by e-mail Aditya M. Saptadjaja: aditya.mirzapahlevi@gmail.com or Jaap Evers: j.evers@un-ihe.org

Post-Questionnaire for participants (result)

We kindly ask you to fill in this questionnaire as feedback about the results of the training workshop. This questionnaire is part of an assessment framework to evaluate participatory planning tools. Keep in mind that this questionnaire is about the immediate results you have received.

The last four digits of your phone number only will be used as an identification number. Your anonymity will be guaranteed in the processing thereof. Thanks in advance for your cooperation!

Criteria

Questions 1 and 2 have similar statements but different posed questions. While question 1 contained statements on what you thought as the important elements on the training workshop, question 2 is related to what extent that this training workshop facilitate the important elements. Both questions related the 6 key dimensions (Facilitating communication, social learning, power differences, integration, level of agreement, and work products) in the assessment framework that has been assessed in the pre-training workshop. You may rate the statements on a 1-7 scale by encircling a number (1 = totally disagree, 7 = totally agree). Please encircle only one box.

- When you think of the participatory process, to what extent do you agree that the following statement is important: *(Please tick only one box per question)*

Opinion statements	Totally disagree	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Totally agree
Gathering knowledge	1	2	3	4	5	6	7
Facilitate participants to visualize their thought and interest in the issue	1	2	3	4	5	6	7
Provides the instruments to support interaction among participants	1	2	3	4	5	6	7
Improve participants' system understanding	1	2	3	4	5	6	7
Improve participant's understanding towards other interests and motivations	1	2	3	4	5	6	7
Increase collective insight into the problem and possible solutions	1	2	3	4	5	6	7
Encourage all participants to make an input freely	1	2	3	4	5	6	7
Increase trust among participants	1	2	3	4	5	6	7

Stimulate cooperation across stakeholders of various sectors and levels of government	1	2	3	4	5	6	7
Developing solutions that satisfy all participants is more important than developing a good quality solution based on your criteria	1	2	3	4	5	6	7
The outcome should be innovative and unique	1	2	3	4	5	6	7
The outcome should be directly useful to apply in the actual decision-making process	1	2	3	4	5	6	7

2. After you participating in this training workshop, to what extent do you agree that this training workshop facilitate the following statement?

Opinion statements	Totally disagree	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Totally agree
Gathering knowledge	1	2	3	4	5	6	7
Facilitate participants to visualize their thought and interest in the issue	1	2	3	4	5	6	7
Provides the instruments to support interaction among participants	1	2	3	4	5	6	7
Improve participants' system understanding	1	2	3	4	5	6	7
Improve participant's understanding towards other interests and motivations	1	2	3	4	5	6	7
Increase collective insight into the problem and possible solutions	1	2	3	4	5	6	7
Encourage all participants to make an input freely	1	2	3	4	5	6	7
Increase trust among participants	1	2	3	4	5	6	7
Stimulate cooperation across stakeholders of various sectors and levels of government	1	2	3	4	5	6	7

Developing solutions that satisfy all participants is more important than developing a good quality solution based on your criteria	1	2	3	4	5	6	7
The outcome should be innovative and unique	1	2	3	4	5	6	7
The outcome should be directly useful to apply in the actual decision-making process	1	2	3	4	5	6	7

The questions 3-5 are additional open questions on the direct impact of the training workshop on the short term

Open-ended questions

3. How the [participatory planning tools] performance to support participants in the workshop?

4. Would you apply the [participatory planning tools] in daily practice? If yes, why would you apply that tool? If no, why would you not apply the tool?

5. What did you learn in training workshop that you did not expect?

We are grateful for your efforts to fill in this Post-Activity Evaluation. Should you have any questions, please do not hesitate to contact us in person or by e-mail Aditya M. Saptadjaja: aditya.mirzapahlevi@gmail.com or Jaap Evers: j.evers@un-ihe.org

Post-Questionnaire for participants (effect)

You have participated in the training workshop Participatory planning tools for strategic delta planning and management in Khulna City. This questionnaire is part of the assessment framework to evaluate participatory planning tools. Keep in mind that this questionnaire is about the impact or influence that the workshop has on your current practices. Your anonymity will be guaranteed in the processing thereof. Thanks in advance for your cooperation!

The first question is about the impact and influence of the training workshop (you can tick multiple boxes by clicking on them).

1. To which effects in planning, policy, and decision-making has the training workshop] contributed? Please tick the boxes that you think are applicable.

- Since the training workshop, I have been using one of the tools (design charrette, scenario planning, or similar) in delta/river basin planning activities
- New coalitions(s) have been formed between organizations which were represented in the training workshop.
- New plans (delta /regional integrated water / spatial plans) have been developed with ideas or parts of ideas that were generated during the training workshop
- New spatial plans have been developed with tools and approaches that were presented during the training workshop
- Possible planning results (strategies/plans/projects) have – in your opinion- been improved due to the lessons learned during the training workshop
- Spin-off (can be pilots, experiments, projects, etc.) has been generated due to the training workshop.
- My knowledge capacity has improved, thus contributing to higher quality participation in future participatory planning processes.

Perhaps there are other effects from the training workshop that are relevant but not represented by the previous statements. Please explain in the text box below.

Criteria

Questions 2 and 3 have similar statements but different posed questions. While question 1 contained statements on what you thought as the important elements on the training workshop, question 2 is related to what extent that this training workshop facilitate the important elements. Both questions related the 6 key dimensions (Facilitating communication, social learning, power differences, integration, level of agreement, and work products) in the assessment framework that has been assessed in the pre-training workshop. You may rate the statements on a 1-7 scale by encircling a number (1 = totally disagree, 7 = totally agree). Please encircle only one box.

2. When you think of the participatory process, to what extent do you agree that the following statement is important: *(Please tick only one box per question)*

Opinion statements	Totally disagree	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Totally agree
Gathering knowledge	1	2	3	4	5	6	7
Facilitate participants to visualize their thought and interest in the issue	1	2	3	4	5	6	7
Provides the instruments to support interaction among participants	1	2	3	4	5	6	7
Improve participants' system understanding	1	2	3	4	5	6	7
Improve participant's understanding towards other interests and motivations	1	2	3	4	5	6	7
Increase collective insight into the problem and possible solutions	1	2	3	4	5	6	7
Encourage all participants to make an input freely	1	2	3	4	5	6	7
Increase trust among participants	1	2	3	4	5	6	7
Stimulate cooperation across stakeholders of various sectors and levels of government	1	2	3	4	5	6	7
Developing solutions that satisfy all participants is more important than developing a good quality solution based on your criteria	1	2	3	4	5	6	7
The outcome should be innovative and unique	1	2	3	4	5	6	7

The outcome should be directly useful to apply in the actual decision-making process	1	2	3	4	5	6	7
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3. After you participating in this training workshop, to what extent do you agree that this training workshop facilitate the following statement?

Opinion statements	Totally disagree	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Totally agree
Gathering knowledge	1	2	3	4	5	6	7
Facilitate participants to visualize their thought and interest in the issue	1	2	3	4	5	6	7
Provides the instruments to support interaction among participants	1	2	3	4	5	6	7
Improve participants' system understanding	1	2	3	4	5	6	7
Improve participant's understanding towards other interests and motivations	1	2	3	4	5	6	7
Increase collective insight into the problem and possible solutions	1	2	3	4	5	6	7
Encourage all participants to make an input freely	1	2	3	4	5	6	7
Increase trust among participants	1	2	3	4	5	6	7
Stimulate cooperation across stakeholders of various sectors and levels of government	1	2	3	4	5	6	7
Developing solutions that satisfy all participants is more important than developing a good quality solution based on your criteria	1	2	3	4	5	6	7
The outcome should be innovative and unique	1	2	3	4	5	6	7
The outcome should be directly useful to apply in the actual decision-making process	1	2	3	4	5	6	7

The questions 4 to 6 are additional open questions on the impact and influence of the training workshop in the long term.

Open-ended questions

4. If the training workshop generated some spin-off, could you please describe this below? What was the spin-off or influence?

5. Did the training workshop lead to any (change of) decision, and, if yes, how did it affect the decision? (for example: the outcome of the training workshop is used as a reference to find solutions for other problems or even used in the actual decision-making process)

6. What is the main lesson learnt or skills developed for you personally that you have taken from the training workshop and is influencing your daily work?

We are grateful for your efforts to fill in this Post-Activity Evaluation. Should you have any questions, please do not hesitate to contact us in person or by e-mail Aditya M. Saptadjaja: aditya.mirzapahlevi@gmail.com or Jaap Evers: j.evers@un-ihe.org

Annex 2. Questionnaire for Tool Developers

Questionnaires Aim for Tool Developers

The pre-questionnaire aims:

1. To find out how the tool can help participants in the participatory planning process
2. To find out how tool developers rated on the importance of the six criteria that are assessed for the planning activity
3. To find out the goals of the application of the tools in the training workshop
4. To find out tool developers expectation on how their tools work for participants in the training workshop

The post-questionnaire (effect) aims:

1. To find out whether there are changes in the state of perception of how they rated on the importance of the six criteria that I assessed for this particular training workshop
2. To find out on tool developers opinions on what participants get from their tool about the six criteria
3. To find out tool developers feedback on the training workshop
4. To find out how tool developers perceived the successfulness of their tool implementation

Pre-Questionnaire for tool developers

We kindly ask you to fill in this questionnaire as feedback about the results of the training workshop. This questionnaire is part of an assessment framework to evaluate participatory planning tools. The questionnaire below related to tool developers' goals and aims about the tools.

1. Different categories of participation exist ranging from low degrees to high degrees. Please tick the box of participation type that you are aiming with your tool in this planning activity [training workshop]
 - Awareness:** Participants are aware of issues at stake (threats, problems, opportunities)
 - Information:** Participants receive information (one-way downward flow of information)
 - Consultation:** Participants are consulted (one-way upward flow of information)
 - Discussion:** Two-way interactive relationship among participants and planners/facilitators
 - Co-design:** Participants feel sense of ownership/ committed towards the outcome in joint analysis. This leads to action plans.
 - Co-Decision making:** Participants takes initiative independent of external institution and have mandate to act
2. Different reasons exist to involve participants in the planning process. Please tick the box that most appropriately describes the reason for participation in the planning activity [training workshop] in which your tool is applied. Each box discusses a different motive for participation.

<input type="checkbox"/> The core goal of participation is to make decisions more legitimate and to improve results. Participation aims to restore public credibility, diffuse conflicts, justify decisions, and limit future challenges to implementation by "creating ownership".	<input type="checkbox"/> Non-experts see problems, issues and solutions that experts can miss and therefore the goal of participation is to increase the breadth and depth of information and thereby improve the quality of decisions.
<input type="checkbox"/> Participation is aimed to empower all stakeholders and includes everyone who is affected by a decision. Participation is thus undertaken from a democratic point of view.	<input type="checkbox"/> Participation is a formality and part of the decision-making process as a procedure or as a way to comply with the rules.

Criteria

In this assessment we distinguish between short- and longer-term dimensions of participatory planning. What are important aspects you aim to achieve with your tool? Question 3 contain statements on what you think is important of your tool should do directly in the [training course or workshop]. Please rate the following statements on a 1-7 scale by encircling a number (1 = totally disagree, 7 = totally agree).

3. When you think of the participatory planning activity, to what extent do you agree that the following statement are important:

Opinion statements	Totally disagree	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Totally agree
Gathering knowledge	1	2	3	4	5	6	7
Facilitate participants to visualize their thought and interest in the issue	1	2	3	4	5	6	7
Provides the instruments to support interaction among participants	1	2	3	4	5	6	7
Improve participants' system understanding	1	2	3	4	5	6	7
Improve participant's understanding towards other interests and motivations	1	2	3	4	5	6	7
Increase collective insight into the problem and possible solutions	1	2	3	4	5	6	7
Encourage all participants to make an input freely	1	2	3	4	5	6	7
Increase trust among participants	1	2	3	4	5	6	7
Stimulate cooperation across stakeholders of various sectors and levels of government	1	2	3	4	5	6	7
Developing solutions that satisfy all participants is more important than developing a good quality solution based on your criteria	1	2	3	4	5	6	7
The outcome should be innovative and unique	1	2	3	4	5	6	7
The outcome should be directly useful to apply in the actual decision-making process	1	2	3	4	5	6	7

Open-ended questions

The questions below are additional open question the expectations and goals to participate in the training workshop

4. What does you - with your participatory tool - aim to contribute in this training workshop for strategic delta planning and management?

5. What do you expect regarding the outcome of this training workshop?

We are grateful for your efforts to fill in this Pre-activity Evaluation. Should you have any questions, please do not hesitate to contact us in person or by e-mail Aditya M. Saptadjaja: aditya.mirzapahlevi@gmail.com or Jaap Evers: j.evers@un-ihe.org

Post-Questionnaire for tool developers (result)

We kindly ask you to fill in this questionnaire as a feedback about the results of the training workshop. This questionnaire is part of an assessment framework to evaluate participatory planning tools. Keep in mind that these results are about the immediate results you received.

Criteria

Questions 1 and 2 have similar statements but different posed questions. While question 1 contained statements on what you thought as the important elements on the training workshop, question 2 is related to what extent that this training workshop facilitate the important elements. Both questions related the 6 key dimensions (Facilitating communication, social learning, power differences, integration, level of agreement, and work products) in the assessment framework that has been assessed in the pre-training workshop. You may rate the statements on a 1-7 scale by encircling a number (1 = totally disagree, 7 = totally agree). Please encircle only one box.

1. When you think of the participatory process, to what extent do you agree that the following statement are important:

Opinion statements	Totally disagree	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Totally agree
Gathering knowledge	1	2	3	4	5	6	7
Facilitate participants to visualize their thought and interest in the issue	1	2	3	4	5	6	7
Provides the instruments to support interaction among participants	1	2	3	4	5	6	7
Improve participants' system understanding	1	2	3	4	5	6	7
Improve participant's understanding towards other interests and motivations	1	2	3	4	5	6	7
Increase collective insight into the problem and possible solutions	1	2	3	4	5	6	7
Encourage all participants to make an input freely	1	2	3	4	5	6	7
Increase trust among participants	1	2	3	4	5	6	7
Stimulate cooperation across stakeholders of various sectors and levels of government	1	2	3	4	5	6	7
Developing solutions that satisfy all participants is more	1	2	3	4	5	6	7

important than developing a good quality solution based on your criteria

The outcome should be innovative and unique	1	2	3	4	5	6	7
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The outcome should be directly useful to apply in the actual decision-making process	1	2	3	4	5	6	7
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2. After you participating in this training workshop, to what extent do you agree that this training workshop facilitate the following statement?

Opinion statements	Totally disagree	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Totally agree
Gathering knowledge	1	2	3	4	5	6	7
Facilitate participants to visualize their thought and interest in the issue	1	2	3	4	5	6	7
Provides the instruments to support interaction among participants	1	2	3	4	5	6	7
Improve participants' system understanding	1	2	3	4	5	6	7
Improve participant's understanding towards other interests and motivations	1	2	3	4	5	6	7
Increase collective insight into the problem and possible solutions	1	2	3	4	5	6	7
Encourage all participants to make an input freely	1	2	3	4	5	6	7
Increase trust among participants	1	2	3	4	5	6	7
Stimulate cooperation across stakeholders of various sectors and levels of government	1	2	3	4	5	6	7
Developing solutions that satisfy all participants is more important than developing a good quality solution based on your criteria	1	2	3	4	5	6	7

The outcome should be innovative and unique	1	2	3	4	5	6	7
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The outcome should be directly useful to apply in the actual decision-making process	1	2	3	4	5	6	7
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The questions 3-5 are additional open questions on the direct impact of the training workshop on the short term

Open-ended questions

3. Did you think this training workshop achieved the desired aims?

If yes, in what way? If not, why not?

4. Did you achieve your tool goals for this training workshop?

If yes, in what way? If not, why not?

5. Were you satisfied with the outcome of training workshop?

We are grateful for your efforts to fill in this Post-Activity Evaluation. Should you have any questions, please do not hesitate to contact us in person or by e-mail, Aditya M. Saptadjaja: aditya.mirzapahlevi@gmail.com or Jaap Evers: j.evers@un-ihe.org

Post-Questionnaire for tool developers (effects)

We kindly ask you to fill in this questionnaire as a feedback about the results of the training workshop. This questionnaire is part of the assessment framework to evaluate participatory planning tools. Keep in mind that this questionnaire is about the impact or influence that the workshop has on your current practices. Thanks in advance for your cooperation!

Criteria

Questions 1 and 2 have similar statements but different posed questions. While question 1 contained statements on what you thought as the important elements on the training workshop, question 2 is related to what extent that this training workshop facilitate the important elements. Both questions related the 6 key dimensions (Facilitating communication, social learning, power differences, integration, level of agreement, and work products) in the assessment framework that has been assessed in the pre-training workshop. You may rate the statements on a 1-7 scale by encircling a number (1 = totally disagree, 7 = totally agree). Please encircle only one box.

1. When you think of the participatory process, to what extent do you agree that the following statement are important:

Opinion statements	Totally disagree	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Totally agree
Gathering knowledge	1	2	3	4	5	6	7
Facilitate participants to visualize their thought and interest in the issue	1	2	3	4	5	6	7
Provides the instruments to support interaction among participants	1	2	3	4	5	6	7
Improve participants' system understanding	1	2	3	4	5	6	7
Improve participant's understanding towards other interests and motivations	1	2	3	4	5	6	7
Increase collective insight into the problem and possible solutions	1	2	3	4	5	6	7
Encourage all participants to make an input freely	1	2	3	4	5	6	7
Increase trust among participants	1	2	3	4	5	6	7
Stimulate cooperation across stakeholders of various sectors and levels of government	1	2	3	4	5	6	7
Developing solutions that satisfy all participants is more	1	2	3	4	5	6	7

important than developing a good quality solution based on your criteria

The outcome should be innovative and unique	1	2	3	4	5	6	7
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The outcome should be directly useful to apply in the actual decision-making process	1	2	3	4	5	6	7
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2. After you participating in this training workshop, to what extent do you agree that this training workshop facilitate the following statement?

Opinion statements	Totally disagree	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Totally agree
Gathering knowledge	1	2	3	4	5	6	7
Facilitate participants to visualize their thought and interest in the issue	1	2	3	4	5	6	7
Provides the instruments to support interaction among participants	1	2	3	4	5	6	7
Improve participants' system understanding	1	2	3	4	5	6	7
Improve participant's understanding towards other interests and motivations	1	2	3	4	5	6	7
Increase collective insight into the problem and possible solutions	1	2	3	4	5	6	7
Encourage all participants to make an input freely	1	2	3	4	5	6	7
Increase trust among participants	1	2	3	4	5	6	7
Stimulate cooperation across stakeholders of various sectors and levels of government	1	2	3	4	5	6	7
Developing solutions that satisfy all participants is more important than developing a good quality solution based on your criteria	1	2	3	4	5	6	7
The outcome should be innovative and unique	1	2	3	4	5	6	7

The outcome should be directly useful to apply in the actual decision-making process

1	2	3	4	5	6	7
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The questions 3-4 are additional open questions on the direct impact of the training workshop on the long-term

Open-ended questions

3. Did your perceptions on the role the tool changes due to the [training workshop]?

If yes, in what way? If not, why not?

4. What are your main lesson learnt that you have taken from the training workshop [training workshop]

We are grateful for your efforts to fill in this Post-Activity Evaluation. Should you have any questions, please do not hesitate to contact us in person or by e-mail, Aditya M. Saptadjaja: aditya.mirzapahlevi@gmail.com or Jaap Evers: j.evers@un-ihe.org

Annex 3. Observation Guide

This guide will serve as a reference for approaching the structured observation during training workshop in [implementation of strategic delta planning in Khulna, Bangladesh]. This observation should not disturb the [training workshop] activity. It is important for observer to follow the detail in the observation guide, but it also important to gather any interesting data that may not include in the criteria written in the observation guide template. Observation will be done using continuous monitoring where continuous observation was done for each participatory tool that used in this training workshop.

Context

How many people in the group?	
What was the condition of equipment used for the session?	All equipment in working condition
	Minimal malfunction in equipment
	Significant malfunction in the equipment
	Some equipment not transferred
How crowded was the room where the sessions were conducted?	It was empty
	It had sufficient space
	It was crowded
How were the room settings for each session?	It was set the same in each session
	It was set differently in each session and it affect the discussion mood
	It was set differently in each session and it did not affect the discussion mood
How the activity is organised? (how many days, at what interval, when, and where)	
What is the roles and responsibilities of participants?	

Interpersonal dynamic within groups

Dominance	One participant dominant
	Some participants are actively involved and more dominant than the others
	No participant is dominant and all participants actively involved
	The dialogue goes quietly with no participant is dominant
How participants organize their works?	Collaborative (work together for the mutual benefit of all involved)
	Confrontation (directly challenging other arguments in an attempt to force a solution)
Is dialogue constructive and collaborative?	The discussion is on point to solve the issues and running smoothly
	The discussion leads to solve the issues, but there are some obstacles
	The discussion leads nowhere and stuck
Who is talking and who is listening?	
How are decisions being made?	
Do participants appear motivated, bored, engaged, or better prepared?	

Is there any development of shared language (particular words that often repeated in the discussion)?	
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Interaction with the tools

What information and resources available?	
Will the information and resource help participants solve the issue?	
How participants can access and use the information and resource?	
Can participants get help if needed? If yes, how?	
How are participants using information and resources?	
How are they using the information and resources to interact with other participants	

Role of facilitator

How are participants introduced to the tools by facilitator?	Presentation
	Verbal information
	Written information
	Demonstration
Does facilitator encourage silent participants to speak?	Facilitator did not encourage participants to actively involved
	Facilitator did encourage some participants to actively involved
	Facilitator did encourage all participants to actively involved
Is the facilitator initiating discussion?	
Is facilitator help generated ideas/ options to enable adoption of practice	
Is response from facilitator towards the questions appropriate?	

Tools function

Intensity criteria	low	medium	high
Activity	Stakeholders are only informed	Stakeholders are asked to give their view on the plans	Active involvement takes place.
Facilitating communication	The activity was frustrating, and it does not support participants to visualize their thought.	The activity was not support interaction among participants, but the activity was running relatively smooth and the instruments support participants to visualize their thought in limited way	The activity was a comfortable place for discussion and the instruments help participants to visualize their interest
Social learning	Participants remains insist on their own opinions towards the issues and other participant's opinion	Participants could understand other participants views with whom they disagreed, but unwilling to compromise	Participants could reach consensus with other participants with whom they disagreed to deal with the issues
Power differences (hierarchical or equal)	Participants opinion can be possibly being ignored by others.	Most participants' opinion is taking into account and have an effect in the outcome.	All suggestions will similarly be incorporated in the outcome
Integration	There is no shared language and thematic topic in participants discussion.	Sometimes participants using a few shared language and thematic topic in participants discussion.	Participants using shared language in discussion to be able understand each other.
Level of agreement	Discussion not going smoothly because participants did not take into consideration other opinions	Discussions was dominance by one or a few participants and neglect other opinions.	Almost all participants actively involved in discussion and respect other opinions
Work products	Only limited number of participants look satisfied with the outcome	A few participants look satisfied with the outcome	Most participants look satisfied with the outcome

Annex 4. Timeline

Activities	April 2018				May 2018				June 2018				July 2018				August 2018	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
Initial phase																		
Identifying the problems																		
Literature review (Add or reduce dimension, how to differentiate between process, content, and context, PPT in general)																		
Review scoring system + statistical analysis (might need to interview experts) (SLGE (Saskia) Burgers or JK (Jarl) Kampen or JV (Jurian) Meijering or EJ Bakker)																		
Develop questionnaire																		
Test and adjust questionnaire with expert + layperson (Sadie McEvoy or Laura Basco) (Ask Rica as a layperson)																		
Interview for brainstorming on the general idea																		
Questionnaire in online + excel																		
How to analyze?																		
Collecting data phase																		
Interview tool developers for input (Maaike for the scenario, Clim Soree for Design charrette, Like Biljsma for Denvis, and Nguyen Quan for MOTA)																		
Bangladesh workshop																		
Final phase																		
Content report (WUR)																		
Reflection report (WUR)																		
Reflection and recommendation for the report (IHE)																		
Final draft report (IHE)																		
Revision and adjustment																		