# The design of an online campaign to create a ‘Raintower’ community.

*“What’s in it for us?”*

Suzan Antvelink

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**Supervisor:**

Dr. K. Zalewska

**Critical Observer:**

Ir. ing. R.G.A. Bults

**Creative Technology**

Faculty of Electrical Engineering,

Mathematics and Computer Science

University of Twente

## Abstract

This project is about a design of an online campaign to expand the 'Raintower' community. Due the climate change, the city of Enschede is suffering from rainwater management problems. The municipality of Enschede already started with trying to solve these problems, but these solutions were unfortunately not enough. The University of Twente, waterboard Vechtstromen and the municipality of Enschede created a so called Smart Rainwater Buffer, this rainwater buffer can solve the problems only if all the inhabitants of Enschede will use this solution. The network of these Smart Rainwater Buffers is called the 'Raintower' project and to let the inhabitants get to know this solution a campaign is needed. In former research there was concluded that three campaigns are needed to reach all target groups: the "What's in it for me?" campaign, the "What's in it for us?" campaign and the "What's in it for Enschede?" campaign. This project focusses on the second question: "What's in it for us?", which aims on the benefits of the 'Raintower' project for communities. A literature research was conducted about behaviour change, influencing techniques and virality to acquire knowledge about what the target group needs in terms of which message for the campaign works best. In the state of the art existing projects are reviewed to get to know the trends in campaigning. Before creating the campaign the methods and techniques are explained, an user centered design process is used to collect the requirements. Furthermore, the first visualization concepts were created and specified by a final storyboard and final requirements. This specification is used by the engineer to realize the product. There is chosen for a 2D animation video with a voice-over which tells the message of the campaign to stay in line with the earlier created campaign. The final animation video is evaluated with the stakeholders, who were overall satisfied with the result. According to the stakeholders the final product has potential as a campaign tool, some minor flaws need to be changed in the near future before the campaign can be spread.

## Acknowledgement

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# Contents

# 1. Introduction

## 1.1 Context

Enschede is one of the biggest cities in the eastern part of the Netherlands. Enschede is situated at the western side of a moraine. The geographical location of Enschede can be risky, since water nuisance in a short interval can cause flooding. The climate change can be very dangerous in the near future. If Enschede is not doing anything to solve the rainwater management problems, half of the inhabitants of Enschede will notice the effects of heavy rainfall, like flooding (Tubantia, 2019). This is why the municipality of Enschede came in action, projects such as a big water buffer below the Oldenzaalsestraat, the 'Stadsbeek' and wadi's are contributing to the prevention the city with preventing the streets from a large amount of water (Gemeente Enschede, 2019). The rainwater management projects together can buffer 7,000,000 litres of water, but will cost the municipality approximately 6.3 million euros (Bults et al., 2019). The municipality commits itself to solve the rainwater management problems. While most of the inhabitants of Enschede are unaware of the problems and costs of the rainwater management problems. They are all paying for these rainwater management solutions, but this can all be changed if the whole city is being involved in a solution.

Since these projects are insufficient to solve the rainwater management problem, students and researchers of the University of Twente wanted to help with creating possible solutions, for the rainwater management problems. This resulted in the so called 'Smart Rainwater Buffer' (SRB). This product looks like an ordinary rainwater buffer, but this one is smart. The Smart Rainwater Buffer uses the weather forecast to see if there is rain predicted at that SRB's location. When the SRB predicts that it is going to rain, it automatically discharges its water in the garden or the sewerage system. This results in more space to store rainwater, which will lead to less pressure on the sewerage system. A small SRB has a capacity of 250 litres of water, so this is obviously not enough storage to prevent the city from flooding. The University of Twente, waterboard Vechtstromen and the municipality of Enschede are planning to make a bigger SRB with a capacity of more than 20,000 litres. These two solutions on their own do not create enough capacity to store water and avoid flooding. Hence, another solution is necessary, creating a network of more Smart Rainwater Buffers together.

The 'Raintower' project is the name of a large network of Smart Rainwater Buffers together organized by the University of Twente, waterboard Vechtstromen and the municipality of Enschede (Bults et al., 2019). It is named after the water tower principle, a tower in which water can be stored for a long time. Unfortunately, most of these towers are not in use for this purpose

anymore. Since there is need to create a critical mass of people involved in the 'Raintower' project, it is necessary to create awareness about the water management problems in Enschede and this SRB solution. The city of Enschede consists of approximately 160,000 inhabitants with all different characteristics. This also means that all these 160,000 inhabitants are benefiting differently of being involved in the 'Raintower' project. To make groups of people aware of the benefits of having such a SRB, this project will start to look at people in different communities, e.g. friends, family and neighbourhoods.

## 1.2 Challenge

In previous research a digital campaign is chosen to spread the message of the Smart Rainwater Buffer. While researching the campaigning methods, Charizanis (2019) concluded that there was need for three different campaigning messages to promote the SRB towards different purposes. According to Charizanis (2019) there are certain factors influencing adoption of innovation, namely personal gains, social influence and facilities from the municipality. These factors were translated into the following questions, "What's in it for me?", "What's in it for us?" and "What's in it for Enschede?". The first campaign is about the personal benefits of using an SRB as an individual (Charizanis, 2019). To summarize, the main benefit for an individual to be involved in the 'Raintower' community is related to saving money on water costs. In the campaign "What's in it for Enschede?" is the goal to activate inhabitants of Enschede to adopt the 'Raintower' solution and to create awareness for the possible flooding problems in the city of Enschede. This goal is more in terms of what are the benefits for the Enschede as a city to use this 'Raintower' solution.

The goal of this campaign is to answer the second question "What's in it for us?". This question is about the benefits for communities in Enschede of using a Smart Rainwater Buffer, such as streets, families and neighbourhoods. The first part of the overarching campaign is already researched. In this first part of the whole campaign an animation video is used as promoting tool. To stay in line with this campaign the following campaigns need to be more or less similar, so for this project digital campaigning is already given.

## 1.3 Research question

To combine the "What's in it for us?" question and the digital campaigning method, the following research question is formulated: *How to develop an online campaign to create a 'Raintower' community?* Therefore there is need to know: How to create a community? And what makes a campaign go viral? These questions are the starting points of this project.

## 1.4 Outline

The project is structured in different chapters which starts with the introduction, followed by the background research. The background research consists of the literature that is found about the project and the existing products that are related to this project. In the third chapter the methods and techniques that are used in this project are described. The other chapters are divided according to the design process method which is chosen in *chapter 3 Methodology*. This means that after discussing the different methods and techniques, the first ideas and requirements are retrieved in the *Ideation* chapter. This chapter is followed by *chapter 5 Specification* in which the final design is worked out. Furthermore, the storyboard and requirements are followed and made into a final design. The final design is evaluated by the stakeholders in *chapter 7 Evaluation*. Finally, an answer is given on the research question and future recommendations are discussed.

# 2. Background research

To create a successful campaign and thereby answering the question “What’s in it for us?”, there is need to look into what already is been done within the same sort of research. First, there is need to look into the studies that already has been done, to see what the best method is for campaigning. The second part is about the physical projects that are already done, this can be useful to see what went wrong and what was successful in the past. The sub-questions: “How to create a community?” and “What makes a campaign go viral?” can hopefully partly be answered by the literature and projects found in this section.

## 2.1 Literature research

In this literature research two main topics to create a successful campaign will be discussed. For this project it is necessary to know which factors change people’s behaviour and how. Further there will be discussed how these factors can be implemented in interventions and which other principles are useful in changing purchasing behaviour. Another aspect of a successful campaign is that it should go viral, since this can useful to make the campaign effective. So the third section of this literature research shows different factors which influence the virality of messages.

### *2.1.1 Behaviour change*

To let people who are living throughout Enschede be involved in the ‘Raintower’ project, it is necessary to first make them aware of the environmental problems. Afterwards they need to be convinced to use a sustainable solution, this means they need to change behaviour. A lot of people are trying to reduce the climate change problems, by eating organic food or using sustainable energy. However, not everyone contributes to this, so there is a big gap between some people. This is why there is need for us to encourage people to behave more sustainable, but how? There are different factors that influence behaviour, such as social pressure (Turner, 1991). Also external circumstances and motivation can stimulate behaviour change.

Social pressure is one factor that can influence consumer behaviour. Social pressure also called peer pressure is the direct influence of a group on members of that group to change behaviour (Cambridge Dictionary, n.d.). People continually compare their behaviour with the behaviour of others according to different theories of social influence (Turner, 1991). Maxwell (2002) states that a single friend can have influence on another teen’s risk behaviour. She examined different risk behaviours: smoking cigarettes, chewing tabacco, consuming alcohol, using marijuana, and sexual debut. In addition to smoking behaviour changings, Crawford and Tobacco Control Network Writing Group (2001) point out that “Family and peers, school, television and movies

are the primary sources for both pro- and anti-smoking messages" (p.203). They recommend that anti-smoking interventions need to be more culture- and gender-specific and the antismoking messages are not clear and consistent enough. There can be concluded that social influence does have effect on behaviour, so this can be useful if the right source is chosen, such as family, school, television or movies.

According to the model of Ölander and Thørgersen (1995) which is shown in *figure 2.1*, there are three factors that influence behaviour: motivation, ability and opportunity. Whereas the motivation factor is determined by beliefs of the outcome, the attitude towards certain behaviour and the social norms. The social norms can be defined as the perception of how others should act in a similar situation. The factors ability and opportunity are bridging the step from the intention to change behaviour to the actual behaviour change. Of course the consumer has to be able to change behaviour, so they need knowledge about how to change behaviour and which habits are needed to achieve that. The opportunity factor contains of the external factors that can trigger certain behaviour, such as only placing fruit and vegetables in sight when you have to eat healthier. Another researcher (Fogg, 2009) states that triggers and ability have to be used first to stimulate a certain behaviour, since triggers and ability are easier to address than motivation. Thus to stimulate sustainable behaviour in this case, there is need to change the external circumstances (triggers/opportunities) or improve their knowledge in terms of sustainable behaviour.

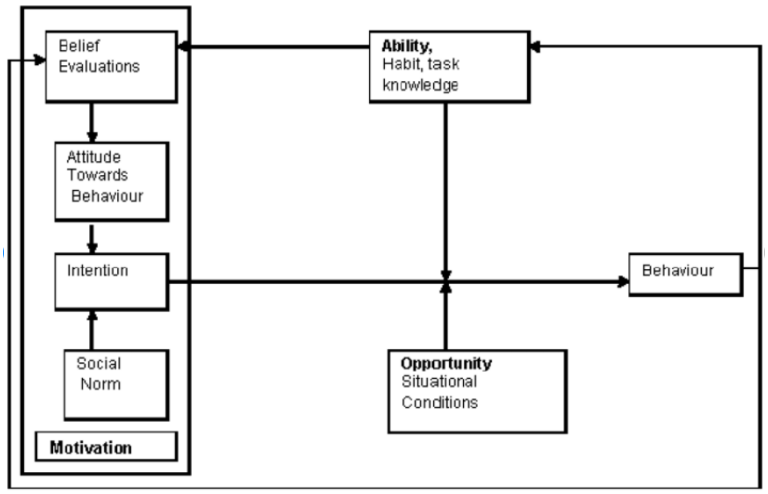


*Figure 2.1: The motivation-ability-opportunity (MOA) model (Ölander and Thørgersen, 1995)*

Social influence is an crucial aspect to take into account in this campaign, since it has effect on behaviour. It is important on which community you focus. According to Crawford and Tobacco Control Network Writing Group (2001) are family and peers, school, television and movies the

best sources with effective behaviour change. Furthermore for creating a campaign the factors motivation, ability and opportunity has to be taken into account. These can influence behaviour, especially opportunities and ability needs to be used in the first place to stimulate sustainable behaviour. These factors are easier to address than motivation. So the opportunity and ability factors can be used in interventions to stimulate sustainable behaviour. For example, in this project an ability factor can be the easiness of the message of the campaign. The message of the campaign should be understandable towards everyone, to involve a large group of people. Another example would be that the Smart Rainwater Buffer needs to be explained in an easy way, to lower the threshold to change purchasing behaviour. An external condition that can change behaviour in this case can be the location where this online campaign would be shown. A small local event with local people can work better than showing the campaign on a big screen in the city, this small event makes it easier to get in contact with the solution of the SRB.

### *2.1.2 Influencing techniques*

In the previous chapter the factors of changing behaviour are mentioned, but what triggers this this behaviour change. Different interventions are used to influence people, such as games. Besides, there are other triggers that can influence purchasing behaviour.

In a recent study (Geelen, Keyson, Boess and Brezet, 2012) a game is used to encourage sustainable behaviour in terms of saving energy. Out of this experiment can be concluded that the game context strongly influenced the motivation to save energy. In this study they used games because games can trigger the intrinsic motivation which is powerful in persuading people to perform certain actions. Examples of intrinsic motivations are competition, fantasy, recognition and cooperation (Malone and Lepper, 1987). These factors can be taken into account while making decisions about the campaign, since intrinsic motivations are able to persuade people into certain directions.

Cialdini (2007) introduces six 'weapons' of influence, principles that trigger us to buy products or do favours for family and friends. According to Cialdini these main 'weapons' are:

- Reciprocation
- Commitment and consistency
- Social proof
- Liking
- Authority
- Scarcity

The first one *Reciprocation* can be explained when someone is giving you something, there is willingness to do or give something back. So giving a sample of a product for free, convinces the

person easier to buy the whole product. *Commitment and consistency* stands for the fact that people do not change their opinions quickly, when they already have a statement in mind. For example, let a person admit that healthy life is important, this makes it easier to sell health-related products (Loorbach, 2013). *Social proof* is the principle which means that positive reviews on the product or service are influencing a person's behaviour. People continuously checking opinions and experiences of others before they buy the product. *Liking* is the attractivity of the person or campaign that wants to sell the product. The more attractive and confidential this campaign is, the easier people are convinced to buy the product. The penultimate principle is called *authority*. People are unconsciously preferring people with authority, such as a Ph.D. title. The last principle of Cialdini (2007) is *scarcity*, things that are difficult to retrieve are more valuable. People do not want to lose their freedom in owning the product, so they are easier to convince to buy the product.

Cialdini mentions a couple years later a new principle, the principle of *unity,* which means that someone has a strong need of belonging to a group. Everyone that fits in a group wants to stay in that certain group and thus these people influence each other (Scheiberlich, 2016).

To conclude games can easily trigger intrinsic motivations, such as competition and fantasy. Other triggers that can be helpful in changing purchasing behaviour are the six weapons of influence (Cialdini, 2007). Reciprocation, commitment and consistency, social proof, liking, authority, scarcity and unity can be a trigger to buy a certain product. These could be useful in campaigning the Smart Rainwater Buffer towards the inhabitants of Enschede.

### *2.1.3 Going viral*

To make the campaign successful, it has to be spread throughout communities of Enschede. According to Cambridge Dictionary (n.d.) the word viral is "Used to describe something that quickly becomes very popular or well known by being published on the internet or sent from person to person by email, phone, etc." Campaigning is successful when the content goes viral, therefore the campaign must apply to different criteria which makes a campaign go viral.

At first, you have to tie your brand to an emotional message. Fan, Zhao, Chen, and Xu (2014) point out that emotions can affect the different users, by social ties. Anger, is the emotion with the most positive correlation, this means that users spread the angry emotion more quickly and broadly among online communities. Another strong correlated emotion is joy, while sadness is surprisingly low correlated. Berger and Milkman (2012) say that virality is not only shaped by the different emotions in the content of an article, but it has more to do with how the person is being activated after reading an article. The researchers analysed 7,000 New York Times newspaper articles to determine which emotional content activated the persons the most. They

state that “Content that evokes high-arousal positive (awe) or negative (anger or anxiety) emotions is more viral” (p.3). In contradiction the research of Fan et al. (2014), is anger in Berger and Milkman’s (2012) study outpaced by the emotion awe.

Not only the content is influencing the virality of the campaign, the campaign also needs to be shareable on social media. People evaluate if the piece of content will makes them look better, before they share it. Yuki (2015) shows that brand posts that make people "look good" and "look intelligent" receive greater amount of shares on Facebook. Posts with the goal of the sharer to look funny or to be a trendsetter, does not affect the sharing rate. According to Suh, Hong, Pirolli and Chi (2010) is there an relationship between hashtags with the retweetability of posts on the social media platform Twitter. Hash tags make the message more findable or traceable. Since retweeting is a key mechanism for information diffusion, this relationship is positive for the shareability of posts. So on Facebook there is need for content that makes people look good and on Twitter there is need for useful hashtags to make the content shareable.

A criteria of a campaign that goes viral is also that people are willing to share it by mouth. This phenomenon is called word of mouth and can be defined as “informal oral communication”. Because of the fact that 92% of the consumers prefer word-of-mouth or recommendations from their friends and family above all other forms of advertising, it is recommended to use this form of marketing (The Nielsen Company, 2012). Word of mouth can affect the popularity of a product and afterwards the sales of this product. Berger and Schwartz (2011) examined the psychological drivers of immediate and ongoing word of mouth. These researchers concluded that products that are more interesting get more immediate word of mouth, but not for a long time. For receiving short and long term word of mouth, you will need a product which revers more to the environment or it has to be more publicly visible.

To conclude, the message of the campaign needs to be high-arousal positive (awe) or negative (anger or anxiety) to let it go viral, so an emotional part must be included. The content of the message needs to have credibility before people use it and there must be visible and environmental aspects shown in the content. Another criteria of content that goes viral, is that it has to be shareable by hashtags and content that makes people look good towards others.

### *2.1.4 Conclusion*

For creating awareness of the environmental problems of Enschede and convincing people to use a Smart Rainwater Buffer, a campaign must be created. This campaign should be about the benefits for communities in Enschede of using a Smart Rainwater Buffer. This literature review provides information about how to change people’s behaviour and how such a campaign goes viral.

This campaign needs to convince people to buy a Smart Rainwater Buffer, thus to involve people into the 'Raintower' community. Therefore the campaign should change purchasing behaviour.According to research social influence is effective in changing people's behaviour. It is only effective if the message is spread in the right community, such as family, school, television and movies. Motivation, ability and opportunity are three other factors which have effect on behaviour. To stimulate sustainable behaviour you should influence the people by increasing their knowledge or creating triggers, such as the alarm of a kitchen timer.

Games can effectively persuade people into doing certain actions when intrinsic motivations are used. The third 'weapon' of influence introduced by Cialdini (2007) is social proof, this can be an important 'weapon' in creating this campaign. Especially in combination with word of mouth, since people are easier convinced when someone is sharing their positive experiences of the product.

Environmental aspects must be included in this campaign, since Berger and Schwartz (2011) concluded that environmental aspects have a positive influence on long and short term word of mouth. Using hashtags in the campaign posts will increase the shareability of this post. Another aspect the campaign should involve is content that makes the sharer looks good to his or her environment. Besides, emotional messages especially anger, anxiety and awe are influencing the virality of campaigns. The campaign can also make use of an emotional message, to increase virality.

Thus for creating an successful campaign different aspects needs to be fulfilled, inter alia including emotional content and using one of the principles of Cialdini (2007), for example *unity* to let the people change behaviour. The principle *unity*, which means that someone has a strong need to belong to a group can be used in this campaign. If one person changes behaviour in a neighbourhood or street, it is beneficial for this campaign if the other inhabitants follow in changing behaviour.

## 2.2 State of the art

To see what this campaign will make successful it is necessary to review other video campaigns and projects which focus on solutions for environmental problems, such as promoting biodiversity. Also other animation video campaigns can be useful to prevent this campaign from possible pitfalls.

### *2.2.1 Campaigns with environmental solutions*

In the Netherlands there are campaigns with focus on different aspects of a more sustainable way of designing your garden. To transfer the message of being more sustainable to the inhabitants of the Netherlands, 'Intratuin' is for example campaigning in different ways. 'Deltaplan' focusses on another environmental solution that is called the 'Deltaplan'. To create awareness for the climate change, this 'Deltaplan' needs to be executed.

#### *2.2.1.1 'Intratuin' campaign*

- *Colour/ style use:* Bright and happy colours to show that your garden could be beautiful.

Firstly, 'Intratuin' made an infographic about creating more biodiversity in your garden (Intratuin, 2019). Biodiversity is the variety of life on Earth with all plants and animals included. With this campaign they want to create awareness for the sustainability issues in the Netherlands. Their goal is to let people see that it is easy to change their garden with sustainable modifications.

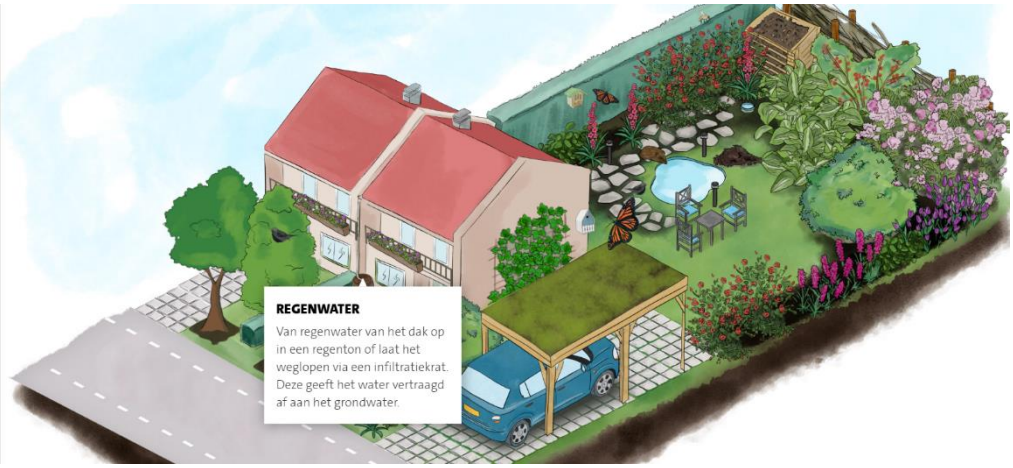


*Figure 2.2: infographic 'Intratuin' (Intratuin, 2019)*

By the use of shaking parts of the garden, it is easy to see where you can click on. If you click on a certain modification, a small explanation pops up, with the reason why it helps you and the environmental problems, see *figure 2.2*. For example the pop up of the rainwater buffer says that a rainwater buffer will lower the speed of water infiltration into the ground. 'Intratuin' tries to spread this pro sustainable message by addressing small modifications. These modifications seem easy doable, this makes it convenient for people to make small modifications in their garden. To enlarge this campaign they also included a test to check if your garden is sustainable enough. This works motivating, since they are maybe not comfortable with the bad results they got in the test. They change their behaviour into more sustainable behaviour, by making small modifications in their gardens according to these bad results.

Another promotion they came up with is that everyone could switch one garden tile for two plants. This looks like a small campaign, but can create lots of awareness towards sustainability. This small advertisement makes people unconsciously aware of the effect of such a small modification and this positively changes their sustainable behaviour.

'Intratuin' is promoting their messages via social media platforms, radio and television messages and also by their own webpage. Since 'Intratuin' is a large company with already a large community, it is not manageable to use the same strategy for promoting.

#### *2.2.1.2 'Deltaplan' campaign*

- *Length video:* 1.36 min
- *Colour/style use:* Grey and duff colours are used to show the bad effects of climate change see *figure 2.3*. Recognizable symbols are used to explain how the seven ambitions of the 'Deltaplan' work.

The 'Deltaplan' campaign consists of an environmental related animation video that is created to create awareness for the seven ambitions they wants to achieve (Kennisportaal Ruimtelijke Adaptatie, 2017). These ambitions are related to the fast climate change which is happening right now. The message of this animation video is informative in terms of explaining the effects of the climate change. In the message they try to explain why everyone needs to involve in the Deltaplan, but the message is not convincing enough to activate people to change behaviour.

*Figure 2.3: 'Deltaplan' campaign video (Kennisportaal Ruimtelijke Adaptatie, 2017)*

### *2.2.2 Rainwater problems campaigning*

#### *2.2.2.1 Amsterdam 'Rainproof'*

- *Length video:* 1.48 min

- *Colour/style use:* A lot of bright colours, blue is used as basic colour (backgrounds). The transitions of different scenes are made with the use of painting the new scene shown in *figure 2.4*.

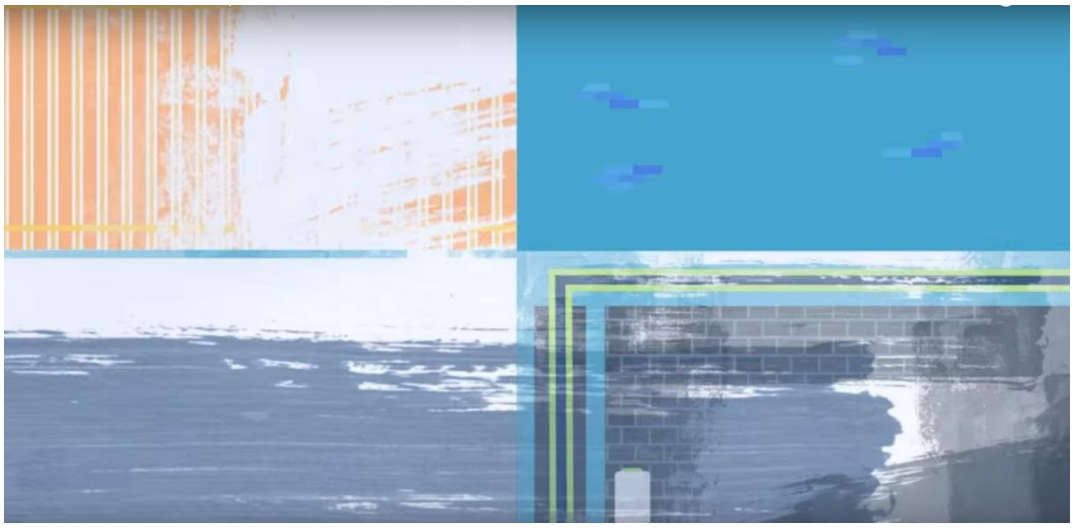

*Figure 2.4: Transitions in Amsterdam 'Rainproof' campaign*

Amsterdam is also campaigning different solutions for the rainwater management problems, the organizations is called 'Rainproof'. They used an animation video to convince the inhabitants of Amsterdam to make the city better in managing the rainwater problems. The video contains a lot of information, which is directed to all the inhabitants of Amsterdam which means that only one target group is chosen. This campaign misses a story, it is only providing information which makes it less attractive for the user and causes in difficulties with holding the attention. Not only an animation video is used, they do workshops, special promotion months and weeks to let everyone in Amsterdam involve in this project. (Rainproof Amsterdam, n.d.)

In this whole 'Rainproof Amsterdam' they worked together with a lot of parties, such as the municipality, inhabitants, housing corporation and garden centres. 'Rainproof' worked together with the garden centres to promote their campaign 'Natuurlijk! De watervriendelijke tuin'. They had some starters problems, these will be described below. 'Rainproof' is now on the right track they getting a name in and around Amsterdam. In a case study (Naafs, 2016) the starters problems they went through are mentioned, they concluded that you first have to know what the interests and trade opportunities are of the people you would like to change. Since everyone inhabitant is different, including the other parties, like companies and civil servants. It is also important to stay focussed, you do not want to reach everyone, since that is impossible. First

look at active communities who look open for new possibilities and then connect with them. You also have to stick with the rainwater management problems it would be a lot harder if you want to focus on the all the environmental problems. The last thing they encountered is that changing something costs a lot of time and effort. The best way to create effect is continually promoting the concept.

### *2.2.3 Campaigning to change behaviour*

#### *2.2.3.1 'QuitSmoking'campaign*

- *Length video:* 3.54 min
- *Colour/style use:* This animation video uses a white background which makes sure the focus is on the coloured objects. Simple icons and numbers are used, this easily explains the when something changes when you quit smoking.

The 'QuitSmoking' community created an amination video about the positive health effects of quitting smoking (Quit Smoking, n.d.). The method of creating a timeline with what is happening works motivating to people. After only 20 minutes there is already a positive change, this is very surprising and thus people will better remember this part of the animation. The messages in the video are formulated in a way the people who do not smoke are having normal blood values and so on. To the smoker this is confronting, since you as a smoker are not normal and of course you want to be normal like others. Shocking and surprising messages look more memorable and intent to have more effect on behaviour change.

### *2.2.4 Conclusion*

First, the envisioned campaign is not effective if it only uses information, it has to be more attractive by the use of a story. It also has to focus on a community, which is more effective than focussing on all inhabitants. According to Naafs (2016) it is better to focus on one topic, thus the rainwater management problems. Looking at already active communities has more influence than focussing on everyone in the city, for example focus on people who are already considering to buy a rainwater buffer. This aspect could be interesting to take into account when developing this campaign. The message of the campaign should be surprising or shocking, this works more motivating to change behaviour. Another aspect that can be included is making sustainable behaviour the standard. This also can work motivating, since people are going to compare themselves with the standard because of the social pressure and may feel uncomfortable with this.

Out of these campaigns there can be concluded that bright colours for a beautiful garden or city grabs the attention of the watcher. On the other side in the 'Deltaplan' animation video duff colours are used to show the negative effects of the climate change. These animation styles can also be used in this digital campaign. The length of the campaign are varying, two campaign videos are around 1.30 to 2 minutes long and the other one is almost 4 minutes long.

# 3. Methodology and techniques

To further develop the online campaign there is need to know how the campaign should be built, thus which method should be used. In this section the method and techniques of the different part of the projects are explained.

## 3.1 Design process

The design process developed by Mader and Eggink (2014) is used as a starting point in this project. The idea is to realise a product that convinces people to buy and use a Smart Rainwater Buffer and thus to expand the 'Raintower' community. Since the result has to be a visual product this design process is been chosen to use.

This design process is divided in four steps, namely *ideation*, *specification*, *realization* and *evaluation.* In the *ideation* phase of this project you will start with creating ideas based on the requirements of the stakeholders. This phase starts with interviews with stakeholders and brainstorming ideas, these ideas result in preliminary requirements. Also the first storylines and storyboards are created in this phase. The second phase is called the *specification* phase, in this phase a more specified storyboard and storyline is created. Based on a scenario and low fidelity prototypes you will sharpen your design, which means in this project your storyboard and requirements. By observing and discussing the storyboards and low fidelity prototypes the requirements are made more specific. In the *realization* phase the proven methods can be followed and the product will be realized. The product should follow the product specification, this means that the product should be realized according to the requirements which have been set up in the *specification* phase. In the last part of this design process an evaluation takes place, here the product is checked by the stakeholders if it is meets the requirements. In most of the phases iterations are used, this is usefull in this project since we need to know what the requirements of the stakeholders are according to this digital campaign. In *figure 3.1* the design process according Mader and Eggink (2014) is shown and gives a clear overview of which steps are used in making this campaign.

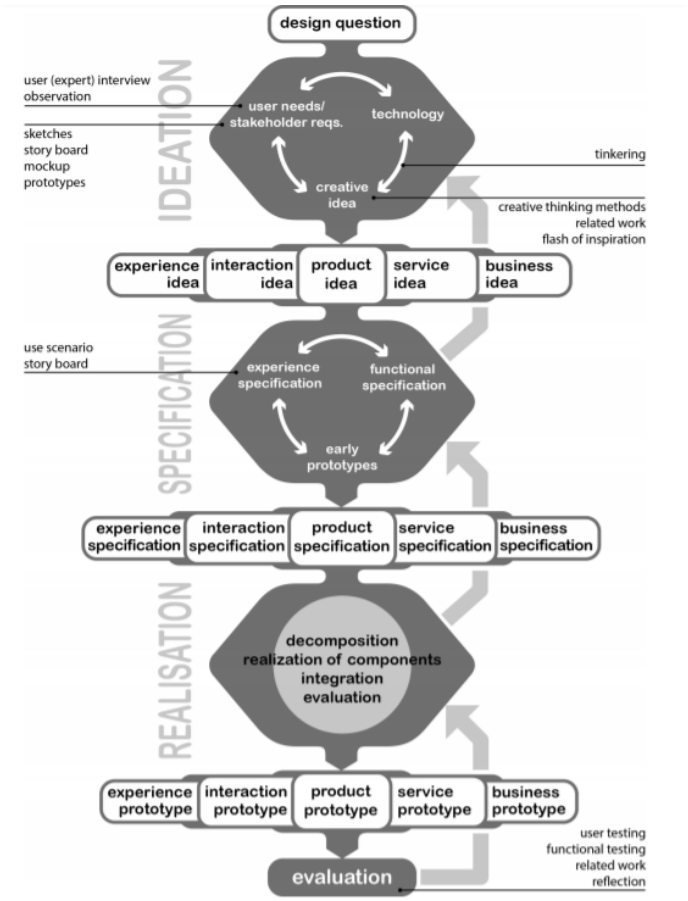


*Figure 3.1: Design process (Mader and Eggink, 2014)*

## 3.2 Campaigning method

In former research Charizanis (2019) chose to use an online campaign as the campaigning plan. In his realization he chose to use an animation video to develop the campaign. This style of campaigning would benefit the most, since it is based on reaching people through the internet and audio visual media. According to this former research this type of campaigning should address the most amount of people in a neutral way. Following this advice, in this campaign there is also chosen to make an animation video. Another reason for choosing to make an animation video is the fact that the three different 'Raintower' project campaigns should be recognizable, since they need to be promoted throughout the same city.

## 3.3 Stakeholder identification and analysis method

First the stakeholders need to be identified before they can be analysed. This is done by creating a table with in the first column the name of the stakeholders. In the second column is explained why these stakeholders are interested in this project and in the third column the role of the

stakeholder in this project is explained. This makes it easier to analyse the stakeholders and to get to know what you can expect from them. The table in *figure 3.2* in used for the identification.

| **Stakeholder (name of the stakeholder)** | **Description of their interest (describe what the interest is)** | **Role stakeholder in this project** |
|---|---|---|
| | | |

*Figure 3.2: Stakeholder identification method*

To analyse the stakeholders the *power versus interest grid* of Mendelow (1991) is been used, showed in *figure 3.3*. He suggests to divide the stakeholders in groups based on power and interest. He defines the term as the ability the stakeholder has to influence this project. The interest part means how interested the stakeholders are in this campaign succeeding (Mendelow, 1991). After analysing, the stakeholders can be placed in one of the four groups: subjects, players, crowd and context setters. The group of the stakeholders shows which actions you need to take with them during the project.

- *Players (high power and interested):* this group needs to be fully engaged in the project.
- *Context players (high power and less interested):* this group needs to be satisfied, there is no need for frequently addressing them.
- *Subjects (low power but highly interested):* adequately inform these stakeholder.
- *Crowd, (low power and less interested):* Keep an eye on this stakeholder to see if their levels of interest or power change, furthermore they need less or no attention.

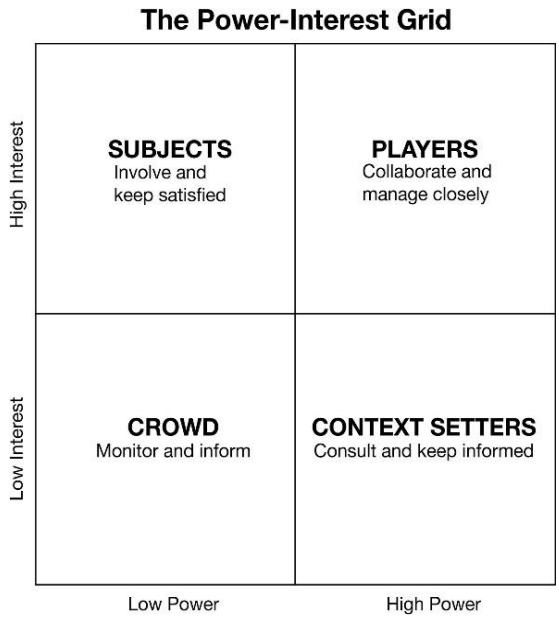


*Figure 3.3: Power versus interest grid (Mendelow, 1991)*

## 3.4 Brainstorm: mind mapping

In the ideation phase a brainstorm session is used to retrieve preliminary requirements and ideas according to the message and style of the video. In a brainstorm session you will sit together with a group and start gathering ideas in the topic you want to. In this brainstorm session a mind mapping tool is used to write down and link the ideas about the different topics. In this tool you will start with your goal or challenge in the middle and ask the participants to think of things that are related (Rudy, 2016). It is an effective way to get ideas for the end product by thinking out of the box and discussing the ideas afterwards.

## 3.5 Methodology interview sessions

To retrieve the required requirements for the animation video, semi-structured interviews will be conducted. It is not necessary to use structured interviews, because there is need for a lot of information and feedback in this ideation stage. The semi-structured interviewing technique is a meeting in which the interviewer does not strictly ask a list of questions. In semi-structured interviews the interviewer is flexible in the order of asking the questions and the formulation of questions. It is for the interviewer not necessary to ask all the questions from the list, most of the time this type of interview ends in a conversation about the different topics the interviewer addresses. The use of open-ended questions is beneficial in this interviewing technique, since then the interviewer can ask follow-up questions spontaneously. This gives the opportunity to retrieve more information about the topics you want to know more about. This interviewing technique keeps the interview open for brainstorming new ideas, which can be used to set up the requirements.

## 3.6 Requirements categorization

To make a clear list of the requirements there is need for some structure, this can be done by categorizing the requirements into different sections. Therefore the *MoSCoW* method is used, this prioritization method uses 4 groups namely 'must have', 'should have', 'could have' and 'won't have' (Clegg and Barker, 1994). The first group 'must have' consists of requirements that have to be in there, to create guidelines for the design of the final product. The 'should have' requirements should be included if possible. 'Could have' requirements are nice to have, but the project will still be accepted if this requirement is not included. The last category of requirements, the 'won't have' requirements are the requirements which will not be implemented in the project. In *figure 3.4* a template is shown, which should be filled in with the retrieved requirements.

| Requirement | Must | Should | Could | Won't |
|---|---|---|---|---|
| #1 | | x | | |
| #2 | x | | | |

*Figure 3.4: Template/example MoSCoW technique*

After categorizing the requirements on importance, the requirements need to be divided in two groups: functional and non-functional requirements. Functional requirements are the requirements which involve a function of the system, thus a function of the animation video. This will be in this case the requirements about for instance the style and length of the video. Non-functional requirements are the requirements which can be used to judge the quality of the system. They are also called the 'quality attributes' of a system.

## 3.7 Evaluation method

To evaluate the final product to check if it fits the requirements and wishes of the stakeholders a method is needed. The evaluation is conducted in the form of a meeting with the stakeholders. Representatives of the stakeholders are invited to the session. This session will take place in a meeting room with a screen where the final product can be presented. First, the project and final product will be introduced to the present stakeholders. After that, the final animation video will be shown to the stakeholders and they will be asked for their first opinion. Then the final product will be shown in parts and the present representatives can give their opinions about each scene.

Out of this comments and feedback of the stakeholders the requirements can be checked whether they are met or not. This will be done by the use of a colour scale, which is shown in *figure 3.5*.

| | |
|---|---|
| Requirement not met | |
| Requirement almost met | |
| Requirement definitely met | |

*Figure 3.5: Requirement check scale system*

# 4. Ideation

In this chapter all parts of the online campaign will be examined to create the right message and style, that is most appealing for the target group. By first identifying and analysing the stakeholders there could be obtained more information about the requirements of both the message and the style of the campaign. After identifying and analysing the stakeholders, a brainstorm session and interview session have been conducted with the stakeholders to determine the preliminary requirements. With the aforementioned background research and information retrieved from the stakeholders the preliminary requirements have been set up, followed by the first visualization concepts.

## 4.1 Stakeholder identification and analysis

It is important to identify and analyse the possible stakeholders, since these are necessary to make the project successful. These stakeholders determine the preliminary requirements of the online campaign that has to be created.

### *4.1.1 Stakeholder identification*

In this project there are different parties involved thus the campaign is affected by these different stakeholders. The University of Twente, municipality of Enschede and waterboard Vechtstromen joined forces to expand the network of Smart Rainwater Buffers. These parties have benefits of a successful campaigning message, this makes them directly or indirectly involved in the project. Another party that is involved in creating this 'Raintower' campaign are the inhabitants of Enschede themselves. The citizens of Enschede are also the target group in this campaign. In which degree they are involved will be discussed in the next sections, this can help to make an ordered list of their requirements. In *figure 4.1* the stakeholders are identified.

| **Stakeholder (name of the stakeholder)** | **Description of their interest (describe what the interest is)** | **Role stakeholder in this project** |
|---|---|---|
| Municipality of Enschede | The solutions of the municipality towards the rainwater management problems are not enough to lower the water pressure in the whole city. Thus the inhabitants of Enschede should be involved in the 'Raintower' project. | Sharing experience and knowledge in campaigning and the existing solution in the rainwater management scene and giving advice through the process. |
| Waterboard Vechtstromen | Their problem is that the pressure on the sewerage system is high in times of heavy rainfall, their goal is to reduce | Sharing experience and knowledge about the rainwater management problems, more focusing on the |

| | | |
|---|---|---|
| | these peaks and lower the chance of floods. | sewerage system. Their role is also to give advice through the process. |
| University of Twente | This stakeholder started with creating the 'Raintower' project and they of course want the project to be useful and successful in such a way the municipality of Enschede can use this project at the end. | Sharing their experience in similar projects and giving advice during the development of this project. |
| Inhabitants of Enschede | The inhabitants of Enschede want to lower the chance of floods in their community. | The role of the inhabitants is passive. They need to function as target group, which can be observed during this project. |

*Figure 4.1: Stakeholder identification*

### 4.1.2 Stakeholder analysis

In *figure 4.2* the stakeholders are analysed, these are divided in the four groups of the *power versus interest grid* of Mendelow (1991).

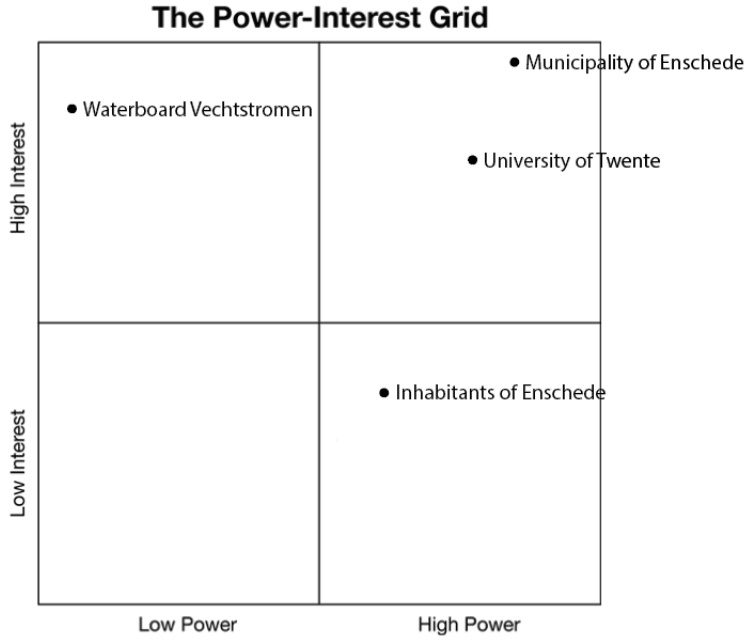


*Figure 4.2: Power versus interest grid stakeholders 'Raintower' campaign (Mendelow, 1991)*

#### 4.1.2.1 Municipality of Enschede

Hendrik-Jan Teekens and Nicolette Hoogeveen are two representatives of the municipality. Hendrik-Jan has the function of water designer and formerly worked for waterboard Vechtstromen. Nowadays he is working on the water related projects throughout the city of

Enschede. Nicolette is giving advice about sustainable topics in Enschede, she is working on different sustainable projects in and around Enschede. The municipality is one of the parties who is directly involved in expanding the network of Smart Rainwater Buffers. They want to solve the water managements problems.

The risk of floods can only be lowered with the help of the inhabitants, that is why the municipality needs them. The municipality also wants the city of Enschede to be beautiful, this can be done by creating more awareness for sustainable modifications. According to the power interest grid in *figure 4.2* the municipality of Enschede is highly involved in the project. They will have influence on most of the requirements of the online campaign. The Smart Rainwater Buffer solution, which is made in collaboration with the University of Twente, is beneficial for the city of Enschede. In terms of lowering the risk of floods in the city and creating more awareness for sustainability. The two representatives Hendrik-Jan and Nicolette are mostly related to this topic and they are also persons with the most experience in similar projects and campaigns.

#### *4.1.2.2 University of Twente*

The University of Twente came up with the idea of the Smart Rainwater Buffer and they want their product to create effect in the city of Enschede. So they have high interest in a successful progress of expanding the 'Raintower' community. Since the Smart Rainwater Buffer is developed by the University of Twente, Richard Bults and Kasia Zalewska have expertise in working with the Smart Rainwater Buffer. The University of Twente is not a client in contradiction to the municipality of Enschede and waterboard Vechtstromen. However, the University of Twente provides a good communication between the UT and their clients about the project. This can be beneficial towards setting up requirements, since they share their opinions together. They also have high interest, but they have less than the municipality of Enschede and waterboard Vechtstromen. This is because towards the municipality and the waterboard it is more valuable to solve the rainwater management problems, they are struggling with it for years. However the University of Twente wants to help them with keep developing the Smart Rainwater Buffer with the use of their expertise and knowledge in technology and design.

#### *4.1.2.3 Waterboard Vechtstromen*

Waterboard Vechtstromen is another party that is involved in this project. It is a client of this project, since it works together with the municipality of Enschede on the rainwater management problems throughout Enschede. This client is highly interested in getting a large 'Raintower' community. They want to lower the pressure on the sewerage system and decrease the water filtration costs, because their job is to control the rainwater management problems and making the city of Enschede saver. Waterboard Vechtstromen does not have a lot of power in this project, this is shown in *figure 4.2*. This is because the waterboard Vechtstromen does not have a

lot of expertise in campaigning this type of products, they mostly care about solving the problem. Jeroen Buitenweg represents the waterboard Vechtstromen, he is in contact with the municipality of Enschede about the water management problems. There is enough contact between the municipality of Enschede, University of Twente and waterboard Vechtstromen to keep him informed during the project. This is one of the actions that has to be taken according to Mendelow (1991) his power interest grid groups.

#### *4.1.2.4 Inhabitants of Enschede*

The inhabitants of Enschede are less interested in this project, because they probably do not know this project exists. The fact that the inhabitants of Enschede are the target group in this project, makes them a stakeholder met high power. The inhabitants are involved in this campaign since in this project there is need to know how the different citizens relate to each other. They have high power in this campaign since the campaign is directed to the inhabitants. Because of this there is need to know their characteristics and how to address them with the campaign. This can help with setting up the requirements of how the message of the campaign should look like.

## 4.2 Requirements acquisition

With the aforementioned stakeholders brainstorm sessions and interview sessions will be conducted in this section to get to know their wishes and requirements. These are necessary to create the first five visualisation concepts of the online campaign.

### *4.2.1 Brainstorm session*

Out of the brainstorm session with the University of Twente and the student, who is creating the "What's in it for Enschede?" campaign, (*Appendix A: Brainstorm ideation*) there can be concluded that this campaign is divided in two parts, namely the message of the campaign and the style of the online campaign. The message of this campaign is related to the question: "What's in it for us?". Another part of the campaign is the style of the animation video. The difference between the "What's in it for us?" and the "What's in it for Enschede?" can be related to the terms awareness and activation. In this campaign the animation video should consists a larger activation part than creating awareness part. The "What's in it for Enschede?" campaign should contain a large part in which it creates awareness about the fast climate change. The "What's in it for Enschede?" campaign should be less activating than the "What's in it for us?" campaign. Another difference between the two campaigns is that this campaign is linked to social pressure. The brainstorm session made clear that neighbours look at each other's houses and gardens and they react on that with copying this sustainable behaviour. There is an opportunity to use this

visually in the message of the campaign. The main overall goal of this campaign is supporting green behaviour. The 'Raintower' project can be an useful tool in the campaign to achieve this.

### *4.2.2 Interviews stakeholders*

Semi-structured interview sessions with the aforementioned stakeholders have been done to obtain the requirements needed.

#### *4.2.2.1 Interview municipality of Enschede*

The first interview session is held with a representative of the stakeholder the municipality of Enschede to share experience and knowledge about the topic. The discussed topics and questions that were conducted according to the method in *3.5 Methodology interview sessions* are shown in *Appendix B*. Thanks to this interview a few ideas were born and they slightly gave some of their wishes. This brings new opportunities for setting up clear requirements. The website 'groenblauwenschede.nl' brought new ideas towards potential concepts (Groenblauw Enschede, 2019). This website is made to persuade inhabitants of Enschede to make their gardens more climate proof. 30% of all land area in the city of Enschede contains gardens and roofs of the inhabitants, this makes it necessary for the municipality to let citizens participate (Groenblauw Enschede, 2019). Another topic mentioned in this interview is about the trends towards making sustainable modifications. According to the municipality there are certain trends in purchasing for example solar panels, different people from the same neighbourhood are purchasing solar panels. This seems to be an attachment that there is some sort of social pressure in neighbourhoods of Enschede. The stakeholder also suggests to use the principles of Cialdini, discussed in *chapter 2.1.2,* to influence and afterwards persuade people into a certain direction. Nowadays these techniques serve as basic elements in almost every campaign (Loorbach, 2013). Another thing that is recommended to include in the campaign, is making use of 'profitable actions'. For example, a discount for neighbourhoods, if more than one person is willing to buy it.

#### *4.2.2.2 Interview student Saxion Enschede*

The municipality gave the tip to collaborate with a student from Saxion Enschede who is also graduating within the topic of climate adaptation in Enschede. Our projects are almost similar in terms of activating people towards sustainable behaviour. The student investigated the neighbourhood 'Laares' in Enschede because there was a lot of social cohesion and these citizens are potential helpers towards solutions for climate change problems. Therefore this neighbourhood is her target group, this is also the group where the message of this campaign should focus on. Out of this conversation one main point can be concluded, that it is necessary to focus on the easiness of implementing sustainable modifications.

#### *4.2.2.3 Interview waterboard Vechtstromen*

The third interview session and first iteration was conducted with a representative of the waterboard Vechtstromen, the topics and questions which are conducted are shown in *Appendix C.* The representative gave more insights about how the sewerage system works and he told what the benefits are of having a large 'Raintower' community for the waterboard Vechtstromen. Since the climate is changing the rainfall is becoming more intense, a larger amount of water in a short amount of time. This in contribution to the moraine located on the east of the city of Enschede causes more peaks in rainwater input to the sewerage system and it gets more difficult to get rid of that amount of water. This is why the waterboard Vechtstromen is contributing in this project, they want to reduce the peaks.

The 'Raintower' project can contribute in this peak reducing, when having a large 'Raintower' community. Thus it is important to expand the 'Raintower' community in Enschede. According to the representative of the waterboard the story should definitely include the problem of the fast climate change and the related effects of this climate change. Another aspect that is suggested to include in this project is the 'ladybug' in the first campaign video of the "What's in it for me?" campaign, because the campaign will be different in style but should be recognizable as one campaign (Charizanis, 2019).

In this session there was also an opportunity to show the first version of the storyboard. His comments can be used as feedback towards an improved storyboard. Firstly, the Smart Rainwater Buffer cannot prevent a flood, therefore it is not realistic to let a 'waterfall' disappear while using SRB's in the video. This can be changed by using a small waterfall where only the bottom part of the houses is getting wet. While using SRB's this water level should be lowered a bit, since the street would not be fully prevented from flooding. Secondly, the benefits of the SRB should stand out because otherwise the target group will not buy a Smart Rainwater Buffer.

#### *4.2.2.4 Conclusion interview sessions*

In conclusion, this interview sessions with the municipality, waterboard and a student who is working for the municipality extended the vision on the requirements for the campaign designed in this project.

### *4.2.3 Preliminary requirements*

Preliminary requirements are the outcome of the interviews and other research that have been done in the aforementioned parts. These are the start for the specification of the online campaign in *chapter 5 Specification*.

#### *4.2.3.1 Preliminary requirement list*

The following preliminary requirements in *figure 4.3a & b* are derived from *chapter 2 Background research*, interviewing the stakeholders and brainstorming ideas. The requirements are divided in non-functional and functional requirements to see whether this must be used in the specification part of this project.

| **Functional requirement** | **Must** | **Should** | **Could** | **Won't** |
|---|---|---|---|---|
| 1. Voice over in Dutch language | x | | | |
| 2. Subtitles in English language | x | | | |
| 3. Include 'Raintower' logo | x | | | |
| 4. One campaigning message only: Involve in the 'Raintower' community! | x | | | |
| 5. Show the function of the 'Raintower' in terms of a network of SRB's | x | | | |
| 6. Show the benefits for different individuals/families in a neighbourhood | x | | | |
| 7. Compare neighbours or streets to create social pressure | | x | | |
| 8. Include logos of the University of Twente, waterboard Vechtstromen and municipality of Enschede | | x | | |
| 9. Use one of the principles of Cialdini: reciprocation, commitment and consistency, social proof, liking, authority, scarcity or unity | | x | | |
| 10. Make clear that more than one SRB is needed to have impact (less chance of flooding) in a neighbourhood | | x | | |
| 11. Insert the easiness of making climate proof modifications → show that the SRB is a 'Do It Yourself' project | | x | | |
| 12. Avoid discrimination | | x | | |
| 13. Include 'ladybug' from "What's in it for me? " campaign | | | x | |

*Figure 4.3a: Preliminary functional requirements in MoSCoW groups*

| Non-functional requirement | Must | Should | Could | Won't |
|---|---|---|---|---|
| 1. An animation video | x | | | |
| 2. Length of the animation should not be too long | x | | | |
| 3. Make no promises about flood prevention | x | | | |
| 4. Bright coloured animations when discussing the positive sides of the SRB solution | | x | | |
| 5. Animation style not necessarily linked to previous made animation | | x | | |
| 6. Contain SFX to create a more dramatic effect, for example water sounds | | x | | |
| 7. Use grey toned colours to emphasize on negative effects of climate change | | | x | |
| 8. Use realistic animations | | | x | |
| 9. Entertain | | | x | |
| 10. Use green/red labels from GroenBlauw Enschede | | | x | |

*Figure 4.3b: Preliminary non-functional requirements in MoSCoW groups*

## 4.3 Preliminary visualization concepts

As mentioned in *4.2 Requirement acquisition*, the interview sessions and brainstorm session are crucial to come up with story concepts. The main message of the campaign should answer the question "What's in it for us?", so it should contain the benefits for community for example, a street, family or neighbourhood. In the following concept storylines the message of the campaign is worked out in different ways and styles. These concepts are shown to the stakeholders and they gave feedback and conclusions on this. The focus of the concepts should be on happy people and pretty gardens.

### *4.3.1 Storyline 1: Red label*

First show the problem, by zooming in into different neighbourhoods and their green labels, to let people face their situation. Show them what green modifications each neighbourhood have been done and what could be better. This shows them that there is need for more sustainable modifications.

Show the problem of the fast change of the climate and that there is serious need for more green modifications in each neighbourhood.

Use a solution such as: The Smart Rainwater Buffer/'Raintower' project. Briefly explain the 'Raintower' project with the use of Smart Rainwater Buffers linked together and what the effect is of this connection in contradiction towards a single SRB (to show the effect of the us).

Finally, explain how to use a SRB and show that it is easy to implement and that it also has benefits for yourself: cleaning bike, green grass and saving water costs.

### *4.3.2 Storyline 2: Comparison of streets*

First show the problem in times of heavy rainfall, what could happen in the worst case scenario: flooding streets (use street names of Enschede, to get familiar with it). Explain how the pressure on the sewerage system is causing floods in times of heavy rainfall.

But you can help, use different family situations and sort of people of one certain street in Enschede, children, families, elderly people. This to make sure everyone fits the story and everyone can empathize with the story.

Zoom into them and place a SRB in each garden and show for each person the benefits and why these SRB's should be connected ('Raintower' project).

Show the network of SRB's and show how it lowers the water level in the streets and show how green their grass in their neighbourhoods are with the use of the SRB.

### *4.3.3 Storyline 3: Conversation between neighbours*

Start with comparing neighbours. When smelling the barbeque of the left neighbour the other is looking over the fence and seeing that his garden has bright green grass. This makes him jealous and asks his neighbour how he maintained the grass that green.

It all started with the floods that happen more frequent, this made him think about solutions. He made sustainable modifications in his garden, since he realized the climate is changing very fast. He bought a rainwater buffer and made it smart after years since this is more effective.

Explain briefly the 'Raintower' project and that it is necessary to connect more than one SRB, since only then it works effectively.

Let the neighbour also get a SRB and show the benefits of 2 SRB's together. And show that not only grass can benefit of the SRB, you also can clean your bike with it etc.

### *4.3.4 Storyline 4: Conversation between neighbours*

A neighbour (A) is chilling in his garden, he screams when he is stepping on the tiles in his garden, since the tiles are very hot due the sun. One day later, he (A) is again chilling in his garden, but the weather isn't that nice anymore. While he (A) is reading a book a dark cloud is arriving and it starts to rain. The rain is heavy and he runs inside, the garden is filled with water. He (A) calls his neighbour (B) to ask what he is doing to prevent his house from damage by heavy rain, but his neighbour (B) does not have any flooding problems.

Show the problem of the fast change of the climate and there is serious need for more green modifications in each neighbourhood.

The neighbour (B) tells he has grass in his garden instead of tiles and a (SRB to catch rainwater). So use a solution such as: The Smart Rainwater Buffer/'Raintower' project. Briefly explain the 'Raintower' project with the use of Smart Rainwater Buffers linked together and what the effect is of this connection in contradiction towards a single SRB (to show the effect of the us).

If everyone is using this solution in the neighbourhood, the chance of flooding in this neighbourhood is lowered.

## 4.4 Conclusion

The stakeholders are used to retrieve the preliminary functional and non-functional requirements, these are used for the first visualization concepts. After discussing all concepts with the stakeholders, the first two concepts were combined and further worked out in terms of a storyboard and developed storyline. This final storyboard and storyline is worked out in *chapter 5 Specification.*

# 5. Specification

The goal of this chapter is to refine the final product the animation video. This is done by checking the requirements with the stakeholders and keep the requirements updated. With the use of the scenario and requirements storyboards are made of the final product. Also a low fidelity prototype was developed and discussed again with the stakeholders. This to make sure the campaign would work in the future. Finally, this part shows the final requirements which are needed to realize the product in *chapter 6 Realization*.

## 5.1 Scenario

Imagine that in the near future the 'Raintower' project wants to raise awareness and there is need for using this campaign. A woman named for example 'Wendy' has to introduce for example the neighbourhood 'Laares' in Enschede to the 'Raintower' project. She is a representative of the municipality of Enschede and she is in a lot of projects collaborating with the waterboard Vechtstromen. Besides she is involved in a lot of sustainable projects throughout the city of Enschede, within the topic of promoting sustainable modifications towards the inhabitants. Wendy likes the idea of promoting sustainable modifications by the use of an animation video and the 'Raintower' project.

The municipality is organizing a gathering with the neighbourhood Laares in Enschede. The municipality first promoted the gathering on social media platforms and informed the people by their monthly magazine. When Wendy entered the location of the gathering, she is friendly welcomed by one of the citizens of this neighbourhood, named Freddy. He can be seen as the contact person of the neighbourhood and is involved in different projects in collaboration with the municipality. People are slowly coming in and grabbing some coffee before Wendy starts her presentation. She first introduces herself and tells the people the reason why she came here. Wendy mentions what her job is at the municipality and the earlier projects she was involved in. She introduces the people to the rainwater management problems in the city according to the fast climate change by showing pictures of the floods in 2010 (Kunst, 2010). After that she shows pictures of a dry and hot summer (for example the summer of 2018), to let people see the extreme effects of the climate that is changing. Wendy shows the people that it is impossible for the municipality to solve these problems. She tells them that they should involve in solving these problems because 30% of all land area in Enschede consists of roofs and gardens from citizens in the city. At the end of her presentation she shows the animation video.

The animation video starts with comparing streets in one neighbourhood, one street is green and does not feel the effects in times of heavy rainfall. The other street is labelled red and consists of a lot of stones, which causes in flooding in times of heavy rainfall. The solutions the

video mentions is making your gardens greener and using a rainwater buffer. As follows, the usage of Smart Rainwater Buffer made by the University of Twente, municipality of Enschede and waterboard Vechtstromen is explained. Than an explanation of the 'Raintower' project and the effect of more than one rainwater buffer user is showed. Finally, the benefits for different citizens of the street and for the whole street are shown.

After showing the animation video, Wendy asks them to help the municipality and themselves in solving these problems. She ends the presentation with answering questions from the attendees and asking them to look into dept on the 'Raintower' project website, because this website describes the possibilities in more detail.

## 5.2 Storyline

### *5.2.1 Scene 1: Map of the city of Enschede*

In the first scene a map of Enschede is shown with the whole city coloured in red. This red label identifies how green (sustainable) your city/neighbourhood is. In this case the city cannot be seen as a sustainable city. To zoom in on a certain neighbourhood on the map, you can see that one street is greener in terms of grass and trees than others.

### *5.2.2 Scene 2: The 'green' street compared to the 'red' street*

There are green and red labelled streets in Enschede. The green labelled street is shown as a happy, colourful street with children playing and happy people. In times of heavy rainfall in a short amount of time this street can handle the amount of rainwater, since the rain will be caught by the grass, plants and trees in the street/gardens. The rain will disappear fast so the children can play outside again. In the red labelled street this will be a little bit different, due the heavy rainfall in a short amount of time there is a chance of flooding. This is not what the inhabitants want, thus this will be represented by a 'waterfall' going through the street. In this scene the inhabitants of the four houses in that street are shown in a worried state, because of the floods. Again the different inhabitants are shown in a sort of matrix, the street consist of a student, a family with two children, a family with a baby and an elderly couple. The inhabitants of the street have different ethnic backgrounds, to include everyone.

### *5.2.3 Scene 3: Take actions!*

There is definitely an opportunity to change the red label into a green label by adding grass, trees and a rainwater buffer to your gardens! The municipality of Enschede, waterboard Vechtstromen and University of Twente cooperated to try to solve the rainwater management problems. They invented a smart rainwater buffer which is really easy to use. In this scene a

normal rainwater buffer is placed in one of the gardens of the street to explain how it should be used. It's simply made smart by adding the smart box on top of the in your own style bought rainwater buffer. This smart boxes will be subsidized by the municipality. The smart box on the rainwater buffer can predict if it is going to rain. He discharges water before it is actually going to rain, to lower the pressure on the sewerage system in times of heavy rainfall. This will lower the chance on floods in the street, but only if more than one person in the neighbourhood is using it.

### *5.2.4 Scene 4: 'Raintower' project*

Lowering the risk of flooding in the street or neighbourhood cannot be done alone, there is need for your neighbour to take actions. This scene starts with plopping a different rainwater buffer at each house one after another. Multiple rainwater buffers in your street will form a network and functions like an old fashioned water tower. These water towers formerly caught and buffered all rainwater in the city, but nowadays these towers are not used anymore. You and your neighbours can function as a water tower by using rainwater buffers, since your street wants to have a green label right?

### *5.2.5 Scene 5: Benefits local residents*

Firstly in this scene will the rainwater buffers be placed in the backyards of each house. Then the benefits of each local resident will be explained, by moving along the gardens. These gardens and houses will look bright and green

The first house in the street is occupied by an elderly couple. In this garden you can see how the old man is watering his trees and grass with rainwater from the rainwater buffer. The plants and grass ensure that it will not be too hot in summer to chill in the garden, this is why his wife can enjoy the weather while reading a good book.

Move to the right to see the second garden in the row from the family with the young baby. They need a lot of money to raise their child, this is why they decided to save on water. By cleaning the windows of their house with rainwater they save money on water. It is also nice to have a more child friendly garden where their child can grow up.

Move to the third garden of the family with the two young children. These two children love to play a lot outside, but due the tiled garden this is difficult. That's why they decided to replace their tiles to grass, which ensures that the children can play a lot more. Of course this grass needs to be watered, this is where the water barrel can help with. The children also like to play with the water out of the barrel.

The fourth rainwater buffer user is the student who is cleaning his bike with the buffered water out of the barrel. He is a typical student and does not have a lot of money to spend, thus this is for him an outcome to save money on water.

### *5.2.6 Scene 6: Green label*

Now we can congratulate this street with a green label and the chance of flooding will be lowered. In this scene the map is showed again with the label turned into green and the street will be shown in times of heavy rainfall. The rainwater can easier be absorbed by the grass and plants and the water will be buffered by the rainwater buffers, this lowers the chance of floods.

## 5.3 Storyboard

A storyboard is a sequence of drawings which represents the scenes of a video. By the use of implementing the requirements into the storyline, this storyboard was made. Since the order of the scenes in the storyline changed a lot. The storyboard is first sketched, afterwards the different shots were reordered again and again.  After all a final storyboard could be made, but the effects of the animation scenes may change during the realization phase. This is why this storyboard can look different according to the final video. The storyboard gives a visualization of the storyline and shows the film effects more worked out. It also gives a preview of the style of the animations. The animations should be realistic in such a way that inhabitants can empathize with it. According to the preliminary requirements the video should not discriminate, therefore the story made use of different family situations.

Two intrinsic motivations: recognition and cooperation are taken into account while creating the illustrations of the storyboard (Malone and Lepper, 1987). These motivations are able to persuade people into certain directions, thus these are beneficial to use. In the illustration of the map of Enschede the intrinsic motivation recognition is used, a lot of people would recognize this map and this makes them feel addressed. The intrinsic motivation cooperation is also used while illustrating. In the video it has to be sure that you cannot solve the rainwater management problems alone, so there is need for the whole neighbourhood to help. This can be seen in the final map scene and in the network scene, there are several Smart Rainwater Buffers shown together and linked together. This shows that it is necessary that your whole neighbourhood uses an Smart Rainwater Buffers. The storyboard is very helpful while explaining the campaign towards the stakeholders, this is done to get critical feedback. In *figure 5.1* a small part of the storyboard is shown, the full storyboard can be seen in *Appendix D*.

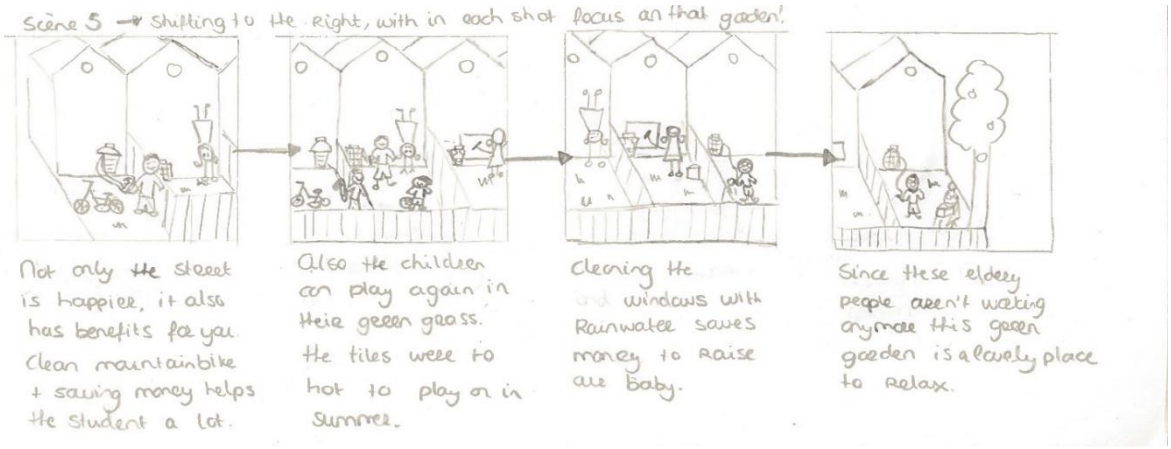


*Figure 5.1: Scene out of storyboard with illustrations of the benefits for each inhabitant.*

## 5.4 Lo-fi prototype

To complete the product specification a low fidelity prototype is made. This is a first design of the product to check if it fits the ideation of the stakeholders. Prototyping also helps with deciding which tools are going to be used. The first prototype in *figure 5.2* is made with the use of Adobe Illustrator (Adobe Inc, 2019) and Adobe After Effects (Adobe Systems, 2019). This prototype consists of a thunder sound when it starts raining, this is retrieved from 'www.freesound.org' (Freesound, n.d.).

After discussing the prototype and storyboard with the stakeholders a few changes in the first design has been made. As mentioned before in *4.2.2.3 Interview waterboard Vechtstromen*, waterboard Vechstromen came with a comment on the waterfall, it is not realistic to show it like in *figure 5.2* since the floods are never that heavy. Besides it is not realistic that the 'Raintower' solution will let this amount of water disappear. This scene is changed into a small waterfall that covers only a part of the inhabitants and the bottom of the houses. According to the stakeholders of the University of Twente it is not fair to use the red and green label on a certain location on the map of Enschede. This can be seen as discrimination by the inhabitation of that certain location, so this also changed in a large red stain that covers the whole map of Enschede.

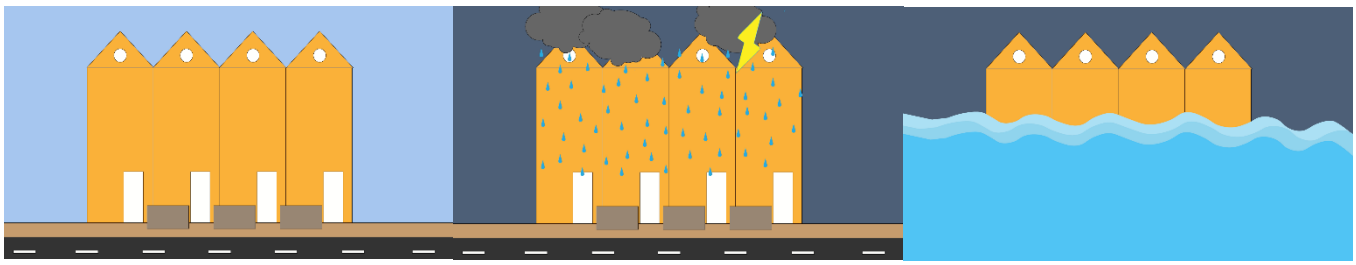

*Figure 5.2: Low fidelity prototype screenshots*

## 5.5 Final functional and non-functional requirements

In figure 5.3a & b are the preliminary requirements specified, in such a way the engineer can follow them in *chapter 6 Realization*.

| **Functional requirement** | **Must** | **Should** | **Could** | **Won't** |
|---|---|---|---|---|
| 1. Voice over of the video in Dutch | x | | | |
| 2. Subtitles of the video in English | x | | | |
| 3. The 'Raintower' logo should be included in the video on the water tower and in the credit scene | x | | | |
| 4. The video should contain only one clear campaigning message: Involve in the 'Raintower' community | x | | | |
| 5. Explain the value of the 'Raintower' project in terms of a network of SRB's and the decreasing effect it has on floods | x | | | |
| 6. Explain the benefits for different individuals/families in a neighbourhood, such as cleaning windows, saving money and the children can play more | x | | | |
| 7. Compare streets to create social pressure, with the use of green/red labels | | x | | |
| 8. Include logos of the University of Twente, waterboard Vechtstromen and municipality of Enschede on at least the credit scene | | x | | |
| 9. Use the principle *unity* and *liking* of Cialdini in the message of the video by showing that the SRB solution does not have any effect when using it alone | | x | | |
| 10. Make clear that more than one SRB is needed to have impact (less chance of flooding) in a neighbourhood | | x | | |
| 11. Insert the easiness of making climate proof modifications → show that the SRB is a 'Do It Yourself' project | | x | | |

| | | | | |
|---|---|---|---|---|
| 12. Avoid discrimination in terms of using different type of characters in the video, a young student, an elderly couple, a young couple with a baby and a family with two young children. The man of the young couple with the baby is from Africa. | | x | | |
| 13. Include ladybug from "What's in it for me?" campaign to give the whole campaign a recognizable object | | | x | |

*Figure 5.3a: Functional requirements in MoSCoW groups*

| **Non-functional requirement** | **Must** | **Should** | **Could** | **Won't** |
|---|---|---|---|---|
| 1. The type of campaigning is an 2D animation video | x | | | |
| 2. Length of the animation should be below 3 minutes | x | | | |
| 3. Make no promises about flood prevention, since it only lowers the chance of flooding | x | | | |
| 4. Bright coloured animations when discussing the positive impact of the SRB solution | | x | | |
| 5. Animation style not necessarily linked to previous animation | | x | | |
| 6. Use SFX to create a more dramatic effect, for example water sounds | | x | | |
| 7. Use grey toned colours to emphasize on negative effects of climate change, such as heavy rainfall and floods | | | x | |
| 8. Use realistic animations, for example different realistic rainwater buffers should be translated into an illustration | | | x | |
| 9. Entertain the users with a kind of humour by showing different happy characters. | | | x | |

| | | | | |
|---|---|---|---|---|
| 10. Use green/red labels from GroenBlauw Enschede, to give an indication of how sustainable each street/neighbourhood is | | | x | |

*Figure 5.3b: Non-functional requirement in MoSCoW groups*

## 5.6 Conclusion

In this part of the project the final product is specified. With the use of a scenario, final storyline and storyboard a low fidelity prototype is made, which is used to discuss with the stakeholders. After discussing the functional and non-functional requirements have been set up. These requirements and storyboard are necessary to realize the final animation video.

# 6. Realization

In the *Realization* chapter the final product, the animation video is made. The final prototype is based on the requirements and ideas gathered in the previous chapters and finally will be evaluated by the most important stakeholders. Of course realizing this product cannot be done without tools, so first the tools which are going to be used are described. Furthermore the process of making the animation video is explained in the subchapter *6.3 Development animation video*. In this part also the last changes which popped up during the process are explained.

## 6.1 Tools

Different tools are used to develop the animation video, these are described in this part of *chapter 6 Realization*.

### *6.1.1 Video*

#### *6.1.1.1 Adobe Illustrator*

To first make the illustrations Adobe Illustrator (Adobe Inc, 2019) is used. After trying 'Paint.net' there can be concluded that this does not have the ability to make it look professional. Thus therefore there is chosen to use Adobe Illustrator. With Adobe Illustrator you can make vector-based visuals in various styles. This program consists of a layer interface and a lot of options, it also have various effects that can be used to create the shapes you want. Since Adobe Illustrator uses vector-based shapes you can resize them without losing quality, this is a big advantage of Adobe Illustrator. The program is used to create the different backgrounds, components and characters of the animation.

#### *6.1.1.2 Adobe After Effects*

There are a lot of options in terms of different software's to animate a video (Houweling, 2018). After reading about Adobe After Effects (Adobe Systems, 2019), this program looks like the most professional one. Adobe After Effects is used to let the previously made illustrations move in the video. Adobe After Effects is used by animators and designers to make animated images and visual effects for movies, television, video and the internet (Adobe, 2019). It also has a lot of tutorials on Adobe.com itself and on for example Youtube.com (Youtube, n.d.), if there are parts of the software you do not understand. The program is very easy to learn even when you do not have any experience in animating. The video is divided in six scenes and most of them are made in a separate Adobe After Effects file. Except from scene 1 and 2, these are combined in one file. In the beginning it was not sure if the video could be made in one file, so later on there is decided to make it in separate files. Surprisingly, the render time of each video was not that long as expected, while the quality is relatively high.

#### *6.1.1.3 Adobe Premiere pro*

To combine the scenes into one video there was search for a professional version of 'Windows Moviemaker'. Luckily, does Adobe has a program for video editing called Adobe Premiere Pro (Adobe Systems, 2019). Adobe Premiere Pro is a software in which you can edit a video in the style you want, it is especially used for films, television and the internet. In this software you can not only edit a video, also the quality of audio can be improved in this software. Another benefit of this software is that you can create project maps in which the materials can be categorized, if you need to make a large movie. The software can also combine graphics and captions in your videos, this can be useful if you want to make a infographic (Adobe, 2019). This program is used to combine the scenes together cut them and change the speed of each scene to let it fit the voice over. In Adobe Premiere Pro the background music, background sounds and the voice-over are added.

### *6.1.2 Audio*

#### *6.1.2.1 Freesound.org*

The background sounds are retrieved from 'www.Freesound.org', a collaborative database of sounds (Freesound, n.d.). These sounds are released under 'Creative Commons' licenses, this means that users can upload and download sounds with each other. On this website sounds can be found really easily by using the search bar and setting a filter such as rating. To enrich the animation video background sounds are used in the video, these are retrieved from this website.

#### *6.1.2.2 Voice-recorder (Smartphone: One plus 5T)*

The voice-over which will tell the message of the video to make the video more clear is recorded with a smartphone recorder. After trying headphones, earphones and a microphone within a headphone, a normal smartphone recorder provided the best quality of the voice. 'Recorder (version 2.0.0.190410210217.5000628)' from a 'One plus 5T' smartphone is used to record the voice-over of the animation video.

## 6.2 The animation video

### *6.2.1 Illustrations*

The refined storyboard and low fidelity prototype are used as starting point in creating the illustrations of the animation. The illustrations can be seen as the most important part, since the illustrations have to show a large part of the message of the campaign. For example, dark colours are more often related to a bad situation and bright colours can be linked to happiness and happy situations. You can make a statement with the visuals and of course you will reach different target groups with different visuals.

The illustrations need to be finished first, since in Adobe After Effects (Adobe Systems, 2019) you can separate the shapes of one Adobe Illustrator (Adobe Inc, 2019) file but these cannot be changed afterwards. So the animation is made in parts, scene by scene, first illustrating than animating and so on. There is chosen for a cartoonish animation style with bright colours, to make the animation look appealing and attractive to watch. Darker colours are used in the scenes with bad weather circumstances. Brighter colours are used in the scenes where the solution of the 'Raintower' project is shown and where the benefits for each of the inhabitants are shown. These bright coloured scenes look more appealing, look for example at the beautiful garden in the 'Intratuin' infographic in *2.2.1.1 'Intratuin' campaign*. To make the transition between scenes look smooth and not that obvious, a blue coloured background is used. This background has the same colour as the bottom part of a the background with the sky and clouds, shown in *figure 6.1*.

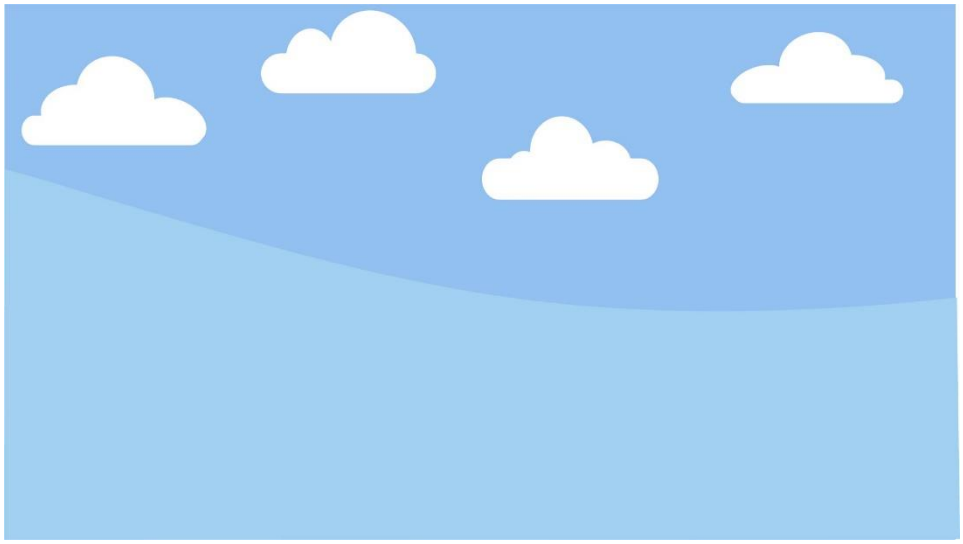

*Figure 6.1: Illustration background animation*

### *6.2.2 Animations*

When the illustrations of the first scene were finished, the animating part started. By watching tutorials of making certain effects and experimenting with these effects the scenes were made one after another. Overall, the animation consists of global transitions between scenes and situations. Some illustrations are animated in more detail to make the animation more active, examples of these detailed animations are shown in *figure 6.2a and b.*

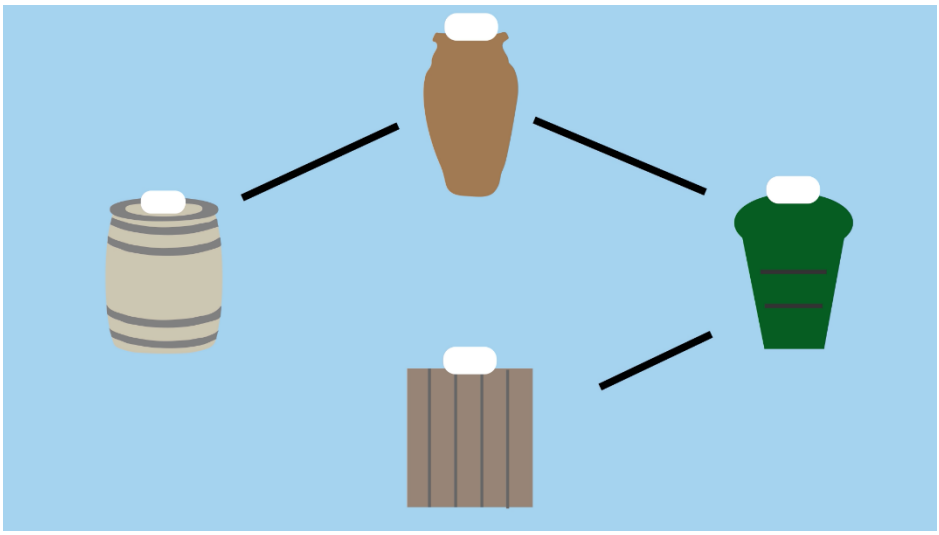

*Figure 6.2a: Screenshot of lines that make the connection between the Smart Rainwater Buffers.*

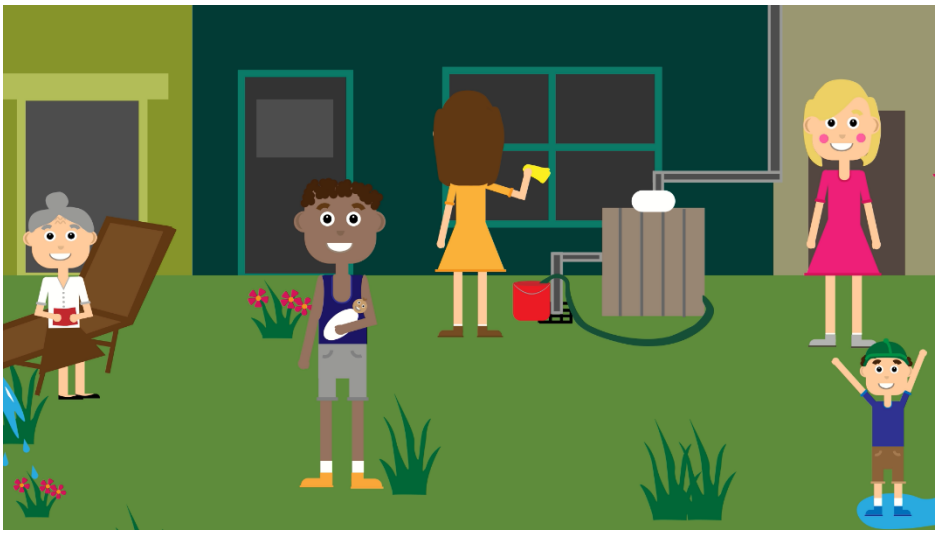

*Figure 6.2b: Screenshot of arm moving up and down that illustrates cleaning windows.*

### 6.2.3 Audacity

The animation video cannot fully be understand without telling the user the message. To make sure the message of the animation video is clear a voice-over will tell the story. The script of the voice-over is shown in *Appendix E: Script voice-over and subtitles.*

Furthermore, there is chosen to use light, happy background music to fill the parts where the voice-over is silent. Besides, to enrich the animation video different background sounds are used. In the start scene a raindrop sound is used to introduce the video. Also yelling people, thunder and water sounds are used. These sounds will also make the animation more clear, thunder sounds for example makes sure that the animation goes about bad weather circumstances and heavy rainfall.

## 6.3 Development animation video

Different aspect are changed during the development of the final product, since one of the stakeholders constantly checked the animation video.

In an earlier stage of the product there was chosen to use red and green labels, these indicate the level of sustainability. A red label will show the watcher that the street is not sustainable enough in terms of green fields, trees and plants. In the start scene this was illustrated by a red and green square next to each other on the map of Enschede, this means that in one neighbourhood one street is doing well in terms of sustainability while the other is not doing well. Since these labels are shown on a certain location on the map, the inhabitants of that certain neighbourhood can feel offended. This is why this scene is first changed into a growing red stain on the map of Enschede, to illustrate that the whole city is doing bad in terms of sustainability. This changes into a green city when the solution of the Smart Rainwater Buffers is integrated in the city. The comparison between a red street and a green street are gone right now, this means that the scene with the green street can be removed out of the story. This means that the storyline will be a bit different, which is shown in *figure 6.3*.

*Figure 6.3: Alteration of scene 1 and 2*

After discussing again the red stain in the first scene is changed into a blue growing stain, that illustrates that Enschede is not rainproof yet. The red stain is for the viewer hard to link to non-sustainability, that is why there is chosen to change the red stain into water.

## 6.4 Conclusion

With the aforementioned tools the final animation video was completely finished. After getting to know the tools a lot more, the illustrations and animations were made a lot faster. First the illustrations were made, then the animations were made. Most of the animations are transitions between different scenes, there are also some small detailed animations included to make the animation more complete. Furthermore, a voice-over, background music and background sounds are included to enrich the video with the message.

During the development of the animation video the first scene changed, the red and green labels are deleted. These labels are replaced with water, which will represent that Enschede is not rainproof yet.

# 7. Evaluation

In previous chapters the specific requirements are been set up and these in combination with the storyboard and script were the building blocks for the final animation video, which is made in *chapter 6 Realization.* The goal of this chapter is showing the result to the stakeholders, which eventually will be checked by the stakeholders to evaluate whether the final product is a success. This is done by checking if the requirements out of *5.5 Final functional and non-functional requirements* are met.

## 7.1 Evaluation session

As described in the *3.7 Evaluation method*, the evaluation took place in a meeting room with a large screen. The stakeholders were present to check the final animation video. The first reaction of the stakeholders was positive, they were satisfied with the result and it seemed that the final product fits their idea of the 'Raintower' campaign. While discussing the animation video in small scene, some critical comments and positive feedback came up.

At first, the stakeholders were positive about the use of the diverse characters with different characteristics. This makes the animation video accessible for all inhabitants of Enschede, since the inhabitants can identify themselves with the characters out of the video. The first thing that was asked by one of the stakeholders, was a question about the length of the video since this has to be lower than three minutes according to them. The final animation video has a length of 2 minutes and 28 seconds, they looked content with this length. Videos with a length longer than 3 minutes will reduce the attention of the watcher.

Furthermore, some small comments were made on specific visuals such as the transition between the scene with the flood and the characters. In *figure 7.1* you see the transition between these two scenes. It looks like the small flood is changing into a large 'waterfall', which covers all the characters in the scene, this makes the effects of the climate change not realistic.

*Figure 7.1: Transition between flood and character scene*

Another modification that could be made is the 'smart' part of the Smart Rainwater Buffers, this part looks not exactly the same in the video as the 'smart' part looks in reality. In the end scene the Smart Rainwater Buffers will fall on the map of Enschede and this creates a greener city. A comment on this was that it would be better if the SRB's fall in groups on the map, this gives the impression that the neighbourhoods should use more than one Smart Rainwater Buffer otherwise the solution would not create effect in terms of lowering the chance of floods.

## 7.2 Requirement evaluation

The requirements will be checked in the following scheme (*figures 7.2a &b*) to make sure whether the final product will be successful. This is done with the use of the colours explained in *3.7 Evaluation method.*

| **Functional requirement** | **Must** | **Should** | **Could** | **Won't** |
|---|---|---|---|---|
| 1. Voice over of the video in Dutch | x | | | |
| 2. Subtitles of the video in English | x | | | |
| 3. The 'Raintower' logo should be included in the video on the water tower and in the credit scene | x | | | |
| 4. The video should contain only one clear campaigning message: Involve in the 'Raintower' community | x | | | |
| 5. Explain the value of the 'Raintower' project in terms of a network of SRB's and the decreasing effect it has on floods | x | | | |
| 6. Explain the benefits for different individuals/families in a neighbourhood, such as cleaning windows, saving money and the children can play more | x | | | |
| 7. Compare streets to create social pressure, with the use of green/red labels | | x | | |
| 8. Include logos of the University of Twente, waterboard Vechtstromen and municipality of Enschede on at least the credit scene | | x | | |

| | | | | |
|---|---|---|---|---|
| 9. Use the principle *unity* and *liking* of Cialdini in the message of the video by showing that the SRB solution does not have any effect when using it alone | | x | | |
| 10. Make clear that more than one SRB is needed to have impact (less chance of flooding) in a neighbourhood | | x | | |
| 11. Insert the easiness of making climate proof modifications → show that the SRB is a 'Do It Yourself' project | | x | | |
| 12. Avoid discrimination in terms of using different type of characters in the video, a young student, an elderly couple, a young couple with a baby and a family with two young children. The man of the young couple with the baby is from Africa. | | x | | |
| 13. Include ladybug from "What's in it for me?" campaign to give the whole campaign a recognizable object | | | x | |

*Figure 7.2a: Functional requirement check*

| **Non-functional requirement** | **Must** | **Should** | **Could** | **Won't** |
|---|---|---|---|---|
| 1. The type of campaigning is an 2D animation video | x | | | |
| 2. Length of the animation should be below 3 minutes | x | | | |
| 3. Make no promises about flood prevention, since it only lowers the chance of flooding | x | | | |
| 4. Bright coloured animations when discussing the positive impact of the SRB solution | | x | | |
| 5. Animation style not necessarily linked to previous animation | | x | | |
| 6. Use SFX to create a more dramatic effect, for example water sounds | | x | | |

| | | | | |
|---|---|---|---|---|
| 7. Use grey toned colours to emphasize on negative effects of climate change, such as heavy rainfall and floods | | | x | |
| 8. Use realistic animations, for example different realistic rainwater buffers should be translated into an illustration | | | x | |
| 9. Entertain the users with a kind of humour by showing different happy characters. | | | x | |
| 10. Use green/red labels from GroenBlauw Enschede, to give an indication of how sustainable each street/neighbourhood is | | | x | |

*Figure 7.2b: Non-functional requirement check*

In *figures 7.2a & b* you see the final functional and non-functional requirements again, these are now checked if they are met in the final product. As you can see in *figure 7.2a*, most of the functional requirements are met except for requirement 7 and 13. As mentioned *in 6.3 Development animation video* the comparison between streets and their green and red labels are removed from the video, because it is for the watcher difficult to relate the red label to non-sustainable behaviour. The social pressure factor is still used in the video, since in the voice-over is told that there is need for your whole street to use a Smart Rainwater Buffer, otherwise the chance of floods would not be lowered in your street. According to requirement 13, a 'ladybug' could be included in the video to give the different campaigns a recognizable object. However, the "What's in it for me?" campaign is still in development and the iconic 'ladybug' is still changing, there is chosen for not using it in the "What's in it for us?" campaign video. The easiness of making climate change modifications is a bit shown in the video, the fact that you can buy a rainwater buffer in your own style illustrates that this solution is easy to insert in your own garden. Furthermore, there is not focussed on 'Do it yourself' of the Smart Rainwater Buffer, therefore this requirements is coloured in orange.

The non-functional requirements are also checked with the final product, these are shown in *figure 7.2b*. In this figure can be seen that the requirements 7 and 10 are not used in the video. There are darker colours used to emphasise the negative effects of the climate change, grey-toned colours would not fit the style of the animation video. As mentioned above, the green and red labels are removed from the video since these could not be linked to the correct meaning of the labels, namely sustainability and non-sustainability.

## 7.3 Conclusion

In this chapter the final product is evaluated by the use of a meeting with the stakeholders and checking the requirements. Overall the representatives of the stakeholders were satisfied with the result, it seems that this campaign would perfectly fit into their ideas of the 'Raintower' project campaign. Some requirements are not fully complied with the final animation video, but these are not the most important requirements. The comparison between streets with green and red labels is removed, this is of course discussed with the stakeholders beforehand.

# 8. Conclusion

In this chapter there will be concluded whether the formerly mentioned goal is achieved. Furthermore, there will be shown to what extent the research question stated in *1.3 Research question* can be answered. In addition to that options for future work will be discussed.

## 8.1 Conclusion

The goal of this graduation project was focussed on creating a rainwater buffering campaign to be executed in Enschede. Its' aim is to first create awareness for the rainwater management problems and second to convince the inhabitants within their communities to involve in the 'Raintower' project. This campaigning focusses on the question: "What's in it for us?", which is focussing on the benefits of using a rainwater buffer for the community, in the campaigning video there is chosen to use a street as community. Therefore the following research question was stated as: **"How to develop an online campaign to create a 'Raintower' community?"**.

An cartoonish 2D animation video with a voice-over is realized to create and expand the 'Raintower' community. The message of this campaign is developed by the retrieved background information, from the literature and stakeholders. Out of this retrieved information can be concluded that social pressure should an important factor in the message of this campaign, since social pressure is one of the factors that can influence consumer behaviour (Turner, 1991). People continuously compare themselves with others and their behaviour. The social pressure will become higher when they see their neighbours with their green gardens. People will easier follow this behaviour when they see it within their communities. So, social pressure is used in this campaign by showing in the animation that the chance of floods only will be lowered when your whole street is using a Smart Rainwater Buffer.

By continuously discussing the development and goal of the campaign with the stakeholders the final animation was finished. Eventually, the final animation video is evaluated with representatives of the stakeholders, the municipality of Enschede, waterboard Vechtstromen and the University of Twente. To conclude, these stakeholders were overall satisfied with the result and the municipality of Enschede seemed interested to use the final product as campaigning tool. However, some minor flaws need to be changed to let the campaign perfectly fit the ideation of the stakeholders.

## 8.2 Future work

As mentioned before, the stakeholders were satisfied with the result and they want the use the campaign in the near future. Therefore some small changes in the campaign need to be fixed. In

*7.1 Evaluation session* some changes are already mentioned, such as the transition between the flood and the character scene which still looks as a sort of 'waterfall', which is not realistic. Also the barrels that will fall on the map of Enschede, need to fall in groups to emphasize that there is need for more than one Smart Rainwater Buffer user in the neighbourhood to lower the chance of floods. The other changes that have to be made are simple design changes in the illustrations, such as colours and shapes that need to be changed. There is an opportunity to improve the animation video with the use of the feedback in the future, this to make sure the animation video is ready to be spread in a few months.

Since this campaign is focussed on the question "What's in it for us?" it should be spread towards a certain target group. This makes it more difficult to use the campaign in other cities. In addition to that the campaign uses a map of the city of Enschede, so changes have to be made before this campaign could be used in other cities in the Netherlands. It would be nice if the campaign can be used in other cities and countries.

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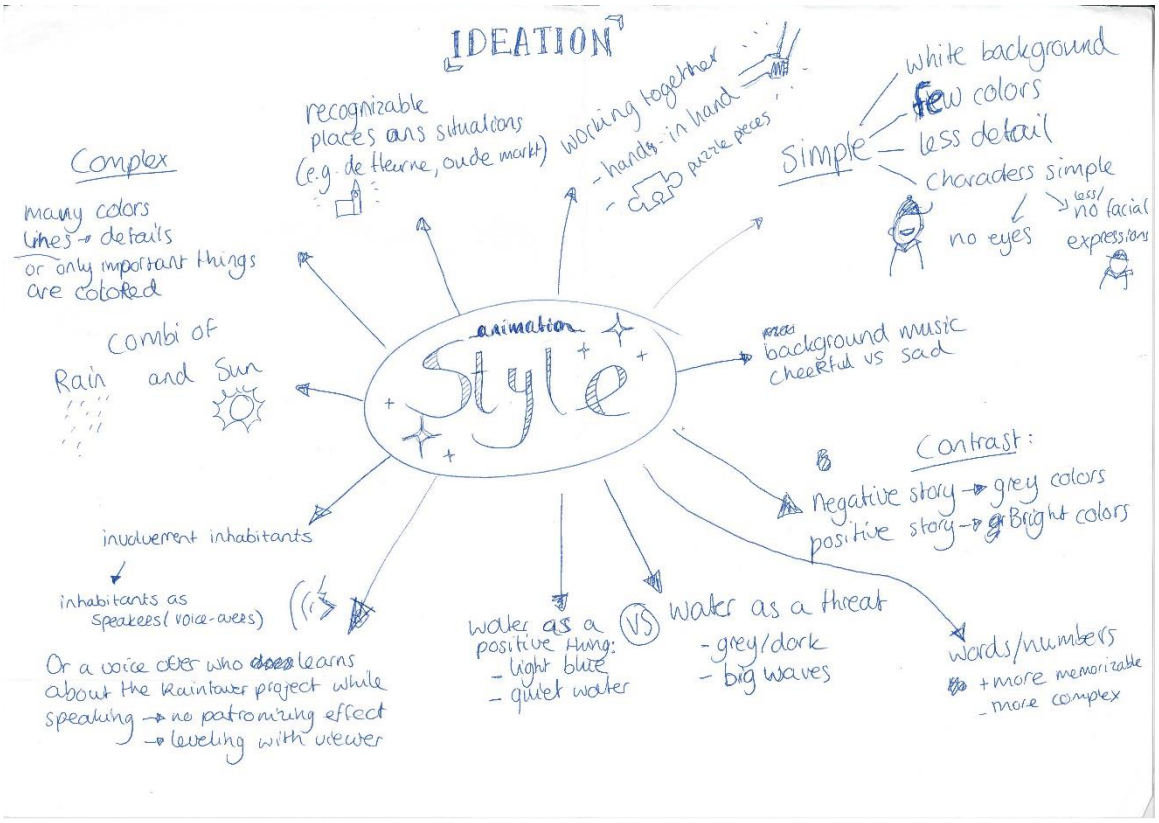
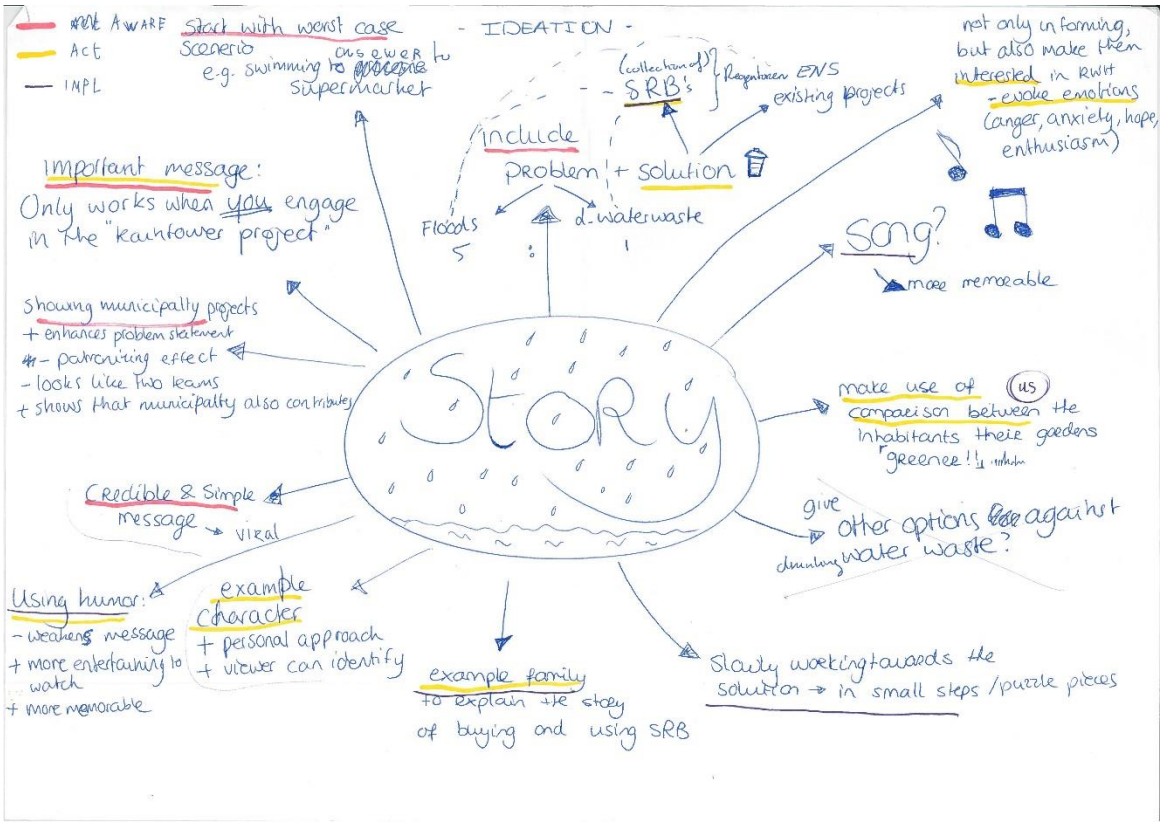
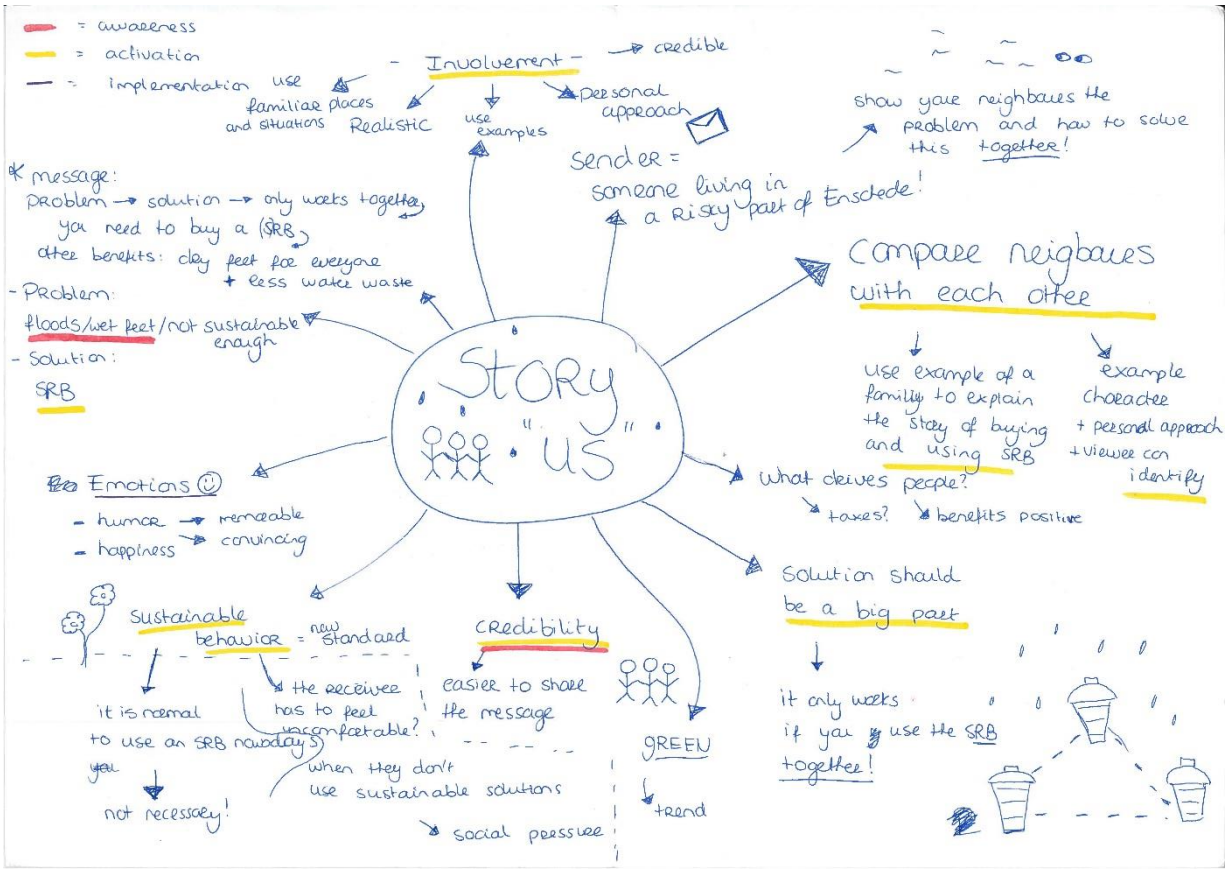
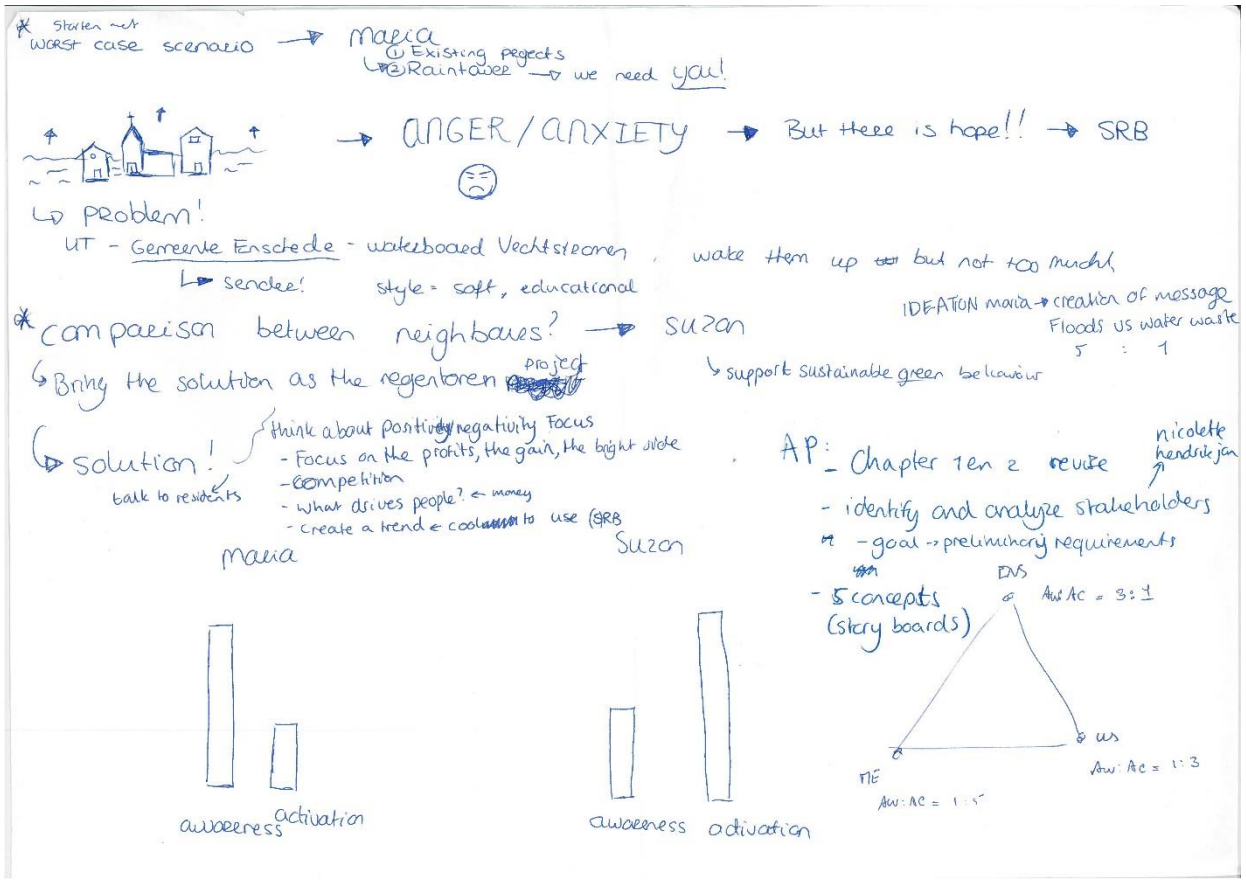
# Appendices

## A: Brainstorm ideation




= awareness
= activation
= implementation
- Involvement -
credible
familiar places and situations
Realistic
use examples
personal approach
show your neighbours the problem and how to solve this together!
sender = someone living in a risky part of Enschede!
* message:
problem → solution → only works together
you need to buy a (SRB)
other benefits: dry feet for everyone + less water waste
- Problem:
floods/wet feet/not sustainable enough
- Solution:
SRB
Compare neighbours with each other
use example of a family to explain the story of buying and using SRB
example character + personal approach + viewer can identify
STORY "US"
Emotions
- humor → memorable
- happiness → convincing
what drives people?
taxes?
benefits positive
Solution should be a big part
it only works if you use the SRB together!
Sustainable behavior = new standard
it is normal to use an SRB nowadays
you
not necessary!
the receivee has to feel uncomfortable?
when they don't use sustainable solutions
social pressure
Credibility
easier to share the message
GREEN
trend


* Starten met
worst case scenario → Maria
① Existing projects
② Raintower → we need you!
ANGER/ANXIETY → But there is hope!! → SRB
↳ problem!
UT - Gemeente Enschede - waterboard Vechtstromen
↳ sender!
wake them up but not too much!
style = soft, educational
* comparison between neighbours? → Suzan
IDEATION Maria → creation of message
Floods vs water waste
5 : 1
↳ Bring the solution as the regenboren project
↳ support sustainable green behaviour
↳ solution!
think about positivity negativity Focus
- Focus on the profits, the gain, the bright side
- competition
- what drives people? ← money
- create a trend ← coolness to use (SRB
talk to residents
Maria
Suzan
AP:
- Chapter 1 en 2 revise
nicolette hendrikjan
- identify and analyze stakeholders
- goal → preliminary requirements
- 5 concepts (story boards)
DVS
Aw : Ac = 3 : 1
us
TIE
Aw : Ac = 1 : 3
Aw : Ac = 1 : 5
awareness
activation
awareness
activation

## B: Interview topics/questions municipality of Enschede

**Interview municipality of Enschede: Nicolette Hoogeveen**

*General questions:*

- What are your opinions about the "What's in it for me?" campaign?
    - What in this campaign was done well?
    - What could be changed in this campaign?
    - What do you think of the style of the campaigning video?
- What is the required length of the animation video? Should the video consists of certain colours or do you prefer a certain style?
- Are there examples of other campaigning videos available, where the campaign is also communicated towards the inhabitants of Enschede?

*Specific questions "What's in it for Enschede?" campaign:*

- To what extent would you like to see the municipality of Enschede represented in the campaigning video?
- The ideas for the "What's in it for Enschede?"-campaign tend to very educational ones with no personal attaching stories involved. What do you think about this evolution?
- What do you think about showing the Oldenzaalsestraat (sewerage system and wadi's) and the Roombeek as only existing RWM-projects?
- Do you think there is another way to involve inhabitants in the problem solving? From literature I retrieved that civil participation only works when they are involved from the beginning. Is there another option to let them contribute actively in another way?

*Specific questions "What's in it for us?" campaign:*

- Do you think the target group should focus on people living on top of the moraine or the people living in the lower areas of the city?
- Are there any trends in certain neighbourhoods in terms of solar panels for example? Do people follow up on each other in this type of trends?
- Out of literature research there can be concluded that social pressure influences behaviour. Do you see this social pressure factor neighbourhoods?
- What is according to you the best way to activate the inhabitants of Enschede? Should the message consist of certain emotions, such as anger, anxiety and awe?

## C: Interview topics/questions waterboard Vechtstromen

**Interview waterboard Vechtstromen: Jeroen Buitenweg**

*General questions:*

- What is exactly the contribution of the waterboard Vechtstromen to the 'Raintower' project, why are they contributing?
- What are your opinions about the "What's in it for me?" campaign?
    - What in this campaign was done well?
    - What could be changed in this campaign?
    - What do you think of the style of the campaigning video?
- What is the waterboard Vechtstromen currently doing to lower the pressure on the sewerage system? Are there any solutions?
- Which neighbourhood or group would you pick as a target group? Potential rainwater buffer buyers?

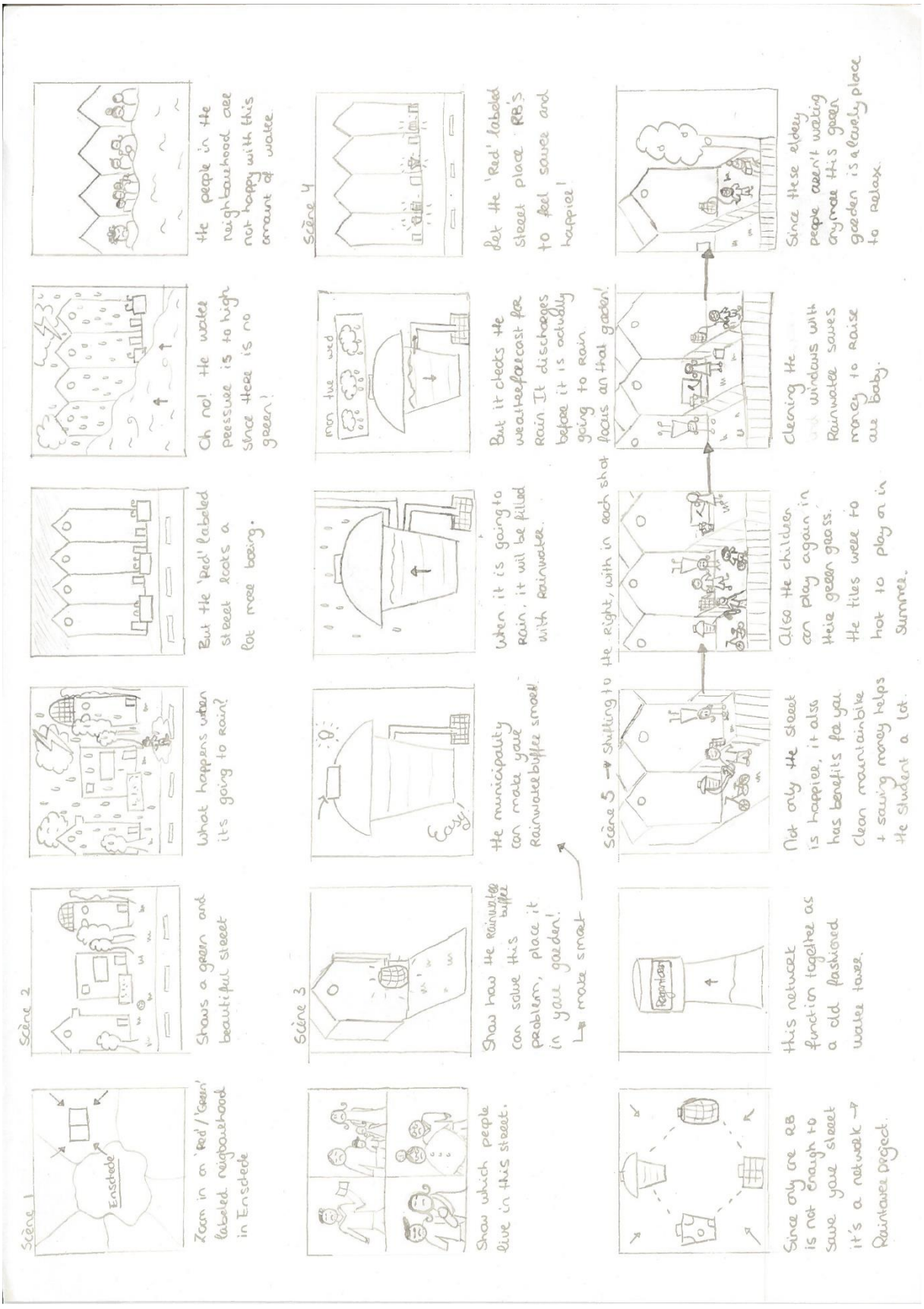
*Specific questions storyboard "What's in it for Enschede?" campaign:*

- Is it clear what message the waterboard Vechtstromen is telling you in this storyboard?

*Specific questions storyboard "What's in it for us?" campaign:*

- Is the story and message of this storyboard clear?
- Is it according to you necessary to show more about the pressure on the sewerage system? Or is this irrelevant in this campaign?

## D: Storyboard

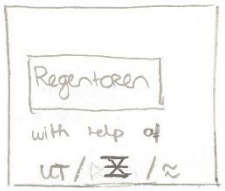


Scène 6


the street is changed to a 'green' labeled street. Zoom in on this neighborhood.

'Green' labeled street, it looks beautiful.

also in times of heavy rainfall this street can survive again!




Credit scene

## E: Script voice-over and subtitles

| Scene | Voice-over in Dutch | Subtitles in English |
|---|---|---|
| 1. Map of the city of Enschede | - Enschede is nog niet regenbestendig. | - Enschede is not rainproof yet. |
| 2. A street in Enschede where the effects of the climate change are shown. | - Het klimaat verandert, de gemiddelde temperatuur stijgt en dit heeft gevolgen voor de regenval, het gaat namelijk steeds harder regenen in een kortere tijd. Dit kan zorgen voor overstromingen.<br>- Dat heeft ook gevolgen voor jullie buurt, maar hier kunnen jullie samen wat aan doen! | - The climate is changing, the temperature is rising and this has consequences for the rainfall. The amount of rain will be heavier in shorter periods of time. This can cause floods.<br>- And that will also have consequences for your neighbourhood. But, your neighbourhood can change that together. |
| 3. Take actions! (Smart Rainwater Buffer) | - De Universiteit Twente, Gemeente Enschede en Waterschap Vechtstromen hebben een oplossing bedacht: namelijk een netwerk van slimme regentonnen!<br>- Deze regenton weet wanneer het gaat regenen en laat voor de voorspelde regenval het water alvast uit de ton lopen, zodat nieuw water weer kan worden opgevangen.<br>- Dit zorgt voor minder pieken in de riolering en zo wordt de kans op overstromingen kleiner, maar alleen als jullie buurt een regenton in de tuin neemt! | - The University of Twente, the municipality of Enschede and the waterboard Vechtstromen came with a solution: a network of smart rainwater buffers.<br>- This rainwater buffer knows when it starts to rain and discharges water before it is actually going to rain. To make sure that new rainwater can be stored in the rainwater buffer.<br>- This lowers the pressure on the sewerage system and this will lower the chance of floods. Only if your whole neighbourhood uses a rainwater buffer. |
| 4. 'Raintower' project | - Alle slimme regentonnen in de straat vormen samen een netwerk, dit netwerk staat bekend als de regentoren, een moderne versie van een watertoren. Ze slaan water op tijdens regenbuien en leveren regenwater tijdens periodes van droogte. | - All smart rainwater buffers in the street are connected in a network. This network is known as the 'Raintower',<br>the modern version of a oldfashioned watertower. These towers store water during rain showers and these provide rainwater in periods of drought. |

| | | |
|---|---|---|
| 5. Benefits local residents | - Het water in de slimme regenton kun je voor heel veel dingen gebruiken! Kijk eens naar deze ouderen, zij genieten in hun groene tuin van de bloemetjes op een zonnige dag.<br>- Met het water in de ton kun je de ramen van je huis wassen dit scheelt drinkwater en natuurlijk geld.<br>- Ook de kinderen kunnen lekker spelen in een groene tuin!<br>- Als fanatiek sporter kun je je mountainbike schoonmaken met het water uit de ton. | - The rainwater out of the buffer can be used for a lot of purposes. Look at this elderly couple, they are enjoying their green garden and the flowers on a sunny day.<br>- The windows of your house can be cleaned with rainwater out of the buffer. This saves drinking water and money of course.<br>- Also the children enjoy playing in the green garden.<br>- As enthusiastic cyclist, you can clean your bike with rainwater out of the buffer. |
| 6. Green city | - Zien jullie dat, door de vergroening en de regentonnen in jullie tuinen is Enschede beter voorbereid op het veranderende klimaat.<br>- Niet alleen de regentonnen maar ook de wadi's zorgen ervoor dat de kans op overstromingen minder wordt wanneer het hevig regent.<br>- En dat zorgt voor een droge en blije buurt! | - Look at this, the greener gardens and smart rainwater buffers in your gardens make Enschede better prepared for the changing climate.<br>- Not only the rainwater buffers, also wadis lower the chance of floods in times of heavy rainfall.<br>- This results in a dry and happy neighbourhood. |