The Frisian dykes and their touristic and recreational offers

Research Report

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This report deals with the possibilities for touristic and recreational development on the Wadden Sea coast of the Dutch province of Friesland. The topic is approached against the background of possible dyke reinforcements which might become necessary in future years. The data on this topic were collected by conducting three interviews with stakeholders responsible for or influenced by these changes. In addition 70 questionnaires were handed out to respondents who are using the dykes for touristic or recreational purposes.

Results of the research show that a complete reinforcement is not planned so far. Still, the people using the dykes have a certain demand for new developments in this field and are not completely satisfied with the current state. It also becomes clear that the possibilities for touristic improvements in the dyke area are limited in many ways. The protection is the main purpose of the dykes and interventions risking the safety are stopped by existing laws.

Concluding it can be said that there is a potential for further touristic and recreational improvements in this area. Stakeholders and people using the dykes, all have a certain interest in new developments. Nevertheless, these changes can only be limited to small developments, building up on already existing tourist activities. Furthermore, stakeholders have to improve their cooperation in order to work towards a common goal.
Coastal regions everywhere in the world are used for tourism to a large extent but at the time also depend on this industry in many ways. The Dutch coast is no exception. A number of beaches and touristic facilities can be found, especially along the western coast as well as around the Ijsselmeer. Looking at the Wadden Sea coast in the Province of Friesland the situation is a little different. This most northern part of the Dutch coast is completely protected by a line of dykes and offers a flat and natural landscape in most areas, many of them used for agricultural purposes. Beaches or other facilities, attracting visitors on a large scale, are mostly not given there. This raises the question if there are any areas of improvement, increasing the attractiveness of the coast for visitors but also for the locals living there. One opportunity for that could be structural changes of the dykes which might become necessary in the future.

Due to the climate change and the resulting predictions regarding the rising sea level, experts are considering alterations in the dyke’s structure in the future. When this situation occurs it would mean that large changes become necessary. This situation could then also be used to think about further functions of the dyke. An integrated approach is discussed on many levels. This would mean that such reinforcement will not solely focus on the safety purpose of the dykes but also on further aspects like the development of touristic and recreational functions and facilities. Still the main purpose of the dykes, which is the prevention of flooding, should remain the focus. Besides being necessary for the safety of the region this kind of coastal defence also mainly influences the appearance of the Wadden Sea coast. Because of that, considering aspects like tourism could become an advantage for the region.

Compared to the German Wadden Sea coast which offers a similar landscape, recreational and touristic use of the Frisian mainland is rather low. Most tourists coming to the area are visiting one of the islands. The different use of the dykes can be one reason causing this development. Hence, Friesland is not using its full potential for attracting more visitors so far. Increasing the numbers would bring financial benefits to the whole region and have positive effects on the economy. Furthermore, improving the attractiveness of the coast is also positive for the locals. Therefore, it is the aim of this research project to find out what can be done to increase the attractiveness of the dykes and their surroundings for visitors.

So far the plans concerning such reinforcement are still on a theoretical basis and no decisions are made. Nevertheless, this might become an interesting and important topic for the region in the future, especially considering the touristic success on the German coast.
Some similar developments are potentially possible in Friesland and this research aims at taking these in order to move in this direction. To do that, the following problem statement was formulated:

*In which ways can the planned reinforcement of the dykes at the coast of Friesland be used to improve the recreational and touristic attractiveness?*

As a result, four sub questions were made which are supposed to help answer the problem statement and lead through the research. Starting, the group focuses on the current situation and the offers for visitors coming to the dykes. As a second step the already existing plans as well as interests of the stakeholders are analyzed. After that, further primary research is done to collect information about the wishes and interests of the people using the dykes for touristic and recreational purposes. Finally, limitations and other factors influencing the possible developments are also taken into account.

Doing the mentioned primary as well as secondary research offers the possibility to define the gap between the plans and ideas of the stakeholders and the wishes of the potential tourists as well as locals coming to visit the dykes. The information and data resulting from that research can then help to adapt the plans and improve them according to the demand of the visitors. It also shows if, and in how far a touristic development is desirable for the region.

The detailed research process as well as information about the gathered results are described in the course of this report.

Following this introduction a literature review is presented. In this review, different secondary sources connected and relevant to the research are presented and analyzed in a critical way. After that, the part "Issues for investigation" describes the problem statement and also the research questions in more detail. In addition, the theoretical framework of this report is described. For this, the whole scope of aspects influencing the research topic is explained and also presented in form of a graph.

The next step is the description of the research methodology. Therefore, the steps taken during the research are described separately for each research question. This includes aspects like the methods and instruments used for each question but also the ways of sampling and analysing the found information.

Following the description of the methodology the actual results of the research are presented and analysed. This means that the information found are interpreted, linking them with secondary information used for the literature review.

Finally, conclusions are drawn out of the research results. These do then lead to recommendations providing guidance for future developments.
As a final part, the sources used in the report as well as appendices are attached. These include additions to the report like the interview schemes used. The appendices can add to the understanding of the information presented.
As Nicholls (1998) states, large parts of humanity are living in coastal areas and the number is likely to increase further. It is therefore important to secure these growing populations and protect the coastal areas against threats such as erosion or flooding. Nevertheless, responses and ways of dealing with these problems are different from region to region (Nicholls, 1998).

All along the Wadden Sea coast of the Netherlands and Germany dykes are visible as a protection from flooding. Oosthoek (2009) describes, that a similar form of coastal defense has been existing for centuries but the Dutch dykes, as they are visible today, are a result of a flood that hit the west coast of the country in early 1953. This catastrophe brought a lot of destruction and left more than 1800 people dead. Following this event, the government presented the “Delta Plan” which included the reinforcement of the country’s dykes. These now had to be built according to certain standards in order to increase the safety of the regions located near the water (Oosthoek, 2009). With around 10 million people living in the coastal areas this topic is still important for the Netherlands but Nicholls (1998) concludes that the vulnerability of the country and Europe in general is rather low. He argues that the investments in the past and the long history of dealing with this topic have prepared Europe for future developments.

Nevertheless the situation has changed and should be evaluated seriously. The climate change leads to a rising sea level and this development is expected to accelerate further in the future (Nicholls, 1998). Current standards might not be enough in the future. Due to the climate change, the Dutch government is already considering further reinforcements for the years to come. As mentioned in the 2010 coalition agreement the protection against the water “will remain a core government task” (Government of the Netherlands, 2010, p.38).

Among other actions these plans include the improvement of the dykes as well as the strengthening of coastal defences (Government of the Netherlands, 2010).

Testing the strength of the dykes can help to prepare for future scenarios. An example for that are tests with a wave overtopping simulator which were also carried out in Boonweg in the Province of Friesland. These can show how the dykes would react when large amounts of water come over the top going down the inner slope (Hardemann et al., 2009).

Responsible for matters dealing with water and coast safety in the province is Wetterskip Fryslan. The water authority has the main tasks of managing the water quality and quantity in Friesland (Wetterskip Fryslan, 2011). Furthermore, they are also responsible for maintaining flood defences. As stated on the organization’s homepage it is of high importance for the
The Zuidplaspolder which is the lowest point of the country is situated seven metres under the sea level (World factbook, 2011).

Discussing these not yet specified improvements an integrated approach is often mentioned. According to dictionary explanations the term integrated can be described as "combining something to form a whole" (Wordreference, 2011). Applying this to the dykes, it can be understood as an approach which does not only consider the protection of the land, which is the main purpose of the dykes. Furthermore, such an approach would also include other aspects and look at the reinforcement from other angles.

Using the example of the English coast, Defra (Department for Environment, Food and Rural Affairs) describes an integrated approach towards management of coastal zones as a more holistic and sustainable approach. This would mean combining different interests in a better way. A balance between considering social and economic interests as well as the impacts on resources and the nature has to be maintained (Defra, 2006). This can for example also include aspects like the recreational and touristic use of the dykes which is the main focus of this report.

When taking a closer look at these aspects it is first of all interesting to define them in order to understand the similarities and differences between tourism and recreation. Different definitions can be found but Williams (2003, p.4) states that the term recreation is "most commonly connected with the idea of activity". Pigram (1983, p.35) for example describes recreation as an "activity voluntarily undertaken, primarily for pleasure and satisfaction, during leisure time". Defining tourism on the other hand, Williams (2003, p.4) states that it "involves recreation, but [é ] also embraces other areas of behavior and interaction". Considering this, tourism includes a variety of aspects and is not limited to a certain activity. Nevertheless, activities considered as recreation might well be part of tourism or a tourism experience. According to the World Tourism Organization tourism "comprises the activities of persons travelling to and staying in places outside their usual environment" (quoted in Lickerish & Jenkins, 1997).

Dealing with the development of the dykes in Friesland in particular, it is obvious that tourism and recreation have not mainly been the focus when planning the structure of the dykes. Regarding the nature, the area has a lot to offer. Since 2009, the Wadden Sea is part of the UNESCO World Heritage list due to its unique landscape and special animal and plant species (Wadden Sea World Heritage, 2011). The website Holland.com describes Friesland as the perfect place for water sports. The province does not only have the coast but also...
largest chain of connected inland lakes in Europe (Holland.com, 2011). Furthermore, it is also stated that the region is a good destination for biking and hiking due to its landscape.

These information demonstrate the attractiveness of the Dutch coast but still the German coast has far more offers attracting visitors to spend time on and around the dykes. Using the example of the German Dollart coast, Dröge (2011) mentions aspects like resting places, walking paths and information signs as main advantages compared to the Dutch coast. Furthermore he also states that the accessibility and parking possibilities next to the dykes are much more frequent and better developed. Another example from Germany is a pilot project at the Nessmersiel on the Wadden Sea coast. As ComCoast (2007) explains, this area has also developed a “comprehensive coastal defence” which covers other interests besides protecting the coastal region. They describe that there are several possibilities for recreation developed. Examples given include an especially made recreation zone which offers a marina and an artificially created beach to make the coast more attractive for visitors. Such projects could be taken as example for possible developments on the Frisian coast.

Concluding from data, given in a quality status report on tourism from 2009, it can be said the main touristic focus is on the Frisian islands rather than on the coast of the mainland. Brandt states that 4.4 million out of the 13.5 million total overnight stays in the regions (Provinces Friesland and Groningen) in 2007 were in accommodations on the Frisian islands. This of course does not include day trippers which are also important for that region but it gives a first good impression of how the touristic attention in the region of Friesland is divided (Brandt & Wollesen, 2009). They also compare the average daily spending of visitors to the ones in Germany and Denmark. With 26.60 Euros per day the daily spending in the Netherlands is far below the ones measured for the regions in Germany and Denmark. In Denmark the average amount spent is at 54 Euros while the visitors in the German regions spend 67.42 Euros (Lower Saxony) and 73.30 Euros (Schleswig-Holstein) (Brandt & Wollesen, 2009). This cannot give an exact explanation for the reasons causing this large gap but it can be assumed that the other regions offer far more facilities for the visitors. Despite having the aim of attracting more visitors with the dykes, possible negative effects have to be kept in mind. Earlier reinforcements have already damaged parts of the landscape. Oosthoek (2009) describes that the reinforcement had several impacts which in some cases even lead to the destruction of historical towns. Due to that many people were against the reinforcement program but the responsible parties argued that the safety of the population had to be put first. (Oosthoek, 2009)
The research done for this project is influenced by different aspects and in order to have a satisfying outcome a wide scope of factors has to be considered. This part of the report describes these different factors and the main ideas behind the research as well as the connections among them. After explaining the conceptual framework the focus is put on the problem statement which was formulated by the group in order to guide the research in a certain direction. Furthermore, the research questions which are meant to help answer the problem are explained in more detail. For this purpose, it is described which information have to be collected for each question and in how far these information support the authors in answering the problem statement.

The conceptual framework of the research project which is also shown in the figure below, gives an overview of the factors involved in the topic dealt with. A written description and explanation of the graph is given afterwards.
Looking at this framework one has to start on bottom with the "nature". The climate change, also resulting in a more frequent development of storms and a rising sea level, poses a threat to coastal regions in Friesland but also elsewhere in the world. Considering this not completely predictable future development, the dykes meant to protect these areas on the Frisian coast get into the focus. The changing conditions make it necessary to adapt the dykes so that they are still able to fulfill their purpose.

This means that a reinforcement of the dykes becomes necessary in the near future. When planning this, several players and factors have to be looked at. On one side the interests and wishes of the stakeholders which are involved and influenced by the process have to be heard and taken seriously. These can be governmental bodies responsible for planning developments in that field but also businesses influenced by it. On the other hand it is just as important to consider possible requirements and limitations which might arise when a development plan, so important for this region, is made.

Despite many other possibilities it has to be kept in mind that the protection of the coastal regions in Friesland remains the main and most important task of the dykes. The functioning should not be compromised for other reasons. Nevertheless, possible developments in other fields should also be included when planning this reinforcement. Improvements of the touristic and recreational use of the dykes can be a positive side effect. This potential is also the main focus of the research undertaken for this report. It is explored which developments are fitting for the province of Friesland and in how far they can be realized without endangering the main goals of the reinforcement. The combination of ensuring the safety of the coastal region and improving the attractiveness for visitors as well as locals is the most desirable future outcome of the reinforcement.

After giving this overview of the different aspects involved in this topic the problem statement and research questions developed by the authors are now analyzed more closely. The problem statement for this report, already mentioned in the introduction, is as follows:

*In which ways can the planned reinforcement of the dykes at the coast of Friesland be used to improve the recreational and touristic attractiveness?*
In order to answer this question and cover all aspects involved, four research questions were designed. Each question aims at a different part of the information needed for answering the problem statement in a sufficient way. In the remaining paragraphs of this section the four questions are named and then explained in more detail.

1. What recreational and touristic offers do currently already exist on and around the dykes of Friesland?
2. Which stakeholders are responsible for and/or influenced by the development of the dykes and what are their plans and interests?
3. How do visitors evaluate the touristic and recreational attractiveness of the dykes?
4. What requirements and limitations have to be taken into account regarding tourism development on the dykes?

The first question is meant to be an introduction to the research. By getting an overview of the already existing touristic and recreational offers on the Frisian coast the group gets a good starting point and a basis for the further research. For this, the group evaluates which structures are already there. These information then give the opportunity to look for possible improvements and compare the offers to the ones available in the other similar coastal regions.

The second one deals with the stakeholders involved in the enhancement of the dykes. This of course includes the bodies responsible for planning and implementing the developments of the dykes. Finding out about their roles and looking at possibly already existing plans regarding the dykes makes it possible to predict improvements that might appear in the future. Furthermore, it is also the aim to get information from stakeholders influenced by possible changes. Examples are accommodations as well as restaurants located close to the Frisian dykes. Collecting their views and expectations makes it possible to compare them to the actual plans made for the reinforcement.

Research question three aims at the current touristic and recreational attractiveness of the dykes. For this purpose, the information collected for question one can be used as support for developing the right research method. The opinions of the people already using the dyke areas are the main interest. These can be visitors as well as locals. Besides collecting their opinions about the current state of the dykes in Friesland it is also important to consider their ideas and wishes regarding a reinforcement of the dykes. These can be used to plan the touristic and recreational aspects of the reinforcement according to wishes of the people using them for those purposes.
The fourth and final research question deals with possible limitations and requirements which might have to be considered when planning changes around the dykes.

After having collected information about existing plans and also the wishes of dyke visitors, it has to be considered that not all ideas can be implemented. Not all ideas which seem interesting to the people using the dykes for recreation might be realizable. Examples for that could be laws and regulations regarding nature protection which prohibit certain developments in the coastal area.

By collecting the named information it is the authors’ aim to get an overview of the topics involved. These should make it possible to understand the wishes, plans and limitations concerning this topic and as a result to give recommendations regarding future developments in the field researched.
After describing the content of information each research questions aims to answer in the previous part, the following chapter will now give a detailed overview of the research process used to find these information. This description includes information about the methods and instruments used to gather the data as well as about the sampling process and the analysing techniques. In addition, limitations of this research are mentioned. For a better overview, these information are given separately for each question.

First of all it can be said that the authors use secondary as well as primary research methods to gather the variety of information necessary for this research report.

Looking at question one, a field trip done by the group is the main instrument of collecting information on the current situation on the Frisian coast. Going on this excursion offered the chance to get first-hand impressions by actually experiencing and seeing the touristic and recreational offers. To get a comprehensive overview, different parts of the coast were visited. This includes the city of Harlingen, the ferry terminal in Holwerd as well as several other places alongside the dykes. To add to the information collected with the help of this field trip, secondary research was conducted as a second step. The sources used for this were mostly internet sources since the information found in books on that topic were very limited and in most cases not up to date.

Coming to the second research question the focus was mainly on primary research methods. Secondary sources were again used to start up the work on this question and find out about stakeholders interesting and relevant for this part. Furthermore, stakeholders already known through the field trip were also considered for that task. Due to a limited time frame for this research project it was decided to use interviews, mainly consisting of open questions, to collect qualitative information from the stakeholders. The interviews were semi structured as the questions asked to the interviewees were prepared in advance. Still the possibility was left to go more in detail when needed. Because of that the interviewees had the chance to add more information and for the interviewers it was possible to ask further questions in case they come up during the interview.

As organization responsible for the Frisian dykes, two employees from “Wetterskip Fryslân” were interviewewed. This interview was conducted at the organization´s office in Leeuwarden. Besides getting information from the ones responsible for the dykes, it was also the aim to find out about the interests and the involvement of stakeholders depending on tourism at the Frisian coast.
Due to time problems it was decided to keep the number of interviews low and only visit two stakeholders. Chosen to be interviewed were the camping site "Zeehoeve" in Harlingen as well the restaurant "De Zwarte Haan".

One reason for this decision was the idea to get the opinion from a stakeholder situated in a more frequented place like Harlingen but also from a stakeholder located in the country side of Friesland. For the latter, "De Zwarte Haan" was an appropriate choice since the restaurant is located right behind the dyke but outside of any larger town.

Moving to research question three, the work was completely done through primary research. In order to collect information about the opinions and wishes of the people visiting the dykes a questionnaire was developed in advance. With aid of the information collected before, several questions were put together with the aim of collecting as much quantitative data as possible. In order to keep the time needed to answer the questionnaire short it mainly consists of closed questions but also some open ones.

The population interesting for this research included basically everyone who had been to the Frisian dykes at least once. Therefore, it was not important if a respondent was a local living at the coast or a tourist just visiting the area. It was also not of any importance how many times the respondent had been to the dykes. Since it was difficult for the authors to predict how quickly a certain number of respondents could be reached no maximum number of questionnaires was fixed before starting the research. Due to the previously mentioned time limitations it was decided to choose one day on which the questionnaires were handed out to people walking the dykes in Harlingen. This spot directly on the dyke had the advantage that all persons approached definitely belonged in the aimed population. Therefore, any person willing to answer the questionnaire could be used as a respondent. This research resulted in 47 filled in questionnaires. A limitation of handing out the questionnaires in Harlingen was the focus of the respondents on the situation in the city. Even though the scope of the research was explained to each respondent before filling in the questionnaire it became obvious that many of the people asked only considered the local situation and not the general situation on the Frisian coast.

Since this number was not satisfying for the project a second approach was to prepare an online version of the questionnaire. A link leading to this questionnaire was then sent to a number of people via Facebook. For this purpose a short explanation was included giving the same information as the people in Harlingen received. Furthermore, a note was included, informing the people that only the ones who had visited the dyke should fill in the information. With the help of the online instrument, information from 23 further respondents could be collected. This then added up a total of 70 questionnaires.
Since the information gathered with this method were completely quantitative they could be analysed with the help of the software SPSS. Specific results and an analysis of the information are visible in later parts of this report.

The fourth and final research question is again answered with a combination of secondary and primary research methods. The main source of information is the interview with "Wetterskip Fryslan" which was also used for research question two. Part of the questions in this interview aim at finding the information needed to answer this final question. Since "Wetterskip Fryslan" is in a way responsible for the reinforcement, they can give valuable first-hand information on limitations and regulations that have to be considered when planning the touristic and recreational development of the dykes. To get some more general information on this topic the internet was again used to collect available secondary data.

The combination of the different methods and instruments previously described is supposed to lead to an answer to the problem statement of this research. A detailed analysis of the results as well as the conclusions resulting out of the information can be found in the following parts of the report.

In addition, the questions used in the three interviews as well as an example of the questionnaire and an outline of its results are added to the appendix.
This chapter presents the results collected during the previously described research activities. Information gained through different primary and secondary techniques are displayed in an objective way. Therefore the data and information collected are presented and analysed, also by linking them to each other. To show the findings in a clear way, information are given separately for each research question. This means that the chapter consists of four parts, each one dealing with one of the questions.

‘What recreational and touristic offers do currently already exist on and around the dykes of Friesland?’

In order to collect information about the offers currently forming the touristic and recreational picture on the Frisian coast, the field trip done in the beginning of the research phase was used a main source. Visiting different coastal areas in the province, the group could get a good impression of the aspects and offers available.

In general it became clear that the Frisian coast does not have the offers to attract mass tourism but that is also not the aim. During the summer, going to the beach is only possible in Harlingen since this is the only beach on the Frisian Wadden Sea coast, at least on the mainland. In addition, this beach is rather small and not as attractive as the ones found on the close Ijsselmeer. This is also supported by the questionnaire results presented later on.

For real beach tourism Friesland can offer its islands which can be reached using the ferries departing from Harlingen and Holwerd.

The coast on the mainland still has a flat and nice landscape good for biking and hiking. The visitor’s interest in these activities becomes clear when reading the results of the questionnaire. Some bicycle routes exist also partially leading along the dykes but this offer could be increased. Different routes can be found online along with descriptions of the scenery on the way. They can be selected according to their length and lead through coastal areas but also other parts of the province (fietspad.nl, 2011). Nevertheless, information found on this topic could be updated and increased as discovered during the excursion.

Walking right on the dykes is possible and allowed everywhere but proper walking paths were only visible in Harlingen. Considering the situation in Germany this aspect could be improved making other parts of the coast more attractive. This way only the spots offering special facilities are in the focus of people using the dykes. Sitting options in form of benches existed but were limited to the city of Harlingen and some other specific spots which are
Outside of Harlingen the Frisian coast offers the salt marshes with different bird species. This is one aspect attracting birdwatchers to the region. At some spots it is also possible to walk into this area. The website birdsnetherlandsö(2011) describes the Province of Friesland as a "very good birding destination." Every season offers different species and there are also guided tours offered to visitors interested in this activity (birdsnetherlands, 2011).

Since there are not many actual towns right behind the dyke, facilities are also limited. Some restaurants could be found attracting more visitors to certain places. The restaurant De Zwarte Haan interviewed for this report is an example.

Regarding information provided to the people coming to the dykes the group could only make out some examples. Besides the bike routes that were already mentioned, signs could be found at some spots. These were for example connected to certain monuments which could be found at some spots on the dykes. There was also a box at some locations which was supposed to contain flyers. Unfortunately it was empty at the time of the field trip.

‘Which stakeholders are responsible for and/or influenced by the development of the dykes and what are their plans and interests?’

As described in the methodology, information for the second research question were mainly collected through primary research. More precisely, this was done by interviewing three stakeholders involved in or affected by the dyke changes.

The first aspect important for the research was to find out about existing plans regarding the reinforcement mentioned in the initial task. This meant that a stakeholder responsible for this had to be determined and contacted in order to get first-hand information on this topic. Through information from the group’s supervisor, Wetterskip Fryslanö (Waterboard of Friesland) was then determined to be the main player responsible for aspects concerning the dykes in the Province of Friesland. As first step, basic information were collected with the help of the Wetterskip Fryslanö homepage.

This already revealed that Wetterskip is an independent organization belonging to the Dutch government. Responsible for all matters concerning water, their main tasks include the three aspects of flood protection and managing water quality and quantity. Having this information it was already clear that Wetterskip was the right choice for this task. They were clearly responsible for matters concerning the dykes and it was therefore decided to just focus on an interview with this organization.
An interview appointment was made with two employees from Wetterskip who were responsible for technical aspects as well as developments regarding the dykes. This interview, which can be found in the appendix of this report, was held on 1 November and lasted for about an hour.

This first aspect which was not as expected was the information that there is actually no such reinforcement planned so far (Jacobs & Vogelzang, personal communication, 1 November, 2011). The employees explained that Wetterskip uses a periodic system for testing the conditions of the Frisian dykes. All dykes are inspected every six years and resulting from these regular checks it is decided which actions have to be taken in order to maintain a good condition (Jacobs & Vogelzang, personal communication, 1 November, 2011). As the Wetterskip employees described, these reparations are mostly small and limited to certain parts on the outer slope of the dyke. As stated before, this information was not given to the authors in advance and the research was to a certain extent build on the idea that a complete reinforcement of the dykes was already planned. Nevertheless, it was also stated that such action might become possible in the future. Wetterskip Fryslan keeps track of the developments on the coast which includes the change of the sea level and other natural influences (Jacobs & Vogelzang, personal communication, 1 November, 2011). This shows that the ones responsible are prepared to act in case the situation changes. Possible consequences of events like flooding were explained in the beginning of this report. So far there is no eminent risk but if a threat is predictable further reaching actions would also be taken into account. Changes in the structure of the dyke like for example a heightening could then become an option in the future (Jacobs & Vogelzang, personal communication, 1 November, 2011).

Talking about Wetterskip’s main focus when dealing with changes of the dykes it was clearly stated that, no matter what is done on and around the dykes, the protection of regions near the water has to remain the main task of the dykes. They added that they also think about an integrated approach when planning fundamental changes. They are open for any idea as long as the safety is guaranteed and no threat is posed to the proper functioning of the dyke. Approached concerning the topic of this report it was explained that improvements of the touristic and recreational attractiveness can only be seen as a secondary purpose of the dykes. This aspect is considered in Wetterskip’s plans but funds are limited. Hence, investment possibilities in tourism from their side are also limited. According to the employees further investments of stakeholders profiting from new developments would be necessary to support that. The willingness to do so was shown by the stakeholders interviewed who already try to keep their own business as attractive as possible.
They added that too much touristic development is also not desirable for the coast since it might affect the visitor’s perception of the area in a negative way. From their experience the attractiveness of the Frisian coast is mainly resulting from the nature visible and too many new developments on the coast could destroy this image. Therefore touristic development should be limited to small changes and built up on the already existing tourist activities (Jacobs & Vogelzang, personal communication, 1 November, 2011). Examples mentioned by the two employees include the improvement of bicycle tourism by developing new guided bike paths. As described when answering question one, biking is a popular activity in this flat area. Improving the signage can therefore add to the experience.

Having these information a certain frame of possibilities was already clear. Adding to the attractiveness for people coming to the coast is an interest of Wetterskip as the responsible organization. Still, fundamental changes will not happen since the atmosphere and the landscape offered in this part of the Netherlands should not be affected too strongly.

As second part of this question it was also the group’s aim to collect opinions from stakeholders influenced by these changes. Like explained in the methodology the restaurant “Zwarte Haan” in a more rural location and the campsite “Zeehoeve” in Harlingen were chosen for this purpose.

The first interview was conducted at the campsite with Lammert Kleefstra, the manager of the facility. He described that from his point of view it is of course desirable that the government invests in further touristic development. For the business this can be an advantage bringing more people to the area (Kleefstra, personal communication, 28 October, 2011). Nevertheless, he thought that no real changes will come in the near future but rather the businesses themselves had to invest in attracting the people. From the government, in form of a responsible organization like Wetterskip, they have not received any information or been involved in planning processes (Kleefstra, personal communication, 28 October, 2011). This corresponds with the information given by the Wetterskip employees. Since businesses as the campsite are not actually affected by the changes necessary at the moment they are also not informed about them.

Asked for the actions the campsite takes to attract visitors Kleefstra explained that they permanently try to offer new and interesting facilities. Recently the size of the campsite has been increased and offers like playgrounds are renewed annually (Kleefstra, personal communication, 28 October, 2011). He explained that these actions make it more interesting to come there. Especially frequent visitors can profit from changing facilities.
would like to have more visitors. The site is only open from April until October since visitor numbers during the colder period of the year would be too low. The interviewee described that his guests were mostly from the Netherlands and Germany but parts also from countries like France or Spain. Most of them are families or older people and stay only for a short period of time (2-4 days). They use the campsite for example as a stop before going the to the Frisian islands (Kleefstra, personal communication, 28 October, 2011). As already stated these are more interesting for tourism as the coast of the mainland.

Asked for feedback received from the guests, Kleefstra said that most comments regarding the dykes and the coast are positive. Especially the visitors coming from further away are impressed by change between high tide and low tide. The results received from visitors during the questionnaire survey were similar but it has to be taken into account that those respondents were from the region to a large extent.

In his eyes the coast is attractive as well but the promotion could be done in a better way. The Harlingen marketing department should cooperate more with the local businesses since this is more effective than each business only promoting itself (Kleefstra, personal communication, 28 October, 2011).

The second interview at Ŧzwarte Haanò was held with Jacob Jensma, the owner of the restaurant.

As expected, considering the previously collected information, he also stated not to be involved or informed about reinforcements in any way. Nevertheless, he thought that improvements might also be good for his business. He stated that he is pleased with the customer numbers. According to him a lot of people come there since it is close to the dykes and also due to the long tradition and good reputation of the restaurant. The customers are locals coming there regularly but also people biking or hiking in the area (Jensma, personal communication, 28 October, 2011). As noticed for question one, rather empty points behind the dykes become more interesting for people when such a facility is provided. Still the restaurant was almost empty when conducting the interview on a Friday evening. It suggests that there is still more potential for this restaurant being quite far away from any bigger town.

Asked for the actions taken by the restaurant, Jensma said that they try to offer other services besides the regular restaurant activity. They do for example offer room for a few campers behind the restaurant. This way they can attract customers other than the ones just coming to eat or drink something at the restaurant. Another unique selling point is that they offer regional Wadden Sea products.
Those are used in the restaurant but also sold for home use (Jensma, personal communication, 28 October, 2011). The restaurant is especially certified for these products which can be an interesting aspect especially for tourists eating at the restaurant. It shows a certain attached to the region and can add to the value of the business. However, it is still necessary for the people to take notice of the restaurant first.

The owner himself rated the attractiveness of the area as good and supported this statement with the dykes and the nice and unique nature. Comments from visitors he noticed were also positive in most situations. Most of them like the nature and the silence at the location. Questionnaire results support this attitude as presented in the following part. Nevertheless, he also heard negative comments. People not really knowing the area expect to find beaches and other touristic facilities (Jensma, personal communication, 28 October, 2011).

‘How do visitors evaluate the touristic and recreational attractiveness of the dykes?’

After dealing with the ideas and plans of the stakeholders before, the aim of research question three was to take a closer look at the opinions of the people using the dykes for touristic and recreational purposes. Since their opinions are a valuable measure for this research, the questionnaire, already explained in the methodology, was handed out to a total of 70 respondents.

In general the people were mostly willing to answer the questions, especially when conducting the research in Harlingen right at the dykes. Without using any kind of system when choosing the participants of the research the outcome resulted in having 57 per cent female and 43 per cent male respondents. Regarding the age, people from all categories were included in the study while the share of the youngest and oldest age group, under 21 and above 60 years, was rather small. With 84 per cent the main part of the participants was between 20 and 60 years old. Asked for their point of origin a majority of 70 per cent stated to be from the Province of Friesland. This was an expected outcome due to the research location and time of the year which was outside the main touristic season. The other people participating were from the province of Groningen (4.5 per cent), other Dutch provinces (5.5 per cent) and partially also from foreign countries (20 per cent).

What came as a surprise was that 62 per cent of all respondent explained that they visit the dykes only every three months or less while some of them were there for the first time.
Especially considering that 70 per cent of the visitors came from the province of Friesland such a low number of visits could not be expected. This suggests that the pull factor of the dykes is not high enough for parts of the Frisian population.

Nevertheless, there was also a considerable number of people visiting the dykes more regularly. People coming to the dykes several times a week (24 per cent) or at least once a week (7 per cent) were mostly from Harlingen as learned from the conversation with some of the respondents. Further 7 per cent come to the coast at least every two to three weeks.

Regarding the average length of their stay 56 per cent of the people stated to stay less than an hour while 40 per cent stay between one and three hours. The amount of participants staying even longer than three hours is with only 4 per cent therefore relatively low. This suggests that most people visiting the area limit their stay to a certain activity without spending a longer time at the dykes.

This is also supported by the results of question six of the questionnaire since most people could not think of more than one or two reasons for coming to the coast. Even though they were free to give as many answers as they wished only 93 answers were received from the total of 70 respondents.

51 per cent of the answers given can be summarized as being connected to the nature and atmosphere found at the dykes without mentioning any certain activity. Popular answers among these were being at the sea (12 per cent) or enjoying the nice view (9 per cent) and the maritime climate (12 per cent).

Furthermore there were also specific activities that were named by the people participating. Taking a walk for example with 24 per cent was the most given answer. In addition others also stated to come there for activities like sitting on the benches to relax (11 per cent), biking (2 per cent), bird watching (1 per cent) or taking photographs (1 per cent). The low number of people naming biking as a reason to come there can be caused by them not connecting this activity directly to the dykes. Some also named more practical reason for coming to the dykes like taking the ferry to one of the islands (2 per cent) or using the dykes as a meeting point (3 per cent). All in it can be said that the number of reasons named was limited although the answers were grouped in 20 different categories. Most of these described aspects like the nature and the dyke surrounding or activities like walking or sitting on the dykes as the main pull factor.

Asking the people with whom they usually come to the dykes, results for the categories given were quite balanced. It was also possible to choose several of the answer options. The most chosen answer, given by 50 per cent of the people, was going there with friends. 36 per cent of all people also said that they occasionally go to the dykes by themselves.
Coming with the partner (31 per cent) or family members (41 per cent) was also named several times. No real pattern was visible in the answers collected but it can be said that the dykes are definitely a place for socializing and spending time with others.

For improving the attractiveness of the coast and the dykes the accessibility is also a major factor. Because of that another aspect researched with the questionnaire was how the people reach the coast. For this, several options were given from which the respondents could choose as many as they wanted to.

Due to the fact that the research was conducted in Harlingen, talking to many locals, 51 per cent said that they often come to the dykes by foot. This result would have been different if the questionnaire had been handed out further away from the coast. 50 per cent also stated to use the car in some cases to get to the dyke. The number of people using public transport was relatively low with 4 per cent naming train and 10 per cent naming the bus as an option they use to reach the dykes. The bike was mentioned by 24 per cent of all respondents.

Having the chance to rate the accessibility on a scale from one to four, one being the lowest and four being the highest rating, the people’s answers resulted in an average of 2.9. Not offering a neutral choice within this scale, this result has a rather positive tendency. This is also supported by looking at the actual point division.

One, as the worst ranking was only chosen by 6 per cent of the respondents while four, as the other extreme was chosen by 26 per cent. Taking a look at the central results, answers also tend in the positive direction with only 20 per cent choosing to rate the accessibility with two but 48 per cent rating it with three.

Another aspect the respondents were asked to rate is the quality of the information provided on and around the dykes. For this the same rating scale as previously described was used. Giving useful information, especially to the people not coming from the area, these signs can be an interesting feature for tourism.

Comparing the aspect to the previously presented accessibility rating the average result is a little lower. The largest portion of the people rated the information given at the dykes with two or three, each named by 40 per cent. The highest rating was only chosen by 4 per cent of the respondents. At the same 16 per cent of all people gave the lowest rating, many of them not able to remember any information or at least just a very limited number of signs. In average these ratings amount to a result of 2.3. This reveals a rather negative opinion regarding this aspect. This corresponds with the impressions of the group during the preparatory field trip. The information noticed during this occasion were limited to a few signs placed only in certain places.
In addition to the questionnaire, the people were also asked to rate the quality of their overall experience when coming to the dykes. For this, the same scale was used again in order to avoid confusing the respondents with different rating systems. With 50 per cent of the people rating their experience with 3, the average result was also close to that with an outcome of 2.8.

Nevertheless, almost a third of the respondents also chose one of the negative ratings. The experience was rated with 2 by 26 per cent and with 1 by only 6 per cent. The remaining 18 per cent chose the top rating of four points. This reveals that most of the visitors are pleased with the quality of their visit but also that there is still potential for improvement.

To find out what exactly is missing for a better rating, people were then asked for their ideas and wishes regarding possible changes on and around the dykes. Firstly, each respondent was given the chance to choose his or her three most desirable improvement points out of a list of six options given.

The aspect mentioned the most among these six was adding and improving the information signs. 73 per cent of all people mentioned this as one of their answers. This confirms the ratings for this aspect in the previous part. Many people would be interested in getting more information about the area and are not completely satisfied with the current situation.

Other answers also chosen frequently by the respondents are walking paths with 57 per cent, observation spots with 54 per cent and further sitting options named by 47 per cent of the people.

The interest in these rather basic improvements can be connected to the reasons for visiting the dykes. Often reasons were connected to the nature and the landscape as well as the enjoyment of the special atmosphere. Walking paths, sitting options and observations spots can all add to the experience of these factors and improve it further. Gastronomic facilities were named by 41 per cent of the people, which shows that there is a demand for such offers at the dykes. At the moment, such places are rare at the Frisian coast, and new developments in certain places can be an interesting idea. The final aspect of further parking areas was only chosen by 23 per cent of the people and is seemingly not the main point that needs to be improved. Especially in Harlingen, where a considerable number of people might visit the dykes at the same time, a large parking space is provided and also free of charge.

To get further opinions, the final question of the questionnaire offered the opportunity to name further ideas of improvements which were not included in the six aspects described before. Possibly caused by a lack of time and interest when filling in the questionnaire, 67 per cent of the 70 respondents could not think of any further points. This also suggests that many of them have not thought about this before.
This case equalled 23 respondents also only gave a total of two of the people having an answer mentioned more than one idea. Among these answers, the only aspect standing out was the improvement of the beach. Also influenced by the fact that most respondents were interviewed next to the beach in Harlingen 25 per cent out of the answers given were connected to the beach in a way. These answers included the wish for a cleaner beach but also the development of new facilities at the beach. All other proposed improvements are not really relevant for this research since each of them was only named one or two times.

An overview of the information presented is attached in the appendix of the report.

‘What requirements and limitations have to be taken into account regarding tourism development on the dykes?’

The aim of the final research question was to find out about possible factors influencing the planning of changes on the dykes. These can occur in form of guidelines, rules or limitations which are fixed in regional or national laws.

Having previously described the plans of Wetterskip Fryslan and the ideas and suggestions of the people using the dykes, these limiting factors are now of equal importance. The research has revealed several possibilities which might be considered as interesting additions to the current touristic and recreational offers. Now, being aware of these ideas it has to be tested in how far they can be realized.

Interviewing the two employees of Wetterskip Fryslan some useful information on this topic could be gathered. Since the organization is responsible for changes undertaken in connection to the dykes the primary information could be aimed at the specific topic.

The main message given by the interviewees was that any activity, endangering the safety of the dykes, is prohibited (Jacobs & Vogelzang, personal communication, 1 November, 2011). They mentioned examples like construction works and heavy transport but also recreational activities like horseback riding. Knowing this, many options can already be excluded from the plans.

Wetterskip has put together a system of strict regulations dealing with activities and work done alongside the dykes. These are included in the two parts called Kleur and Legger and can be found on the Wetterskip homepage for more information. Furthermore they also stated that building of any kind is not allowed along the dykes, at least in most cases. A reason for that are the possible reinforcements in the future which might need the space.
Wetterskip regulates the first 100 meters on both sides of the dyke (Jacobs & Vogelzang, personal communication, 1 November, 2011). Considering this information it becomes clear that building larger facilities like restaurants close to the dyke or even right on the dyke are not possible. This is important limitation for larger development plans in this area. The same is true for building monuments or works of art on the dyke. This is often asked by people as the interviewees explained. In addition to the rules put together by Wetterskip the regulations of the province and the specific municipalities have to be considered as well. These can be different especially regarding the works and building of any kind (Jacobs & Vogelzang, personal communication, 1 November, 2011).

Despite the difficulty of building facilities on or near the dyke the two also described that temporary events are a possibility. For this the safety purpose of the dykes still has to be ensured. An example mentioned in the interview was putting up seats on the dyke as done for the open air cinema during the Oerol Festival on the island of Terschelling (Jacobs & Vogelzang, personal communication, 1 November, 2011).

New facilities are therefore not just easily to plan in this area. Adding further parts to the touristic and recreational offering is to a large extent even impossible. It is necessary to focus improvements which can be realized. As described by Wetterskip it can be an option to build up on already existing activities and to improve and increase the offer.
Having conducted the research explained in the course of this report it has become clear that the Frisian Wadden Sea coast has further potential to increase its touristic and recreational offers. The region already has certain aspects attracting people to the area but tourism as it is visible on the Province’s islands cannot be found on the mainland. Especially thinking of the dykes and their surroundings it is obvious that the nature is still the main factor attracting people to spend time there.

Returning to the idea of using a dyke reinforcement as opportunity for touristic development it now can be said that this will not be realized in the near future. As the interview with the Frisian Water board showed, improvements are planned according to the results of periodic tests. These were so far limited to small works on the outer slopes of the dykes. A larger reinforcement changing the structure of the dyke is considered but will not be necessary that soon. If this action has to be taken touristic aspects will be considered as heard from the water board. Because of that, actions concerning this development are not relevant for today’s planning.

Nevertheless, developments increasing the attractiveness for tourism and recreation can still be realized. Businesses already doing something for this development are a first step. Examples as the restaurant and campsite that were interviewed show that such businesses constantly do something to stay attractive. This is of course done in their own interest but still visitors as well as locals can profit from that. Having the province or the communities cooperate with the stakeholders on the coast in a better way can help as well. Better communication between the parties involved would be appreciated by the ones influenced and is also a way of speeding up this development.

It can also be doubted that larger developments on the coast are wanted by the public. Research has shown that most people using the area, locals as well as visitors, appreciate the natural aspects. Considering this clear tendency, developments should also focus on this interest and support it. Most activities undertaken at the dykes could also be done elsewhere but are rather done at the dykes due to the nature and atmosphere found there. The people asked could mostly not think of further points of improvement but were also not totally satisfied with the situation as it is now. Taking this into account it should also be the focus of future planning to rather support these already existing activities and interests. This can be done without implementing large scale changes in this area. It is rather important to support these interests by providing the right conditions. The area should become even more interesting for such activities, namely walking or biking etc.
Coming back to the problem statement which was formulated in the beginning of the research project, "In which ways can the planned reinforcement of the dykes at the coast of Friesland be used to improve the recreational and touristic attractiveness?", it can be stated that such reinforcement would definitely offer opportunities for further developments in the field researched. Still, it will be difficult to implement far reaching changes due to the many limitations, protecting the safety of the dykes. Nevertheless, this should not be the main focus of plans done in the present since it will not be realized in the coming years. It is rather advisable to include options which can be realized without depending on such large scale reinforcement. The research results have shown that there is a demand for improvements which could be implemented today. These smaller changes can already add to the attractiveness perceived by the people using the dykes without threatening the main purpose of protecting the coast. Examples and recommendations are described in the final part of the report.
First of all it has to be mentioned that there were different limitations influencing this research. The biggest problem was the limited time which lead to a rather small number of respondents while conducting the primary research. Having a higher number of questionnaires but also more interviews would have increased the validity of the collected results. Furthermore, it became also obvious that some results were very focused on the city of Harlingen. Doing the research there, many of the respondents did not really consider the situation in the whole province as it was expected from the authors. In addition, it was also not helpful to include the planned reinforcement in the topic since it is not relevant at the moment. The focus should have been more on current changes from the beginning.
Therefore, it is advisable for future research on this topic, to take more time to collect a far higher number of primary data. The research should also be conducted in different locations situated all over the province. This way the information become more reliable and can reflect the opinions in a better way. Doing the research during the summer, it would also be easier to collect data from tourists since the information collected in this case are mostly from locals.

Coming to the recommendations that can be obtained from the research conducted it can be said that there are opportunities for touristic and recreational developments even in the current situation. Many developments are possible but considering the information received from the research it can be recommended to focus more on already existing activities. People like the nature and cannot think of many new activity options offered in regards to the dykes. Therefore, aspects connected to already popular activities should just be improved. One of these aspects are the biking routes. The flat land as well as the roads are provided but the signage could be improved. The province should make sure that different routes in the region are signposted. In addition, there could be more information about these routes online as well as in form of flyers. This way, people can get information about the landscape and the sights along the way.

Furthermore, walking paths on the dykes should be improved. Taking a walk was a main interest of the people coming to the dykes and providing a proper path can improve their experience. A path as it is already available in Harlingen should be built on other parts of the coast.

As another addition further sitting options should be given on the dykes. People walking the dykes must have the opportunity to take a break in between and enjoy the landscape. Some people also just come to the dykes to sit there and look at the sea.
Another aspect adding to the previously mentioned ones is improving the signposting of the coast in general. Therefore, more information signs should be put up on and along the dykes. These can contain information about the nature and animals of the region but also about the world heritage status or historic facts about the area. This would be an interesting feature for everyone using the dyke no matter for which purpose.

Finally, the cooperation within the region should be improved. As mentioned by stakeholders it is difficult and expensive to only rely on the own promotion. Working towards the same goal and acting united in public can improve the image of the region and attract more visitors.

The mentioned recommendations can all be realised in the present without waiting for the discussed reinforcement of the dykes. Just implementing some of the ideas would already improve the quality of the touristic and recreational offer of the Frisian dykes and coast in general.


Stakeholder interviews

Interview: Campsite ëZeehoeveøn Harlingen
(with manager Lammert Kleefstra)

How do you rate the touristic attractiveness of the dykes and the coast in general?

- quite interesting for visitors
- more marketing/promotion for Harlingen necessary
  → to pull visits to Harlingen/Friesland
- better cooperation between regional marketing and stakeholders necessary
- do their own promotion but that is expensive

Type of costumers/length of stay?

- mostly German and Dutch customers
- also people from France or Spain coming to campsite
- majority of visitors consists of families and elderly people
- often short stays of 2-4 days (e.g. as stop when going to islands)

Are you satisfied with visitor numbers?

- still potential for more visitors
- mostly they have open spots
- site only open from April until October (rest of year not profitable)

Do you get comments from visitors and what kind of comments?

- feedback mostly positive
- people like the dykes
- tides interesting for visitors from further away (e.g. Spain)
What do you do to increase the attractiveness of your business?

- campsite recently renovated
- more and new facilities
- constant changes (e.g. playgrounds offered for children)
- can be motivation to return

Are you involved in reinforcements on the coast?

- no cooperation or information from government side
- information only from media like all citizens
- campsite hopes for investments in touristic development
- changes discussed for many years/nothing happens
- businesses have to make own improvements as well

Interview: Restaurant De Zwarte Haanô
(with owner Jacob Jensma)

How do you rate the touristic attractiveness for visitors here on the dykes?

- very attractive for tourism and recreation
- dykes and beautiful nature

Type of costumers?

- many return visitors from region
- bikers and hikers using place for break
Are you satisfied with the visitor numbers?

- generally satisfied
- long tradition is a plus
- good reputation
- location right at dyke is interesting

Do you get comments from visitors regarding the coast? What do they think?

- mostly positive
- aspects like silence, nature, no big buildings mentioned
- some negative answers
  - some tourists are asking for beaches (especially visitors from far away)

How far you can add to increasing the attractiveness? What do you already do?

- unique offers
- regional products from Wadden Sea (sold and used in restaurant)
- certified for using these products
- extra offers (camping spots behind the restaurant)

Are you involved in the reinforcement? Do you get any information about it? In how far will it affect you?

- no involvement or information
- expects changes to be positive for restaurant
Interview Wetterskip Fryslan
(with Auke Vogelzang and Christian Jacobs)

Wetterskip/information:

- Wetterskip is an independent organization belonging to the Dutch government
- responsible for the water areas in the Province of Friesland
- their main tasks are the following:
  - safety measures against water/flood protections
  - managing water quality
  - managing water level/quantity in the province

Reinforcement plans:

- No specific plans exist regarding a dyke reinforcement
- Wetterskip uses a periodic testing system to ensure quality of the dykes/condition of the Frisian dykes is checked regularly (every six years)
- Plans for enhancements and necessary reparations are based on the results of these tests
- Includes mostly small reparations on specific parts of the dykes
- Changes in the actual dyke structure (e.g. heightening of dykes) as result of the rising sea level are possible in the future but not necessary at the moment

Main focus of dyke changes:

- integrated approach is also considered by Wetterskip
- protection has to remain primary task of the dykes
- other aspects can only be realized when this safety is guaranteed
- further development of tourism and recreation can only be a secondary goal
- building of facilities on the dyke itself is not possible since it affects the safety function
- touristic attractiveness is mainly resulting from the nature (empty area behind the coastal dykes)
possible touristic/recreational improvements should be built on already existing tourism offers (examples might be biking routes along the dykes or information signs)

- currently no cooperation with stakeholders

- in case stakeholders are influenced by future developments they would be contacted and involved

- money for investments in tourism is limited/stakeholders need to invest for larger changes

Laws and limitation influencing tourism development:

- building of any kind is limited along the dykes and in most cases prohibited

- building of houses or monuments right on the dyke is generally not possible since it affects the safety purpose

- temporarily events on the other hand, can be realized (example of concert tribune at Oerol festival)

- Wetterskip is responsible for the first 100 meters behind the dykes (this area should remain unused)

- Wetterskip has put together a number of strict regulations (Kleur) dealing with activities and work along the dykes

- additionally rules of the communities have to be considered (when planning development there)
Questionnaire

Touristic and recreational attractiveness of the Frisian dykes

We are students from Stenden Hogeschool, working on a report about the reinforcement of the Frisian dykes. For this, our focus is mainly on the touristic and recreational use of the dykes and their surroundings. We would appreciate it if you take a few minutes to fill in the following questionnaire and support us with our research. All information are of course kept confidential and are only used for our report.

1. Gender:
   O male       O female

2. Age:
   O <20       O 20-30       O 31-45       O 46-60       O 61+

3. Where are you from?
   O province of Friesland
   O province of Groningen
   O rest of the Netherlands
   O other: ____________________

4. How often do you visit the dykes?
   O several times a week
   O once a week
   O every 2-3 weeks
   O every 3 months
   O less
   O first visit
5. How long is your average stay at the dykes?
   O <1 hour
   O 1-3 hours
   O longer than 3 hours

6. What are your reasons for visiting the dyke area? (more than 1 answer possible!)
   __________________________________________
   __________________________________________

7. With whom do you spend time at the dykes? (more than 1 answer possible!)
   O friends
   O partner
   O family
   O alone
   O others: ___________________

8. How do you get to the dyke? (more than 1 answer possible!)
   O by foot   O bike   O car   O train   O bus   O other

9. How do you rate the accessibility of the dykes on a scale from 1 to 4? (1=lowest, 4=highest)
   O 1   O 2   O 3   O 4

10. How do you rate the information provided alongside the dykes on a scale from 1 to 4?
    (1=lowest, 4=highest)
    O 1   O 2   O 3   O 4

11. How do you rate your overall touristic/recreational experience at the dykes on a scale
    from 1 to 4? (1=lowest, 4=highest)
    O 1   O 2   O 3   O 4
12. Which of these aspects are the most interesting for you when planning new developments on and around the dyke? Please choose 3 options!

- further sitting opportunities (benches, etc.)
- walking path on dyke
- larger parking areas
- observation spots (e.g. with telescopes)
- information signs (about dyke, nature, world heritage, etc)
- gastronomic facilities

13. Can you think of any further improvements which are not named in question 12?
   (several suggestions possible!)
Questionnaire results

Gender
- Female: 57%
- Male: 43%

Where are you from?
- Province of Friesland: 70%
- Province of Groningen: 20%
- Rest of Netherlands: 6%
- Other: 4%

What is your age?
- <20: 3%
- 21-30: 13%
- 31-45: 27%
- 46-60: 38%
- 60+: 19%
How often do you visit the dykes?

- 19% several times a week
- 24% once a week
- 29% every 2-3 weeks
- 7% every 3 months
- 14% less
- 7% first visit

How long do you stay at the dykes?

- 28% <1 hour
- 50% 1-3 hours
- 20% longer than 3 hours
- 2% Gesamt

How do you get to the dykes?

- 35.3% By foot
- 16.7% Bike
- 34.3% Car
- 2.9% Train
- 6.9% Bus
- 3.9% Other
What are your reasons for visiting the dyke area?

- Enjoying nature and atmosphere: 51%
- Take a walk: 24%
- Sitting on benches: 11%
- Other: 14%

With whom you are visiting the dykes?

- Friends: 30%
- Partner: 21%
- Family: 25%
- Alone: 19%
- Others: 5%

Which of these aspects are the most interesting for you when planning new developments on and around the dyke?

- Further sitting opportunities: 16%
- Walking path in dyke: 14%
- Larger parking areas: 19%
- Observation spots: 25%
- Information signs: 18%
- Gastronomic facilities: 8%
Can you think of any further improvements which are not named in question 12?

![Pie chart showing the distribution of responses. 67% choose an option, 25% choose another, and 8% choose another.](chart1.png)

How do you rate the accessibility from the dykes? (Average rating = 2.9)

![Bar chart showing the distribution of responses.](chart2.png)

How do you rate the information provided alongside the dykes on a scale from 1 to 4? (Average rating = 2.3)

![Bar chart showing the distribution of responses.](chart3.png)
How do you rate your overall touristic/recreational experience at the dykes on a scale from 1 to 4? (Average rating = 2.8)