The efficiency of the participation process during the project planning of a bypass

Lessons learned from Varik-Heesselt & Veessen-Wapenveld

Figure 1: The bypass in Veessen-Wapenveld (photo made by author)

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Abstract

Participation is an important process during a project planning. It is expected more bypasses should be planned as consequence of climate change effects. Participation becomes more important in integrated river basin management projects such as a bypass. An efficient participation process during the project planning of a bypass could be useful. Everyone benefits if participation is efficient because less time and effort is needed and less costs are made. This study investigates important aspects of an efficient participation process during the project planning of a bypass by focusing on organisation of the participation process, influence of stakeholders on this process and principles important for efficient participation. By conducting and analysing interviews new knowledge is gained and sub questions are answered. In this study is concluded that three aspects could be taken into account to make a participation process as efficient as possible. First, the organisation of a participation process varies for each project. Second, the influence on the participation is clearly divided. Third, during the project planning 15 principles are taken into account. These principles are the 13 principles of Hassan et al. (2011) and two added ones found in this study. The discussion explains an alternative approach for the ladder of participation. Also, the influence of anticipatory governance on NIMBY in relation to the project planning of a bypass is discussed.

***Keywords**: Efficient participation, efficiency, participation, bypass, planning, integrated river basin management, Varik-Heesselt, Veessen-Wapenveld*

Preface

My interest in water management and 'Room for the River' started during my time at the Gymnasium. Exactly six years ago, at 14-10-2016, in sixth class I handed in my final paper about 'Room for the River' and its application in Passau, Germany. Concluded in my paper 'Ruimte voor de Rivier: een oplossing voor Passau?' was this program did not directly offer a solution for the problem in Passau. However, measures of this program could help decreasing the water level. After this study, I was pondering: 'Could this program really not give a solution?' It was at this moment that my interest in water management aroused and I registered as student at Wageningen University.

During my studies at Wageningen University I specialized in water management. By following the bachelor's program 'Soil, Water & Atmosphere' and master's program 'Spatial Planning', I could combine my knowledge of water and climate. When I had to decide the subject of my thesis, I liked to combine these two studies. The combination of both could be linked to the 'Room for the River' project. I wanted to understand the process and thoughts behind this program. However, I also wanted to learn something applicable for my future career. Participation was a subject I was very interested in during my minor and master. I believe in the relevance of participation nowadays and that much could be learned from these processes. I saw a chance in learning more about participation processes from several points of view. This thesis would give chance to see objectively all sides of participation processes.

During my thesis process I have learnt a lot from my supervisor Pieter Jong. I would like to thank him for his critical view and comments on my work. I would also like to thank him for discussion about ideas and helping me in the right direction when necessary. I am thankful for his personal interest in me and the nice conversations before discussing my work.

I would like to thank all interviewees for their time. No one cancelled or delayed the interview and because of them, everything could go according to plan. Several stakeholders helped me to find other participants or necessary information I was looking for. Thanks to them I could finish my thesis in time.

Last but not least I would like to thank my family and friends. I would like to thank Marien and his parents. They helped me to get some contacts for interviewees in the surrounding of Varik-Heesselt. I would like to thank my father for many phonecalls made, my mother for borrowing her car during my interview weeks and my brother for explaining some scientific research principles. Lastly, I would like to thank my friends for the many coffees and cycling trips and for understanding that I continued working in the summer on my thesis, just after my first year master.

Lisanne Treskes
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1. Introduction

1.1. A bypass

The Netherlands has to deal with a lot of water. Due to climate change, this subject is becoming more critical. Climate change causes water levels to increase due to intensive rainfall and rising sea levels. The need of environmental measures are caused by climate change effects (United States Environmental Protection Agency, 2016). This is also the case along rivers. The Dutch government created a program along the largest rivers of the Netherlands to be more prepared for climate change named 'Room for the River' (Ministerie van Infrastructuur en Waterstaat, n.d.-c). This program consisted of different measures to increase flood safety, spatial quality and liveability. One of these measures is a bypass.

A ***bypass*** is a trench next to the river, built by humans, in which water can flow when a high water level in the river arises (Ministerie van Infrastructuur en Waterstaat, n.d.-a). A bypass causes the water level as well as the water amount of the river to decrease fast (Waterschap Vallei en Veluwe, n.d.). A bypass can be very useful when there is a peak discharge. It creates an advantage for flood safety because the effect can be noticeable lots of kilometres upstream. When more water is abducted, towns and cities around the river are protected more to peak discharges. Bypasses also contribute to integrated river basin management (IRBM), which explicitly focuses on river basins and integrates several different spatial quality improvements (Rijke et al., 2012).

Bypasses in the Netherlands

In the Netherlands, several bypasses of different scales were built. The largest project carried out is the bypass at Veessen-Wapenveld. This bypass was part of the Planning Key Decision 'Room for the River'. Veessen-Wapenveld was planned in 2006 and realised between 2012 and 2017 (Waterschap Vallei en Veluwe, n.d.). When this bypass would be used, the water level of the IJssel should decrease with 71 centimetres (Waterschap Vallei en Veluwe, n.d.). The bypass not only had an advantage for the flood safety of the area, but also improved the environment. It increased recreation possibilities, remained used as agricultural land and gave nature more space (Ministerie van Infrastructuur en Milieu, 2012).

Bypasses are also built on a smaller scale, for example, in Valkenburg. The process of this bypass was much shorter than in Veessen-Wapenveld (Waterschap Limburg, n.d.). The bypass in Valkenburg is smaller and will be used more often because of the smaller scale. The bypass in Valkenburg does not only increase flood safety, it also improves fish migration and recreation services (Waterschap Limburg, n.d.). Because of the smaller scale, implementing this bypass has less effect on the environment than in Veessen-Wapenveld.

Between Varik and Heesselt a bypass was also planned to be built (Van de Geijn et al., 2018). This was planned to be larger than Veessen-Wapenveld, so it would have had effect on a large scale. However, during the project planning the plan was cancelled (Binnenlands bestuur, 2018).

Bypasses versus Secondary Channels

There are bypasses and secondary channels. Both are connected to the river and during peak discharges have room for water peaks. The difference between them, is a bypass is only used when there is a peak discharge, while a secondary channel is always in use (ARK et al., 2018). A ***secondary channel*** ensures that the river has a particular pattern or create more space continuously. The channel can also be used as a navigating route. A

secondary channel has a more permanent influence on the landscape, while a bypass mostly affects the river basin when there is high water. A few good examples of secondary channels are Nijmegen-Lent and Millingerwaard (Nienhuis Landschapsarchitectuur, 2014).

In the Netherlands are several bypasses and secondary channels, mentioned in table 1. This table compares the different projects and the various aspects of participation it consisted of.

	Veessen-Wapenveld	**Varik-Heesselt**	**Valkenburg**	**Nijmegen-Lent**	**Millingerwaard**
What	Bypass (closed)	Bypass (partly open)	Bypass (closed)	Secondary channel (can store more water during high water)	Secondary channels (most of them used during high water)
When	Planned: 2006 Realised: 2017	Planned: 2009 Realised: not	Planned: 2018 Realised: 2021	Planned: 2001-2009 Realised: 2015	Planned: 2013 Realised: 2022
Project scale	National	Regional	Local	National	National
How large	Width 500 - 1500 meter Length 8-10 kilometres	1,5 times larger than Veessen-Wapenveld		Width 200 meter Length 4 kilometres	One flow track of 3 kilometres Five smaller gullies
Commissioner	Waterboard Vallei en Veluwe	n.a.	Waterboard Limburg		Staatsbosbeheer
Involved stakeholders	• Province Gelderland • Province Overijssel • Municipality Heerde • Municipality Olst-Wijhe • Ministry of Infrastructure & Environment • Ministry of Economy, Agriculture & Innovation • Rijkswaterstaat • Citizens	• Province Gelderland • Ministry of Infrastructure & Environment • Municipality Neerijnen • Waterboard Rivierenland • Rijkswaterstaat • Citizens	• Province Limburg • Municipality Valkenburg aan de Geul • Waterboard Limburg • Project developer Wyckerveste • Citizens	• Municipality Nijmegen • Waterboard Rivierenland • Province Gelderland • Rijkswaterstaat • Wereld Natuur Fonds • ARK Natuurontwikkeling • Citizens	• Province Gelderland • Municipality Berg en Dal • Waterboard Rivierenland • ARK Foundation • Citizens • Other stakeholders in this area

	Veessen-Wapenveld	Varik-Heesselt	Valkenburg	Nijmegen-Lent	Millingerwaard
Decision-making start	Planning Key Decision	Spatial Planning Act	Unknown	Planning Key Decision	Spatial Planning Act
Policy start	Beleidslijn Ruimte voor de Rivier	Beleidslijn grote rivieren	Unknown	Beleidslijn Ruimte voor de Rivier	Beleidslijn Ruimte voor de Rivier
Participation	Goal was to create understanding	The steering group advised dike strengthening and river widening	Informative, it started in 2018 with a meeting after that information via the website and social media. Citizens are informed on paper.	It is announced, and in 3 weeks, there is a consultation evening. Citizens find it better now; they accept it afterwards	Mainly news papers Group of citizens and nature organisations in 2020 with end adjustments
Problems participation	• No trust in public authorities after the MKZ crisis • 1000 people would get underwater	No unity in the plans	No problems -> positive reactions to the plan	• Citizens are omitted, suddenly a bypass was projected • Too long uncertainty (9 years) • Don't think too much in fixed plans	No problems known because it is a natural area.
Problems general	Post-war remains of the defence line to be taken into account	The national frame was missing to legitimize the bypass	A possible decline in archaeological value	A residential area was planned now, something different	The site of De Beijer BV is partly being excavated. The company could be moved to an empty brick factory site in Dodewaard.

Table 1: Comparison of different bypasses and secondary channels, created by author based on Waterschap Vallei en Veluwe (n.d.), van de Geijn et al. (2018), Vos et al. (2019), Waterschap Limburg (n.d.), Spiegelwaal en Stadseiland Veur Lent Nijmegen - de nevengeul in Nijmegen in cijfers en feiten (n.d.), Staatsbosbeheer (2022).

Table 1 shows the different projects and their scale. In this thesis, a distinction is made between a project and a program. A ***project*** focuses on a specific result that should be achieved on a short term**.** The displayed projects are part of specific programs. A ***program*** focuses on a larger goal and takes a longer time. A program consists of several projects.

Based on table 1 a choice for the cases of this study has been made. It is chosen to investigate the participation processes during the project planning of the bypasses at Varik-Heesselt and Veessen-Wapenveld, for several reasons. Firstly, there is chosen for a bypass, instead of a secondary channel, because this function is often less understood then the function of a secondary channel which create more flood safety but also gives a navigation route and recreation. Secondly, these bypasses have a significant influence on the environment and create a lot of uncertainty in the area. Thirdly, Veessen-Wapenveld is a huge project which is a great example of a bypass, according to Rijkswaterstaat. Fourthly, there is chosen for Varik-Heesselt because this bypass is not built and the participation process seems interesting according to some news articles (Provoost, May 2018; Provoost, June

2018; Nu.nl, February, 2018) . Fifthly, there are many documents and evaluations of these projects available , so enough information can be found. Lastly, the projects are part of different programs. Veessen-Wapenveld is part of the Planning Key Decision 'Room for the River' and Varik-Heesselt is included in the 'Deltaprogram'. These large programs have their own participation process which is explained in paragraph 4.2.

The phases of building a bypass

Building a bypass is a process which takes a long time. A bypass has impact on a large part of the environment. When a bypass is initiated by a program or planning key decision, as mentioned above and explained later in this thesis, it follows the scheme as in figure 2 (Eshuis et al., 2014).

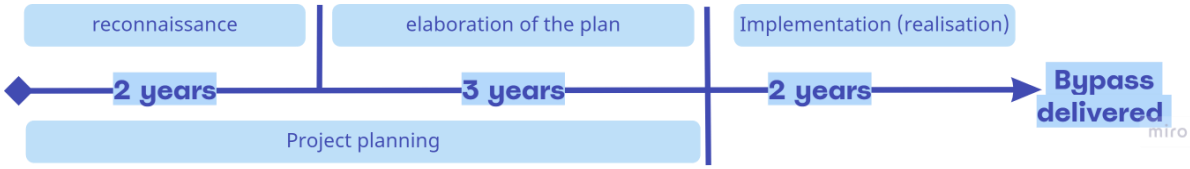


Figure 2: The phases of building a bypass, created by author based on Eshuis et al. (2014)

The process consists of three main parts: reconnaissance, elaboration of the plan and implementation (realisation). This process is planned to take 7 years. The first two years are the reconnaissance, which means: looking at alternatives and possibilities in the area. The three years thereafter are meant for the elaboration of the plan: several variants are worked on. The last two years are spent on the realisation of the plan: implementation of the bypass.

An important concept in this thesis is project planning. In this thesis ***project planning*** is defined as the first five years of the process including the reconnaissance and elaboration of the plan. For this definition is chosen because in the first five years participation in general is important for most people in the area. The public authorities are responsible for organising the participation the first five years while during the realisation the contractor is responsible for most parts of the participation. During the reconnaissance and elaboration of the plan involving more citizens and farmers creates a more complete process.

1.2. Participation in the Netherlands

Participation in the Netherlands starts with a participation plan (Ministerie van Infrastructuur en Waterstaat, n.d.-b). The project team, responsible for the project planning of the bypass, designs the participation plan. The participation plan describes what forms of participation will be used and when these forms will be used. With a good stakeholder analysis in the participation plan is explained who should be involved and when (Ministerie van Infrastructuur en Waterstaat, n.d.-b). This analysis shows the different stakeholders and their interests. It is essential to do this analysis as early as possible so the participation plan can be adapted.

The Netherlands has three main goals when designing a participation plan (Ministerie van Infrastructuur en Waterstaat, n.d.-b):

1. Thoughtful process: there is thought about which stakeholders should be involved and when. Involving stakeholders creates a better understanding of the projects and choices, made in the projects.

2. Communication: communication helps to explain all stakeholders what will be done and when they can participate.
3. Transparency**:** helps to explain the expected outcomes of the participation process.

Every program has a different participation plan which is explained in paragraph 4.2. These participation plans are specified on the different projects. In this thesis, the participation plans are described for the relevant programs of the cases Varik-Heesselt and Veessen-Wapenveld.

Participation and bypasses

Participation is becoming more critical because it can help social and ecological sustainability (Euler & Heldt, 2018). It is expected that in the future people want to have more influence on the implementation of bypasses. As already mentioned, implementing a bypass significantly impacts the surrounding environment. Due to the impact on the environment a participation process is needed during the project planning of a bypass. The participation process can be partly determined by a program, such as the Deltaprogram. Afterwards, the initiator of project with several other important stakeholders specify the participation process.

Context

Participation is becoming more and more important (Lane, 2005). More bypasses in the future mean communication is needed during the project planning of a bypass. There is no standard participation process used during the project planning of a bypass and this probably also would not work. In this thesis is investigated how the participation can be made more efficient and what is needed for that. The participation processes of Varik-Heesselt and Veessen-Wapenveld are used as an example.

Both projects are shortly described here:

- **Varik-Heesselt** was a project with a broad participation process. The project was part of the Deltaprogram. The planned bypass was larger than the bypass in Veessen-Wapenveld because it should have transported 4,5 times more water than in Veessen-Wapenveld (van de Geijn et al., 2018). Implementing this bypass could have had a large effect in Tiel or even further upstream in Nijmegen (van der Velden, 2015). The participation focused on informing. Also, a sounding board group was established to give advice and think about linkage opportunities (Vos et al., 2019). In the end, the plan for this bypass was not accepted. A bypass will not be implemented in Varik-Heesselt on the short term (Binnenlands bestuur, 2018). However, the participation during the project planning already took place which can be learned from.
- **Veessen-Wapenveld**. The bypass in Veessen-Wapenveld was part of the program 'Room for the River' and focused on a national scale. According to Rijke et al. (2012), this project transitioned to integrated river basin management, which is the development and management of land, water and social issues (Mitchell, August 2005). It created a collaboration between local, regional and national levels (van den Brink, 2009). Because of the scale of the project, many stakeholders were involved. The fact that this project was part of 'Room for the River' had an effect on the participation (Ministerie van Infrastructuur en Milieu, 2012). The project focused on creating understanding for the planning of the bypass (POM, 2015). Creating understanding is what helped to form a support base for the bypass.

1.3. Problem statement

As explained, the water level can quickly decrease by a bypass, what is a valuable tool in the future. Climate change causes an increase in peak discharges in the Netherlands due to heavier rainfall and more melting water from the Alps (te Linde et al., 2010). These changes call for long-term integrated river basin management (Middelkoop et al., 2001). More bypasses can be useful when climate change increases because there is large uncertainty about peak discharges. Implementing a bypass does not only affect flood safety; it can also have a large effect, positive and negative, on the environment (Nienhuis Landschapsarchitectuur et al., 2014). Because the bypass has a large impact on the environment, many stakeholders want to be involved. A bypass has an impact on the backyard of people, who mostly see more disadvantages than benefits of it.

Because of the significant effect of a bypass on the environment, the resistance against it is also large. Because of the large resistance, participation of citizens and stakeholders has become necessary in the decision-making (Gollata et al, 2021). When citizens disagree, they often go protesting. Protests also can be seen as a way of participation. In the last ten years, the amount of protests has increased (de Sauvage Nolting et al., 2021). When citizens won't achieve enough with protesting, they can go to court (Mein & de Meere, 2018). Court cases are not efficient, taking a lot of time and costs. Being efficient is preferable because less money, time and effort are used.

1.4. Knowledge gap

It is clear that participation is essential. However, a participation process has a significant effect on costs and time of a project. If the participation project is organised as efficient as possible time, effort and costs are kept low. However, it is not completely clear how this could be achieved. Implementing a bypass causes a lot of environmental issues because these projects have a significant influence on the surrounding environment. This study will connect efficient participation to the project planning of a bypass.

1.5. Research objective

Participation plans during project planning of river widening projects (or specifically bypasses) vary. In the future, more changes to rivers are expected, considering that more peak discharges could occur and rivers could have a quick water level rise (Ganguli et al., 2020). Bypasses are a solution to decrease the water level quickly along the river which could be beneficial in the future (Waterschap Vallei en Veluwe, n.d.). Extra space for water during peak discharges will be needed in a relatively short time. To implement a bypass in the future, it is useful to know how an efficient participation process could be achieved. With efficient participation costs can be kept low, and efforts and timeframes can be kept limited. The outcomes of this study could possibly be an example for integrated river basin management projects. These projects have a large influence on the environment and citizens do not benefit directly from it.

1.6. Structure of the thesis

This thesis consists of seven chapters. Chapter one is the introduction. It describes the knowledge gap and research objective and the reason Varik-Heesselt and Veessen-Wapenveld are chosen for this study. In chapter two the theoretical framework and theories used for the conceptual model are explained. In the last part of this

chapter the research questions are described. In chapter three the methodology applied to research these questions is explained. In chapter four the context of this study, the cases Varik-Heesselt and Veessen-Wapenveld, and the relevant policy for participation are described. In chapter five the results of the literature research and interviews are described. In chapter six the study and its outcomes are the discussed. The seventh, and last chapter, contains the conclusion.

2. Theoretical framework

In this chapter, theories and concepts are linked to each other to build a framework for this study. This theoretical framework creates a base for the analysis of this thesis.

The implementation of a bypass can have significant effects, positive as well as negative, on the environment (Nienhuis Landschapsarchitectuur et al., 2014). Because of the impact on the surrounding environment, stakeholders have different interests, which could conflict. There is a changing role of participation: the amount of public participation increased in the past decades (Lane, 2005). Citizen participation becomes more important; citizens want to be heard and have more influence on plans (Lane, 2005). For this reason, participation is an essential aspect during the project planning of a bypass. However, in a community it is preferable to be as efficient as possible. Not only costs but also time and effort should be limited because these are all aspects of efficiency. This underlines the importance of efficient participation, which is the topic of this study. The concepts efficiency and participation are explained in the next paragraphs. At the end of the chapter a definition for efficient participation is formed.

2.1. Participation in general

Participation is seen from different points of view. Generally said, ***participation*** is "the fact that you take part or become involved in something" (Cambridge Dictionary, n.d.-b, participation noun). In participation, distinctions can be made between different forms: citizen participation and stakeholder participation, also called stakeholder engagement.

Citizen participation is defined in this thesis, according to Baum (2001), as "citizen involvement in public decision making" (p. 1840). Although citizen participation is becoming more important, it is still ambiguous and unsettled (Armeni, 2016). Another critical aspect of participation is stakeholder engagement. Stakeholder engagement and citizen participation overlap because both can involve citizens. According to Edelenbos et al. (2016), ***stakeholder engagement*** is "any group or individual who can affect, or is affected by, programmes, plans and projects, is involved in the decision-making process" (p. 49). The problem of stakeholder engagement in flood risk management often is the lack of knowledge of the involved stakeholders (Edelenbos et al., 2016). Successful stakeholder engagement is challenging because on the one hand it should be connected to governmental decision-making, and on the other hand the timing of the initiatives should be correct. Stakeholder engagement is becoming more important in flood risk management, so it is expected to be the same in the project planning of a bypass. A good start for optimal stakeholder engagement is a good stakeholder analysis, which shows the people and parties with particular interests (Ahmadi et al., 2019).

The process of efficient participation has to deal with decision-making. Decision-making can be roughly divided into individual and group decision-making (Castellan, 2013). The start of a decision-making process about land changes and IRBM is evolved towards group decision-making, called collaborative decision-making (Nogueira et al., 2017). Collaborative decision-making can lead to participative decision-making, which is influenced by Arnstein's level on the participation ladder (Arnstein, 1969). The interaction between these concepts could affect the level of participation and the participation process.

Ladders of Participation

When there is participation this participation can be divided in several levels of the 'Ladder of Participation' created by Arnstein (1969). This ladder is shown in figure 3. This ladder is a helpful tool for planners to determine the most appropriate participation for a particular project. The eight levels on the 'Ladder of Participation' can be roughly divided into three layers: 1. Nonparticipation, 2. Degrees of Tokenism and 3. Degrees of Citizen Power. During the project planning of the bypass, interesting is the forms of participation used and how citizens experience this.

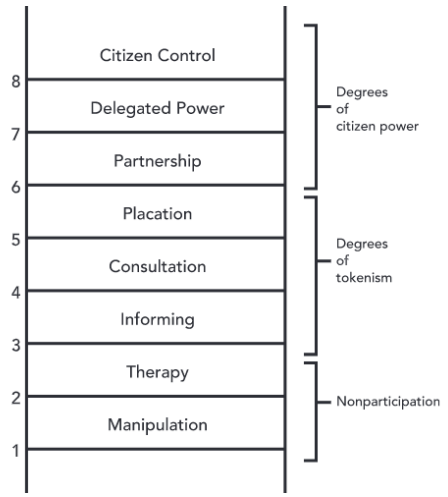


Figure 3: Ladder of Participation (Arnstein, 1969)

Arnstein's model has the limitation of focusing on the relationship between citizens and specific government programmes (Burns et al., 1994). Burns et al. (1994) built on Arnstein's ladder theory, and created an alternative ladder of participation, called the ladder of citizen empowerment. This ladder explains citizen participation and the power of citizens. This ladder is bigger and consists of 12 levels instead of 8. It has three layers: 1. Citizen-non-participation, 2. Citizen participation, and 3. Citizen power. These ladders can be compared with Arnstein's ladder levels: 1. Nonparticipation, 2. Degrees of Tokenism and 3. Degrees of Citizen Power. The layers differing most are the degrees of tokenism in Arnstein's ladder and citizen participation in Burns's ladder, where more focus is on the involvement of citizens.

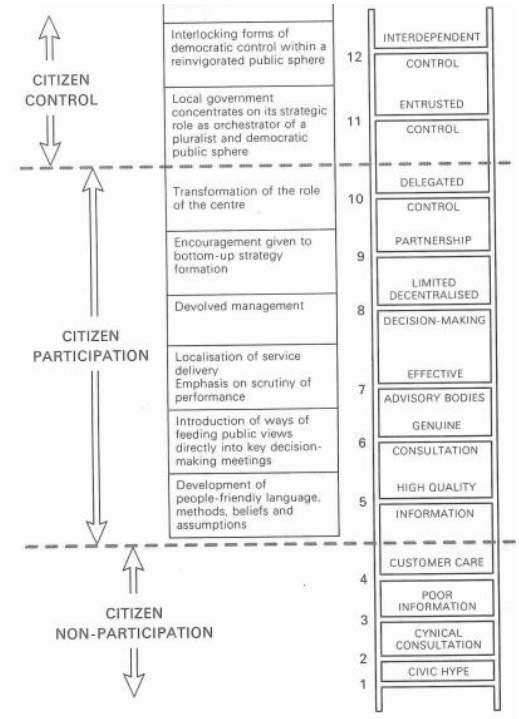


Figure 4: Participation ladder Burns (Burns et al., 1994)

Not in my backyard

Participation can be applicable, not only for bypasses but for integrated river basin management (IRBM), in general too. IRBM focusses on integrating and considering the basin's environment (Rijke et al., 2012). IRBM is a way in which river problems are approached broadly. A bypass is a form of integrated river basin management.

Building a bypass can cause a 'Not in my backyard (NIMBY)' reaction of citizens; they would like to have the plan's benefits but do not want to experience any nuisance (Foster & Warren, 2021). The planning of a bypass is a good example of a NIMBY-problem. Flood safety is essential for people, but commonly they do not want to move or live on an island during high water. NIMBY should be tried to avoid during the project planning of a bypass (Dear, 1992). Overcoming NIMBY often starts with good and organised participation: the project's goal is clear, and people do not only see it as a backyard problem but also understand the function of it. A NIMBY seems to be related to anticipatory governance. Anticipatory governance is a manner of decision-making considering

predictions of, for example, climate change (Quay, 2010). Plans are already made taking into account certain predictions. In case of a planned bypass, a certain peak discharge is expected and there is anticipated on the predicted discharge. Citizens often do not see the direct benefits from plans like these. Citizens seem to have a problem with changes in the landscape when they do not directly understand the reason. Therefore, anticipatory governance creates a problem, and the argument for NIMBY arises quickly because citizens often cannot fully consider the consequences (van der Moolen & Voogd, 1995). Overcoming NIMBY could help to create a more efficient participation process.

2.2. Efficiency

The other central concept in this thesis is efficiency. As mentioned before, a project should be as efficient as possible. ***Efficiency*** means that 'time, effort and costs are as low as possible' (Cambridge dictionary, n.d.-a). Efficiency is higher when time and energy are not wasted. Generally, there is a goal to achieve, and this has to take the least time, effort and money. There are different types of efficiency, such as process, allocative and output efficiency. ***Process efficiency*** is the used concept of efficiency in this thesis. Process efficiency is different from allocative or output efficiency. Process efficiency is about coordinating the given inputs and the process towards the outcome (Buitelaar, 2004). Process efficiency still overlaps with allocative efficiency, the most traditional form of efficiency. Allocative efficiency is the principle that goods and services are optimally allocated among sellers and buyers (Buitelaar, 2004).

The costs, having an influence on the efficiency of processes, are called transaction costs. These costs are due to market exchange (OECD, 2004). ***Transaction costs*** are defined here as: "the costs that arise from the transfer of ownership or, more generally, of property rights" (Niehans, 1989, p. 320). These costs also incorporate the implementation of contracts (OECD, 2004). Generally said: the higher the transaction costs are, the lower the efficiency is. Coase (1960) explained in his article 'The Problem of Social Cost' that if we could live in a world with no transaction costs and people would bargain with each other to come to a result, this would be most efficient. According to Coase (1960) litigation leads to high transaction costs and affects efficiency because it takes a lot of time and money. Transaction costs can be related to the process efficiency of the project planning of a bypass. When stakeholders disagree, they go to court, which increases the costs and decreases efficiency.

2.3. A framework for efficient participation

The way the participation process is designed influences directly its own efficiency. A framework for this process is needed. The framework used in this study is the framework of Hassan et al. (2011) displayed in table 2. Hassan et al. (2011) explain that participation empowers stakeholders, which could create a shared vision. Sometimes it would be more efficient to include citizens to reduce resistance, although including citizens could take so much time that efficiency decreases. People generally accept more with participation than without: the more stakeholders are included, the less resistance there is (Shapiro et al., 1992). A way should be found to let stakeholders participate efficiently. Hassan et al. (2011) set up a framework with 13 principles leading to an efficient participation process. In table 2, the principles are mentioned, and what each principle means for planning is explained.

	Principle to be assured	What does it mean for planning
1	**Transparency**	• Understanding the action of the different people involved in the complex remediation process requires providing and disseminating information • Well-defined decision structures and precise responsibilities/competences are also for the concerned of utmost importance (role of participants should be clearly defined and communicated) • The concerned should have a very comprehensive and uncomplicated admission to documents which concerns their own state • It should be made clear that final decision-making/taking remains with the relevant authority
2	**Openness**	• Refers to the perception that the object of trust is open for concerns, opinions or criticism • Being ready to enter into a dialogue, it also means to provide info, discuss open-mindedly, to take sorrow and fears of concerned seriously, and also to speak about deficits and problems • The concerned have to get the opportunity to form their opinion
3	**Earliness/early involvement**	• To provide information and participation at early stage is essential requirements for building trust, thus it's possible to make offers and to act instead of react • It's also an advantage to start at the early phase, because there is usually less pressure
4	**Completeness**	• Participants should represent a "typical" cross section of the population or all interest groups should be involved
5	**Continuity**	• Instruments for participation and information should continuously be applied • It's also an advantage, if there is sustainability of contact persons
6	**Reliability**	• Refers to the perception that one can rely on others work or performance and that others adhere to decisions, keep conditions and promises • To meet deadlines as well as the quality of information are important requirements for establishing trust • To detect concealed information often means an irreparable loss in trust • Participants should receive adequate and timely feed-back, showing how their inputs have been used
7	**Competence**	• Participation process should be designed in ways which enhance the learning capacity of the participants in the process • Ability to develop with consultants, adequate community based indicators • Ability to build development scenarios based on the combination of proposed measures and perceived consequences
8	**Benefits**	• Benefits to all partners. If there is not the prospect of benefits for all partners, and if the benefits will not be distributed or shared equitably, the prospects for a sustained partnership are low • Also short-term benefits must be visible besides mid or long-term community improvements
9	**Shared vision**	• A participation likely will be enhanced if there is a shared vision to which there is a strong, mutual commitment
10	**Equitable power**	• This does not mean equal power • Even when differential power is held by partners, all partners must be able to be involved and feel valued
11	**Communication channels**	• Potential for misunderstanding and miscommunication always exists, even in the presence of mutual trust and respect • Often, not enough time and resources are allocated to ensuring sufficient communication • This need becomes even greater if partners are in differential physical locations
12	**Adaptability**	• This allows participants to respond positively to the inevitable change, uncertainty and conflict which will be encountered
13	**Integrity, patience & perseverance**	• Obstacles will need to overcome and progress will not always occur as quickly as everyone would like. Combined with mutual trust and respect, these thee attributes help partners deal with difficult situations

Table 2: Principles for efficient participation (Hassan et al., 2011)

The table of Hassan et al. (2011) is based on two articles (Mitchell, March 2005; Ridder & Pahl-Wostl, 2004). According to Mitchell (2005) including more stakeholders increase costs and time for making decisions. It is concluded that the increase in time and costs is only on the short term. So it could be seen as a short time investment because involving stakeholders in an **early stage** is an investment to save time on the longer term (Mitchell, March 2005). Also **benefits** are explained clearly in relation to efficient participation. Benefits can be

directly transformed into money, but also expressed in property. Another essential part of efficient participation is trust (Myung, 2013). The relation between trust and efficiency implies that when there is trust among stakeholders, procedures can be followed smoothly and informally. To be trusted by citizens and other stakeholders, several principles are important for public authorities to take into account such as being **transparent**, **open** and **reliable**. Another important aspect of the efficiency of participation is in which way stakeholders are involved (Ridder & Pahl-Wostl, 2004). If stakeholders are involved, less time is needed for explanations, and fewer costs are made because fewer court cases are expected. Generally speaking important stakeholders in an area, want always be involved and have an influence on the process because plans affects their property. To focus on the involved stakeholders, the principles **completeness**, **continuity**, **competence** and **equitable power** are part of the framework. Equitable power means stakeholders have the possibility to get involved and feel valued. Equitable power does not mean power is equal between all stakeholders. A completely different aspect of efficiency of participation is communication. Better communication and use of **communication channels** decrease the time used and the potential costs made (Hassan et al., 2011). The last three principles, 'shared vision', 'adaptability', and 'Integrity, patience & perseverance', are less clearly explained than the earlier ones. However, a connection with efficiency can be made. '**Shared vision**' can be described as efficient because there is mutual commitment and partnership (Mitchell, March 2005). The principle '**adaptability'** is clearly related to efficiency. Time, costs and efforts can be kept limited, when people can adapt quickly to changes (Mitchell, March 2005). The principle '**integrity, patience & perseverance'** is useful for the efficiency of the participation process because the progress is focused on, and difficult situations can be dealt with (Mitchell, March 2005).

In this thesis, ***efficient participation*** is defined as: ***'a process where stakeholders are involved, and the process efficiency is as high as possible by keeping time, effort and costs as low as possible'.***

2.4. Conceptual model

The conceptual model shows the connection between efficiency and participation. The interconnection between the concepts is shown in figure 5. In this study the important aspects for an efficient participation process during the project planning of a bypass are investigated.

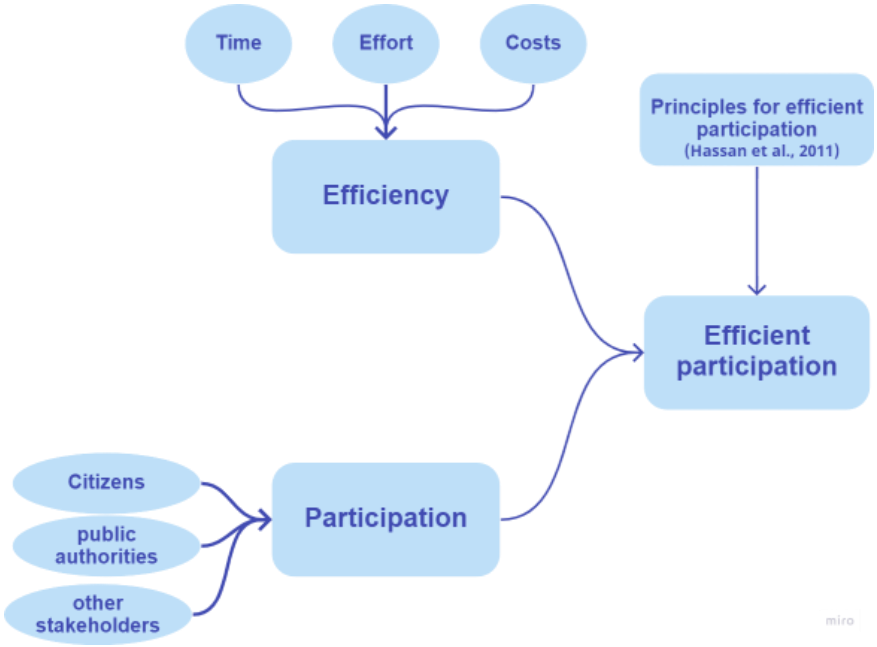


Figure 5: Conceptual model, created by author

In figure 5 the relationship between efficiency and participation is showed. Efficiency is influenced by time, effort and costs. Participation is influenced by citizens, public authorities and other stakeholders. The combination of efficiency and participation lead to efficient participation. Principles for efficient participation influence the efficiency of a participation process.

2.5. Research questions

As discussed in paragraph 2.3, efficient participation could be evaluated by the framework of Hassan et al. (2011). How this can be applied to a bypass, is the study of this thesis. This approach leads to the following research question:

Which aspects are important for the organisation of participation to make a process efficient for involved stakeholders during the project planning of a bypass?

This question can be divided into four sub-questions:

1. How is the participation process organised during the project planning of a bypass?
2. Who has influence on the participation process during the project planning of a bypass, and to what extent?
3. Which principles, according to stakeholders, had influence during the project planning of a bypass on the efficiency of the participation process?
4. Which principles, according to stakeholders, are important during the project planning of a bypass to create an efficient participation process?

3. Methodology

3.1. General method

This study is based on scientific resources, reports, news articles and interviews. The type of sources are evaluated with the conceptual model of efficient participation. Interviews are analysed qualitatively. A general overview of how the sources are used for answering the questions and how they are analysed is displayed in table 3.

Which aspects are important for the organisation of participation to make a process efficient for involved stakeholders during the project planning of a bypass?

Research question	Data needed	Analysis
How is the participation process organised during the project planning of a bypass?	- Websites - Reports - Interviews -	- Context - Document analysis
Who has influence on the participation process during the project planning of a bypass, and to what extent?	- Websites - Reports - Interviews -	- Context - Document analysis
Which principles, according to stakeholders, had influence during the project planning of a bypass on the efficiency of the participation process?	- Reports - Interviews - Scientific articles	- Document analysis - Grounded theory analysis
Which principles, according to stakeholders, are important during the project planning of a bypass to create an efficient participation process?	- Interviews - Scientific articles	- Grounded theory analysis

Table 3: Methods for each theory, created by author

Phasing plan

The study can be divided into four phases, shown in figure 6. The first phase is the study design phase: a literature study is conducted, interviewees are approached and invited, interview questions are formulated and invitations are sent to interviewees. In the second phase, the data collection phase, interview questions are revised based on the planned interviews. Also, interviews are conducted and directly transcribed. The third phase is the data analysis phase. The analysis of the interviews is done in ATLAS.ti and is based on grounded theory, consisting of open, axial and selective coding. The last phase, the reporting phase, displays the results and discusses them. Data collection and analysis methods are described next.

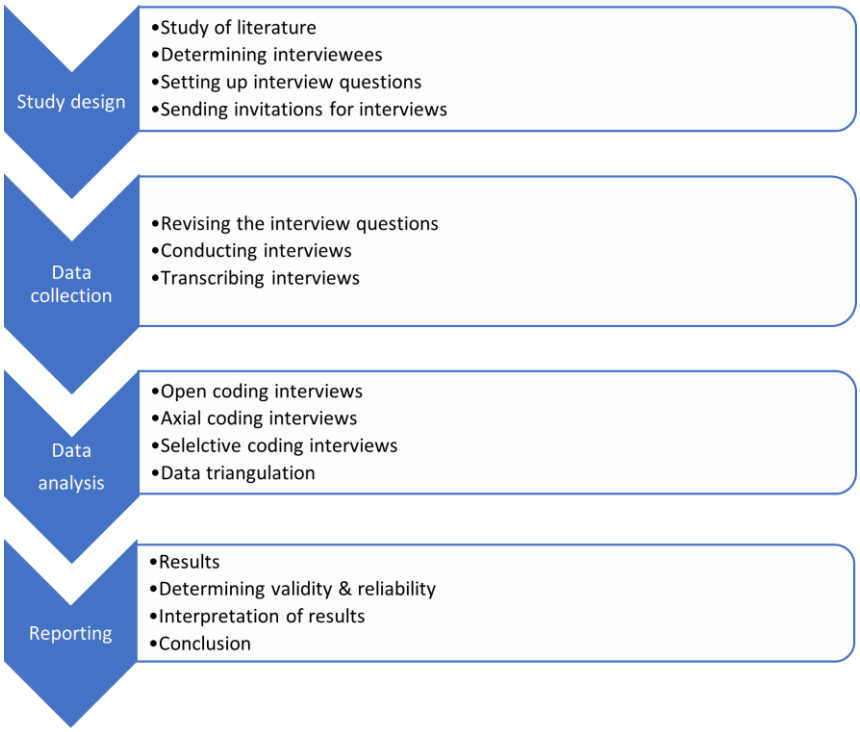


Figure 6: Phases and actions of the study (created by author)

3.2. Data collection

Four used sources are sampled. The sampling of these sources and their contribution to the subject of this study, efficient participation, is discussed here after.

1. Reports

To answer the sub-questions, several types of reports are used. Used are reports of Varik-Heesselt and Veessen-Wapenveld, in which the planned participation for the project is explained and projects and participation are evaluated. Also, general reports about programs such as 'Room for the River' and 'the Deltaprogram' are used. These reports give a general idea about the program and the participation it consisted of. A list of the used reports is displayed in appendix II.

2. Scientific literature

Scientific literature is used to create a theoretical framework and explain the necessary theories and concepts used. The literature, reflecting on efficiency and participation, is essential for the discussion of the results.

3. Interviews

To achieve information interviews were conducted. Interviews give insight in the way citizens, farmers and public authorities experience the participation process. The interviews are focused on citizens and stakeholders involved during the project planning of a bypass. A distinction is made between citizens who experienced direct effects of the bypass and those who did not. An overview of the respondents is shown in table 4.

	Stakeholder	Function	Project	Online or live
1	Waterboard	Technical manager & project manager	Veessen-Wapenveld	Live at the waterboard
2	Waterboard	Project manager	Varik-Heesselt	Live at the waterboard
3	Farmer	Milk farmer & part of the preparation & did experience direct effect	Veessen-Wapenveld	Live at the farm
4	Farmer	Fruit farmer & part of the sounding board group & would experience direct effect	Varik-Heesselt	Online via zoom
5	Citizen	Citizen would experience direct effect	Varik-Heesselt	Live at his/her home
6	Citizen	Citizen would not experience direct effect & part of the sounding board group	Varik-Heesselt	Online via Microsoft Teams
7	Citizen	Citizen did not experience direct effect & journalist	Veessen-Wapenveld	Live at his/her home
8	Citizen	Citizen would experience direct effect & part of the sounding board group	Varik-Heesselt	Online via Microsoft teams
9	Citizen	Citizen did experience direct effect & part of the sounding board group	Veessen-Wapenveld	Online via Microsoft teams
10	Province	Account manager	Veessen-Wapenveld	Live at the provincial house of Gelderland
11	Province	Environmental manager (hired by province)	Varik-Heesselt	Live at an external location
12	Rijkswaterstaat	Project manager & environmental manager	Not applicable	Online via Microsoft teams
13	Consultancy firm	Manager plan design Project leader (same person involved in both projects)	Varik-Heesselt Veessen-Wapenveld	Live at consultancy firm

Table 4: Respondents interview

Potential respondents were contacted and asked to participate in the study by having an interview. Interviews were online or physical, depending on the preference of the interviewee. Interviews were between 30 and 60 minutes and semi-structured based on pre-determined questions.

The questions differed per stakeholder but were always equal for the same position of the stakeholder on the two locations. A list was made of basic questions for citizens and public authorities. Depending on the stakeholder extra questions were added. Questions that were asked are shown in appendix III. Interviewees were explained where the study was about.

In the interviews the collected data about efficiency cannot directly be seen. How questions are linked to efficiency is explained here. First, questions for citizens and farmers related to efficiency are discussed. They were asked how they first heard about the bypass. This gives an idea of the **early involvement, completeness** and **communication channels**. During the interviews with the citizens there was asked what the effect of the bypass was for themselves. This explains their view on **benefits** of the bypass. Then was asked how they could participate in the project planning. These questions gave insight in the efficiency regarding time and effort. It

explains the **transparency**, **openness**, and **equitable power** in this process. Questions were asked about their resistance and if legal action was taken. These questions could be linked to the **continuity**, **reliability**, **shared vision** and **integrity, patience & perseverance**. It was asked what was good or not and what could be improved in the participation process. These questions incorporates several principles. More questions were asked based on given answers. These are also mentioned in appendix III. This was possible because interviews were semi-structured.

Second, the questions for public authorities are discussed. The public authorities were first asked about their function in the project. This gives an idea about their knowledge of the project and their influence. Afterwards, the influence of the public authority on the participation process was asked for. This gives an idea of time and effort invested in this process and the **completeness, equitable power** and **continuity**. When the public authority had an influence on the participation process it was asked how their view was on it. These questions tell a lot about several principles, namely: **openness, early involvement, completeness, continuity, shared vision, equitable power** and use of **communication channels**. Then was asked how was dealt with reactions of citizens, which tells something about **transparency, openness, adaptability,** and **integrity, patience & perseverance**. A question about the delay of the project because of resistance of citizens, tells something about the **continuity** and **shared vision**. Questions about the juridical cases were the same for the public authorities as for citizens. Public authorities were also questioned about their ideas of citizen involvement. These questions could tell something about the principles **openness, early involvement, completeness, reliability, competence, shared vision** and **equitable power**. The question about the success of Veessen-Wapenveld despite resistance, discusses **transparency, reliability, adaptability** and **integrity, patience & perseverance.**

The interview questions with the consultancy firm and Rijkswaterstaat were partly the same as the waterboard and province but differed a bit. During the interview with Rijkswaterstaat questions were more general about the organisation of the participation in IRBM projects. In the interview with the consultancy firm the focus was on the comparison of Varik-Heesselt and Veessen-Wapenveld because of the contribution of the firm to both projects.

4. News articles

The last source type that used are news articles. These articles differed in type namely local, regional and national news articles. These articles give background information and context to each case. The types of articles used are specified in table 5. The specific articles are cited in appendix II. The articles are mainly used for paragraph 4.1.

	Veessen-Wapenveld	Varik - Heesselt
Local articles	2	2
Regional articles	5	3
National articles	1	2

Table 5: Types of news articles used

3.3. Data analysis

All interviews were recorded and, therefore, could be transcribed precisely. For transcribing the interviews, verbatim transcription is used, meaning that every word is included and no interpretations are made. Data analysis of the interviews are done in ATLAS.ti, a program for qualitative analysis of textual data. The data analysis is based on grounded theory. Grounded theory is a method of Glaser and Strauss (1967) to develop a scientific theory based on the study of conducted data. The grounded theory analysis consists of three phases applied in this study (Bryman, 2016). First, open coding is applied to transcripts, and words and sentences are labelled. The open coding is based on efficiency. After the first four interviews, the founded codes were used for coding the remaining interviews. However, it is still possible to add other open codes. After the open coding phase, there were 317 different codes. These codes are used for the second phase, the axial coding. During the axial coding, codes are grouped, showing the link between them. Grouping these codes created 24 categories. Codes were often placed in more than one category. These categories are used for the third and final phase, selective coding. During this phase, the core categories are determined, and evaluated to the framework of Hassan et al. (2011).

3.4. Validity and reliability

With this study a proper validity is pursued. Validity is about integrity and application of the used methods (Noble & Smith, 2015). Questions of the interviews are based on the effect on time, effort and costs but are not straight forwardly asked. The connecting with principles is found by coding. The validation of the study is increased by using triangulation. Triangulation refers to the practice of using multiple sources of data to enhance the credibility of the study (Bryman, 2016). The reason triangulation is applied, is that one source can lead to simple or even wrong conclusions. In this study several sources are used.

Interviews are conducted with several stakeholders. The same stakeholder is interviewed at Varik-Heesselt and Veessen-Wapenveld. This is for citizens as well as for employees of public authorities. This helps to increase the validity because dependence on a specific stakeholder decreases.

A few remarks can be made about the reliability of this study. Reliability is about the consistency of the analysis, and if the results can be reproduced and the study can be repeated. The interviews could be reproduced and the interview can be repeated under the same conditions. Especially because the projects were both a few years ago, changing thought about the projects are less expected. This consistency of the analysis is taken into account because a grounded theory analysis is applied (Noble & Smith, 2015). In this way, the whole interview is coded and analysed. The codes are tested against the grounded theory analysis. The method used is reproducible but it can be of influence that the interviews were semi-structured. When semi-structured interviews are being used the outcomes are probably comparable but not exactly the same. This could have influence on the outcome of the study.

3.5. Ethical issues

Considering the sensitivity of this study is important. In both areas building a bypass triggered a lot of emotions. To overcome this reaction, it was clearly mentioned to the interviewees that the study was about efficient participation and not about the implementation of a bypass. Another issue taken into account is the privacy of

people. People felt free to speak during their interview, and they assumed that their privacy is guaranteed. No names are mentioned in the study and referred is to stakeholders in general.

Data of interviews are strictly confidential At the start of each interview is explained where this study is about and how data are processed. Explained is also that recordings of the interview are deleted after transcription. The transcription is anonymized. To ensure agreement of each stakeholder with the interview being used for this study a consent form is signed.

4. Context

4.1. Case descriptions

In this study two specific cases are used. In the introduction the choices for Varik-Heesselt and Veessen-Wapenveld are already explained. In this paragraph the background of these cases is given.

Varik-Heesselt

Varik and Heesselt are two villages near Tiel along the river Waal. To give the Waal more space, a bypass was planned. The inlet was planned around the pink point in figure 7 ( ) . This figure also shows a large bend in the river which explains why a bypass could have an added value (maps, 2022). The area is part of the Betuwe where fruit farming is very important. Fruit farmers, do not want and need much water in the ground. A bypass could give a quick saturation of water in the ground causing the end of fruit farming in this area (personal communication farmer, 2022).

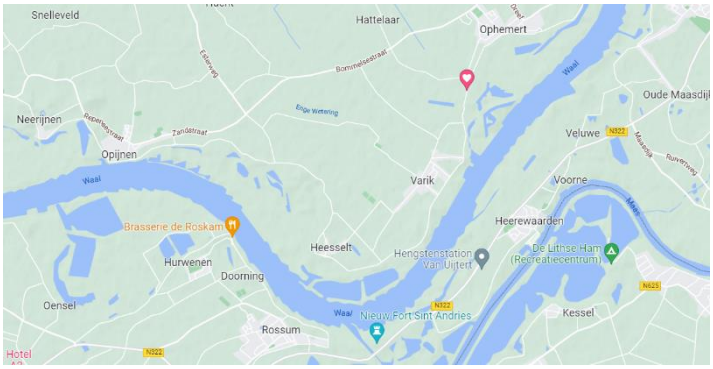


Figure 7: Map of the area of Varik-Heesselt (maps, 2022)

During the project planning two projects were discussed at the same time by the public authorities: dike strengthening and a bypass. The plan for a bypass, displayed in figure 8, would have several consequences for the area. When the bypass would be used, Varik and Heesselt would become an island (Berends & Provoost, January 2018). Citizens were afraid they could not get away from this island (personal communication citizen, 2022). Also positive effects were expected, namely increase of recreation possibilities and nature development.

Figure 8: Map of planned bypass (Bors, January 2018)

The plan for a bypass created a division between public authorities; Province and Rijkswaterstaat were in favour and the municipality and waterboard were against the plan (nu.nl, 2018). Disagreement about the plans were raised by different visions of public authorities; some were focused on spatial quality, others on flood safety (Provoost, June 2018). These different opinions and thoughts created no unity about the plan for a bypass (Leenders, 2018). Consequences for the surrounded area were serious, because transformation of the land of the Neder-Betuwe was probably needed (Terpstra, 2018). It was decided by the Minister of Infrastructure and Water that a bypass was not needed. This decision was probably influenced by disunion of all stakeholders (Provoost, May 2018; NOS, 2018).

Veessen-Wapenveld

In Veessen-Wapenveld a bypass was built. Although, the plan was made around 2005/2006 the decision followed in 2013 (nu.nl, 2015). The inlet of the bypass is at Veessen and the outlet at Wapenveld (maps, 2022). These two places are highlighted in pink in figure 9 ( ). This bypass was part of the national 'Room for the River' program. The bypass was realised in 2017, although the project planning started more than 10 years earlier. At that moment some alternatives seemed possible for increasing flood safety (de Stentor, March 2006). Important to know is the distrust in this area in public authorities after the MKZ-crisis in 2001, when this area was badly affected (POM, 2015). Because of ongoing uncertainty about the bypass citizens protested, went to the provincial house, State and House of Representatives. The discussion focused under which circumstances the bypass would be used (de Stentor, November 2006).

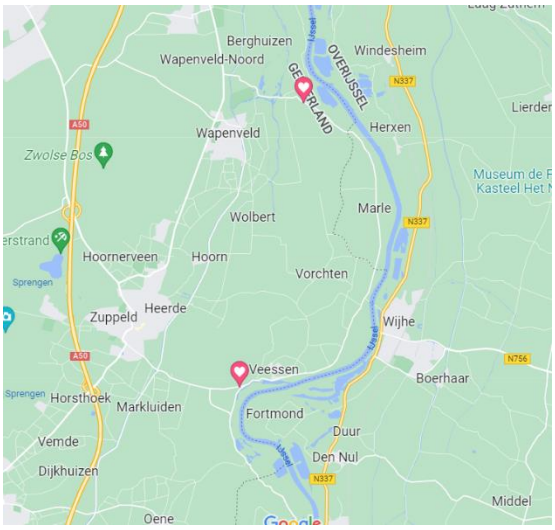
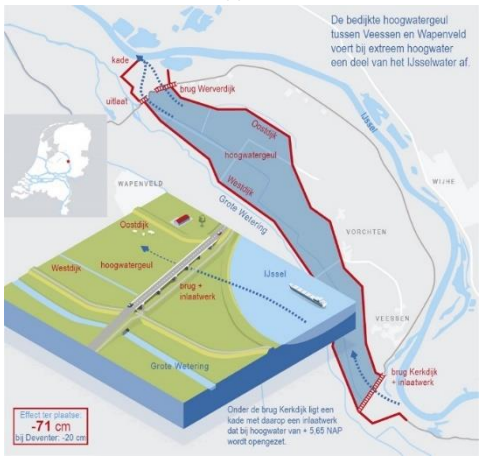


Figure 9: Map of the area of Veessen-Wapenveld (maps, 2022)



The decision was made that the bypass is going to be used at a certain water level in IJssel, which has not appeared yet. This water level of the IJssel is predetermined at the insistence of the farmers. In case of use of the bypass, the water level of the IJssel will decrease with 71 centimetres (de Ingenieur, 2017). Figure 10 shows how the bypass is placed in the landscape with a large bridge along the inlet of the bypass. This inlet was delivered in 2017. Except for a few details in the environment, after 2017 the project was finished (personal communication waterboard, 2022).

Figure 10: Sketch of the bypass (de Ingenieur, 2017)

Figure 11: Environment of the bypass (own photos)

The plan of the bypass caused several reactions by citizens. A theatre production was created by citizens explaining their experience about the process of the project planning and implementation of the bypass (Wonink, 2016). Another reaction on the bypass was the poetry route 'Dichter bij de Hoogwatergeul' (Schaapskooi, 2018).

In 2018 it seemed that the bypass was going to be used because of high water (Meijer, 2018). The water level at that moment in the IJssel was 4.90 meters. For using the bypass a minimum water level of 5.60 meters is needed. In the end this water level was not achieved. The use of the bypass would have a significant impact on the lands of the farmers. They got a compensation during the implementation when their land was situated in the bypass. However, this compensation is given once only. If the bypass is used land cannot be used for half a year or even longer (personal communication citizen, 2022). If the bypass is used several times in different years, this could have a large effect on the farmer's revenue. Due to the consequences and uncertainties created by this bypass, the farmers asked for more compensation (Reformatorisch Dagblad, 2009).

In 2021 again commotion was raised by a new research, creating new uncertainties. Ecological possibilities were investigated by a researcher (Nitrauw, 2021). This study had serious consequences for the farmers not being able to use their land (personal communication farmer, 2022). After contact between farmers and researchers it became clear this plan was not suitable for this area (personal communication farmer, 2022).

4.2. Policy for integrated river basin management in The Netherlands

To understand the participation process, a clear distinction must be made between different policies. Policy influences the participation process and start of participation. According to Cambridge Dictionary (n.d.-c), a ***policy*** is "a set of ideas or a plan of what to do in particular situations that has been agreed to officially by a group of people, a business organisation, a government, or a political party" (policy noun).

National water program

On which IRBM projects will be worked, is determined by the 'National Water Program' (NWP), formerly called the 'National Water Plan' (Rijksoverheid, n.d.-a). The NWP states the future of water policy for the coming six years. It includes desired developments of water systems, expected measures, and management plans for certain catchment areas and flood risk areas (Rijksoverheid, n.d.-b). The last published program is for the term: 2022-2027. The program is written and designed by different ministries: the Ministry of Infrastructure and Water Management, the Ministry of Internal Affairs and Kingdom Relations and the Ministry of Agriculture, Nature and Food Quality. It is based on the European water guidelines (Rijksoverheid, n.d.-a). The NWP refers to other plans and programs such as the Deltaprogram and the Planning Key Decision (PKD) 'Room for the River', showed in figure 13.

To determine NWP goals, a participation process is held (Rijksoverheid, n.d.-d). This process takes two years. In this participation process, several stakeholders are involved, such as governments and social parties. The way the participation process was organised for the development of the NWP 2022 – 2027 is shown in figure 12. Participation differed for each stage of the program's design (Rijksoverheid, n.d.-d). The participation process of the NWP is the first moment citizens and other stakeholders could react to the plans. The participation process

of the NWP consists of four phases: exploration, deepening, choices and embedding (figure 12). Each phase has some participation possibilities (figure 12).

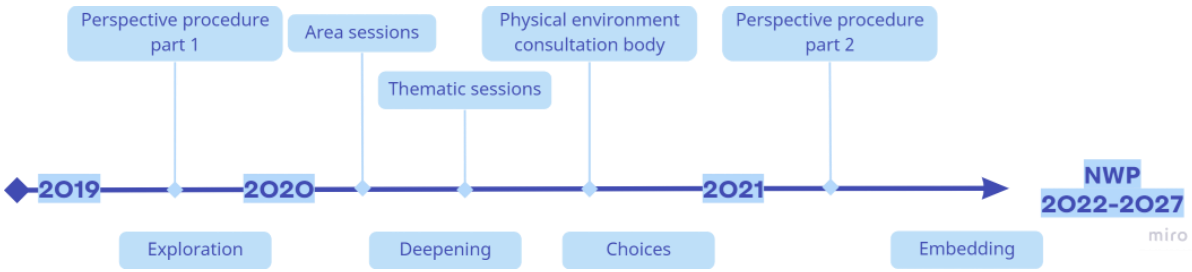


Figure 12: Participation timeline National Water Program 2022 – 2027, created by author based on Rijksoverheid (n.d.-d)

The NWP refers to several programs and implementations, where 'Room for the River' and the 'Deltaprogram' are the most important for this study (Rijksoverheid, n.d.-d). The participation process of the Deltaprogram and 'Room for the river' have more influence on the projects specifically, explained in the next sections.

Deltaprogram

The Deltaprogram is a program created every year and published during Prince's day in September (Ministerie van Infrastructuur en Waterstaat, 2021a). It summarises the delta decisions, preferred strategies and delta plans. The Deltaprogram has three main objectives: protection against floods, fresh water supply and spatial adaptation (Ministerie van Infrastructuur en Waterstaat, 2021b). It is under supervision of the Deltacommissioner and constructed by the State, provinces, municipalities, waterboards, Rijkswaterstaat and several other organisations. Preferred strategies in the Deltaprogram explain the needed measures in several areas of the Netherlands (Ministerie van Infrastructuur en Waterstaat, 2021b).

Room for the river

'Room for the River' was a program, designed after the high waters of 1993 and 1995 to give the river more space (Ministerie van Infrastructuur en Waterstaat, n.d.-a). The main goals of the program were improving flood safety and spatial quality. The program started in 2006, and was finished in 2019. The bypass at Veessen-Wapenveld was one of the 34 projects along the rivers Waal, Rijn, Lek and IJssel. 'Room for the River' was a program focusing on creating a support base for project plans. Rijkswaterstaat mentioned this was needed because of their significant impact on the surrounding environment (Bötger & Beekmans, 2017).

'Room for the River' was a Planning Key Decision (PKD), an essential procedure for plans on national spatial policy (Eerste Kamer der Staten-Generaal, n.d.-a). In 2006 PKD became part of the Spatial Planning Act, regulating procedures of spatial plans (Eerste Kamer der Staten-Generaal, n.d.-c). With the revised Spatial Planning Act of 2006, the PKD no longer existed and was replaced by a structure scheme (Eerste Kamer der Staten-Generaal, n.d.-b). A structure scheme is more strategic and is a proper instrument to determine destination plans. Structure schemes all have to pass the House of Representatives.

Participation in the Deltaprogram and PKD 'Room for the River'

In figure 13 two important aspects of the projects in Varik-Heesselt and Veessen-Wapenveld are shown. Previously explained, the NWP is a long term program determined by several ministries and stakeholders. In the NWP strategies and plans for the Deltaprogram are mentioned. The Deltacommissioner is in charge of this program and is assisted by various authorities. In the Deltaprogram concrete measures are proposed, for example the plan for a bypass at Varik-Heesselt.

The Deltaprogram emphasizes the importance of involving interested stakeholders in an early stage and uses 'joint face finding'. This means stakeholders use their knowledge to come to the most suitable solutions and look for appropriate financing sources with each other. Participation takes place on three different levels in this program (Ministerie van Infrastructuur en Waterstaat, Ministerie van Landbouw, Natuur en Voedselkwaliteit, & Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2020):

1. On national level: within consultative body for the physical living environment (PLE). On this level, national decisions are discussed. The national-level discussions contribute to a long-term view. Decisions are made together with the delta commissioner and PLE.
2. At area level: there is a focus on subprograms and regional decisions.
3. At project level: when projects are concrete, there are several ways to participate in the project decisions.

A PKD had less to do with the NWP. The NWP was used when making PKDs and later, structure schemes. 'Room for the River' was a large PKD which consisted of 3 phases: 1. The preparation phase, 2. The participation phase and 3. The decision (Eerste Kamer der Staten-Generaal, n.d.-a). The preparation was performed by the national government. Afterwards involved provinces, municipalities and waterboards could react for 1 to 3 months on this PKD. After these reactions the council of ministers decided about the PKD and sent it in between 9 months to the House of Representatives. They could change the PKD with motions and then decide. After this decision it was sent to the Senate, having four months to react. This procedure shows citizens did not have influence on this process and PKD.

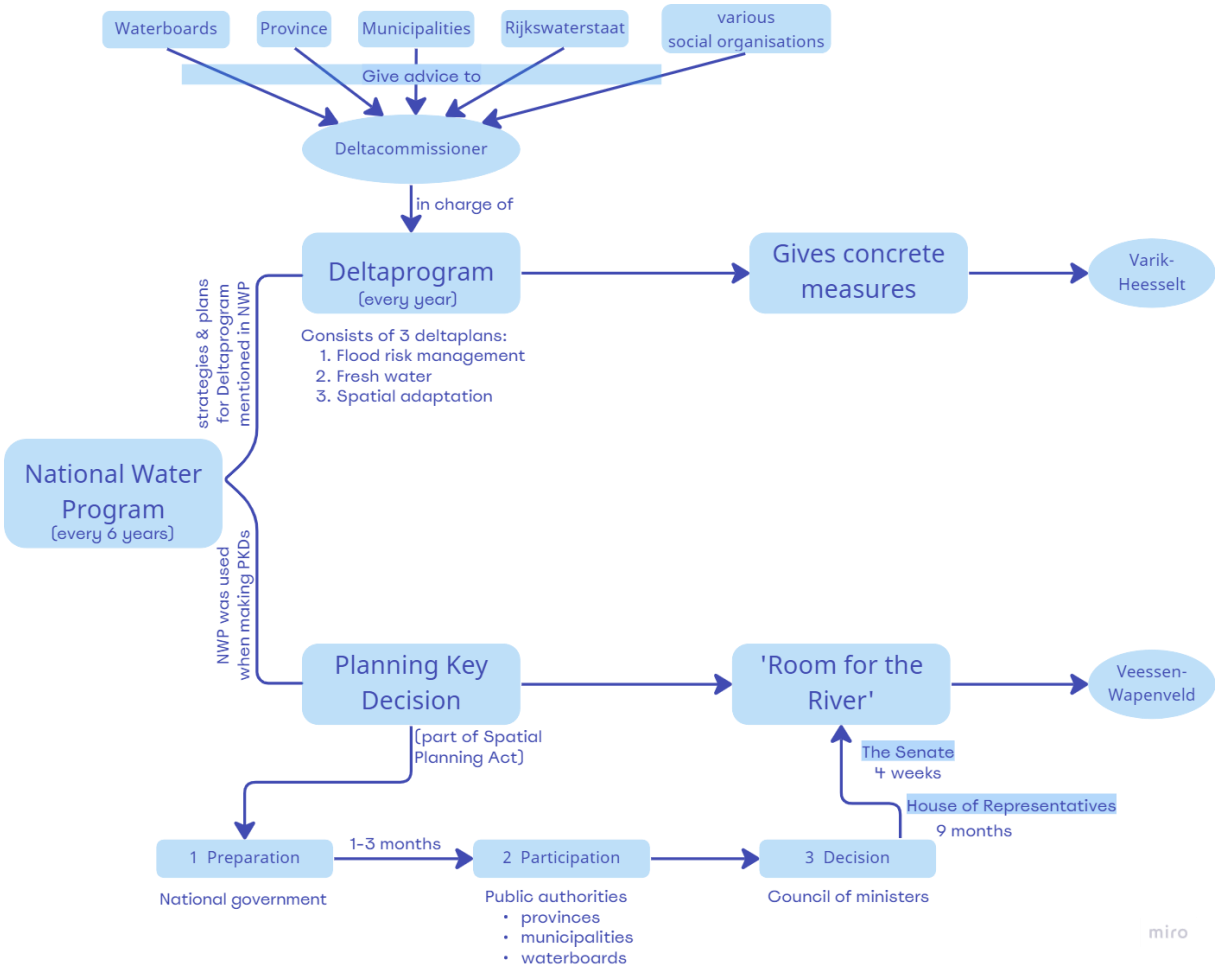


Figure 13: Programs and policies important for a bypass, created by author

5. Results

5.1. Organisation participation process

The first question of this study is ***'How is the participation process organised during the project planning of a bypass?'***. Policies and programs, important for these projects, are already explained in chapter 4. In this part is zoomed in on the projects Varik-Heesselt and Veessen-Wapenveld, and is explained how the participation of the project planning of these cases was organised.

Participation and laws influence policies and give citizens the option to say something about various aspects of the plan. Programs and policies provide a guideline for participation processes of the project planning. During the project planning the initiator is responsible for the participation process together with the province, waterboard and municipality (personal communication Rijkswaterstaat, 2022; personal communication waterboard, 2022; personal communication province, 2022). During implementation of the bypass the project organisation, who has the executive task, is responsible for the participation process. At this stage contact is often only with stakeholders, having effect of the bypass. During interviews with the waterboard and Rijkswaterstaat is emphasized participation is project specific (personal communication Rijkswaterstaat, 2022; personal communication waterboard, 2022). A project manager of Rijkswaterstaat noted: "*What works in one project, it is not a recipe. It is absolutely not a recipe. And handbooks and methods are important, but that is not enough*" (personal communication Rijkswaterstaat, 2022, p. 69-70). The participation ladder of Arnstein (1969) is nowadays limited used when participation processes are designed. The waterboard determines its participation process by using this ladder, and also the province uses it (personal communication waterboard, 2022; personal communication province, 2022). However, stakeholders explained the limitations of this ladder. In their opinion the ladder is hierarchical and it has approach is limited from people to environment. Therefore the participation ladder is used less by province and Rijkswaterstaat (personal communication province, 2022; personal communication Rijkswaterstaat, 2022).

As explained in the theoretical framework, possibilities for participation vary. There are different levels and ways of participation. The cases Varik-Heesselt and Veessen-Wapenveld are explained here showing different decisions made for each participation process. The participation process is determined by different stakeholders and depends on the project and specific area.

Varik-Heesselt

The planned bypass in Varik-Heesselt was part of the Deltaprogram. This formed the basis for the project planning of a bypass in this area. From 2009 onwards a plan was developed for a bypass in combination with dike reinforcement (Vos et al., 2019). To design this plan, a steering group was formed consisting of people from the Ministry of Infrastructure and Environment, province of Gelderland, municipality of Neerijnen, waterboard Rivierenland and Rijkswaterstaat (Sweco, 2018). Informing and consulting was the basis of the participation process. As mentioned in all interviews, there were many information evenings (personal communication Rijkswaterstaat, 2022; personal communication waterboard, 2022; personal communication farmer, 2022; personal communication citizen, 2022; personal communication province, 2022; personal communication consultancy firm, 2022). There was invested in the explanation of experts providing knowledge about flood safety

and advantages for the area. Two sounding board groups were formed: one for the bypass and one for dike reinforcement. Different interviewees explained, the sounding board group was a group citizens could subscribe for. However, there was a requirement. Every person should represent a different discipline. For sounding board group general and thematic evenings were organised. A clear order of participation events was not defined. Firstly, was started with general information meetings, but soon planned order and amount of events were changing constantly. Extra meetings were planned to keep citizens more quiet (Vos et al., 2019). Therefore the participation process was a combination of adaptation on people's reactions and using the planned participation process. Figure 14 shows the concise version of citizens' involvement, based on the original version displayed in appendix IV (Vos et al., 2019). Planned was to involve citizens later, but due to earlier media posts, citizens were involved earlier.

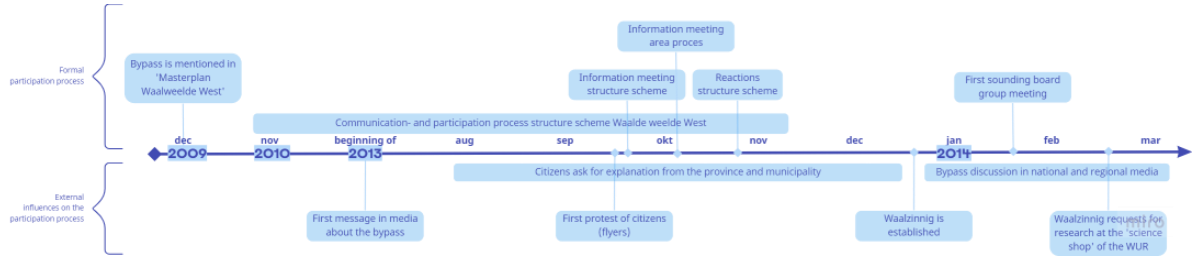


Figure 14: a general overview of the participation process in Varik-Heesselt Heesselt, created by author based on Vos et al. (2019)

Veessen-Wapenveld

Veessen-Wapenveld was part of the PKD 'Room for the River'. This PKD caused decisions about the bypass were uncertain for a short time (Heuvelhof et al., 2007). The decision about this PKD was larger than just Veessen-Wapenveld; it was about the whole 'Room for the River' program. This PKD was much discussed. Several projects, such as Veessen-Wapenveld, would have a large impact on rivers and environment (Heuvelhof et al., 2007). The projects depended on each other so continuation of the planned projects was important. The decision about the PKD created two starts of participation in Veessen-Wapenveld (Heuvelhof et al., 2007). First, was discussion about the PKD. Second was, after approval of the PKD, the start of the project planning of Veessen-Wapenveld. Generally, the project became known in a chaotic way; some people heard about it due to this PKD, others via each other, and some read it in the newspapers (personal communication citizen, 2022).

Many different participation methods were used during project planning of the bypass in Veessen-Wapenveld. Many information evenings for citizens were organised. Sometimes these were extended by explanations of various experts. A sounding board group was established consisting of different people with different backgrounds. This group discussed plans and proposed variants of the bypass. Another important tool used during the project planning were 'ateliers'. During atelier sessions, people could draw their ideas on paper. A special form of participation in Veessen-Wapenveld, at the insistence of the farmers, was the 'preparation group'. This group was created to give farmers more influence in the planning process. The group could be placed between the steering group and sounding board group. The preparation group was meant as intermediate form, and prepared meetings for the steering group.

5.2. General influence on the participation process

The second question, ***'Who has influence on the participation process during the project planning of a bypass and to what extent?'*** aims to answer the influence on participation during the project planning of a bypass. The responsibilities of different stakeholders and their possibilities to get involved are studied. In this paragraph influence of stakeholders is first generally described. Thereafter, the two specific projects are used to answer how this implied in practice.

Power-Interest matrix

A power-interest matrix (PI-matrix) explains power and interest of different stakeholders. This matrix, showed in figure 15, shows the power of a stakeholder on the participation process of the project planning and their interest in the bypass. The figure is based on the general power-interest for a bypass because Varik-Heesselt and Veessen-Wapenveld show this is almost equal for each project. Differences in the PI-matrix would depend on interests of the area.

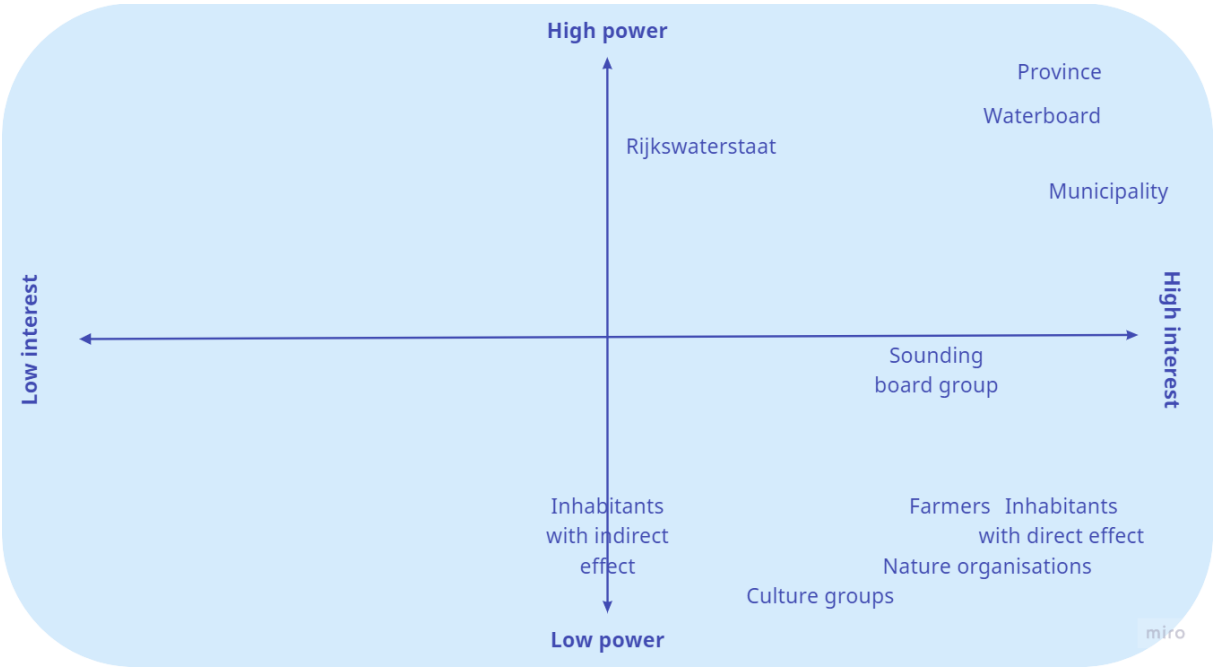


Figure 15: Power-interest matrix, created by author

The PI-matrix shows most stakeholders are highly interested in the participation process of the project planning. There are no stakeholders having a low interest in participation. However, power (or influence) on the participation process differs. General power and interest of stakeholders in bypasses are shortly explained hereafter.

The province is highly interested in the bypass because of environmental development. The province has a significant influence on the participation process (personal communication province, 2022). They can design the participation process when involved in the project. The second stakeholder is the waterboard. When they are engaged in flood safety projects, their interest is high, but their power on the participation process is also strong (personal communication waterboard, 2022). The waterboard often corporates with province and Rijkswaterstaat (personal communication waterboard, 2022; personal communication Rijkswaterstaat, 2022).

Rijkswaterstaat only has influence on the participation process when part of their own project. They have interest in continuation of the project but lower interest because of less involvement in the area (personal communication Rijkswaterstaat, 2022). The interest of the municipality in this process is high because it is situated in their own area, but power is a bit lower while projects are part of national programs. Most influence on the participation process of the project planning of a bypass have province, waterboard, Rijkswaterstaat and municipality.

The sounding board group is a group designed for getting ideas or feedback from citizens of the area (Demos, 2016). People in the sounding board group are asked to search for linkage possibilities in the area. They are not allowed to make decisions, these are made by the steering group. Involving the sounding board group is organised in several ways; with meetings, ateliers, and excursions. The sounding board group still has a small influence on the participation process. They could ask for explanation about decisions and involvement in certain processes. They could also propose extra meetings or other participation forms. The interest of the sounding board group is not low but also not very high because of the diversity of the involved people.

People with high interest but low power are farmers and citizens experiencing direct effect of the bypass. Farmers are placed a little bit left of the citizens in the PI-matrix. They have less interest because not every farmer has land in the area of the bypass (personal communication farmers, 2022). Citizens experiencing direct effect have high interest in the participation process (personal communication citizen, 2022). Nature organisations could have high interest because nature development is often possible in a bypass (personal communication citizen, 2022). Culture groups have low power but mostly their interest is also not very high. Particular culture could be situated in the area and then interest of these groups would increase (personal communication citizen, 2022). All four stakeholders mentioned have low power in organising the participation process. The last stakeholder are citizens experiencing no direct effect. This group has almost no influence on the participation process, but their interest is also much lower than other stakeholders (personal communication citizen, 2022).

Influence in Varik-Heesselt

As explained in paragraph 5.1, there were several forms of participation. The project in Varik-Heesselt was part of the Deltaprogram. Even though the Deltaprogram is part of Rijkswaterstaat, the province of Gelderland picked up the project (personal communication Rijkswaterstaat, 2022). This created influence of Rijkswaterstaat was minimized during the project planning. Province was responsible for most participation, but the waterboard also had influence. They were more involved in technical aspects of the bypass (personal communication waterboard, 2022). This meant their contribution in the project planning was more about flood safety and explaining the function of the bypass. The province considers spatial quality improvement important because this gives an impulse to the area. A steering group was created to develop an integrated solution (Vos et al., 2019). In this group, several authorities were involved: the Ministry of Infrastructure and Environment, province Gelderland, municipality Neerijnen, waterboard Rivierenland, and Rijkswaterstaat.

Rijkswaterstaat monitoring the project and having an overview, operated from a distance and was less involved in the participation process (personal communication Rijkswaterstaat, 2022; personal communication

province, 2022). The province took the initiative to work on this project after it was proposed in the Deltaprogram.

The province being the project's initiator means it had the responsibility over the participation process (personal communication province, 2022; personal communication Rijkswaterstaat, 2022). This meant the province created a vision on the participation process. The province cooperated with the municipality to organise information evenings (Vos et al., 2019).

As mentioned before, the waterboard is responsible for flood safety in an area. Their impact on participation in Varik-Heesselt was not completely independent (personal communication waterboard, 2022). The waterboard had fully influence on dike reinforcement, but did not have much influence on the participation process of the bypass (personal communication waterboard, 2022). When the bypass became a possibility, State, province and waterboard cooperated for planning the participation process (personal communication waterboard, 2022).

Citizens

As earlier explained, citizens could influence a project in several ways but their influence on the participation process is limited. In Varik-Heesselt information evenings were organised for citizens. Also, questions could be asked. This form of participation did not have any influence on the project planning outcomes. Also a sounding board group was established consisting of volunteers, representing different disciplines. Interest to participate in this group was limited (personal communication farmer, 2022; personal communication citizen, 2022). Some people were asked to become part of the group. This could cause other people felt excluded. The group was could not be in favour or against the plan but had to search for linkage opportunities. These linkage opportunities seemed hard to find (personal communication citizen, 2022). After several meetings the sounding board group had proposed several plans. Although citizens tried to come up with different ideas, they rarely saw their ideas in the plans made by the province and waterboard (personal communication farmers, 2022; personal communication citizen, 2022). A critical thing missing was the possibility of giving a dissenting voice. It was impossible to say you were against the bypass and give your reasons for that (personal communication citizen, 2022).

Influence in Veessen-Wapenveld

The project in Veessen-Wapenveld was part of the PKD 'Room for the River'. For 'Room for the River' Veessen-Wapenveld was of major importance. This caused much time investment of Rijkswaterstaat in the project planning. Rijkswaterstaat had much influence on the participation process because 'Room for the River' was their own project (personal communication Rijkswaterstaat, 2022). Rijkswaterstaat tried to adapt the participation in 'Room for the River' projects to the environment (personal communication Rijkswaterstaat, 2022; personal communication province, 2022). Although having a general form, they emphasized it is still important to adapt a participation process to the specific project (personal communication Rijkswaterstaat, 2022).

Although Veessen-Wapenveld was part of the PKD 'Room for the River', the province still had influence on the participation process. This is because the province started with the project planning during the

reconnaissance (personal communication province, 2022; personal communication consultancy firm, 2022). The province determined much of the participation process during the reconnaissance.

The province started the participation process of this project, and the waterboard continued where the province left off (personal communication province, 2022; personal communication waterboard, 2022). For the waterboard this was an advantage because large decisions for the project planning were already made. In that stage, the influence of the waterboard enlarged. The waterboard was transparent about information used from earlier sessions with stakeholders.

Citizens

In Veessen-Wapenveld, influence on the participation process was difficult for citizens. Many information evenings were organised by stakeholders. This is a form of one-sided participation where information was just given to the citizens. Another form of participation was the sounding board group. Becoming part of this group you just had to show your interest. The formation of this group was very open. A varied group was formed, consisting of citizens, farmers, municipality and waterboard. This sounding board group was discussing several possible variants. However the group did not have significant influence on these variants. A group of farmers also designed their own variant, although it was not used clearly (personal communication farmer, 2022; personal communication citizen, 2022; personal communication consultancy firm, 2022). Citizens could also go to ateliers. These seemed to have an influence on the project planning. However, in the end the ideas were not seen clearly in the plans made.

Since the project had a large effect on farmers and their companies, farmers united and demanded more participation regarding the plans. To comply with this, a separate citizen group was set up, called the 'preparation group'. This preparation group was meant to prepare meetings for the steering group. It consisted of two farmers, one citizen and a representative from Rijkswaterstaat (personal communication citizen, 2022; personal communication farmer, 2022). In this way, farmers tried to have more influence on the participation process.

5.3. Lessons of the participation processes of bypasses

The third question, ***'Which principles, according to stakeholders, had influence during the project planning of a bypass on the efficiency of the participation process? '*** aimed to answer the lessons learned regarding efficiency from past participation processes during the project planning of a bypass. The efficiency of the participation process is determined with the use of interviews. The cases Varik-Heesselt and Veessen-Wapenveld are discussed mixed because, overall, the same conclusions can be drawn. Differences are mentioned when relevant.

Principles that were not fulfilled in Varik-Heesselt & Veessen-Wapenveld

Table 6 displays if the participation process fulfilled the principles of Hassan et al. (2011) for efficient participation. The table shows many principles were not fulfilled. Participation processes for Varik-Heesselt and Veessen-Wapenveld were different, but conclusions about principles of the participation's efficiency were mostly the same.

Efficient participation	
Transparency	-
Openness	- -
Earliness/early involvement	+/-
Completeness	+
Continuity	-
Reliability	- -
Competence	+/-
Benefits	-
Shared vision	-
Equitable power	-
Communication channels	-
Adaptability	+
Integrity, patience & perseverance	+/-

Table 6: Evaluation of fulfilled principles in Varik-Heesselt and Veessen-Wapenveld

Transparency is mentioned a lot as something not being achieved during the project planning by citizens (personal communication citizen, 2022; personal communication farmer, 2022). Citizens explained involved stakeholders were not transparent about their plans. Sometimes a hidden agenda of some stakeholders appeared. Citizens presumed a hidden agenda. In Veessen-Wapenveld, this agenda was seen in the outcomes of reports and information withheld for citizens. Several stakeholders of public authorities mentioned information in Veessen-Wapenveld was withheld which was sometimes on purpose (personal communication waterboard, 2022; personal communication consultancy firm, 2022). Another point of transparency was that possibilities to discuss the project planning were unclear for citizens. Some stakeholders thought explanations were clear about participation possibilities but others did not share this opinion (personal communication waterboard, 2022; personal communication province, 2022; personal communication citizen, 2022; personal communication farmer, 2022). The problem was possibilities or 'frames' for the project planning were not explained to everyone. These frames would have helped to overcome many pointless discussions and would have saved a lot of time.

The **openness** during the project planning was a problem. Decisions were often already made, and there

was almost no room for critics (personal communication citizen, 2022; personal communication farmer, 2022). Also, there was no possibility of expressing concerns. Citizens' initiatives were often not taken seriously. An example mentioned by multiple citizens and several stakeholders is the earlier mentioned farmers' initiative. Farmers, with the help of some technicians, presented at the beginning of the project planning their own variant. The authorities used this proposal to make a bypass variant, but did not explain why the plan of the farmers did not fulfill all requirements and was not used in the proposed form (personal communication consultancy firm, 2022). The consequence was that farmers did not recognize their plan in the variants and were did not feel taken seriously. If both parties had acted more open, outcomes would have been achieved probably faster and better. Rijkswaterstaat also mentioned that the used participation methods, were mainly top-down (personal communication Rijkswaterstaat, 2022). This did not contribute to openness.

The principle **earliness** was measured as +/-. A distinction could be made between the way information was provided and how people were involved in the early stage. Information about projects was differently achieved by citizens (personal communication citizen, 2022). In Varik-Heesselt, information about the bypass came from all different sides: a citizen found it on internet, another one read it in the newspaper, another heard of it during the first information evening, and the last one knew the plan already existing for 50 years (personal communication citizen, 2022; personal communication farmer, 2022). In Veessen-Wapenveld, there was a plan to move a dike. During the information evening about this, suddenly a bypass was drawn in the plans. Most of the citizens heard about the bypass during this meeting or accidently, and were shocked (personal communication citizen, 2022; personal communication farmer, 2022). The start of both projects was very chaotic, and in the beginning information was unclear. Most public authorities declared they would have liked a different start for the project planning in Veessen-Wapenveld (personal communication province, 2022; personal communication waterboard, 2022; personal communication consultancy firm, 2022). A few stakeholders declared the start of the project planning in Varik-Heesselt was organised well. The province tried to involve people as early as possible (personal communication province, 2022; personal communication waterboard, 2022; personal communication consultancy firm, 2022). Both were reasons to give earliness a +.

Not much is said about **continuity**, but between sentences, it became clear continuity was missing during the project planning. For example, one citizen explained it was confusing constantly different people were involved and designated as contact person (personal communication citizen, 2022). The reason for changing public authority staff was unclear, and these changes created uncertainty and did not contribute to continuity. The change in staff caused new staff was sometimes poorly informed. This created a delay because discussions were done over. Also, continuity was missing in forms of participation. In Veessen-Wapenveld, the steering group meeting and other activities were organised frequently contributing to continuity (personal communication consultancy firm, 2022). Nevertheless, this was not the case for Varik-Heesselt, where 'datumprikkers' were used to plan meetings for the sounding board group (personal communication farmer, 2022). Continuity was also missing in processes of authorities (personal communication consultancy firm, 2022).

Reliability was one of the main points mentioned. Especially in Veessen-Wapenveld the project planning of the bypass created a lot of distrust. Awareness and reactions to actions of authorities increased. A citizen

explained how this phenomenon still can be seen in the area: "*As soon as a car of an authority drives around, immediately is said 'Guys, do you know what's going on?' Trust is entirely gone here*" (personal communication citizen, 2022, p. 67). A lot of distrust against the authorities is also mentioned by the waterboard (personal communication waterboard, 2022). In Varik-Heesselt, reliability was also mentioned by citizens as a problem (personal communication citizen, 2022). Rijkswaterstaat especially emphasized the distrust these people had in public authorities. Their own research, on the street, about the bypass was not taken seriously (personal communication Rijkswaterstaat, 2022).

Competence of a participation process can be divided into two items; the possibility to improve stakeholders' knowledge and the possibility of scenario developments. Knowledge was stimulated by several information evenings given by authorities and experts, but also with extra explanations and excursions for the sounding board group (personal communication citizen, 2022; personal communication province, 2022). Because of investment in this part of competence, a plus was measured. A minus was measured because of limited ability to develop scenarios. Proposals were often not seen in any of the plans. Only some proposals for recreation were seen in the project plans (personal communication citizen, 2022; personal communication farmer, 2022).

Clearly shown in the interviews, for most citizens **benefits** of a bypass were not evident. Especially long-term effects on flood safety were not clear. It was also unclear what the impact of the bypass was on the environment (personal communication citizen, 2022; personal communication Rijkswaterstaat, 2022). Many citizens had a NIMBY reaction and said they understood the necessity but did not want a bypass in their garden. However, interviews clearly showed the function of a bypass was not really understood (personal communication citizen, 2022; personal communication farmer, 2022). In Veessen-Wapenveld, the function was unclear during the process but nowadays citizens understand it and mention the area is improved. In Varik-Heesselt, the understanding of the function of a bypass was poor. As mentioned by Rijkswaterstaat and waterboards, long-term effects and benefits are often not seen; people mainly think about short-term benefits (personal communication Rijkswaterstaat, 2022; personal communication waterboard, 2022). Short-term benefits were searched with the sounding board group as linkage opportunities, and a few were found. When benefits are unclear, more protests and delays could be expected. Also, costs could increase when benefits have to be explained multiple times by several people with different backgrounds.

In Varik-Heesselt a **shared vision** was missing. A clear plan and PKD missed, this resulted in the remaining of many options during the project planning (personal communication province, 2022; personal communication waterboard, 2022; personal communication consultancy firm, 2022). Options seemed endless not contributing to a shared vision. Another problem was several projects existed next to each other, creating a lot of confusion for citizens. Connection between different IRBM projects were not understood. In Veessen-Wapenveld, a shared vision was also hard to achieve. After acceptance of the PKD, citizens realised the bypass would be built and changed attitude. Citizens tried to cooperate with authorities to create a shared vision. However, a shared vision was not fully achieved. This process took much time and also costs increased.

Equitable power was not observed in project planning of bypasses. Although authorities had the opinion everyone had the possibility to take part, interviewees mentioned this was not easy for everyone (personal communication province, 2022; personal communication waterboard, 2022; personal communication citizen, 2022; personal communication farmer, 2022). Citizens of Varik-Heesselt mentioned involvement in project planning was only possible in the sounding board group. Although there was not much interest in this group, getting seated was not easy because of some requirements (personal communication citizen, 2022). In Veessen-Wapenveld, interviewees explained getting involved in the project planning was more impactful when united as a group. Farmers and citizens interested recreation formed separate groups and with these groups more results could be achieved. Some parts of the participation process were on invitation, such as ateliers. Involved participants did not feel valued. Almost all citizens said they did not feel taken seriously and the participation process was just for show (personal communication farmer, 2022; personal communication citizen, 2022).

The **communication channels and communication** used by authorities were unclear during both project plannings. Much information achieved citizens 'via via' or by newspapers. Authorities did not use one medium to inform citizens (personal communication citizen, 2022). Citizens as well as authorities said communication had a huge influence on the process (personal communication consultancy firm, 2022). For example, newspapers gave information unknown to all authorities and articles had a political tone. Therefore a lot of uncertain information was passed through. Also, personal communication was missing before land expropriation resulting in some court cases which delayed the process.

The principle '**integrity, patience & perseverance**' was not entirely fulfilled and therefore got a +/-. Integrity was limited, so a minus was measured. Interviewees mentioned mutual trust missed during the project planning of the bypass. Also, respect for each other's work or opinion missed. In Varik-Heesselt less respect was noted than in Veessen-Wapenveld. Many parties had different opinions. In the end only the province wanted to work on the project and the Minister, municipality and university got a debatable position. (personal communication province, 2022; personal communication consultancy firm, 2022). The plus measured, is for patience and perseverance, seen in both projects. Province, waterboard and Rijkswaterstaat took much time and effort explaining the projects, and were very patient (personal communication province, 2022; personal communication waterboard, 2022; personal communication Rijkswaterstaat, 2022). It also took a lot of perseverance of all stakeholders to continue working on these project plannings.

Principles fulfilled in Varik-Heesselt & Veessen-Wapenveld

Completeness is mainly about the people involved in project planning and if they are a good representation of the stakeholders. It mainly was a choice of the province and waterboard, who to involve. Their choice was to involve all stakeholders and not only already formed groups such as farmers in Veessen-Wapenveld or action group 'Waalzinnig' in Varik-Heesselt (personal communication consultancy firm, 2022). Interviewees said not everyone felt the possibility to get involved. Sometimes only invited citizens were welcome.

Although there were a few exceptions, most citizens and authorities had an **adaptable** attitude. Most citizens in Veessen-Wapenveld tried to make something of it despite being against the plans (personal

communication citizen, 2022). Authorities explained they tried to be open to initiatives, such as to the proposal of farmers for a preparation group in Veessen-Wapenveld. Another good example of adaptability is a story told by someone from the waterboard (personal communication waterboard, 2022). Once there was a farmer whose dung pit had collapsed. All cows had to be placed elsewhere, but farmers did not accept them because of fearing diseases. The farmer came to the waterboard, in a meeting, and two persons from the waterboard directly stepped out of the meeting and went to the farm. They helped in their neat clothes and arranged a cowshed in the surrounding which they had bought earlier. This showed adaptability of authorities. Adaptability can cause less time and costs are needed during the project planning because people understand each other better.

Other principles

During interviews it became clear a few principles not mentioned by Hassan et al. (2011) also had influence on efficiency. Most stakeholders mentioned **political influence** was underestimated. Political influence can be distinguished in several ways. First, there is 'manipulation' of politicians. This is seen in Veessen-Wapenveld by citizens inviting politicians on own initiative. In Varik-Heesselt manipulation was on a different level. Here, the organisation of politicians in the municipality had a significant influence on the process (personal communication province, 2022; personal communication Rijkswaterstaat, 2022; personal communication consultancy firm, 2022). Second, several stakeholders used different tactics to achieve their goals. Tactics were often underestimated by stakeholders, as mentioned by province and citizens (personal communication province, 2022; personal communication citizen, 2022). In both cases, citizens tried to stop the project planning by using politics. In Varik-Heesselt, citizens protested against the plans when the Minister visited the area. In Veessen-Wapenveld citizens went to the Senate, province, waterboard and House of Representatives trying to influence the outcome of the PKD. Third, the minister's role had influence (personal communication province, 2022; personal communication Rijkswaterstaat, 2022; personal communication consultancy firm, 2022). Multiple times interviewees mentioned the Minister during the project planning of Varik-Heesselt, Cora van Nieuwenhuizen, was not interested in water. She was affected by huge resistance of the area and decided to put the project forward. During the project planning of Veessen-Wapenveld the Minister, Melanie Schultz, made decisions much quicker and less time was used. Political influence had large effect on efficiency. Doubting and discussing plans costed time as well as money because time invested by authorities in this project could not be invested in other projects.

A second principle not mentioned by Hassan et al. (2011) but having influence on the efficiency of the participation process was **empathy for the area**. Both areas already had projects or crises, not taken into account when plans were being made (personal communication citizen, 2022; personal communication farmers, 2022). When talking to those citizens words were not even considered by authorities, except the waterboard (personal communication farmers, 2022). The plans caused negativity, division between stakeholders, friction in the sounding board group and tension in the area. This also created a lot of resistance and conflicts between parties, delaying the process and taking much effort.

Another principle having influence on efficiency of participation was **legal actions**. Indistinctness was about laws. In Veessen-Wapenveld specific laws were to save certain areas. Legal actions were also about court

cases of expropriation of land. A citizen mentioned he got twice as much as the first proposed amount of money due to a court case companied by a good counsellor (personal communication citizen, 2022). These cases took much time and money and had influence on efficiency. In Veessen-Wapenveld the project was delayed with one year.

5.4. Principles of efficient participation

The fourth question is '***Which principles, according to stakeholders, are important during the project planning of a bypass to create an efficient participation process?'*** aimed to answer the principles important for a participation process in the future according to the stakeholders. In between sentences interviewees explained which principles they find important for efficient participation. The method of investigation of these principles is explained in paragraph 3.2.

Principles important according to stakeholders based on the principles of Hassan et al. (2011)

As mentioned in the previous paragraph, **transparency** was not observed frequently during the project planning of the bypasses. Stakeholders opinioned transparency as an important principle during participation (personal communication province, 2022; personal communication consultancy firm, 2022). The consultancy firm explained not being transparent and making mistakes, problems will return (personal communication consultancy firm, 2022). Another important aspects of transparency, is showing how ideas are used and choices made, are explained (personal communication citizen, 2022). However, as explained by Rijkswaterstaat, it is still useful not to tell everything (personal communication Rijkswaterstaat, 2022). Important is to make a distinction between what should and should not be told. When transparency is better, needed time and effort decreases because less should be discussed or sorted out.

Openness is mentioned as essential principle for efficient participation processes. An open attitude is needed for both parties, public authorities as well as citizens. For authorities, this means investing in dialogues and being open to criticism. Province and waterboard explained that was tried in Veessen-Wapenveld, but a good start was missing (personal communication province, 2022; personal communication waterboard, 2022). A citizen, receiving information, was not allowed to tell other citizens about it. This created a problem and suspicious attitudes among citizens (personal communication citizen, 2022). Openness would help to improve the efficiency of the participation process because being open reduces discussions being held.

Early involvement is important for an efficient start of the participation process. A member of the sounding board group said the only advantage of this group was receiving information much earlier. This already emphasizes importance of early involvement (personal communication citizen, 2022). Early involvement is not only an advantage for citizens but also for public authorities. The province and consultancy firm explain involvement of citizens is especially important in the beginning to understand the area and things going on there (personal communication province, 2022; personal communication consultancy firm, 2022). In this way a participation process becomes more efficient because anticipation on existing situations is possible. Also, Rijkswaterstaat emphasizes the importance of early involvement (personal communication Rijkswaterstaat, 2022). To cause fitting of the plan in the environment explaining 'frames' are needed for the project planning. These frames explain requirements of the bypass. All stakeholders explained it is useful if these frames are mentioned in the beginning so all borders are clear (personal communication province, 2022; personal communication consultancy firm, 2022; personal communication citizen, 2022; personal communication farmer, 2022; personal communication waterboard, 2022).

Completeness was one of the principles fulfilled during the projects in Varik-Heesselt and Veessen-Wapenveld. The consultancy firm and Rijkswaterstaat mentioned all involved participants should be a complete representation of the stakeholders (personal communication consultancy firm, 2022; personal communication Rijkswaterstaat, 2022). A complete involvement of stakeholders causes less time, effort and costs go up to processes later. A complete participation process therefore contributes to efficiency.

In interviews **continuity** is mentioned as an essential aspect for efficiency of participation processes (personal communication citizen, 2022; personal communication consultancy firm, 2022; personal communication waterboard, 2022). Continuity of representatives during the time of the project is helpful for citizens. In Veessen-Wapenveld, representatives were often switched creating confusion for citizens (personal communication citizen, 2022). Another aspect of continuity is frequency of meetings. In Varik-Heesselt, the process was organised inefficiently by planning meetings irregularly (personal communication farmer, 2022). Continuity causes the process won't have much delay and therefore increases efficiency of the participation process.

All stakeholders explained **reliability** is important but also hard to achieve. Public authorities explain reliability should be created by an authority (personal communication waterboard, 2022; personal communication Rijkswaterstaat, 2022). Being reliable helps the process, and less time is needed. In both areas trust in authorities has disappeared, and citizens explain it is difficult to regain trust in authorities (personal communication citizen, 2022). Achieving reliability is hard; it is in connection with being consistent, honest and transparent (personal communication waterboard, 2022). Being reliable in a participation process, could increase efficiency because less time and effort in participation needs to be invested.

In the participation processes of Varik-Heesselt and Veessen-Wapenveld, informing and sharing knowledge helped the efficiency. All stakeholders appreciated explanations of experts with. These have significant effect on their understanding of the project planning (personal communication province, 2022; personal communication consultancy firm, 2022; personal communication Rijkswaterstaat, 2022; personal communication citizen, 2022; personal communication farmer, 2022; personal communication waterboard, 2022). People emphasizes the importance of developing scenarios of the bypass together. If this is not an opportunity own ideas are developed by citizens, taking much time, effort and being expensive for the initiator to work out. Therefore **competence** could influences the efficiency of the participation process.

Showing and explaining **benefits** of a bypass seems important for an efficient participation process. If stakeholders understand the benefits of the bypass, efficiency of the participation increases because a common goal is clear. However, the anticipatory governance for flood safety is often not understood by citizens. Citizens can have a NIMBY reaction on the planning of a bypass. Rijkswaterstaat explains the importance of giving perspective to citizens (personal communication Rijkswaterstaat, 2022). Advantages are mainly seen afterwards, which is also confirmed by citizens of Veessen-Wapenveld (personal communication citizen, 2022). When benefits are unclear efficiency of the participation process is low. Citizens would agree less fast on the project planning, which can cost extra time and money because more explanation is needed. The waterboard underlines,

benefits need to be explained from a safety aspect (personal communication waterboard, 2022). Safety in all aspects, also flood safety, is something everybody find important. Showing benefits could contribute to an efficient participation process.

Interviews show a **shared vision** is an important aspect for an efficient participation process. Having the same goal in mind is important for stakeholders to create a shared vision more easily (personal communication consultancy firm, 2022). Also, coherence with other projects should be explained for creating a vision (personal communication Rijkswaterstaat, 2022). Furthermore, it is necessary 'frames' of the project planning are clearly mentioned. Frames help the stakeholders to understand the possibilities for discussion (personal communication farmer, 2022; personal communication waterboard, 2022; personal communication citizen, 2022; personal communication consultancy firm, 2022). With frames, a shared vision can be created more easily with less time, effort and costs. Ateliers could work to apply these frames in the project planning and to create a shared vision. When working on the project planning of a bypass it is important to check if expectations of stakeholders are on one line (personal communication Rijkswaterstaat, 2022; personal communication consultancy firm, 2022; personal communication waterboard, 2022). By doing so the efficiency of the process could increase. Also important for a shared vision, is the explanation by public authorities of the time limits of the project. Explaining time limits overcomes a hopeless feeling, and citizens get perspective on the end of the project (personal communication waterboard, 2022). Also helpful for a shared vision is if a PKD or decision is already made (personal communication province, 2022; personal communication consultancy firm, 2022).

Equitable power is important because when everyone has the possibility to be involved less resistance is expected. Citizens have to understand all stakeholders have their own responsibilities (personal communication Rijkswaterstaat, 2022; personal communication province, 2022; personal communication waterboard, 2022). In the Netherlands we have an elected government. Because of that equally divided power between every stakeholder would not work (personal communication province, 2022). Even though power is not equal for everyone, it is important all stakeholders can get involved, and feel valued. Involving all stakeholders is hard to achieve in a participation process. To feel more valued, citizens often create an action group. These groups are often underestimated by other stakeholders. Public authorities recommend better anticipation on these groups (personal communication province, 2022; personal communication consultancy firm, 2022). Equitable power helps for efficiency of participation because less time and effort can be wasted when power division is clear.

Interviewees emphasized the need for good **communication** and use of **communication channels**. Citizens explained they would appreciate more personal contact and 1-o-1 conversations (personal communication citizen, 2022; personal communication farmer, 2022). Personal contact is appreciated when planning big changes in the environment. Public authorities explain this was something to improve because creating understanding is important. Another point is communication from public authorities to citizens. Rijkswaterstaat proposed this could be improved by having a counter for questions of citizens (personal communication Rijkswaterstaat, 2022). In this way, citizens always know where to get information. Good communication is key and needed for an efficient process because less time is wasted then.

Adaptability is not mentioned a lot by interviewees. However being adaptable gives many advantages causing a process to go faster, and so increase efficiency.

From interviews is clear achieving the principles '**integrity, patience & perseverance**' is hard. Mutual trust and respect are difficult to achieve. All stakeholders need to keep calm during the project proposals (personal communication farmer, 2022). Citizens need to get used to the idea of a bypass and its consequences (personal communication waterboard, 2022; personal communication Rijkswaterstaat, 2022). A project planning takes much time and therefore perseverance is needed from all stakeholders. When doing so less costs will be made.

Other important principles

Interviewees also mentioned other principles important for an efficient participation process. The first principle noted is **empathy for the area.** Stakeholders believe it is important the area is visited early for making plans with a certain respect to the environment (personal communication waterboard, 2022; personal communication Rijkswaterstaat, 2022; personal communication waterboard, 2022; personal communication citizen, 2022; personal communication farmer, 2022). If citizens and farmers recognize their environment is taken into account in the plans, the participation process is going much easier.

The second principle important according to the interviewees is **clarity**. Agreements need to be clear and choices have to be clearly written down (personal communication consultancy firm, 2022; personal communication waterboard, 2022). Clarity can be achieved by good preparation of stakeholder meetings, ateliers and information evenings. This creates authorities being more consistent in their story. As a public authority it is important to explain and show all choices and actions (personal communication waterboard, 2022; personal communication province, 2022). The "what and how" of a project should be shown to take away unclarity as much as possible (personal communication waterboard, 2022). When being less unclear; less time, money and effort is wasted.

6. Discussion

Validity

A distinction can be made between internal and external validity. Internal validity is the certainty that the cause-effect relation is not caused by other (external) factors (Bryman, 2016). Generally, it could be said that there is measured what was needed. The interviews were coded and tested against the theory of Hassan et al. (2011). For interviewees questions were not directly linkable to efficiency but each question could be related to one or more principles, explained in the data collection method. Also principles were not directly linkable to the questions for the interviewees, so interviewees were not influenced when answering. Citizens would probably complain about these principles and public authorities would probably answer questions about principles more beneficially for themselves. This is because some authorities were very critical about their mistakes but others were less. Not linking questions visibly to the principles was successful because coding was more objective than when was asked about principles directly. No major differences in answers between public authorities and citizens were observed.

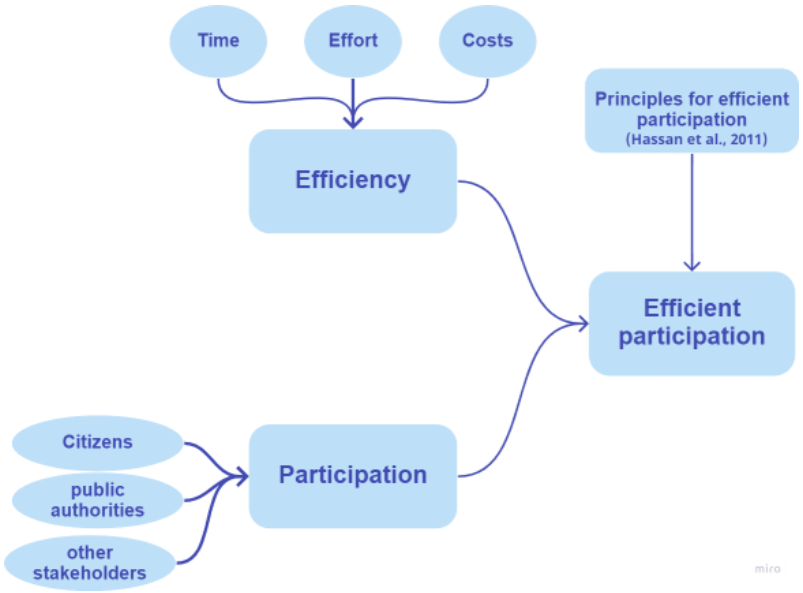


Figure 16: Conceptual model as explained in the theoretical framework, created by author

It is tried to guarantee the internal validity in several ways. In this study there is a relation between independent and dependent variables, which create a consequence on the efficiency of the participation process. The relation is explained in the theoretical framework and displayed in the conceptual model, shown in figure 16. Internal validity in this study is mostly covered by the methods and sources used. Interviews are transcribed completely with the use of recordings. These recordings contribute to the internal validity because no other person was involved in this study. Recordings and transcriptions give a higher internal validity because all data can be verified and subjectivity can be checked.

The other important aspect of the study is the external validity. External validity is the rate of generalising the results which could be used in other projects (Bryman, 2016). The focus of this study was very narrowed to the project planning of a bypass. However, the idea behind this study is that the developed theory can be applied for an integrated basin water management approach. In the interviews, especially with the public authorities, the focus was often on a broader approach then only on a bypass. It is often mentioned how

participation was designed for other projects or what was learned from other participation processes. This means that the outcomes of this study could probably be applied in other integrated river basin management projects.

A triangulation is applied in this study by using different sources. This is named a data- and sources triangulation and increases the validity and reliability. Reports, newspapers, scientific articles and conducted interviews are used, as well as some websites about specific regulations. Using different sources creates a more detailed and more complete insight in a certain phenomenon.

Limitations

Several limitations of this study can be mentioned. Limitations can be related to the conducted interviews but also to the study itself. One of the limitations regards the interviewees. Almost all stakeholders who had an important contribution to the project planning of the bypass were interviewed. However, the two municipalities involved, were not interviewed, although they were approached several times and in several ways. Contacted were the municipality of Heerde and West-Betuwe (former municipality Neerijnen) as well as people who represented the municipality during the project planning of the bypass. Their names were given by other interviewees or found on the internet. No reaction came from the approached people as well on the general email as the personal email. The absence of interviewees of the municipality could have a significant impact on this study because they were involved in participation processes of both cases. Interviews with other stakeholders clarified that the municipality was involved in different ways and had changing responsibilities during the participation.

A limitation of the interviewees could be that interviewed people are probably more involved in participation processes than other citizens. In Varik-Heesselt it was easier to get a more diverse group of interviewees because of some personal contacts there. In Veessen-Wapenveld it was harder to get some contacts. Citizens and farmers were found via interests groups and internet articles.

Another aspect playing a significant role in this study is time. This had a role in two ways: limited time and time in the past. This study had limited time because it was a 6 months research. This had an influence on the amount and time for conducting the interviews. Due to limited time, 13 interviews were held. These interviews were very constructive and similar stakeholders were interviewed in Varik-Heesselt and Veessen-Wapenveld. Strengthening the study could be by more interviews with less involved citizens, but also with nature organisations, culture groups and involved ministries. A larger amount of interviews could substantiate the developed theory more. The other time aspect is that both projects took place several years ago. Interviewees sometimes mentioned that they did not remember facts precisely. This could have affected some answers. Some people looked back at their information and sent their answers afterwards. Uncertain answers were from citizens about the question 'when and how did you hear from the bypass?'. Public authorities were sometimes uncertain about legal actions and delay of the project. Uncertain answers were not coded and used for the results.

The last important limitation in this study is the limited information. There was a limited access to certain information which had impact on this study. For example, not all documents were online and some project reports were missing. Some structure schemes of the municipality and province, drawings and evaluations could

not be found which probably had to do with change of municipality and websites. Evaluation reports of the participation process of Veessen-Wapenveld were limited. More evaluations of this process could have delivered a good contribution to this study.

Results & implications

In the results is mentioned how participation is set up and how an efficient participation process could be achieved. Important aspects for organising efficient participation are distinguished. With these aspects, process efficiency could increase (Buitelaar, 2004). Process efficiency closely looks at the way of co-ordination. Co-ordination of the process could be easier when these aspects are taken into account; the less the transaction costs, the higher the allocative and process efficiency (Buitelaar, 2004).

This study shows that efficient participation is needed and can be achieved by using principles (Hassan et al., 2011). A good participation process is essential for integrated river basin management (Jaspers, 2002). Project plannings without a participation process for stakeholders are highly ineffective (Jaspers, 2002). A participation process is not a recipe but should be adapted to the specific project (personal communication Rijkswaterstaat, 2022). The specific participation process also explains why the principle 'empathy for the area', is a useful principle to be added.

In this study several principles for an efficient participation are found. Dola & Mijan (2006) emphasized the importance of transparency and communication between public and private sectors. This research also mentioned the problem of bureaucracy and one way communication. Although bureaucracy was not found as a direct principle in this study, several stakeholders mentioned that citizens experienced problems with organisations having the power to make decisions (personal communication province, 2022; personal communication waterboard, 2022; personal communication farmer, 2022). This partly explains the principle of equitable power. The province explained it should be understand by citizens there is an elected government (personal communication province, 2022). Noteboom (2002) emphasizes that trust, but also patience, is an important factor for efficient participation as well as understanding a project. A shared vision could help for understanding a project. Designing a shared vision takes time but helps to build up a relation contributing to a better and more efficient participation.

This study also tells something about participation ladders and influence stakeholders have. The participation ladder of Arnstein (1969) is mentioned during several interviews as determination of participation forms. However, several interviewees mentioned these ladders as outdated (personal communication Rijkswaterstaat, 2022; personal communication Province, 2022). A new form of participation ladder is developed by Hurlbert & Gupta (2015) and displayed in figure 17. This ladder is called the split ladder of participation and consists of four quadrants. The ladder makes a distinction between high and low trust, high and low problem solving and high and low participation. The participation process studied can be compared with the lower part of quadrant 4 which explains the debate of different values and perspectives. Quadrant 4 shows how the processes are seen. Ideally, trust is higher and quadrant 3 is reached.

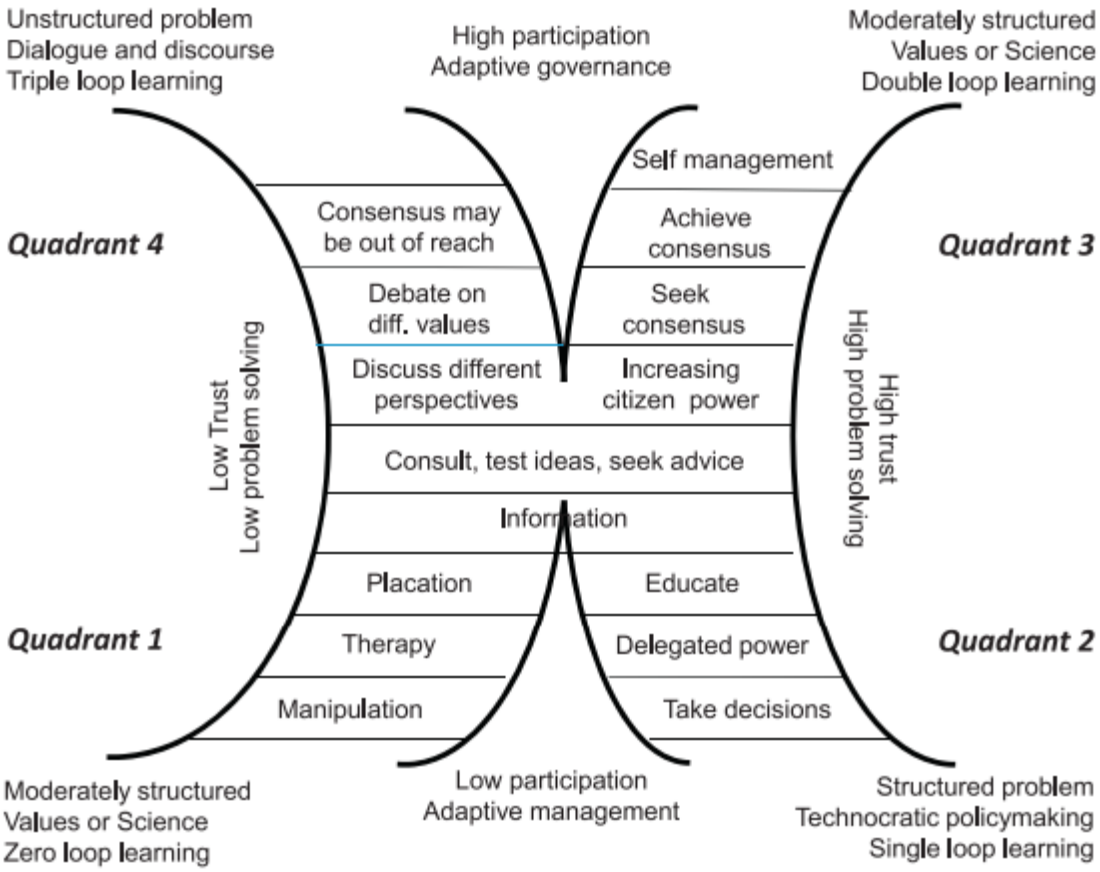


Figure 17: The split ladder of participation (Hurlbert & Gupta, 2015)

Another interesting outcome is the influence of anticipatory governance and 'not in my backyard' (NIMBY). These two different subjects really show coherence in the results. Anticipatory governance could result in a NIMBY reaction because the need for a bypass is often not understood. A bypass is a form of anticipatory governance while the function is based on the expected climatic influences and peak discharges. Project planning of a bypass could be seen as a measure for which the necessity is uncertain (Heo & Seo, 2021). From this study it became clear that it is important that the plan is understood by the citizens. Understanding a plan based on anticipatory governance, is important according to earlier research (Boyd et al., 2015). The planning of a bypass has a direct effect on the NIMBY reactions of stakeholders. A NIMBY reaction comes from stakeholders if public and private benefits are not clear (Gibson, 2005). Therefore it should be clearly explained what the benefits are on small and large scale. In that way, a NIMBY reaction can be transformed to a 'yes in my backyard' (YIMBY) reaction (Lake, 1993). These NIMBY reactions are stimulated by the fact that the plan is designed on anticipation and the problem is not clear for many stakeholders, mainly citizens.

7. Conclusion

In this study the aspects of a participation process that contribute to an efficient participation process are investigated.

The first sub question is ***'How is the participation process organised during the project planning of a bypass?'***. The participation process of the project planning of a bypass is organised differently for each project. Problems and approaches are first mentioned in the National Water Program and thereafter potential projects are often placed in more specific programs. This specific program has its own participation process. For example, the process of the Deltaprogram is more open to participation than a Planning Key Decision. After making national decisions, the participation process is determined by the initiator of the project. This could be Rijkswaterstaat or the province. Although there is not a recipe for a participation process, the processes in Varik-Heesselt and Veessen-Wapenveld were mainly focused on informing, and partly consulting. The participation ladder of Arnstein (1969) is not commonly used nowadays because stakeholders find this ladder too hierarchical. The split ladder of participation of Hurlbert & Gupta (2015) could be useful when designing a new participation process for the project planning of a bypass. The organisation of the participation tells us that a participation process is not standard and should be designed differently for each project.

The second sub question is ***'Who has influence on the participation process during the project planning of a bypass, and to what extent?'***. Generally can be concluded that province and waterboard have most influence on the participation process during the project planning of a bypass. The province designs most of the participation process because of the effect a bypass has in their area. The functioning of a bypass is often in advantage of a large part of the province. A bypass also gives the province spatial quality improvement. Building a bypass is often combined with development of the environment. The waterboard also has influence on the participation process because a bypass improves flood safety. Flood safety is one of the main tasks of the waterboard. The influence of Rijkswaterstaat is limited to their own projects. Bypasses are often described in programs of Rijkswaterstaat, which give them influence on the participation process. Rijkswaterstaat approaches participation in these programs more generally. This study shows influence of citizens on a participation process is very limited. They only can have influence when they formed a(n) (action) group or being part of the sounding board group.

The third sub question is '***Which principles, according to stakeholders, had influence during the project planning of a bypass on the efficiency of the participation process?'***. This question studies how stakeholders experienced the efficiency of the participation process. With coding of the interviews it can be concluded that principles of Hassan et al. (2011) and some other principles had influence on the efficiency of the participation process. For citizens **reliability** of the public authorities was limited. Also **openness** for ideas was missing. The problem for the authorities was the limited openness of citizens. Not being open caused a waste of time resulting pointless discussions about decisions already made. Also **transparency** was limited, **continuity** was missing, and **benefits** were not clear for all stakeholders. These factors all had influence on time, effort and costs of the process. Several

stakeholders explained a **shared vision** was not worked on, and **communication channels** were not used in a constant way. The equitable power was not understood by citizens which had effect on their understanding of their role in the process. The public authorities thought about **early involvement** of citizens and providing knowledge (**competence**). There was tried to incorporate the citizens in an early stage and experts came to explain the function of a bypass. However, both principles were not completely fulfilled because of limited information given at the start and limited possibilities to get involved in the project planning. Two fulfilled principles were **completeness** and **adaptability**. The application of these principles created more understanding of citizens and other stakeholders so less time investment was needed.

There were also three principles not mentioned by Hassan et al. (2011) that had influence on the efficiency of the participation processes in Varik-Heesselt and Veessen-Wapenveld. The one often mentioned by stakeholders was the **political game** played. Because of politics used, the project planning was delayed. The other principle having influence was the **empathy for the area**. People felt there was not looked into their past and present situation. Almost every interviewee felt the plan was "just dropped" in the area. The last principle influencing the efficiency were the **legal actions**. These procedures were taking much time, costs and effort.

The fourth sub question is ***'Which principles, according to stakeholders, are important during the project planning of a bypass to create an efficient participation process?'***. This question studies what stakeholders find important in a participation process. The study clarifies that the principles of Hassan et al. (2011) are important when a participation is designed for the project planning of a bypass. This means that the following principles should be taken into account: transparency, openness, early involvement, completeness, continuity, reliability, competence, benefits, shared vision, equitable power, a good use of communication channels, adaptability and integrity, patience & perseverance.

Beside these principles a few other ones could help to increase the efficiency of the participation process. **Empathy for the area** is mentioned as important by almost all stakeholders. This principle means the history of the area and what is currently going on, is taken into account. **Clarity** could also be derived from the study as a principle. It is mentioned by most citizens and public authorities that unclarity is very annoying and delays the process. It is important public authorities are consistent in their story and explain their choices and actions.

Looking at the main question '***Which aspects are important for the organisation of participation to make a process efficient for involved stakeholders during the project planning of a bypass?'***, it can be concluded that several aspects are useful for an efficient participation process to take into account.

The first aspect, important to take into consideration is that the organisation of a participation process varies for each project. Every project needs its own specifically designed participation process.

The second aspect is that the influence on the participation process is clearly divided between several stakeholders. People involved in a project should have influence on the participation process. The influence could depend on knowledge and interests of the stakeholders. Citizens should have the possibility to react but it is

important they understand that the government is elected by themselves and several stakeholders have their own responsibility.

The third aspect this study shows, is that using principles for the participation process could increase efficiency. It is preferable that during the project planning of a bypass 15 principles are taken into account. These are the 13 principles of Hassan et al. (2011) and added to these, the two principles found in this study, namely 'empathy for the area' and 'clarity'.

All three aspects could help to increase the efficiency of the participation process during the project planning of a bypass.

Further research & recommendations

Scientific recommendations

It can be presumed that the outcomes of this study are applicable on a larger scale and can also be a basis for an integrated river basin management approach. However, to conclude this with certainty a broader field of IRBM projects has to be studied. If other IRBM projects are investigated such as secondary channels, floodplain excavation or depoldering conclusions can be drawn on a broader scale.

It is also recommended to study the role of the municipality. As already mentioned in the limitations of this study, they were not interviewed due to circumstances. However, they are an important stakeholder in the participation process of bypasses. Especially when the results of this study would be applied on IRBM projects their role has to be clarified.

Another important aspect to take into account for the future is the influence of the Environment and Planning Act. This law states that decisions should be motivated by a program, structure scheme or plan, meaning there is explained how the environment is involved and how the participants' input is used in the plan (Rijksoverheid, n.d.-c). Several interviewees mentioned the Environment and Planning Act will have influence on the participation process but it is uncertain what this influence will be and to what extent (personal communication Rijkswaterstaat, 2022; personal communication province, 2022; personal communication consultancy firm, 2022). Public authorities fear citizens thinking they have the right to get involved in everything (personal communication Rijkswaterstaat, 2022). The influence of this law is uncertain, but surely laws have influence on the use of time and the costs due to possible court cases.

Societal recommendations

The results of this study are of value when a bypass is planned in the future. This study defines the aspects important for a participation process during the project planning of a bypass. These aspects are not only useful for the design of the participation process but also during the implementation of this process. The outcome of this study helps decreasing costs and the use of time and efforts.

For public authorities it is recommended to use the aspects, answered by the main question, important for a participation process when planning a bypass. These aspects could help to increase the efficiency of participation. The aspects could help to decrease frustrations arising during participation processes but also to understand other stakeholders better. Meeting these aspects is not only the responsibility of the public

authorities. Other stakeholders have to contribute to these aspects as well. For example, the principle continuity mainly is something public authorities should cover but the citizens could contribute to this principle by being regularly present. In the end, all stakeholders have to work together to get an efficient participation process.

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9. Appendices

Appendix I – Glossary

English	Dutch	Abbreviation
Bypass	Hoogwatergeul	
Secondary channel	Nevengeul	
Room for the River	Ruimte voor de Rivier	
Waterboard	Waterschap	
Steering group	Stuurgroep	
Sounding board group	Klankbordgroep	
Implementation of a bypass	De besluitvorming om een hoogwatergeul aan te leggen	
Spatial Planning Act	Wet Ruimtelijke Ordening	WRO
Planning key decision	Planologische Kernbeslissing	PKD
Water law	Water wet	-
Environment and Planning Act	Omgevingswet	-
Linkage opportunities	Meekoppelkansen	
Physical living environment	Overlegorgaan voor de Fysieke Leefomgeving	PLE

Appendix II – List of reports used & list of news articles used

Reports

- Deelevaluatie bestuurlijke samenwerking ruimte voor de rivier - Samenwerken is hard werken
- Procesevaluatie totstandkoming PKB ruimte voor de rivier
- Water door de Waal
- Hoogwatergeul Veessen-Wapenveld VW PR Toelichting Rijksinpassingsplan
- Legitimatie van de nevengeul voor de Waal langs Varik: legitimatie van de nevengeul voor de Waal langs Varik
- Draaiboek Hoogwatergeul Veessen-Wapenveld
- Verkenningsrapport MIRT-verkenning Varik-Heesselt
- Hoogwatergeul Varik-Heesselt: onderzoek naar meekoppelkansen
- Referentie hoogwatergeulen
- Het Nationaal Water Programma 2022-2027
- Deltaprogramma 2021
- Hoogwaterbeschermingsprogramma Handreiking Planuitwerking
- Ruimte voor Levende Rivieren achtergronddocument
- Beleef de Millingerwaard

News articles

	Veessen-Wapenveld	Varik - Heesselt
Local articles	• Theater productie Groene Rivier van start gegaan (nieuwsblad schaapskooi) • Gedichtenroute hoogwatergeul (nieuwsblad schaapskooi)	• Hoogwatergeul bij Varik en Heesselt (de Tielenaar) • Neder-Betuwe levert grond liever niet in (news paper article West-Betuwe)
Regional articles	• Hoogwatergeul Veessen wordt vanmiddag voor het eerst echt in stelling gebracht (de Stentor) • Commotie rond onderzoek natte hoogwatergeul bij Veessen/Wapenveld (de Stentor) • Provincie benadrukt alternatief (de Stentor) • Verzet geul bundelt krachten (de Stentor) • Boeren Veessen-Wapenveld willen ruimere compensatie (reformatorisch dagblad)	• Ingenieurs kraken plan hoogwatergeul Varik (de Gelderlander) • Stromingen botsen rond Varikse nevengeul (de Gelderlander) • Tientallen reacties voor en tegen advies om Varikse nevengeul te schrappen (de Gelderlander)
National articles	• Nieuwe geul moet hoogwater IJssel voorkomen (nu.nl)	• Voorlopig dijkversterking zonder hoogwatergeul bij de Waal (NOS) • Provincie Gelderland en gemeente Neerijnen verdeeld over hoogwatergeul Waal (nu.nl)

Appendix III - Interview questions

General questions citizens (direct/indirect effect, part of sounding board group, farmers)

1. Hoe hoorde u voor het eerst van de hoogwatergeul?
2. Wanneer en hoe werd u voor het eerst betrokken bij de hoogwatergeul?
3. Op welke manier kon u inspraak leveren?
4. Had u het idee dat u invloed had op de uitkomsten van het plan?
5. Heeft (of wilde) u juridische stappen zetten tegen de aanleg van de hoogwatergeul?
6. Waren er verder dingen die u heeft gedaan tegen de aanleg van de hoogwatergeul?
7. Wat vond u goed aan het participatieproces?
8. Wat vond u dat er beter kon aan het participatieproces?

Specific questions farmer

- Wat was het effect van de hoogwatergeul op uw bedrijf?
- Wat vind u van de huidige communicatie over de hoogwatergeul? (Veessen)
- Ja en zijn er ook nog, ja dat wordt in een participatieproces keukentafelgesprekken genoemd, maar zijn ze ook nog bij jullie langs geweest?
- Want met wie had u overleg, stel er was iets naar wie kon u toegaan?
- Als jullie dan het overleg hadden met meerdere boeren bij elkaar, en het waterschap en de aannemer; was dat dan vooral vanuit jullie gekomen?
- Waarover had u graag iets te zeggen willen hebben?

Specific questions sounding board group

- Wat motiveert u dan nog om wel deel te nemen aan die klankbordgroep?
- Maar u had niet het idee dat de meekoppelkansen die jullie zouden aandragen door het waterschap en de provincie zouden worden doorgevoerd?
- En u zei net toen werd er gezegd dan kan je opgeven voor de klankbord groep. Werden er mensen afgewezen en toen gelaten?
- En u zegt net dat u in de klankbordgroep zat. En in welke manier kon u daar inspraak leveren?
- we hadden de klankbordgroep en, zoals ik het hoor, waren er redelijk wat informatie avonden, waren er verder nog dingen waarbij mensen die bijvoorbeeld niet in de klankbordgroep zaten betrokken werden?
- Want kon u dan gewoon onderdeel worden door u op te geven?
- Was het echt duidelijk hier hebben wij iets over te zeggen en hier niet?
- En wanneer kwamen jullie er achter dat er dingen voor jullie werden achter gehouden? Of hoe?
- Oke en wat waren voor u de redenen om in die klankbordgroep te gaan?
- Want u zegt net er zat een verscheidenheid aan mensen in, en moest je een bepaald iets representeren of ergens voor staan?
- Had u dan het idee dat er eigenlijk een dubbele agenda was?
- Als iets niet werd meegenomen, werd het dan nog uitgelegd waarom?

General questions waterboard & province

1. Wat was u functie binnen het project en wanneer raakte u hierbij betrokken?
2. In wat voor mate had het waterschap/provincie invloed op het participatie proces?
3. Hoe hadden jullie het participatieproces voor ogen? (indien van toepassing)
4. Wat deed het waterschap/provincie naar aanleiding van de negatieve reacties van de omwonenden op het projectplan?
5. Heeft het project vertraging gehad vanwege de mening van burgers?
6. Zijn er juridische stappen gezet (of was dit het plan) door stakeholders?
7. Bij welke aspecten in de project planning kunnen burgers het beste bij betrokken worden in het aanleggen van een hoogwatergeul volgens het waterschap?
8. Bij welke aspecten in de project planning kunnen burgers het beste niet bij betrokken worden in het aanleggen van een hoogwatergeul volgens het waterschap?
9. Wat had het waterschap/provincie graag anders gedaan omwille van het participatieproces?
10. Ondanks in eerste instantie redelijk wat weerstand, zijn veel omwonenden erg blij met het uiteindelijke project: hoe denkt het waterschap/provincie dat het komt dat het project toch zo succesvol is geworden? (VW)

Questions Rijkswaterstaat

1. Wat was uw functie bij Rijkswaterstaat?
2. In hoeverre staat het participatieproces voor Ruimte voor de Rivier en het Deltaprogramma vast?
3. Wat voor invloed heeft Rijkswaterstaat op de participatie in een project?
4. In hoeverre is Rijkswaterstaat betrokken bij de participatie van een project?
5. Is er een coördinatie voor participatie vanuit Rijkswaterstaat?
6. Wat voor soort manieren van participatie gebruikt Rijkswaterstaat?
7. Bij welke aspecten in de project planning kunnen burgers het beste bij betrokken worden in het aanleggen van een hoogwatergeul volgens Rijkswaterstaat?
8. Bij welke aspecten in de project planning kunnen burgers het beste niet bij betrokken worden in het aanleggen van een hoogwatergeul volgens Rijkswaterstaat?
9. Wat heeft Rijkswaterstaat geleerd over participatie van ruimte voor de rivier projecten?

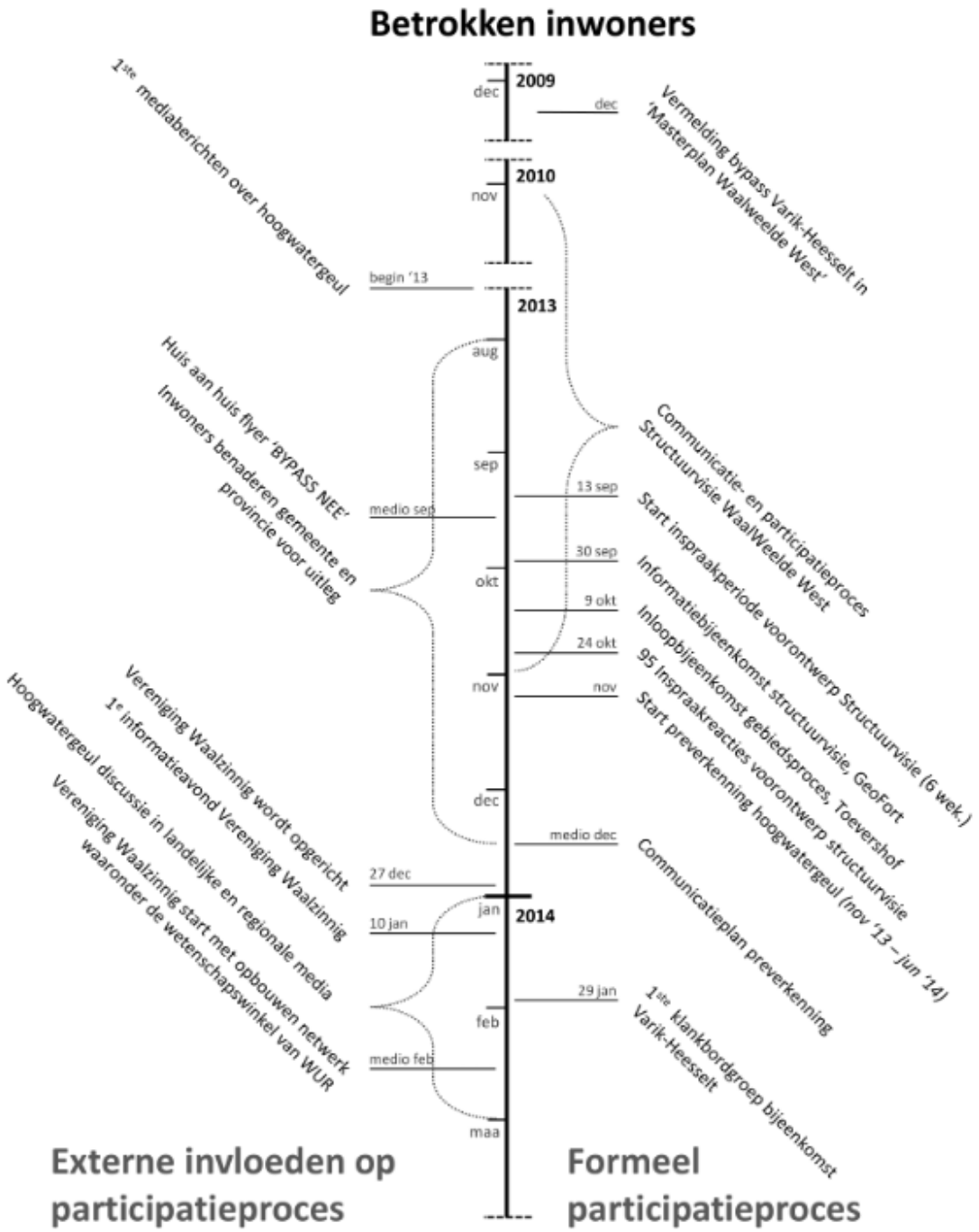
Questions consultancy firm

1. U bent bij beide projecten betrokken geweest wat was uw taak?
2. In wat voor mate had u te maken met het participatieproces?
3. Wat was volgens u het grootste verschil in het participatieproces tussen beide projecten?
4. Wat denkt u dat goed was bij het participatieproces van Veessen-Wapenveld?
5. Wat denkt u dat goed was bij het participatieproces van Varik-Heesselt?
6. Wat denkt u dat een verkeerde stap was in het participatieproces van Veessen-Wapenveld?
7. Wat denkt u dat een verkeerde stap was in het participatieproces van Varik-Heesselt?

8. Bij welke aspecten in de project planning kunnen burgers het beste bij betrokken worden in het aanleggen van een hoogwatergeul volgens u?
9. Bij welke aspecten in de project planning kunnen burgers het beste niet bij betrokken worden in het aanleggen van een hoogwatergeul volgens u?

Appendix IV: Participation process in Varik-Heesselt

The extensive version of the displayed participation process of figure 15 (Vos et al., 2019).



Appendix V – Form of consent

TOESTEMMINGSFORMULIER (informed consent)

Betreft: onderzoek naar de efficiëntie van het participatie proces bij de project planning van een hoogwatergeul

Geïnterviewde

Ik verklaar hierbij te zijn ingelicht over de aard, methode en doel van het onderzoek en het is mij duidelijk waar ik aan meewerk. Ik heb vragen over het onderzoek kunnen stellen en die zijn naar tevredenheid beantwoord.

Ik begrijp dat:

O ik mijn medewerking aan dit onderzoek kan stoppen op ieder moment en zonder opgave van reden

O gegevens anoniem worden verwerkt, zonder herleidbaar te zijn tot de persoon

O de geluidsopname vernietigd wordt na uitwerking van het interview

Ik verklaar dat:

O ik geheel vrijwillig bereid ben mee te doen aan dit onderzoek

O de uitkomsten van dit interview verwerkt mogen worden in een verslag of wetenschappelijke publicatie

O ik toestemming geef om het interview op te nemen door middel van een voice-recorder

Handtekening: ……

Naam: ……

Datum: ……

Onderzoeker

Ik heb mondeling toelichting verstrekt over de aard, methode en doel van het onderzoek en naar vermogen uitleg gegeven over waar de geïnterviewde mee instemt.

Handtekening: ……

Naam: ……

Datum: ……