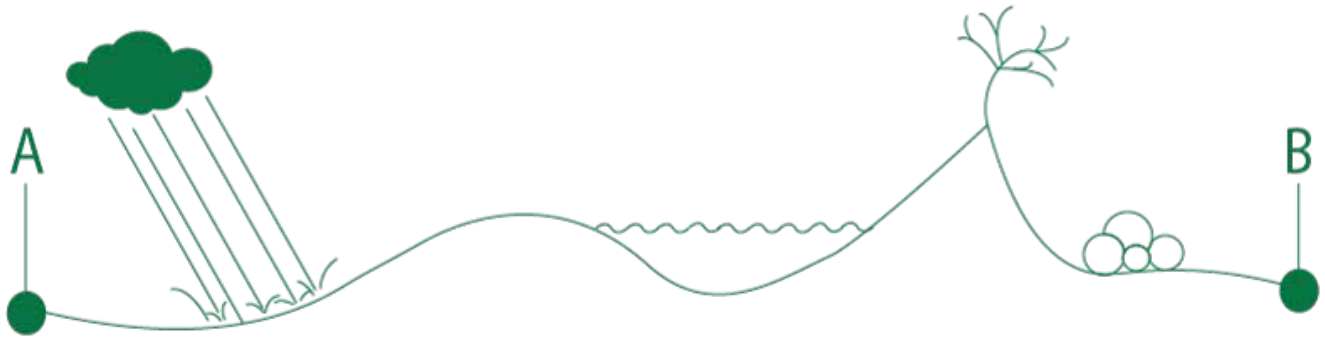
EQUAL ACCESS TO NATURAL AREAS

HOW TO PROVIDE ACCESSIBILITY TO NATURAL AREAS FOR WHEELCHAIR USERS.



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foreword

The project would have not been possible without the support and assistance of the following mentioned persons.

First, I would like to thank my supervisor, Søsser Brodersen for her involvement in the project and support during the process. None of the efforts made would have been possible without her guidance.

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A special thank you goes to Annette Eigaard for such a wonderful meeting and the guidance provided. Also, I would like to let Lena Nielsen know that her efforts of providing contacts has led to many achievements in the project. Thank you for your wonderful dedication!

Furthermore, I would like to thank Ulla Kramer and Lisa Schlage who have been extremely helpful during the last semester research. Their guidance and information have guided me through the whole process.

Many thanks go out for all the Wheelchair Users contacted and interviewed for their dedication and openness to sharing their experience.

THANK YOU!

acknowledgments

This project has as a background the research project that has materialized in the article “Natural Areas and orthopedic handicapped people. How to provide accessibility?”. As a consequence to this, all the knowledge about the user and benefits of nature used in this project are results of extensive investigation, observation, research and interviews. In the following pages, when encountered the phrasing “previous research”, the readier needs to acknowledge the reference to the up mentioned article.

As this subject is fairly new, I, the author of this project and the previously written article identify myself as either “the designer” or “researcher” when using my experience as an asset in the project or when identifying myself as an actor in the network.

abstract

While Natural Areas are a source of wellbeing and provide many physical and psychological benefits for humans, accessibility for certain conditioned persons is close to inexistent. Nature can be challenging for everybody, however the arias that can be accessed are particularly restrictive for disabled persons, especially for Wheelchair Users.

Researched has shown that Wheelchair Users enjoy being in nature as this setting provides them with a feeling of belonging as opposed to the build environment that comes across as restricting (Cristea, 2017). This can be perceived as a strange feeling on behave of Wheelchair Users as cities, even without properly adapted infrastructure, are more accessible then Natural Areas whose challenges can be overwhelming for disabled persons.

The truth is, according to users, that even if Natural Areas are highly challenging, they do not feel any social pressure and the idea of being different fades away, as nature "just fits" (Interviewed user).

Even more interesting is the fact that Wheelchair Users are able to perceive, even if just from images, the obstacles and issues a certain setting can enact (Cristea, 2017). This ability is developed on the basis of their experience with the technology they are using and has been built upon the practices acquired with time. This fact demonstrates the valuable information based of embedded knowledge users have.

But how to use this knowledge?

As accessibility is a key issue in the disability discussions across political powers (A/RES/61/106, Annex I), the assumption is that the knowledge users have can lead to fitted solutions and enrich the spectrum of planning practices. However, as this particular discussion is quite new, there is no real movement towards solving this issues.

The present project is concerned with how the issue of accessibility to Natural Areas can be resolved and under what conditions the interest of actors can be focused on achieving Equal Accessibility.

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GLOSSARY

CPDR - Convention on Persons with Disabilities Rights

DN - Danmarks Naturfredningsforening

DHF - Dansk Handicap Forbund

DIHR - Denmark Institute of Human Rights

NGO’s - Non-Governmental Organization

DHS - Danish Healthcare System

OECD - Organization for Economic Co-operation and Development

UN - United Nations

EU - European Union

ICONS LEGEND

WHEELCHAIR USER

NGOs

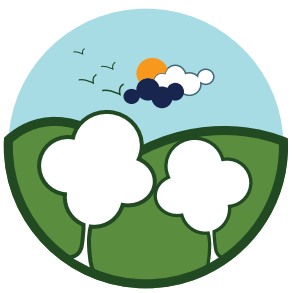
DISABLED TOURIST

Dansk Handicap Forbund

DISABLED ATHLETE

Danmarks Naturfredningsforening

CITIZENS



NATURAL AREAS

DANISH COUNCIL OF DISABILITY

EU

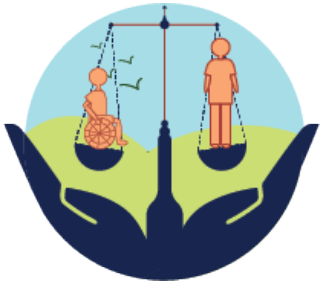
BUSINESSES

GOUVERNMENT

MUNICIPALITIES

DEVELOPERS

MANUFACTURER



Denmark Institute of Human I

UN

RESEARCHERS

INTRODUCTION

Why are Natural Areas Inaccessible to Wheelchair Users?

To answer this question there is need to first understand its relevance. Is nature important to Wheelchair Users?

The answer to this second question is undeniably laying in the Wheelchair Users perception of Nature and the way they express themselves when recalling such experiences. Previous research has shown that Natural Areas present a particular interest for Wheelchair Users as it provides the feeling of normality. Of course, the normality here is a strange concept as it refers to the societal construct of Standardized Bodies (Moser, 2000) who are persons that can use all their bodily capacities in their daily activities.

Nature is seen by Wheelchair Users as a "special event", an escape from their accepted condition of disabled. However, this does not answer the first question as there is a follow up to willingness of being in nature. Is nature beneficial for Wheelchair Users?

Studies have shown that not only exposure to nature lowers stress levels and improves mental health but it also has great influence on the body ((Joyce et al. 2006)). There are studies that have conducted qualitative and quantitative research on how the human body reacts to nature and the results have proven the health benefits(Maller et al. 2005).

Returning to the first question, the answer unfolds in two different points that are equally true facts in determining the current state of inaccessibility.

First is the wild aspect of nature. Its dynamic characteristic and organic growth do not consider anything or anyone. On top of this, even the movement of humans through it is organic and opportunity-based (Maller et.al, 2005). This can be seen in the manner dirt paths are formed.

Second is the whole discussion on Disability Rights held by political powers and the top-down initiatives that fade from an international to a national level. As the topic is recent, and only has gain focused in the last decade, there are other important aspects that need resolving in Disabled Persons lives. Issues such as discrimination or accessibility in cities have gained a central attention in Europe (A/RES/61/106, Annex I).

With regards to accessibility to nature the focus is clearly set on city development and infrastructure. In Denmark, the issue of accessibility remains a high priority as measures to adapt it are delayed.

In this contest, the answer to the up mentioned question is clear. There is no interest yet in solving this problem as it is not considered at all by decision-makers.

In Denmark, there have been some initiatives to push towards achieving this goal but there have been no visible results. The analysis that follows will demonstrate the weaknesses in the Danish context by looking at the setting of political and organizational structures through an Actor Network Theory.

The goal of this project is to reach a strategy that might

READING GUIDE

the problem formulation is also
based on last semesters findings

-

reader will learn about the
problem area

this initial part is based in the
conclusions of last semester
research project

-

the reader will learn about users
and benefits of nature

the problem area determinate
the further research questions.

who is involved?

who can change this situation?

-

reader will understand the
choice of theoretical inspiration
and methods

is it a matter of technology or a matter of planing?

- reader will understand the limitations and opportunities each approach gives

who can change the situation?

-

reader will learn about the actors and their matters of concern

what can be done?

-

reader will understand the approach chosen by the designer

ABOUT THE USER

photography taken during field observation

USERS BODILY ABILITIES

Good upper body strenght
Good mental capacities

Low upper body strenght due to sholder, arm paralysis
Good mental capacities

Upper body paralysis
Low mental capacities

Upper body paralysis
Mental impariment

inactive body part
active body part
variatin between conditions

*obsereved conditions during fieldwork

When looking at Wheelchair Users, it is important to understand that the physical and mental condition varies from user to user. This is a result of different medical conditions and the contextual circumstances of each user (Cristea, 2017).

Considering the physical part, a user's condition can vary from having a good upper body strength to being able to move just facial muscles or their hands. Between the two extremes, there are many mixed condition that can determinate the percentage of body muscles the users can move.

On top of the physical condition, a major influential factor in the development of Wheelchair Users is their mental health. Users can vary from having a perfectly functional cognition to having complete paralysis of their mental functions. This can affect the degree of control they have over their body, as well as other key functions such as communication or vital reflexes (ex: swallowing).

This two aspects of the Wheelchair User's condition overlap and expend the spectrum of the variation in capacities users have. The two aspects refer to the bodily capacities of Wheelchair Users (Cristea, 2017).

The bodily condition of users can determinate their ability to adapt to a certain context and in consequence the practices they develop. This is strongly linked to the technology they are using and the degree of control they have over it. Depending on their health state, length of time spent in the wheelchair, cause of paralysis and choice of technology, users develops practices that helps them navigate the space they live in. They adapt to a certain context by creating a set of abilities as a response to the challenge it imposes.

In a previous research, interviews and observations, as well as specialized literature, have underlined the interdependence of the physical and mental aspects of users when it comes to adapt to an environment and develop skills and abilities.

USERS PSIHOLOGYCAL ASPECTS

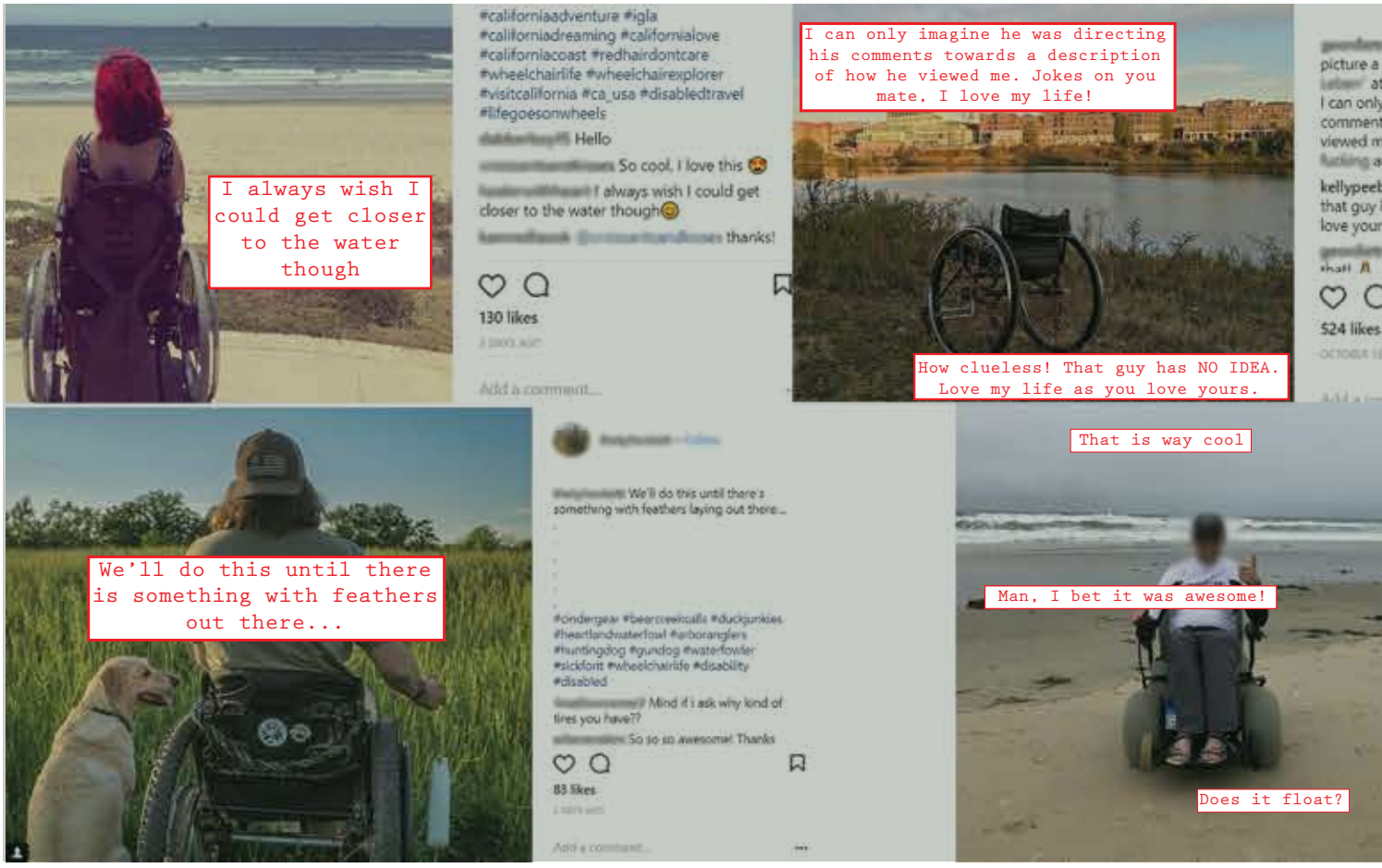
The psychological dimension of Wheelchair Users revolves around the societal stereotypes attributed to them . The general view on disabled people is associated with a medical condition or a sickness. They are also seen as dependent or unable, which most of the times leads to discriminatory behaviors (Galli et al. 2015).

As there are exceptions, most Wheelchair Users shape their behaviors and mentality according to their ability to fit in the given society. As a consequence, even if their bodily condition is good, many users feel unable and "non-normal". Most of the times their personal experience can enable or constrain them in achieving competences. The impact of social prejudice and discriminations can have a considerable effect on the users' self-conception (Cristea, 2017).

Wheelchair Users, especially the ones who have use wheelchairs all their life, have an initial image of normality about themselves (especially children) (Kuijer & Bakker, 2015). Using a wheel chair on a daily bases and as a necessity to accomplish basic needs, creates a degree of normality as the practices develop around the used technology. The wheelchair becomes embedded and natural, and all activities have their routine and course of action.

As this perception is hard to comprehend by "normal" people, the more Wheelchair Users interact with social constructs the more they will feel different and unable (Galli et al. 2015). As a result, self-conception is the reflection of social experiences that have shape the image they have about themselves. This is an important factor as it can enable or constrain the abilities they develop.

Self-conception has a great influence over the self-reliance the user has. In this context self-reliance refers to the degree to which the user is aware of his/her capacities and what he/she is able to achieve. This is directly linked to the bodily condition of the user, and as self-conception and it is only relevant in the case of users that have a minimum to high cognitive capacity, and does not apply to the users with mental paralysis (Cristea, 2017).



USERS KNOWLEDGE AND ABILITY TO ADAPT

Wheelchair Users develop embodied practices in tight connection to the technology they are using. They know the strengths and limitations of their wheelchair and are able to anticipate the repercussions of their actions while moving.

Building on their understanding of the technology, Wheelchair Users are able to relay on their experience in different environment, and use that knowledge to adapt to new situations. They can accurately identify the opportunities and restrictions of both build and natural environments and adapt their movements accordingly.

This ability to adapt is a great source of development and improvement for Wheelchair Users as it can be built upon new experiences and exposure to different context then their own. Previous research has shown that Wheelchair Users consider trips "special events" based on the fact that they experiment new sets of social arrangements. Also, new experiences help the improvement of their self-conception and as a result their self-reliance (Cristea, 2017).

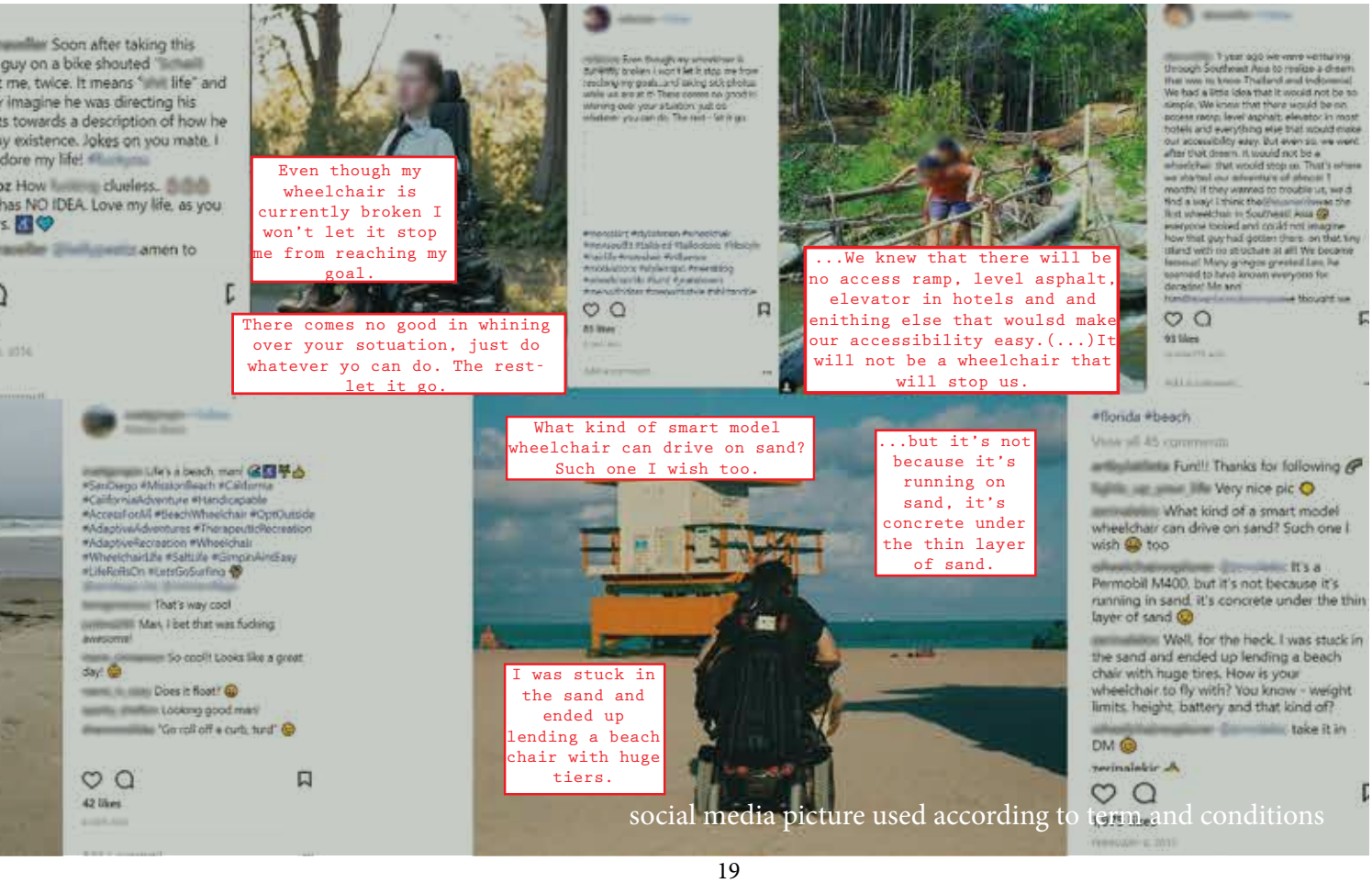
USER PRACTICIES AS A SOURCE OF KNOWLEDGE

The source of knowledge in adapting infrastructures in the equal value the new political discussions push towards, is laying in the experience disabled people have.

Practices and the way they are formed and developed, as well as the factors that influence and condition the experiences of Wheelchair Users, creates a thorough understanding of the issues and challenges the users have. At the same time this knowledge can be a great source of inspiration in innovating technologies and infrastructure to provide better integration of disabled people in society.

When it comes to accessibility, specialist in planning argue that providing good solutions for disabled people is a matter of "good sense"(interviewed architect) but when it comes to Wheelchair Users there are many aspects that are not covered, as the insights of the users' experience are widely discredited.

Both bodily capacities and psychological aspects are relevant in the process of creating solutions, as they frame the problems users face and show the manner in which the abilities form as a result of adapting to a context that does not fit (Moser, 2009).



social media picture used according to term and conditions

ABOUT NATURE

picture of the designer during a self-experiment exercise

BENEFITS OF NATURE

Nature is undeniably a source of health in human life as the exposure to it has may benefits.

It has been proven that constant exposure to nature slows down the heart rate and improves blood pressure. On top of this, studies have shown that people are more inclined to do physical activities for a longer period of time in a natural setting then in an urban area.

More than the physical benefits, nature has a major contribution in improving mental health. The constant exposure to the dynamism of natural shapes, colors and sounds immediately lowers stress by increasing the positive affect and by dispersing one's attention instead of focusing it. This leads to an overall calm, relaxed state of mind which has been proven to contribute to improving overall health (Shanahan et al. 2016).

The physical and psychological effects on the human body are considerable and on the long term can add to major savings in the health care industry.

Focusing the discussion on Wheelchair Users and their physical and mental variables, Nature is an important source for new experiences and developing new practices.

For Wheelchair Users, nature has a motivational value, as their usual context is quite limited. Being in nature challenges all their senses and brings along the sensation of new. Interviews have shown that Wheelchair Users perceive nature as an automatically fitting context because there is no social pressure or felling of being different.

Wheelchair Users consider trips to nature special events as their condition limits them from having complete mobility. Reaching a Natural Area brings along a feeling of achievement which busts their self-conception in a positive manner and therefor creates the needed motivation for them to develop abilities that can improve their health.

At a physical level, Natural Areas challenge both their condition and the technology they are using as there is usually no infrastructure. Still, users have reported in interviews that they are more willing to make an effort in a Natural Area than in an urban environment.

ABOUT LIMITED ACCESS

Considering accessibility as a key factor to wellbeing and a highly influential standard of live, disabled persons are from the start subject of discrimination or overlooked in many aspects. Simple activities of everyday life are proven to become challenging and time consuming for disabled people. This is an effect of low adaptability to disabled people's condition in societal environments.

This issue has its base in the very core of the manner societal constructs build the environment around them. The built environment is a response to human need and activities. Because the Disability Discussion has only come into play in the last decade, it is safe to affirm that societal constructs are built to respond to the needs of a Standardized Body that are consider to have a full set of bodily abilities. On this premises, all aspects of the build environment have been developed, performed and perfected based on the input of standardized bodies and their abilities, leading to today's construction industry. This process has generated a variety of methodologies and processes that have eventually become so performant that they have created one of the biggest lock-in industries of our times.

New theories, such as universal design, are pushing towards a more equal take on of planning, architecture and construction engineering, but they come as a conflict to the well establish practices that provide time efficiency and profit in this industries (Obrenovic et al. 2007).

Even so, since the Convention on Persons with Disabilities Rights came into force, there is a more powerful push towards equal access in cities. This has materialized with a series of technologies and adds-on to the existing structures, but have not solve the problem, as a big percentage of cities infrastructure still needs to be fixed. Also, the solutions that are applied so far, have a degree of unfairness to them, as many still imply an effort/compromise from disabled person (going around the building, access to certain areas).

Focusing the discussion on Natural Areas, more than often, there is no intervention or infrastructure that can provide access for disabled people. The existing pathways in Natural Areas are not proper for disabled accessibility and imply a constant feeling of fear and stress for users.

This specific issue is overlooked as the political focus is on city accessibility and informational systems.

WHY ACCESSIBILITY TO NATURE IS OVERLOOKED

Looking at wheelchairs in general, there are many issues around the world that present urgency and have a high priority over accessibility in Natural Areas. There are problems of discriminatory behaviors and serious exclusion situation that puts disabled people at risk (A/RES/61/106, Annex I). As these problems have been evidenced, the UN has made the Convention on Persons with Disabilities Rights. The CPDR has been signed and ratified by almost all Member States and follow-up actions have started to show results.

One of the issues mentioned by CPDR is accessibility to physical space and informational systems. Article 9 frames all related issues and states measures that need to be taken into account by al State Members. As there is reference to physical space as cities, there is no mention of Natural Areas.

Additionally, disability rights are promoted in urban development projects. Following the sustainability goals, the conference Habitat III, has held a discussion about where disability is place in urban development, setting the focus on accessibility to cities. The motivation behind this is that according to recent statistics, the population in cities will grow fast in the next 30 years and the process of urbanization has to be guided in order to provide equal rights.

Considering all the above mentions facts and their bases in the challenges Wheelchair Users have with mobility in cities, the frame on accessibility is set by political powers on fixing urban issues.

Still, in well-developed countries such as Denmark, even if accessibility in cities is an issue for Wheelchair Users, there is room to expand the frame to Natural Areas and foresee a development that already has its need (OECD 2006).

photography taken during field observation

PROBLEM FORMULATION

NATURAL AREAS AND WHEELCHAIR USERS:

WHY NATURAL AREAS ARE INACCESSIBLE FOR WHEELCHAIR USERS AND WHAT STRATEGIES TO APPLY IN ORDER TO SOLVE THIS ISSUE?

THEORETICAL INSPIRATION AND METHODOLOGY

Choice of theory

The present analysis and thus proposal of solution are based on a previous research studying Wheelchair Users and their accessibility to nature. Looking at the research as a whole process of investigation, the first part, that has concluded in the article "Natural Areas and orthopedic handicapped people. How to provide accessibility?", and the present project divide the focus in two main categories: the user and the network.

The research has been focused on the experiences of Wheelchair Users and has been using practice theory to identify the process of developing abilities and knowledge as well as measuring the influence of societal constructs (both physical and behavior) on the evolution of the users. At the same time, the research has been completed with observations and arguments that held up the affirmation that Natural Areas are beneficial for Wheelchair Users. The conclusion reached has shown that this particular practices developed by Wheelchair Users are a great source of knowledge that can be used in solution finding. Practice theory has been a great inspiration in the research project.

The present project will unfold based on Actor Network Theory and especially the notion of Intermediaries, Matters of concern as well as touching on notions of market theory and participatory design in the description of organizations/ elements that have a relevance in the proposed solution.

The choice of theory used in the present project is based on the belief that it complements the previous research from two points of view. First, the user represents an important actor in the network and the study of its practices represent a detailed exposure of the problem area. Second, as the source of knowledge the user has is important in the definition of suitable solutions, it can act as an intermediary object and a method of validating possible solution.

Theoretical inspiration

The concept of intermediary object has been used in order to facilitate the process of interessement in the proposed network. In Callon's vision (1990), an intermediary object defines the relationship between actors. Relating to his theory, in the design project, the intermediary object is a technological artifact. It will "play the role in social learning, shaping and configuration of emerging technology" because it determinate knowledge-sharing between actors. It can also be considered a boundary object for its ability to provoke understanding and communication on the focus issue, but its quality of building the solution basis and reaming part of it, centers its role of defining connections in the network (Clausen & Gunn, 2015).

The intermediary object in this case has both symbolic and cognitive dimensions as it leads to gradually common understanding and it creates a base for framing co-operation in the design process.

Intermediaries can define a network that, once accepted by an actor, it both transforms and is being transformed after the process of translation and negotiation is finished. They create a scenario which determinate the role of the involved actors. An intermediary can become an actor under the condition of "acting" meaning is no longer a mean of understanding but an active part of the network. Actors can be both human and non-Human as long as they "act".

By Callon definition (1990), "an actor is an intermediary that puts other intermediaries into circulation", defining the "acting" condition that determinate the difference between the two but it also implies that every actor has a network behind it. Following this, the conclusion reached is that there is a nexus of intermediaries, actors and networks that link together. However, ANT provides in fact a simplification of relations in the network. The process of translation defines relations and roles and rewrites the history of the previous network (Callon, 1987).

The translation process is the core concept of ANT

which establishes the condition of interaction and the roles of actors. Translation process is based on a simple principle of one actor transforming another. This equation can have a plurality to it as long as the translation process transforms the actor simultaneously. At the same time, networks are rarely stable as every entity can influence it and thus change it.

In order for the translation process to be successful, there is need of first reach convergence, which "measures the extent to which the process of translation and its circulation of intermediaries leads to agreement". In order for a network to be convergent after the translation process it needs to be both aligned and coordinated. An aligned network is defined by its common history and shared space. A coordinated network is defined by its ability to adapt to the translation requirements.

Translation processes consists of four moments. In real appliance those moments can overlap but in general terms they determinate the identity of the actors, boundary of the network, interaction terms and space of negotiation (Callon, 1986). The four moments are as following:

Problematization is the moment of establishing the focus area and pining down the existing network of relations between actors. The Interessement moment defines the invitation to join the network through actions supported by devices. This moment is essential in exposing to actors the importance of their enrollment in achieving their goals. The success of the interessement phase determinate the moving to the moment of enrollment which establishes the roles of the actors. This moment is defined by intense negotiations and establishment of strategies and it ends with the acceptance of the actors. Central to the completing of the process is the chosen spokesman that concludes the movement into a mobilization (Callon, 1986).

In this thesis, actor Network Theory is used as a framework in analyzing the current situation of the problem area and the actors revolving around it. A network is "able to redefine and what is made from" meaning it has the ability to redefine itself and rewrite on a previous state of its existence. This ability of networks to be reborn and the process of translation are central in the analysis that follows as the actors need to move forwards are deeply embed in their own networks and follow different interests (Callon 1990).

The concept of matter of concern has been chosen because of its ability to complement ANT in the case where there is need to form a network in a context of highly different perspectives.

Matters of concern have, with time, overpowered matters of fact, the former being an objective, undeniable fact that can only be perceived by the sensorial body and the lather being the perception that has passed through the filter of experience. In a sense, matters of fact do not exist as people's expression passes through the filter of their "mental capacities". Matters of concern are subject of influence of profile stenography, more explicitly, a view of matters of fact through the filter of professional experience (Latour, 2008a).

The advantage of using the concept of matters of concern instead of opposing perspective in the case of the network that needs to be build is that it defines the relations between actors as different instead of competing. It also presents the opportunity to adapt to the different stages of creating the network, as matters of concern are flexible and shapeable.

Latour(2008b) uses the metaphor of a picture, in "what is the style of matter of concern", to demonstrate that however controversial it might be, dose not capture the whole essence of the moment as it ca not recreate the sensorial feeling (smell, tactility). Building on this idea, the metaphor of different lens will be used in the analysis to demonstrate the difference in perception and how to use this in order to enroll actors.

Methodology

The used Methodology is mainly based on the previous research project and the fieldwork leading to its conclusion. Many of the conclusions achieved in this analyses are based on methods and understanding reached in previous investigations. The methods applied for the present project are completing in a sense the amount of information perceived previously.

As this project is focused on understanding the network behind the issue, the methodology of choice was mainly interview-based. Some of the identified actors have been interviewed in meetings that have provide the advantages of spontaneous face to face interaction, while some of the actors have been contacted via e-mail or telephone.

Again, as the research theme is particularly new, the information received had very little background and was profile-manipulated by the different actors. In order to make the intentions clear and focus

photography take during interview

the attention of the actor, a design game has been developed. The game simulates at a tactile level the issues Wheelchair Users have in Natural Areas and has as background user interviews, observations and questionnaire conclusions. It served to focus the discussion and create a scenario that stroke a sense of relaying. The interviewed persons have been asked to express verbally what they are feeling at every moment (appendix A). The issues represented in the game were: slippery surfaces, narrow pathways, slopes and obstacles. The respondents have easily managed to identify all of them and present an opinion upon them.

ANALYSIS

IS IT A MATTER OF TECHNOLOGY

OR A MATTER OF PLANNING?

TECHNOLOGY OR PLANNING?

As demonstrated in the previous research, accessibility to Natural Areas for Wheelchair Users is both beneficial and desired. It is also clear that Wheelchair Users have many challenges to overcome when it comes to access in a general context of the build environment, moreover in Natural Areas that have a dynamic aspect.

By looking at the users, it is clear that a technological solution might be relevant. But, taking into account the natural environment, wheelchair technology has not reach the complexity to fully adapt to all requirements needed.

At the same time, building a whole infrastructure from scratch might be harmful for the environment and create some trade-offs that are not desired.

In an interview with Lisa Schlage, an educated trainer in working with disabled persons, the following conclusion has emerged: "It is not about giving them any special treatment, it is about offering equal opportunities". The interviews that followed have strengthened this conclusion as all Wheelchair Users have mentioned they do not mind a little effort as long as there is no risk of accidents.

Wheelchair Users, as previously mentioned, have a high ability to adapt to new situations and are able to understand the context.

This first conclusions open the discussion to a more complex need of understanding the limitation of technology and the range of possible options that are placed between high risk (of accident) and equal opportunities.

The following analysis will explore and argue both approaches in order to consolidate the conclusion and the strategy that follows.

WHY TECHNOLOGY IS NOT A VIABLE SOLUTION BY ITSELF

Wheelchair evolution through its history has had the same principals as the ones this technology is based on today, a chair that has wheels and leg support. It has always serve the same goal of transporting orthopedic handicapped people and cover the basic needs of motion and mobility (Attali & Pelisse, 2001).

What is notable in its evolution is the adaptability to the range of conditions users have (Cooper, 2006). This has led to a multitude of types of wheelchairs and add-ons that can respond to different bodily conditions, can support different weights and serve a certain type of environment.

Innovation in wheelchair technology is quite common, but most design fail either from unsuccessfully promotion on the market, high pricing or over-specialization. As a consequence, the wheelchair market provides a variety of standard models that can cover a range of needs.

Wheelchairs standards are ISO controlled, but the designs are focused on accomplishing a set of requirements depending on the user's needs. Most wheelchairs are designed to serve a certain types of environment, either indoors, outdoors or both, but work efficiently on a plane surface.

The two big categories of wheel chairs are manual and electric and both can be designed to serve different environments and activities (ex: sports wheelchair).

With regards to Natural Areas, there is little innovation that has passed the market test. Even so, the specifications of this types of wheelchairs are very different from a regular wheelchair that there will be need of owning a large number of them in order to cover all environments and activities.

At the same time, the wheelchairs designed for Natural Areas are also very specifically dedicated to the conditions of the environment. For instance, there is a wheelchair that works on the beach but not on forests or angled terrain. Also, a wheelchair designed for an off-road experience would not work in other contexts.

This creates a polemic, as the wheelchair that is specifically designed for one environment will not respond to the needs of all users. A good example that proves this point is the development of Leveraged Freedom Chair developed by a team of students at MIT.

The design was addressed to Wheelchair Users in developing countries who cannot afford an electric wheelchair and have to work in order to survive, which means they need to have full mobility in all

types of terrain. It was created based on the principals of a mountain bike. It has a set of gears but instead of using the legs to pedal, there are two handles that the user has to move back and forwards in order to make the wheelchair move. The design was tested and had a major impact as it can make a big difference in users' life.

The reason why this technology cannot solve the problem is because in order to benefit from it the user has to have a good condition of the upper body, especially the arms, as this design requires fast moves. It cannot be a solution for all users even if the costs are low and the design is efficient. It is only dedicated to a range of users that have a good condition of the upper body.

Risks and shortcomings of manual and electric Wheel chairs in Natural Areas

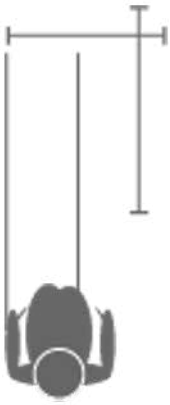
As most users do not own a specific wheelchair designed for Natural Areas, they would most likely use the one they have and if necessary add an extra device. Still, wheelchairs behave differently in certain situations and have a risk of causing accidents.

The manual wheelchair, even if it is a light design, requires a good upper body strength and can get stacked easily. It also runs the risk of becoming unstable and hard to balance forcing the user to apply constant effort in order to keep it from falling.

The electric wheelchair makes it easier to navigate spaces and does not require physical effort, but it can become hard to control and it runes higher risks of serious accidents.

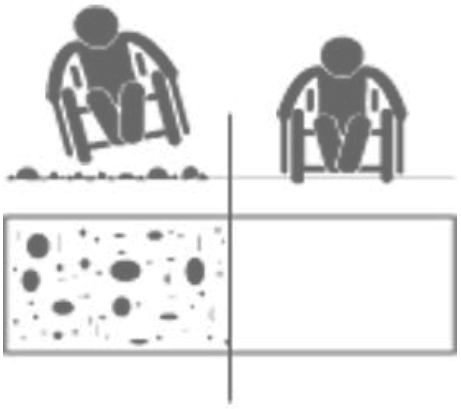
To conclude, wheelchair technology is limited in Natural Areas and cannot achieve all necessities in order to provide a safe, stress-free experience. As most Wheelchair Users do not have specifically design ed wheelchairs, and need supervision from another person, their trips to Natural Areas have to be carefully planned. This implies an extra effort of gathering information and it adds to the majority's choice of having very few experience in natural arias.

STAIRS AND SIDEWALKS



ROAD DIMENSIONS

SLOPES



TEXTURE

Wheel chair technology is responsive to the extent of bodily or medical condition of the user but is cannot be completely adaptable to all environments. Most wheel chairs are constructed to respond to standard paved (asphalt) roads or even surfaces, but are unable to adapt to dynamic textures (for example sand) (Cooper, 2006).

The base of this issues lies in the way society constructs environments and the standards created and applied over the time. The discussion on disability has started to challenge this established practices in the planning dimension of cities but have not reached the point of including Natural Areas in the discussion.

In Denmark, unplanned Natural Areas are protected and provide little infrastructure. Most of the times there is a series of dirt roads that have been formed according to the movement of people in the area. This are complemented by a main, larger road. In some places, usually where there is an attraction point there are some structures that provide access or a framing of the view (wooden pathways, piers).

This minimum infrastructure is fitted for persons who have the physical abilities to reach them, but exclude people with disabilities as there is a limited number of places that provide good accessibility for all. This is a result of the intention of keeping Natural Areas as close to untouched as possible.

On a planning level, there is no legislation to follow in order to plan in Natural Areas and all the interventions are based on urban planning rules. This complements the up mentioned intention of keeping nature untouched and the strict environmental protection rules in Denmark. At the same time, Denmark has the "freedom to roam" rule, that states that everyone can go in public Natural Areas at any time.

This creates a frame of minimum intervention in Natural Areas and provides opportunities of access to persons with a set of abilities, which exclude disabled people by default. This is an unintentional setting that aims to protect Natural Areas from an ecological point of view.

With regards to planed Natural Areas, most of the times there are details that were not thought trough from a disability perspective. Issues such as access to resting spots, special toilets and parking lots or stairs instead of ramps as well as faulty designs.

Challenges of Wheelchair Users in Natural Areas

Returning to the discussion about unplanned Natural Areas, Wheelchair Users have to overcome a set of challenges. The most reported issues by Wheelchair Users are related to the texture of the roads, slopes, road dimensions and high sidewalks.

The texture of the road is an important factor for wheelchair mobility, as it can provide or constrain the necessary level of comfort the user needs. The most challenging textures are sand and rock based. Sand is known for being completely inaccessible as the wheelchair gets staked, and in the case of electric wheelchairs can cause damage to the mechanisms. Rock based roads have a degree of unpredictability, as the sizes of the stones can vary and are dynamically arrange causing a constant vibration. Also as the gaps between them can present a danger because the width between them can block the wheelchair. The shapes of the stones are also an issue, as some can be sharp or angled. Rock based roads can become even more dangerous in rainy conditions and make the wheelchair slip.

Slopes are a common issue as a bigger angle than 5% can affect the efficiency of the wheelchair. If the wheelchair is manual, a long slope can become tiring. For electric wheelchairs, a higher slope can be reachable but it imposes an extra effort for the user to control it.

Another issue is the width of the roads. Many pathways are very narrow which mean a wheelchair cannot pass or it will encounter difficulties. A standard manual wheelchair has a width of 900mm which determinate that the width of the road should be at least 1200 mm to be comfortable. Still, there are many other considerations to determinate the most comfortable width of a road. For example, in order to provide enough space for turning, the road should be at least 1500mm, and if calculating that Wheelchair Users are usually accompanied by a care giver the road should be at least 1700mm to secure space for both persons.

High sidewalks and stairs are also problematic as the wheelchair cannot climb it. This is a common issue in planed green spaces and determinate the users to find other ways. If there is no possibility to go around, the space is completely inaccessible.

WHY PLANNING IS A LONG TERM SOLUTION BASED ON THE NEED OF ACCESSIBILITY IN GENERAL

Achieving complete accessibility to all Natural Areas is a goal that cannot be reached as that would imply developing complex infrastructure everywhere. The aim is to broaden the options Wheelchair Users have and provide accessibility in the palaces that permit interventions without harming the environment as well as the areas close to cities or the places that are accessible for anyone else.

Considering planning involves many stakeholders there is need of pushing towards the implementation of universal design principles and adapt them to Natural Areas with the ecological requirements of not harming the environment.

As accessibility already is a key issue that has come into political attention and it is pushed at least in cities, the focus can be broaden, with time, to Natural Areas and solutions to the up mentioned challenges can be researched and adapted.

Adapting the way Natural Areas are planned is a good solution as it provides reassurance of accessibility for everyone without having to rely entirely on technology. This also promotes equality between disabled and non-disabled persons by providing the same opportunities.

photography taken during the self-documentation of a user.

"I always wish I could get closer to the water..."

International politics and The Convention on Persons with Disabilities Rights

Between 1918 and 1992 UN has been looking into the issues that persons with disabilities have and has started to propose a convention. At the time, many governments have rejected the idea with the argument that the human rights already cover the issues. After another decade of mitigating for a convention (imitated by Mexico and achieved by New Zealand) in May 2008 the Convention on Persons with Disabilities came into force.

The main reason behind the convention was that, even though human right cover mainly all the stated rights, disabled people were still seen as objects of charity or medically conditioned instead of equal members of society.

The CPDR was a turning point as State Members are engaging into taking actions specifically for persons with disabilities. As a follow up there have been many initiatives that present benefits for disabled people.

The EU has adopted the convention and has integrated the articles into its legislation. Also, the EU is funding and supporting development projects that follow this direction of better integrating persons with disabilities in society. During the last decade EU has held a number of conferences that had the aim to inform and provide the tools necessary for participants to enforce the CPDR.

The issues of accessibility (Article 9) alongside with recreation and sports (Articles 29 and 30) are specific for the CPDR and represent the urgency of integrating disabled persons in society.

Article 9 is meant to enable disabled people to live independently and have an equal basis with others when it comes to accessing the physical environment and information systems. The measures mentioned in this article are directed towards eliminating barriers of accessibility and provide equal chances.

Article 30 is intended to assure the promotion and accessibility to leisure time and recreation activities as well as equal opportunities to sports. According to the article, State Parties have to promote and encourage disabled people as much as possible to practice sports and have an equal basis of participation in cultural life.

Political framing of accessibility issues

Accessibility in the physical space is an issue of a major importance in the political scene. On top of the up mentioned article 9 of the CPDR, this issue is highly discussed in the Sustainable Development of cities and had taken a central place in the Habitat III conferences.

The urgency of solving accessibility in cities has as a background the fast development of mega-cities, and the movement of the population towards them. It is estimated that by 2030 60% of the glob population will live in cities. This would be a 10% increase from the present situation. Another supporting argument is the fast aging population based on the statistics of the increased number of disabled persons to the rapport of 1 in 7 by 2050 according to Habitat III conferences.

Following the sustainability goals of adapting urban areas to the challenges of both society and environmental issues, and taking into account Article 9 of the CPDR, the frame of the issue is mainly focus on accessibility in cities. This has been set on the bases that cities are the main problematic environments and the most populated. The further increase in population and the fast urbanization of developing countries have underlined the necessity to adapt cities.

Considering the urgency of the up mentioned situation, cities represent a priority when it comes to adapting accessibility. Natural Areas on the other hand are not mentioned in either of the article or conventions that concern accessibility. As the global situation need immediate intervention, there are places where most of the issues are closer to solving. This places the issue of accessibility to nature outside of the framework of political actions.

The influence on National power structures and follow-up actions

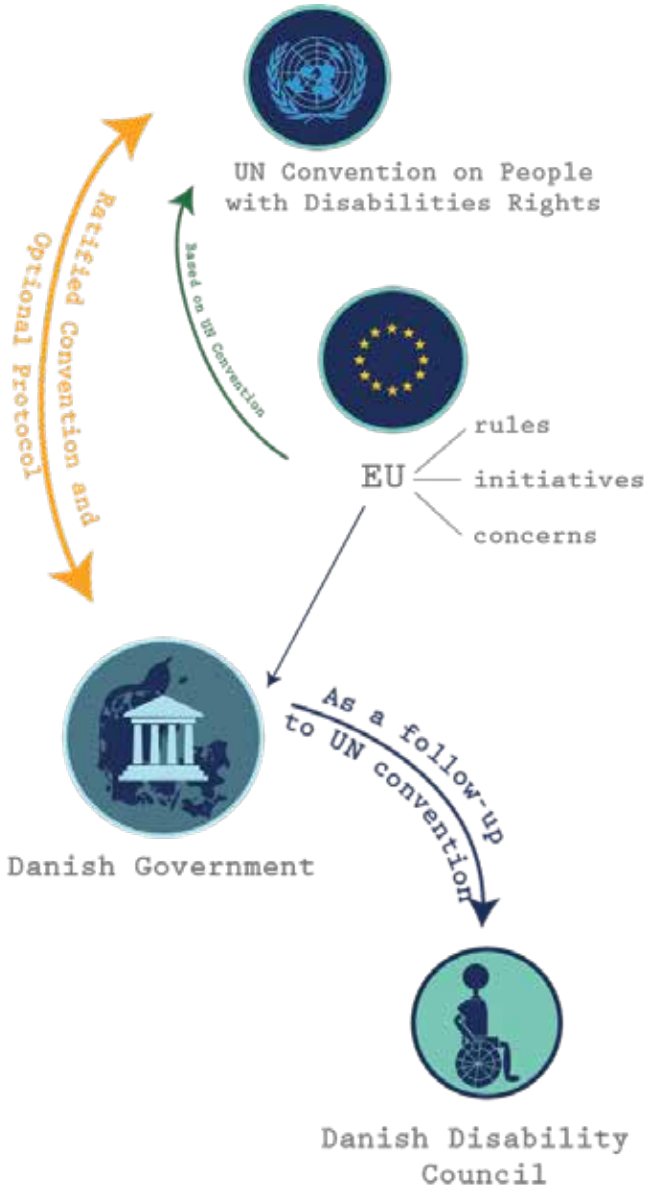
Seeing as Denmark is part of the EU and has ratified the convention in 2009, the state has taken on the obligation of mediating for the appliance of the CPDR. It is important to note however that Denmark is a developed country that has an inclusive healthcare system and that disabled people have benefits and well established rights.

The tendency in Denmark with regards to Disabled people is to perfect existing constructs in the direction of normalizing and adapting aspects of either technology or social involvement. However, the government inclines towards giving personal benefits instead of adapting existing structures. Disable people in Denmark push towards more than the minimum necessary and seek equality in all aspects of life.

In 1980 the Danish government has established The Danish Council of Disability in order to strengthen the dialogue with disabled people. This Council is meant to offer advisory for government and parliament with regards to disable persons' issues and needs and has the task to overview the situation of disabled people in Denmark. The Council also collaborates with private and public institution and make sure the decisions reached in implementing new project have an equal approach to disable persons. Since Denmark has ratified the convention, it has worked as a framework and point of reference for the council.

The task of overlooking the implementation of the CPDR fall under The Danish Institute of Human Rights. One of the key issues identified in Denmark by the Institute is the accessibility to public spaces which is recommended to be improved in the latest report that overlooks the appliance of CPDR.

In Denmark there are many organizations protecting disabled people and mediate towards the appliance of their rights as well as taking initiatives for establishing new structures that benefit them.



Natural Areas and Wheelchair Users: Involved organization

In Denmark, initiatives to provide accessibility to nature have started to show. Even if in planning practices, access for disabled persons is considered "good sense" most of the new developed public spaces are not inclusive. There have been initiatives that aimed to pin down good practices in planning in order to solve this issues.

This push towards equal access has encountered some barriers as the focus of local political power is fixated on urban mobility. At the same time the initiative is facing the challenge of overlapping interests with other organizations that have equally rights to protect their goals resulting in a long process of negotiation and a slow progress to achieve accessibility to Natural Areas.

Main Involved Actors

Danskhandikapforbund is the lobbing organization that represents disabled persons in Denmark. It was founded in 1925 and today represents more than 350.000 members. DHF has over 43 branches around Denmark that represent problems locally and help growing the network for disabled persons.

The main aim of DHF is to ensure disabled persons are treated equally in society and are provided the same opportunities as other citizens. Over the years DHF has assured that persons with disabilities can enter the job market and contribute to society.

With regards to Natural Areas, DHF has initiated "Equal Access to Natural Areas" in collaboration with Hasløv & Kjærsgaard that aimed to develop a manual of guidelines and good planning practices for easy access in Natural Areas for Disabled persons.

NGO's and other organizations are important in the disability movement. Most of them work on the same basis as DHF and have the aim to protect disabled persons' rights. Some NGO's are overlooking specific issues such as accessibility, sports or different categories of disabilities.

For example, Godad gang, is an NGO that overlooks the accessibility issues. This organization is assessing public spaces, both urban and natural, and gives feedback to municipalities in the form of suggestions on how to adapt the spaces to disability needs. At the same time, they are working on developing a set of guidelines and an informational system that provides all the information for the user.

Dansk Naturfredningsforbund is the Danish organization that protects natural environment. Their aim is to keep Natural Areas untouched in order to secure biodiversity. DH is currently active in issues of education about nature, agriculture expansion, biodiversity, landscape preservation and accessibility. Their biggest challenge is the development of cities and agriculture terrain into Natural Areas. As pollution affects Natural Areas, DN is also involved in fighting this issues and mediates for a Sustainable Development.

Accessibility to Nature has started to slowly disappear as the pathways leading to Natural Areas have been replaced by agriculture and developments. Private fences and scarecrows are misleading for people who try to access nature. DH considers that Natural Areas enrich citizens lives and fights for easy access to it.

At the same time, even if DH is promoting Access to Nature, they prefer if some areas would remain wild. In this scenario, Wheelchair Users are not supported with an appropriate infrastructure. The concern is that wheelchair technology represent a heavier impact on the areas because of the noises and trails it makes.

Danish Disability Council is a Government founded body with the scope of serving as advisory in the political scene. Within the framework of the CPDR, the council overlooks the

situation of disabled persons and can take initiatives in proposing methods of fighting discrimination against handicapped people. Another important task of the council is to analyze whether the CPDR makes a difference.

The council also works with social exposure of disabled persons in the sense that it raises awareness on the benefits disabled persons can bring, but it is a government controlled institution, The Council cannot provide direct help to individual cases. They redirect such inquiries to other organizations.

Danish Institute of Human Rights is a state institution unrelated to political power that overlooks the appliance of human rights in Denmark and Globally. They offer advisory services to government, businesses and NGO's as well as facilitating connections between them.

The DIHR acknowledges accessibility a one of the 10 grates challenges in Denmark. The latest report on the issue urges political power to take action into making cities accessible. In addition, DIHR is strongly advancing developers of new buildings to consult the new laws of construction and include feathers that can provide accessibility to disabled people. The consequence of not respecting disabled persons' rights of accessibility in new developments can be a violation of human rights and can be seen as discrimination.

Other Relevant Actors

Danish Government has an implication in this issue to the extent of having to adapt the CPDR to the national laws. As an active part of the EU, Danish Government has to oversee progress in the appliance of the CPRD. This task falls under DDC and DIHR. The government can only supervise and give incentives as policies that are further applied by local authorities.

Local Municipalities are important in this network as they can support initiatives and can apply changes to the existing spaces in order to accommodate disable persons. On this remark, the OECD, in a report on how disability policies have evolved in Denmark, has suggested that Municipalities should have more power of decision. The reasoning is that municipalities have more control and knowledge about local issues and can solve the problems in accordance with the needs.

Danish Healthcare System offers many benefits to persons with disabilities. From housing to adaptation of home systems, funding and financial benefits to assigned caregivers.

With regards to accessibility, DHS offers subventions for purchasing specialized technology (ex: special cars) and attendance up to 15 hours per month for persons below 65 years old.

The 15 hours are the user's chose of activity, and most of the times covers life management activities such as shopping or doctor routine controls. If the user is older than 65, the benefit of 15 hours' attendance is no longer available, as at that age, considering the disability, the person is assumed to be in a specialized institution.

Manufactures of wheelchairs are not in tight collaboration with any institution. Still, they represent an important actor, as the need of innovation in accessibility is relevant for both users and businesses.

Developers of new extensions to the cities, parks and mainly all urban planning related project, have to follow the new construction law that include specification about respecting access for disabled persons. However, there are no specific rules for Natural Areas, leaving developers with the option of choosing.

External Actors

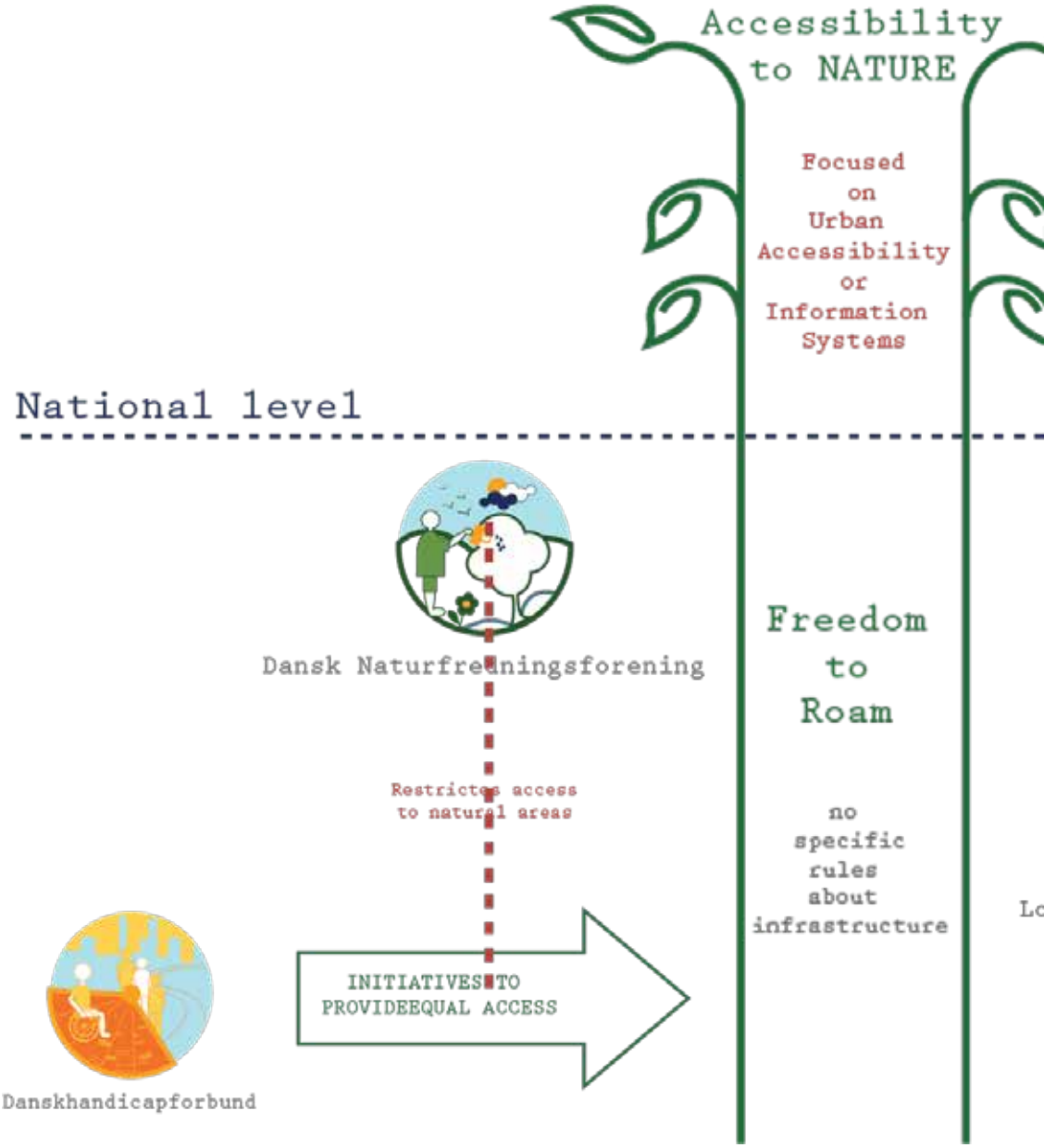
UN is the main institution that pushes toward equal rights for disabled people, but in this case the focus is on more urgent problems rather than recreational activities.

EU has chosen to support and enforce the UN approach and as a consequence has kept the focus of action on informational systems and city infrastructure.

Power plays in the network

At an European level UN has an important role of pushing towards equality for disabled people and as many of the EU countries have ratified and signed the convention, the organization pushes towards implication of solutions in all aspects of disabled lives. At the same time EU has created a series of rules, initiatives and listed a series of concerns that are based on the convention.

Considering Denmark has taken on responsibility from both being part of the Union and ratifying the convention, the Danish Government has to introduce the requirements in the state law. As Denmark has a high standard of living and a very inclusive care system, most of the articles in the convention are



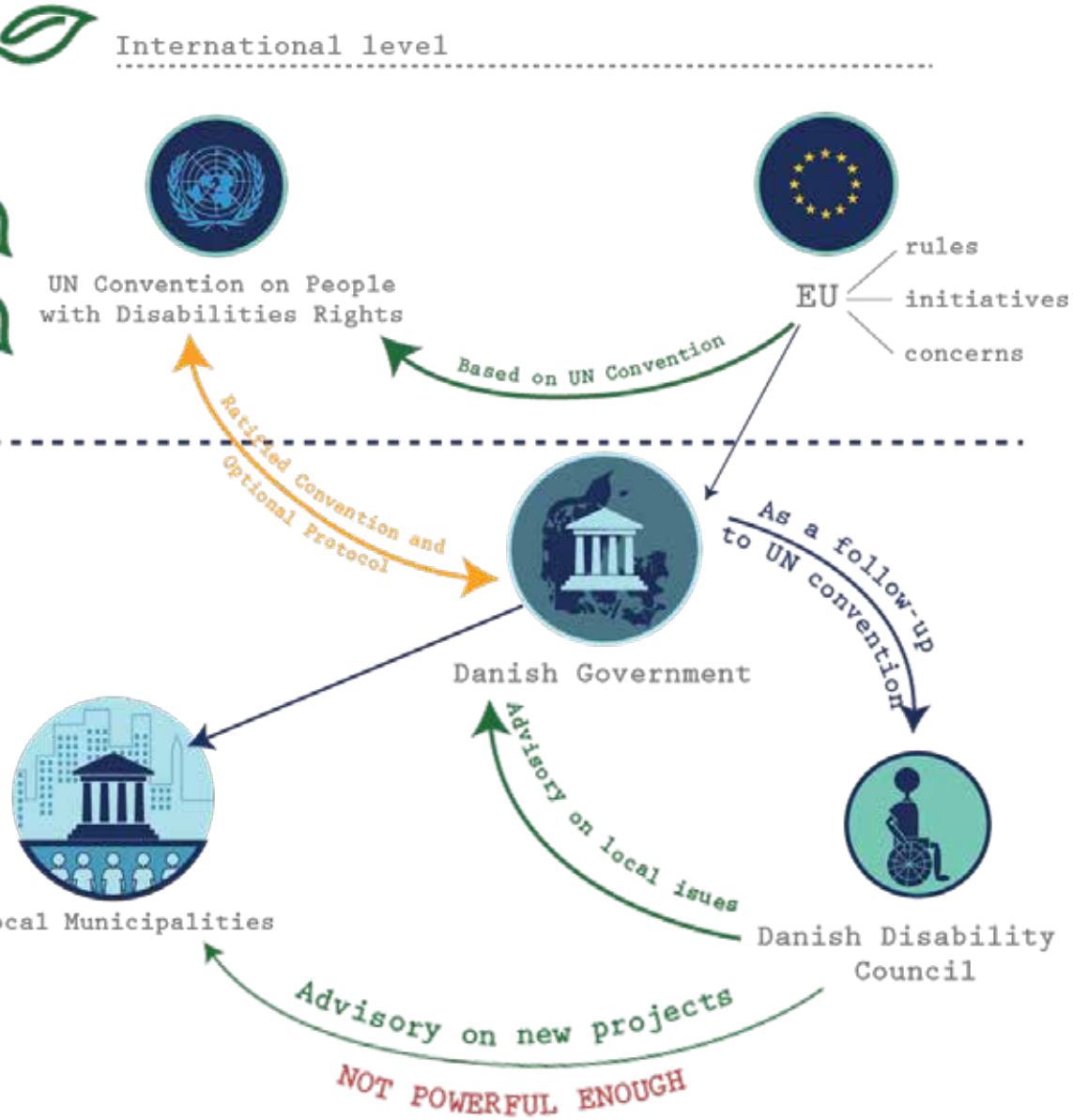
already covered, leaving few social and infrastructural issues to solve.

As mentioned before there are two main factors that leave the accessibility issues to Natural Areas aside. The first is the political frame of interest on accessibility focused on city mobility, and the second is the challenge wheel chair encounter in natural environments. This political focus also applies in Denmark as a consequence of its collaboration with the EU and UN.

As the convention is fairly new, and only recently have become a reference point, local powers do not know yet how to manage all the information. The Danish Council of Disability has the role of guiding the Government, private and public institutions through the process of applying the convention. Still, one of the consequences of the novelty this convention brings is the lack of power this council has. As stated in an interview, Developers often come for advisory after the project is already started and the council has no power to enforce what are now guidelines of accessibility. The council is supportive of any initiative that improves Wheelchair Users right and considers access to nature as an important issue.

In Denmark, the true lobbing power for disabled people is DHF. They have a history of pushing towards better accommodation in society for persons with disabilities, including social aspects, recreational places and accessibility.

The same principle is equally true for DN who's goal is to protect Natural Areas and keep them from transforming in either agricultural terrain or urban developments. This organization has gained a considerable power which in most cases gives them the last word.



Problematization

Conflict of interest

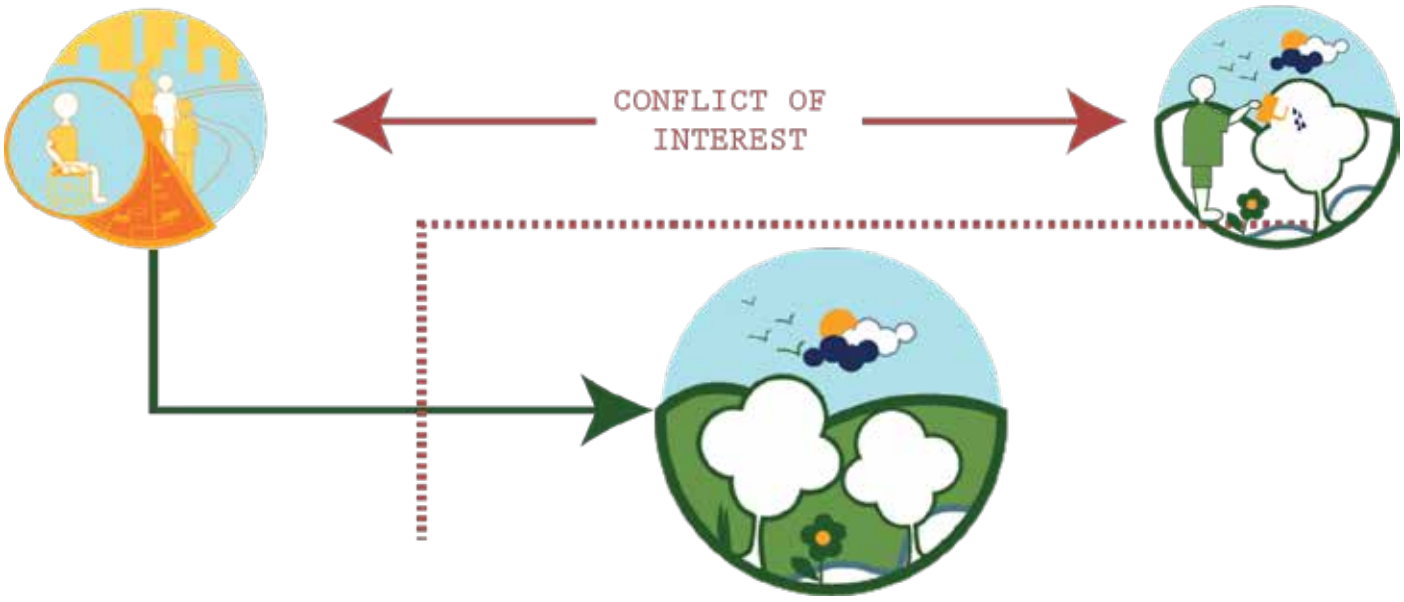
In Denmark the cultural value around Natural Areas, and especially beaches is an important aspect of social life. The need of participation or just ability to reach this spaces has been noted in interviews with Wheelchair Users.

In the last decade, DHF has started to research the issue and has initiated the "Equal access to sea and harbors" project which aims to develop a series of guidelines and rules for planning Natural Areas in order for disabled persons to have access. The task was overtaken by Hasløv & Kjærsgaard Architects, but the project has stopped for the moment as there is need of funding further research.

In the issues of accessibility to nature, DHF has to negotiate with DN, which is known as a powerful institution in Denmark, as they stopped major developing projects. DN's concerns on the matter is that approval of local infrastructure in Natural Areas might expand to the point of affecting the environment and that wheelchair technology might be harmful for the ecology of the place.

As DN is very protective of Natural Areas and its biodiversity, they keep their stand of not touching the environment. The negotiation power was week as this problem is not yet acknowledged by a bigger part of society than disabled persons.

As there are many organizations that support disabled persons' rights, the focus of their involvement is not directed to accessibility to Natural Areas yet. There is need of enrollment of influential actors in order to promote the idea and held further negotiations. In addition, the already rolling critiques (DIHR and OECD) on the issues of accessibility in cities addressed to the Danish Government slows the process of involving political powers.



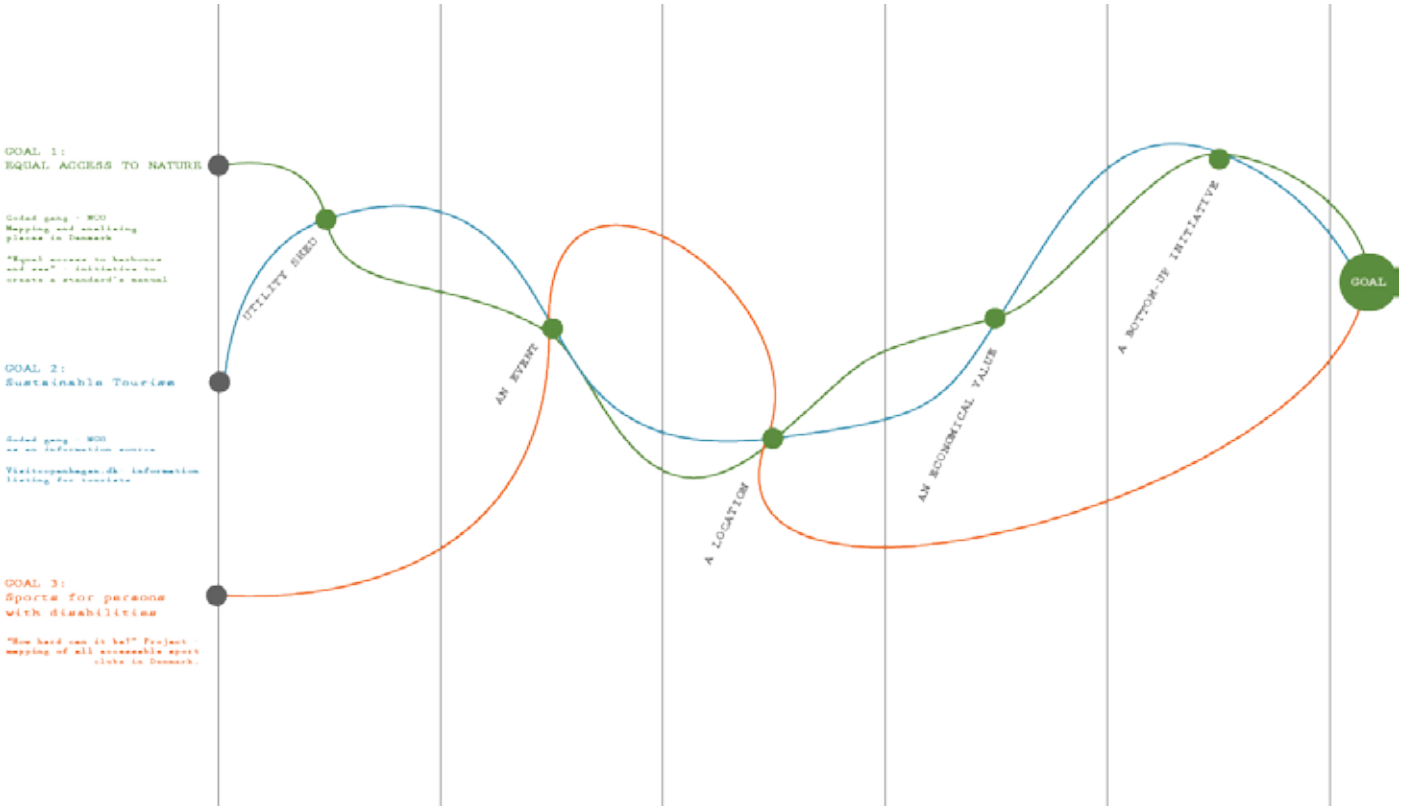
Strategy

As the analysis proves, accessibility to nature is not a focus issue. As there are many organizations that mediate the rights of disabled persons, only few have taken into account this problem. The biggest impediment in the way the network is aligned is the framing of accessibility issues in general and the urgency of solving complimentary problems of mobility.

However, there are some facts in the current state of events, that if reframed could bring interest in the enrolment of more actors.

The current focus on accessibility is based on Article 9 of the CPDR which states the urgency of adapting current infrastructures but does not mention Natural Areas. However, Article 30 in the CPDR refers to the rights of disabled persons to participate in cultural life, recreation, leisure and sport. In paragraph 1(c), is mentioned that disabled persons should have access to site of national cultural importance. This would automatically include some of the biggest Natural Areas in Denmark such as Møns Klint or Thy National Park. Paragraph 5 (c) and (e) in Article 30 state that State Parties should assure accessibility for disabled persons to sports, leisure and tourism. This expends the spectrum of opportunities as these activities can happen both in cities or Natural Areas.

If Equal Access to nature is difficult to achieve as a single concept, the strategy proposes a 3-goal approch. On the basis of Article 30, the strategy to reach Equal Access to Natural Areas will include the development in parallel of Accessible Tourism and Disability Sports.



The goal: equal access to Natural Areas

Equal accessibility is the right of all persons to have accessibility opportunities regardless their condition. Disabled persons, face major challenges in accessing basic needs which makes it difficult for them to participate equally in society. Issues such as accessibility to buildings or transportation are common for Wheelchair Users. Many of their restrictions do not come from their specific condition but from the way the society constructs exclude them.

Equal accessibility has become a key issue in Europe as many everyday facilities such as ATMs or store accessibility have been designed for standard-bodies only. In 2015 there has be launched a proposal for a European Accessibility Act that is meant to lead to common accessibility requirements across Europe and cover both physical spaces and services. Even if accessibility is considered a human right, measures to adapt is are not enforced. In the present there is no hands on legislation to enforce rules of planning in Europe even if the emergency of the situation is evident.

Equal access to Natural Areas is a fairly new and unexplored concept. Previous research has shown that not only Wheelchair Users enjoy being in Natural Areas but this fact helps their development and health. The reason why Wheelchair Users do not access nature is that the challenges it imposes become overwhelming and imply a long research prior the trip.

The term of "equality" in the discussion on Natural Areas stands for opportunities of chances for all people regardless their condition. As mentioned before, Wheelchair Users don't need special treatments but equal chances. On this premises, it is clear that some areas (for example: high angled hills or rock beaches) will remain inaccessible for Wheelchair Users as the infrastructure needed would impose a bigger trade off than necessary. It is important to calculate the fairness of an intervention and in this case the balance should be between how many users would benefit in contrast with the sensitivity of the environment.

Still, there are many Natural Areas that can be adapted without harming the environment. There is no need of heavy materials as many of the issues can be solve just by leveling and widening the dirt paths. There is need of more research on what can be a sustainable solution to adapt infrastructure in Natural Areas with minimum, if possible 0 impact.

It is important to acknowledge that this will be a long process of mediating and negotiation between users, organization and governmental power. Access to nature is unrestricted at the moment but is also not facilitated. This creates a gap between the will and ability to access nature and causes exclusion of disabled persons.

In order to achieve this goal, there is need of general planning requirements that can be adapted locally. It is recommended to involve users in a process of co-design in order to assure the solution fits the needs of the citizens.

Before reaching that step however, there is need of enrolling many actors and extend the focus on accessibility to Natural Areas. As there is a discussion about how to handle accessibility problems but not yet a law, the two issues can be mediated together. The strategy proposes a bottom up approach that will meet the top-down structure of political organizations that are involved.

First the interest of being in Natural Areas has to become more popular among Wheelchair Users in order to create a demand. Users need to know they have this option without having to go through the process of researching facilities and accessible roads. Once knowing all their options and having easy access to information, users will become more confident and build habits of going in Nature which eventually will transform in demand.

Second, part of society need to be aware of this need and support the issue. This can also serve as a good opportunity to raise awareness and create a more sustainable social cohesion. Social support is essential in validating the issue and can have a big contribution in the push towards a solution.

Third, organizations in charge should join and support Wheelchair Users in achieving this goal by pressuring authorities to mobilize and take action. This calls for a better collaboration between the involved actors.

Accessible tourism - a growing industry

Accessible tourism is a concept that has emerged from the need of Disabled persons to travel and discover new places. It promotes the right of disabled people to explore and enjoy cultural and natural patrimony and aims to provide destinations, services and products that are available for everyone (Darcy et al. 2010).

Accessible tourism is considered a right as it is stated in Article 30 of the CPDR. State members are bound to provide access to services in order to make tourism comfortable for disabled persons. This is an official call for tourism industry to adapt their offers to a more inclusive approach and support disability needs of recreation.

This movement towards including disabled persons in the in tourism by providing accessibility is need in order to achieve equal opportunities and expand the spectrum of recreational activities available for disabled persons.

What is often overlooked and poorly understood by the tourism industry is the many benefits accessible tourism can bring (Liu et al. 2012). From a business perspective, the economic growth is significant. For example, a resort in Australia has the necessary feathers to host all types of disability as well as non-disabled persons. It is not advertised as being specifically dedicated to disabled persons, which makes it more appealing to users as they do not have the feeling of being different. The resort has an exemplary equality etic which has made it popular in the Australian destinations. Moreover, with time the whole area has adapted to disabled persons as there has started to be a noticeable demand for accessibility and a clear economic growth brought by disabled persons (Dragovich, 2010).

In Denmark there are some initiatives to make tourism accessible. At the moment the support for tourist comes in the form of informational systems both online and physical copies and the option to rent a wheelchair. However, efforts to adapt and promote more touristic destinations and services can be made.

To promote accessible tourism there is need of more support from different organizations and businesses. To enroll them in the network there is need of a quantifiable data proving accessible tourism bring economic value. It is crucial to create a precedent in the form of a public space that attracts tourists and generates economic growth locally. The economic value is to be researched and reported further.

Disability sports

Disability Sports are special activities dedicated to handicapped people. It is well known that sports have a positive impact on persons with disability as it helps the development and maintenance of muscles and improves the overall mental and physical health. Sport are an important factor in the improvement of self-conception and self-reliance because by actively participating in a sport the user becomes more confident. Studies show that disabled people who practice sports are more likely to develop new abilities, and, from a psychological point of view to overcome their perception of disability. Sports have the power to enable disabled people and to develop healthy practices.

In Denmark, as equal access and accessible tourism in Natural Areas are widely disregarded, Disabled Sports have recently been promoted and mapped in the "how hard can it be" champagne. Even so, the campaign managed to make sport clubs aware and promote themselves as providers of disabled activities but not all of them have succeeded in attracting users.

Disabled sports need more users to engage and actively participate and involvement of more organization to support it. In order to achieve that there is need of a powerful incentive that brings novelty and excitement. The benefits of more users joining sport clubs might lead to savings in the healthcare system as constant activity can drastically improve the users' health. Denmark has number of famous teams of Wheelchair Users that participate in international competition. The members of the teams are the best examples of good practices and overcoming a given condition.

Sport Clubs need to extend their network and create collaboration with important actors, as well as promoting themselves rather than just promoting the concept. In order to do so, there is need of a public event that can expose all sports available. This will also help with raising awareness on other issues of persons with disabilities.

The need of a mixed strategy

The main goal of the strategy that follows is achieving easy, equal accessibility to Natural Areas for Wheelchair Users. This goal is hard to achieve by itself as it needs a long process of negotiation. In order for more actors to join the network and support the case, there is need of an added value. Equal access to nature has a powerful social value by promoting the idea of an inclusive society. However, this value in not enough to forge a network into a movement. There is need of an economical value. Since the concept of equal access to nature dose not stand by itself, there is need of a mixed strategy.

Accessibility, sports and tourisms are mentioned in the CPDR and represent the key issues of the few articles that the Human Rights do not cover. The importance of the 3 factors is essential in better accommodating Wheelchair Users in society. With regards to this, and having the understanding that all 3 concepts need more support, the proposal is to mix the strategies by creating key points of intrest.

As each concepts will develop and grow separately, the strategy proposes an intersection of common goals representing key negotiation points that can be pushed together. Seeing as all tree concepts need awareness rising, involvement of stakeholders and a strong political push, and are aiming to improve the opportunities Wheelchair Users have in their leisure time, it is clear that the concepts can be promoted and developed together rather than one at the time or individually.

The 3 goal approach - how the strategy for each of them can be supported by the other

The reason why the strategy proposes a 3 goal approach is because each concept has an advantage that can complement the other.

Accessible Tourism can expose the economical outcome of developing a minimum of infrastructure in Natural Areas while Equality in accessibility can promote social values. On the other hand, Disability sports have already gained popularity and awareness and can benefit the other goals with exposure to both users and investors.

The goals will act as lens that present different angles on a frame that can adapt depending on the matters of concern or interest of each stakeholder. In this sense, the Wheelchair Users will see an initiative to resolve some of their issues, organizations overlooking CPDR will look through the filter of good practices in applying the convention and Government and businesses will understand the economic potential.

Using an interchangeable frame that can support more than one argument and provide more than one advantage will offer a higher negotiation power. At the same time, the 3 concepts are supported by more than one organization and a joined strategy can enforce the lobbing power.

Bottom-up initiative strategy

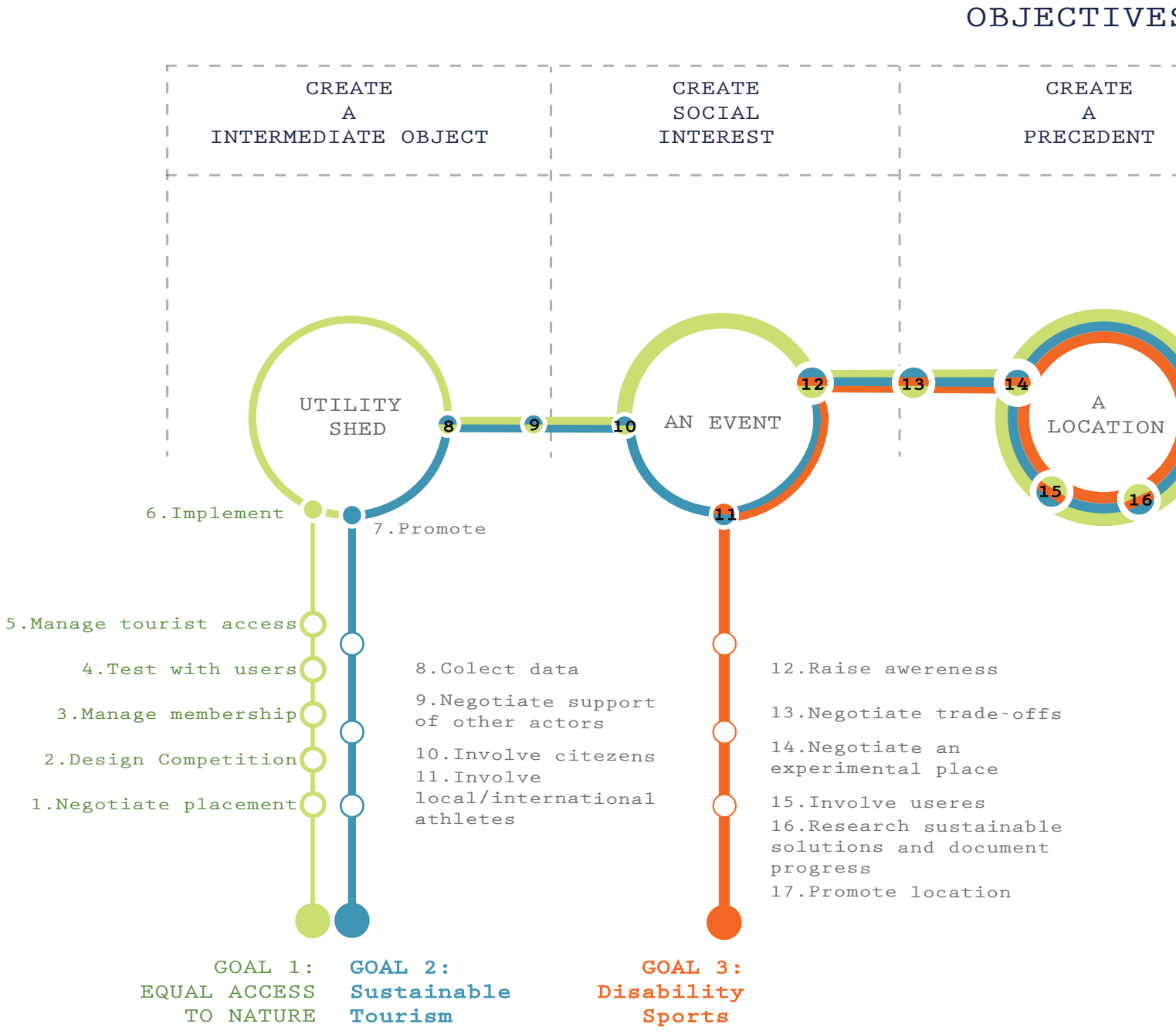
In order for the strategy to be successful and disrupt current planning practices, there is need of a major support from disabled users and organizations. As demonstrated before, a bottom-down initiative, which now is the Disability Council of Denmark, does not have enough power to mediate for this issue. In order for the strategy to work, there is need of a more specific and direct approach as opposite to the general rules of the UN CPDR, which do not mention accessibility to Natural Areas.

As the issues of users is very little focused on Natural Areas, but their need of access to recreational spaces exists, the strategy will include methods of attracting user's attention to this issue and create a more concrete need that they can be aware of and fight for.

The strategy will first involve users then society while enrolling interested organizations and seeking the support of the CPDR representative. Secondly, it will try to extend the network into involving new stakeholders. Thirdly, it will negotiate the conflict of interests and lastly will push towards political involvement.

It is expected that by reaching each objective, the network will expand and gain more influence in decision making.

Step by step objectives of the strategy



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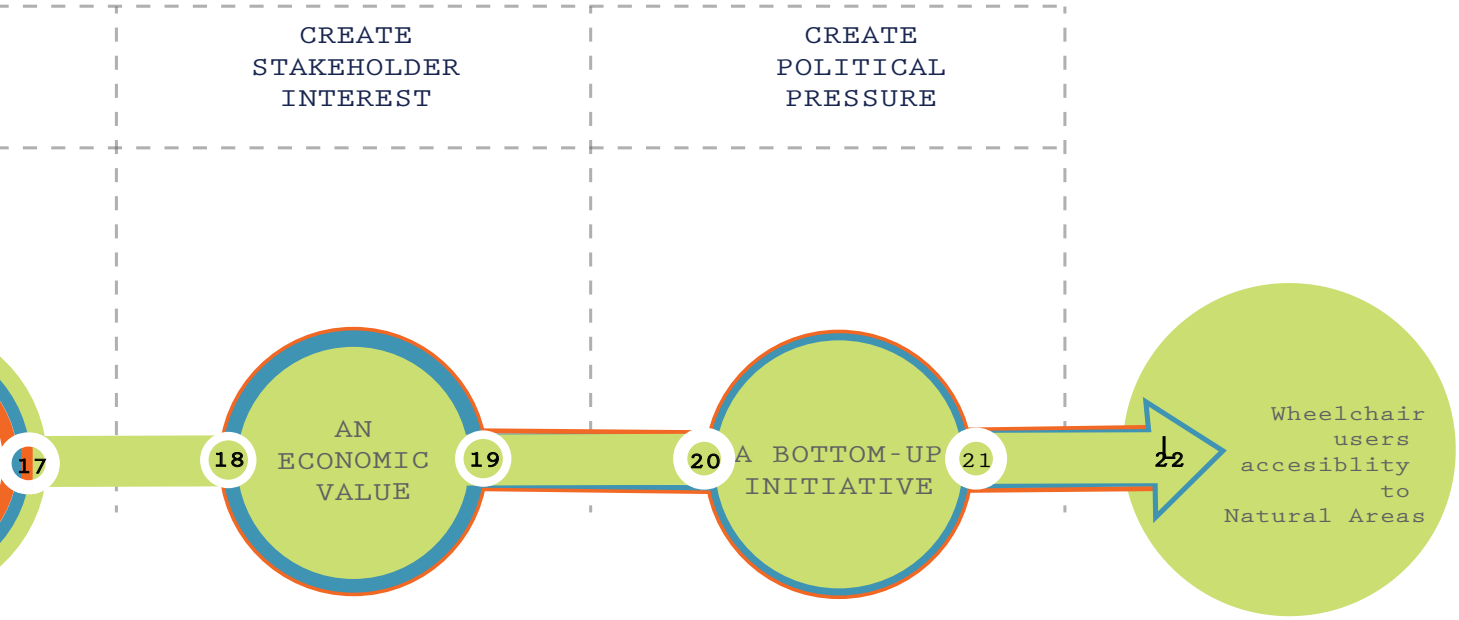


18.Negotiate involvemt of new actors based on progress documentation

19.Consolidate the network

20.Elaboreate documentation of good plannig practicies

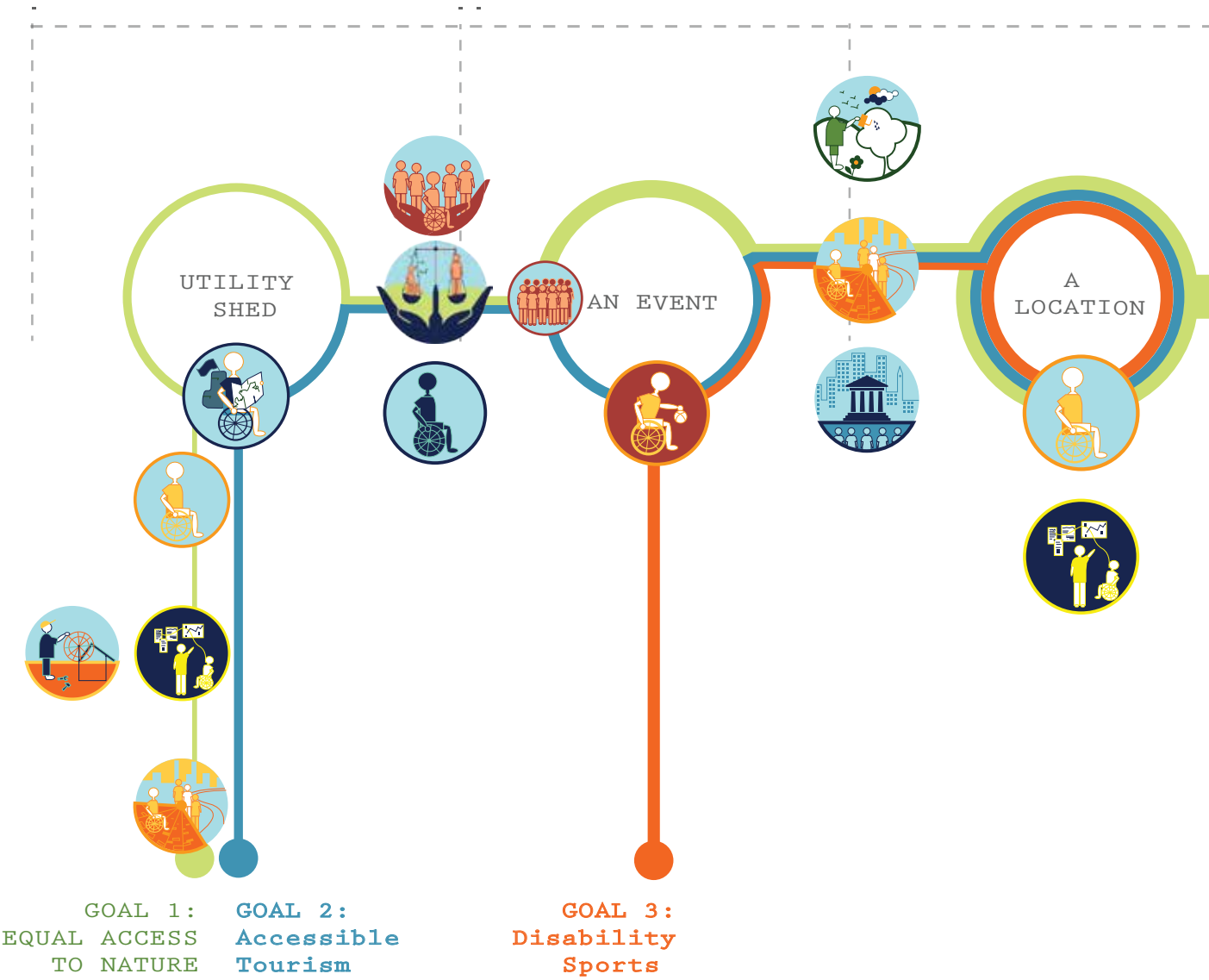
21. Pressure autorities to enforce law under the supervison of Municipalities

22.Law on planning Natural Areas

Network Translation and the rearrangement of the actors

In the interessement moment of the translation, DHF who is considered to be the actor who starts the process, will negotiate with researchers and manufactures in order to obtain solid documentation on how to proceed in the construction of the Utility Shed. During this process and after implementation the users will be involved in order to test the solutions. The enrollment of the researchers and manufactures is assumed to easy as the matters of concerns of the 3 actors follow the same principals. Also being specialized in the area, the two actors will understand the potential of this strategy. When the prototype is ready to enter circulation, disabled tourist will be informed about its existence. NGO, DAHR and DHC will enrolled as the stake of promoting disable right will be clear and proven by the documented process. The documented process will put on the filter urgency to promote human rights and thus match the matters of concern of the organizations.

Moving to the Enrollment moment of translation, different groups of citizens alongside with the Disability Sports organizations will be enrolled in



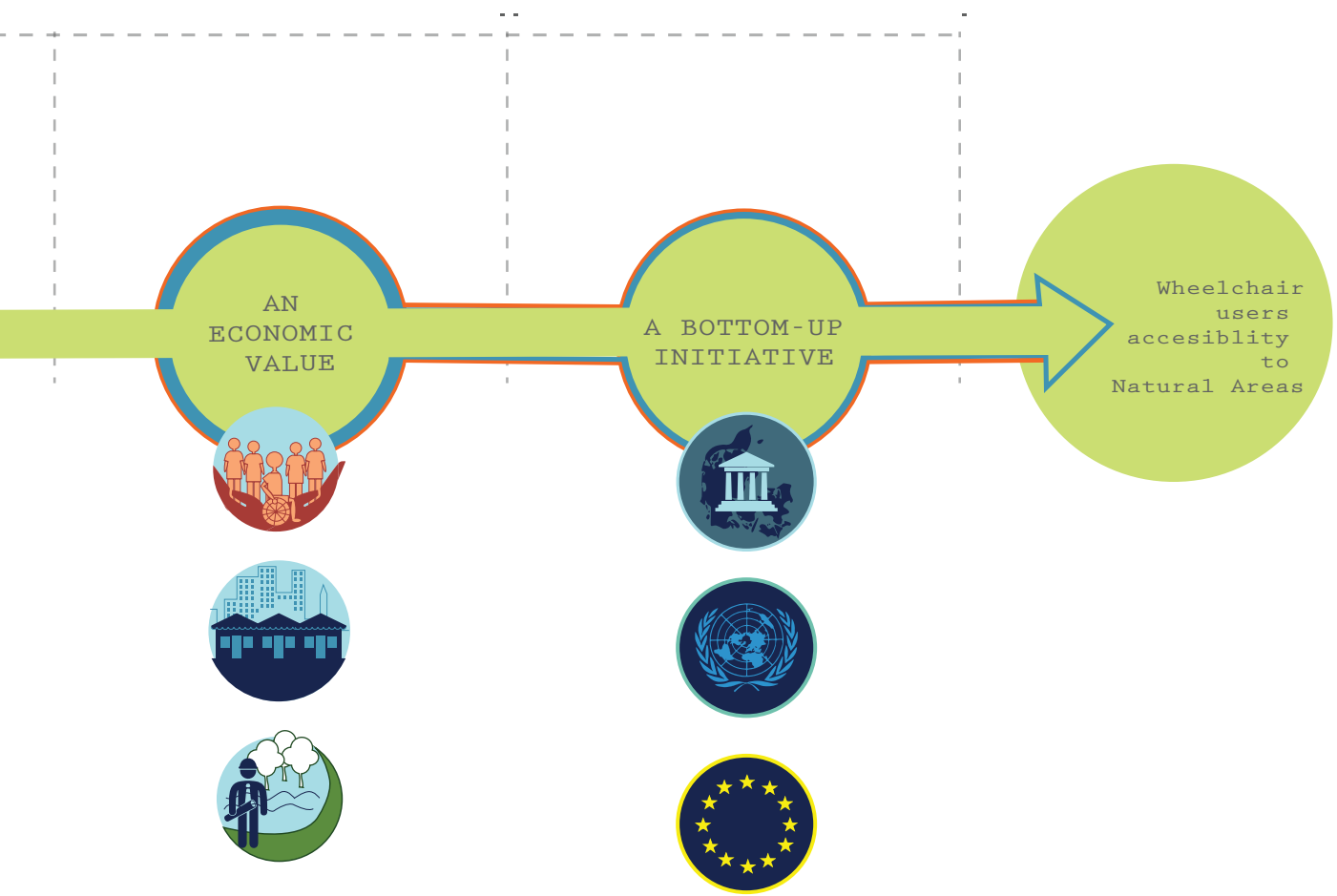
participating to an event that aims to raise awareness. The support of the Disability sport will enforce the arguments. Here is where DHF will make its matters of concern popular and thus manage to enroll more actors.

This will be the moment in which DH will negotiate an experimental space with DN and a municipality (preferably Copenhagen). Here, the concerns about sustainability and the low impact of the intermediary object is very important to be presented in such way that DN will accept terms of enrollment. Once the location is obtained, researchers and users will engage in a long process of finding solutions and testing them. The location will then be opened to the public and documented together with local businesses that are expected to obtain an economic growth.

When the economic value is clear and documented, developers and more local actors are expected to join the network.

Once the network is stabilized, a spokesperson will be chosen (DHF member) to move the group of actors into the mobilization phase. This will imply negotiations with the Danish government, UN and EU.

This whole process is further detailed:



For Wheelchair Accessibility to nature to become a key issues there is need of a statement, a visible object that can provoke discussions and awareness. At the same time, Wheelchair Users need a quicker solution to access nature more often since a strategy, that aims to challenge planning constructs and political decision-making, will take longer to achieve.

The proposed Utility Shed is a middle ground solution between technology and planning. It is a shed that can host different technology, specific for the area it is installed and functions on a sharing basis. In this sense, Wheelchair Users who cannot afford or do not own specific technology for Natural Areas can benefit from an easier, cheaper option.

The Utility Shed will be placed in the proximity of the nearest accessible point (parking lot, roads). It will contain lift systems that can facilitate the transition from one wheelchair to the specific technology. Beside wheelchairs, The Shed will contain other objects that are user-validated as helpful in a certain type of areas (ADA, 2010).

The Shed will function on a membership basis but will also be available for tourist who want to use the technology contra cost. The income from the taxes will be used to maintain The Shed and eventually to support further research.

The ownership of the Utility Shed is imagined to be part DHF, part local municipalities. This scenario would work best in the development of the strategy (in order to collect data) but it can also work as a private business.

As an intermediary object, the goal of the Utility Shed is to on the one hand expose the options of reaching nature for the Wheelchair Users, and on the other hand to challenge the curiosity of others. Having an object, with no specifications or introduction will provoke discussions. This is an important aspect of the strategy, as the issue needs to be noticed and debated among citizens. If this starts with no obvious incentive, but by observing and communicating, the support that is needed further in the future can start to form.

There is need of an actor to engage in constructing a prototype. Then there is need of research based on user experience what can be a good addition to The Shed. The results should be tested with users and then The Shed can be constructed and tested. Once there is date based on one shed, more municipalities can engage in constructing them.

The actioned needed to achieve the implementation of The Shed are the following:

1. Negotiate placement

DHF will negotiate a placement of the first shed with DN and a Municipality. The location should be popular among locals but less known by tourists as the first priority is to give local Wheelchair Users a chance to experiment it.

2. Design Competitions

Students and citizens that want to participate can engage into design competition on the thematic of The Shed architecture or innovation in technology that can be used in Nature. Also, there will be research on how to use sustainable materials, renewable energy and recycled waste into the construction. This calls for collaboration with other actors that are not involved but can offer solutions (ex: STENA Recycling).

3. Manage membership

Once the design is established and construction has started there is need to develop the system of accessing The Shed. The most efficient method to achieve both interest of users and promotion is to offer free access to members of DHF and rental opportunities for disabled tourists.

4. Test with users

Once the construction is ready, users will be engaged in testing and giving feedback in order to assure the solutions are fitted to the needs.

5. Manage tourist access

After the local users have been familiarized with The Shed, the system can be adapted to support rentals from tourists. This can be promoted on online platforms such as Visit Copenhagen or Grater Copenhagen.

6. Implement

The solution can be than implemented nationwide. The task of maintaining The Shed will fall under the responsibility of local municipalities.

7. Promote

After The Shed is established in more than one location, the idea can be promoted both nationally and internationally. At this point in the strategy there is need of media attention.

8. Collect data

The data collected will refer to how many users access The Shed, when and how often. At the same time, it is recommended to record the reactions of the society and if The Shed has provoked any changes in raising awareness or in improving local economy.

9. Negotiate support from other actors

The data collected will be used to engage DOHR and other interested organizations. The assumption is that at this point The Shed cannot face the demand and there is need of a more complex solution.

The goal of The Shed is to create an interest, and provide a short term solution for accessibility, as well as attracting users to Natural Areas. By creating a demand, that with time cannot be achieved just by using this shed, the need of a large scale solution will become more enhanced.

ENROLLMENT:
Create social involvement

This stage of the strategy is dedicated to make the issue of accessibility in nature more visible to members of local communities. The goal is to create a meaningful social value around accessibility to nature and gain support as well as raise awareness and promote disabled rights.

An event can be any type of activity that demonstrates the needs of Wheelchair Users. It has to involve a large number of users and citizens. For example, the event can be a march in a Natural Area, a sporting event where users can participate or a series of activities.

Prior the event there is need of large scale media attention intending to raise interest and a place that can be used in order to host The Event. At this point there is need to enroll organizations that support Disability Sports and invite athletes to demonstrate how able Wheelchair Users are.

During the event there will be a large promotion process aiming to make citizens aware of Disability Rights and demonstrate why there is need to action in this direction.

This objective is important as it involves citizens and aims for creating the basis of a better social inclusion. It is necessary in order to gain more support in the further negotiation process.

In order to assure that The Event achieves awareness, the suggestion is to aim for embedding it in the local cultures as a type of holyday or yearly celebration.

DHF will initiate The Event and will promote it in the hope that persons with disability and tourist will participate in a large number. Sport organizations and sport clubs will be included in order to demonstrate how capable Wheelchair Users are. And lastly, citizens from local societies will be invited alongside with municipality officials as their support is needed in the further process.

The process will unfold as following:

10. Involve Citizens

This will be achieved by having a prior campaign to the event. Workshops and activities will be host in order to engage more people and have their support during the event. This step is aiming on creating a social cohesion between disabled and non-disabled persons.

11. Involve local/international athletes

The Event is also aiming to challenge some of the stereotypes society has tagged Disable Persons with. By involving athletes as a “show case” example of what different bodily conditions mean and how to overcome it, will act as an incentive for users and will raise awareness between other participants.

12. Raise awareness

During the event there will be a series of activities meant to involve both disabled and non-disabled persons. By having an interaction and communicating as well as engaging in games will create attachments to the issue at a more personal level, which implies a stronger support from the community.

The idea of The Event is to start a larger discussion about disability rights, and provoke interest. The Event will stage formation of networks between citizens, between organizations and will lead to enrollment of more actors in the network.

Create a precedent

As at the moment there is little research on how to adapt or create infrastructure that is fitted for everyone, especially in nature, there is need of an experimental place where solutions will be installed and tested by users.

As an experimental placed the hope is that the process of finding solutions and involving users will lead to important guidelines that can be applied further. This is a chance of truly engaging users and studying their behavior and practices in Natural Areas. By doing so, there can be a clear set of trade-offs between ecology of the place and accessibility needs (Clausen & Gunn, 2015).

The experimentation process will work on a workshop basis including researchers, specialists in planning and ecology and users. The solutions that come up will be tested and perfected. This will be done with considerations about materiality, sensitivity of natural environments and users needs.

The aim is to achieve a set of guideline on how to develop sustainable, accessible infrastructure in Natural Areas with a minimum of impact. This will conclude in a document that can work as a starting point towards pushing for appropriate legislation on the matter.

On top of this, The Experimental Place will transform in a known area of easy access and will become an exemplary model. This will create a precedent, a "can be done" example of how to apply the guidelines. The methodology that will emerge can be used further in local appliance.

The steps that need achieving are as follow:

13. Negotiate trade-offs

This moment in the strategy is essential in engaging DN. With the documentation from the Utility Shed DH will be able to prove the necessity and propose a partnership in researching appropriate methods of research.

14. Negotiate an experimental place

The Experimental Place should be negotiated in concordance with the research needs. If possible there should be opportunities to test more than one environment (forest and beach) in order to achieve a complete set of guidelines.

15. Involve users

After The Experimental Place is set, a selection of users should be involved in a constant process of brainstorming and feedback. The methodology that needs to be applied would be based on co-design process.

16. Research sustainable solutions and document process

Sustainability is a big part of the solution as it needs to fit the environment while providing opportunities of social cohesion. The experiments, the progress in both methods and social involvement and the suitable solutions proposals should be documented.

At the same time details as materiality resistance over time, number of users that are visiting and possibilities of linking the place with other urban structures should be taken into account.

17. Promote location

As the location is functional, it will be promoted and advertised in a sense of equality not specifically directed to Disabled persons. It is essential to avoid tags and stereotypes and promote an equal approach.

The aim of a functional place is to first prove access to nature for Wheelchair Users is possible without harming the environment, and secondly to collect data on both practical solutions and social adaptation to them.

Create stakeholder interest

The strategy has reached the point of having a documented space and a manual of good planning practices. At this moment in the process there is need of expanding the network and involve other actors.

This is a necessary step towards achieving accessibility as the reasons to achieve equal access have to be clear. The biggest incentive that can resonate with other actors is the economic value.

There is need of demonstrating small businesses how adapting their structure to the needs of Disabled persons can improve their earnings. Also, an incentive to motivate authorities to take action is to demonstrate how accessibility to nature can reduce cost in the health system. For this there will be need of persons willing to be documented (this can apply to a wider category of people, not only disabled).

The economic aspect of accessibility to nature can be categorized in direct earning (from Utility Shed, tourists), indirect earnings (business in the area) and system savings (preventing health issues by accessing nature).

Together with the set standards of planning and a research on how this solution improve local economy, Equal accessibility has gained now enough power to expand the network and negotiate implication of other actors.

After the network is stabilized the next step is to negotiate with authorities at a national level the implementation of new legislation based on the up mention documentation.

There is need of more actors to see the potential of equal accessibility and enroll the network. There is need of urban planner, NGO's and businesses to enroll in order to pressure the creation of a legislation.

The steps are the following:

18. Negotiate involvement of new actors based on progress documentation

All the data will be now translated and presented to actors through the filter of their matters of concerns.

19. Consolidate the network

This is the moment of negotiating the roles of the actors and plan the action plan for pushing towards the implementation of a legislation.

By creating an economical value, it is expected that more organizations and stakeholder will join the network and support the cause.

MOBILIZATION: Create political pressure

Considering that by this moment in the strategy there have been involved first users, then other citizens, then researchers and finally stakeholders, the strategy has now reached the point where it can create political pressure for implementing design solutions in more locations and develop a set of rules for planning in general.

What is it and why is it necessary in the overall strategy?

This represents the final goal of the strategy that aims to enforce a set of rules and legislation regarding planning practices in Natural Areas. The network of actors will now negotiate with political powers and demonstrate the benefits of Equal Accessibility.

By achieving this, not only Wheelchair Users will have access to Natural Areas but the rules will clearly state how to protect Natural Areas. For DN this will be an opportunity to argue the need of protecting and expanding Natural Areas, based on the growing interest of accessing it.

In the final step, the negotiation will be held with the Danish government and it will seek support from EU and UN, based on the recent legislations and initiative of the two.

This will be achieved by:

20. Elaborate documentation of good planning practices

Based on the research achieved by this point, there will be an improved manual of good planning practices that developers need to be familiar with.

21. Pressure authorities to enforce law under the supervision of Municipalities

During the negotiation process of adapting a law, there is need to specify that the supervision and maintenance of accessible Natural Areas should fall under Municipalities control.

22. Law on planning Natural Areas

When the process of negotiating with authorities is finished there will be a law that clearly states how to plan and maintain accessible roads in Natural Areas.

Strategy Disclaimer

The described process in the steps of the strategy aims to create a strong bottom-up initiative that can be further expand. As this is a long process and it involves many actors with opposing views, the detailing actions in the presented strategy can be different and rearranged in concordance with how the situations evolves.

As Equal accessibility is not a priority and it is little researched the process of achieving it cannot be predictable. The objectives of the strategy, on the other hand are advised to be followed as they are a result of research of study cases, theory and methodologies and are validated by already existing initiatives such as the “equal access to sea and harbor project”.

Economical outcome of strategy

The strategy presented requires initial funding in order to support extensive research on technology fitted for Natural Areas, the construction of the Utility Shed and research for understanding good practices in Natural Areas including sustainability matters.

Building the Utility Shed, organizing an event and supporting an experimental space imply a considerable budget. Some of the options to obtain funding are to apply for EU funding, seek for private investors and create mechanism of generating income to support research.

However, the appliance of this strategy will generate economic advantages. The outcomes can be divided in 3 categories:

- Direct earnings, which are generated by the Utility Shed and the sharing strategy behind it. This earning is proposed to be used to maintain The Shed and the technology that it hosts.
- Indirect earnings, generated by businesses around the key locations. The data from this earnings demonstrating a local growth will be used in order to enroll more actors and seek funding.
- System savings, which represent the consequence of the promotion of a healthier lifestyle among disabled persons. This savings will become visible over time and will play a part in the negotiation of legislation.

Long and short term solutions - reflections on the strategy

The presented strategy has been developed with principals of equality in mind. First is the long discussed issue of accessibility with a focus on Natural Areas which has behind a research observing the practices of the user and exploring the benefits of nature. Second, the strategy is aiming for a more merged society where disabled persons are not marginalized. Wheelchair Users see nature as a special event because their options are limited, and accessibility can be reached only with external help. Giving them options shatters the image of different and enables self-reliance.

The long term solution, the strategy, intends to bring into focus accessibility issues and the restrictions cause by them. Having the CPDR as a base, the aim is to create a movement towards adapting accessibility by starting with the arias less developed where solutions can be tested and perfected.

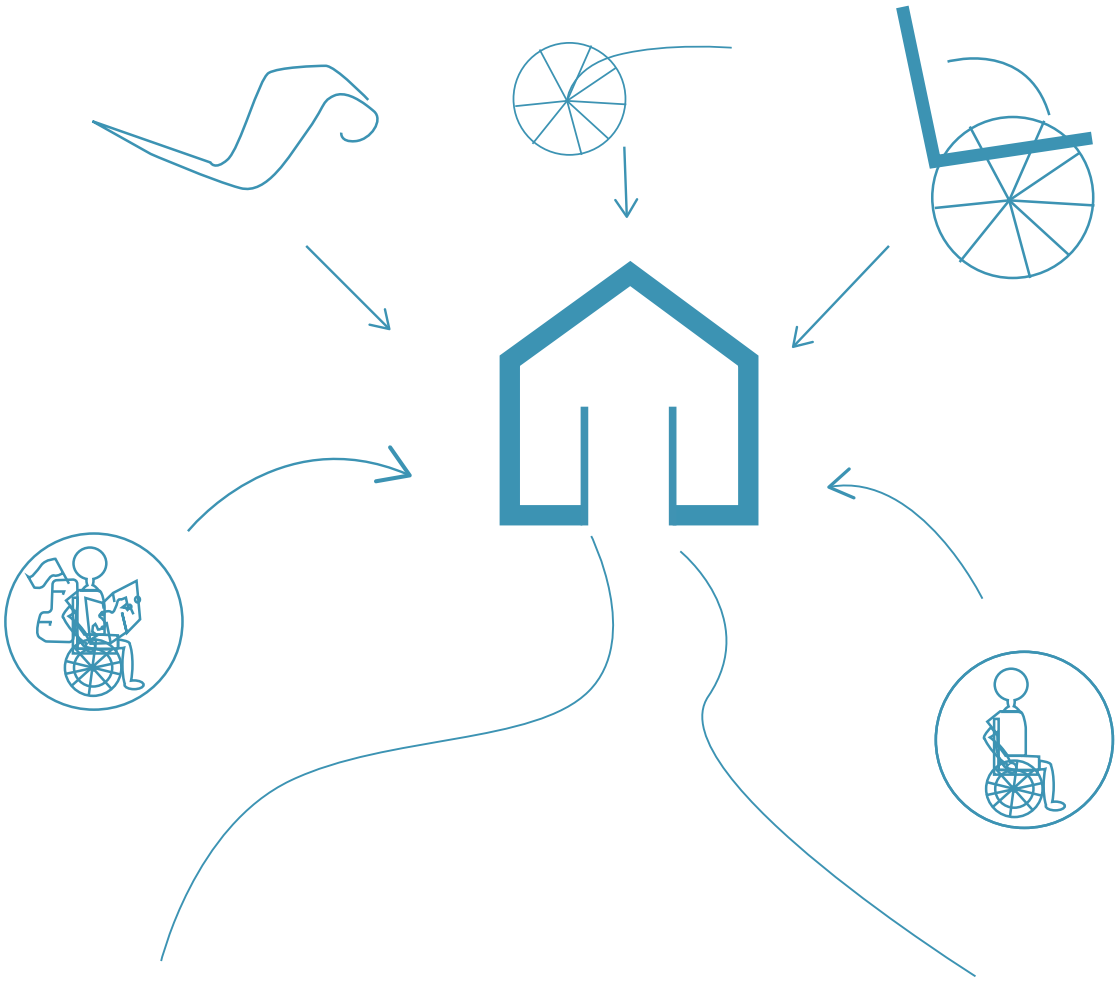
Equal Accessibility to Natural Areas is an issue that has no support or network behind even if Wheelchair Users find it beneficial and enriching. It is safe to assume that this goal has a long way until full achievement. It also needs time to become an embed concept in users' culture.

However, there is need to provide a quicker solution for users to enjoy Natural Areas. The Utility Shed is meant to provide a short term solution. On top of acting as an intermediary object it also provides an alternative while the strategy advances to the point of implementing equal access.

As a design solution, the Utility Shed will be detailed as strategy and architecture in order to give a clear idea of the benefits in can bring both as part of the long term strategy and as a short term solution.

The Utility Shed

a demonstration on how user-based design can shape a solution



Concept:

The Utility Shed is a physical construction that host specific technology needed to access the area it serves. The goal is to provide opportunities of access without forcing users to own certain types of technology. This will be a sharing space, much like the concept of shared cars for example, working on a membership basis.

This solution can not cover the growing demand of access to nature but it represents an incentive to start the process of adapting accessibility.

Acknowledgements:

The further presented solution is a proposal and it does not cover all aspects of the needed feathers. In order for this concept to be functional, there is need of extensive research and user testing.

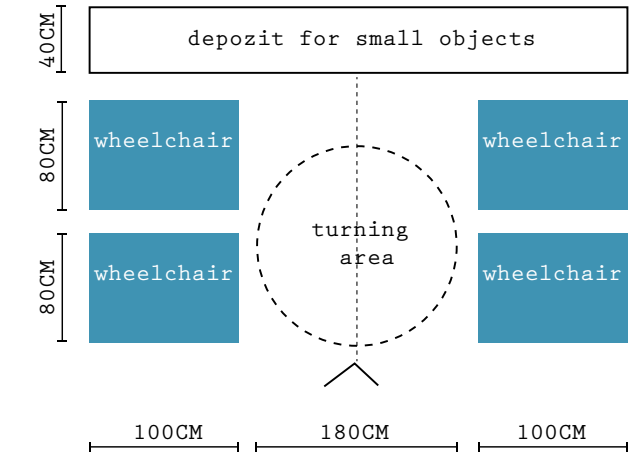
The schemas that follow in the suggested tje begginging of a user orienteted design and it is based on previous observation of the users and desk-research on wheelchair dimensions' standards (ADA, 2010). The proposal is also based on the Designer's experience in architecture and landscape design.

Further research is need to complete the design.

The Space Management

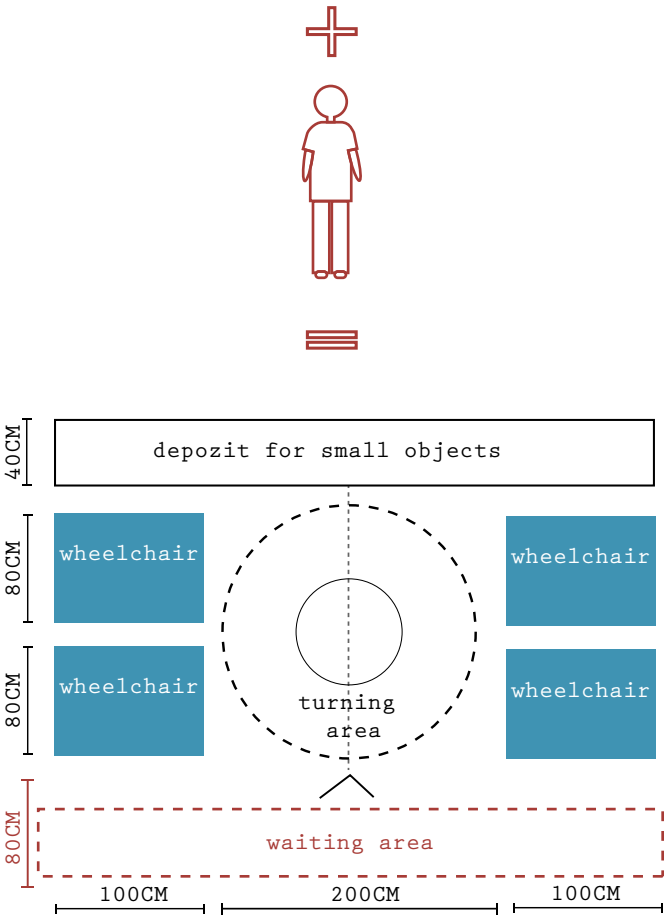
The Shed is structures to have space for 4 special wheelchairs. When in use, the wheelchair of the user will be parked and secured in the place of the special technology. The Shed will also have a shelf based deposit for smaller items that can help users in the area. It has also been considered the adding of a central space that facilitates turnings and an area dedicated for the caregivers.

The considered dimensions have been chosen in concordance with the standard wheelchair dimensions and the usual turning space Wheelchair Users need. The extra space has been added in order for caregivers to have maneuver space in case of needed assistance (ADA, 2010).



The Movement Management

The proposal suggests a turning area, a mechanically or electrically controlled circle in the floor that has the function of rotating allowing the user to easily shift from a chair to another. This sift will also be possible wit lift systems. This will function as an option and it will work in the following steps (mechanism behind this system need to be further researched):



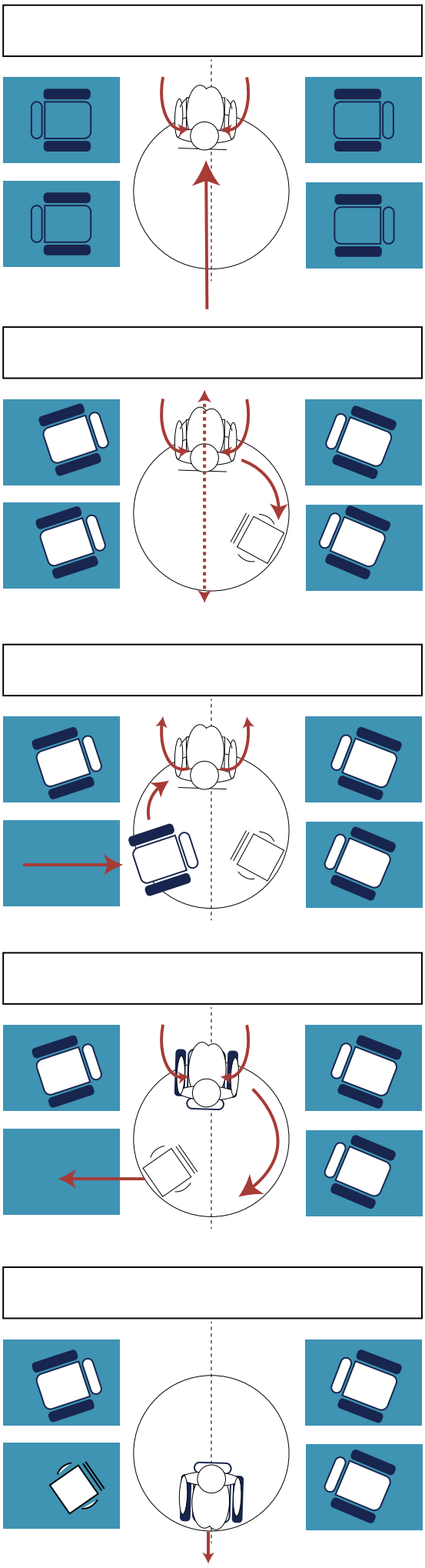
1. The user enters The Shed and selects the wheelchair he needs the user selects a place for the lift system to come down and is lifted from his/her wheelchair with the desired distance in order for the chair to easily move from under the user.

2. The turning circle will move 120 degrees and the wheelchair from under the user will be moved.

3. The selected special wheelchair will be moved to the turning circle from its original “parking” space.

4. The turning circle will move with another 120 degrees in order for the special wheelchair to be in position for the user to be placed in by the lift system. The wheelchair owned by the user will now be in position to be place in the place of the special wheelchair.

5. The turning circle will move once more and the user will now face the entrance and can proceed to exit.



The Technology

The technology that has will be used are on the one hand special wheelchairs and on the other hand devices and objects that can be useful. This aspect of the proposed Utility Shed is open for research as there are many opportunities for innovation in this area.

The wheelchairs can be specific for the area. If the area includes a beach, the wheelchair with large rounded tires will be included. If it is a forest area, the wheelchair with truck or mountain bike tiers will be used.

As adds on there will be a series of free-wheel devices that can be adapted to the users' wheelchair. Also, there are specially developed mats that can be put on the beach or rigid textured areas in order to facilitate transit.

Other useful objects, such as umbrellas or sticks to remove obstacles will be added.

The Access System

Ideally, The Shed will be access based on a DHF membership for locals and ticket-based for tourists. There is need of an informational system to make known the locations of The Sheds.

The system can be developed to the point of booking the needed technology and advance pay.

Economically, The Shed needs to produce enough money to support maintenance costs.

The Architecture

The Shed will be a minimal construction offering the necessary maneuver space for Wheelchair Users to easily access the technology. The placement of The Shed has to be close to an accessible path in order to avoid accidents.

The structure has to be strong enough to support the weights carried by the lift systems. It is proposed to use steel structures for the resistance system of the construction and sustainable materials of different designs depending on local choice.

DISCUSSION and CONCLUSIONS

Equal Accessibility to Nature, in its full understanding is a goal that cannot be reached easily. It will take a long period of time for the concept to sink into the culture of both users and society. Still, there is need for a process to start in order to achieve this goal, even if there are other priorities in play.

The presented strategy proposes a process, a step by step enrollment of relevant actors and periods of research and testing as well as time for adaptation between its stages. The objective-based strategy is meant to set intermediary goals that cannot exist one without the other. The actions proposed on the other hand can be interchangeable and adaptable to the manner the strategy would play out.

In this project Actor Network Theory is very important in understanding the actual situation and to simulate a movement towards a change in the direction of Equal Accessibility. The most relevant conclusion of the research has been that there needs to be an added value, preferably with economic characteristics. For sure there are actors that see the potential of social value but the ones that can sustain the effort need a powerful incentive.

On this argument, the need of supporting the strategy, that aims to achieve Equal Access to Natural Areas, with complementary concept is validated.

Equal Accessibility by its nature is a concept that has no economic value, as no one can put a price on it. However, by promoting Accessible Tourism and Disability Sports, it can generate indirect earnings that are taxable and can create an economic growth, which if strong enough will become a powerful incentive.

Another important aspect is the need to involve users in the process. As demonstrated before, users hold a significant amount of embedded knowledge to the detail of the smallest movement. This knowledge becomes embedded by practicing the same action over and over again thus, the importance of it being involved in the process of creating solutions.

Co-design methods as opposed to traditional planning practices have a clear advantage in this situation as it centers the user and creates solution with and for them.

On this note, it is important to highlight the opportunity that this poorly researched thematic brings. Accessibility to Natural Areas for disabled persons, especially for Wheelchair Users has not been explored deeply before. This creates the perfect opportunity to explore solutions from scratch without having to build upon existing practices. The Experimental Place proposed in the strategy has the aim of exploring the opportunities of researching with users and applying and testing solution that will materialize in a set of well-defined principles that are not based on assumption but on experience.

Considerations and Shortcoming

It is important to mention the following:

- The designer has find it difficult to engage with key actors such as DHF, DIHR and UN;
- At the same time, the designer has encountered close-end situations, meaning that some persons who would have been useful in the process of finding information have either not replied or have refused a meeting (arguing that the information is visible in the online platforms);
- The fact that the designer does not speak Danish has been found a step back in key communication points such as reaching more users;
- The complexity of the project has made it unreachable to explore in more detail the strategy and to foresee more opportunities;
- The last mention fact has made the designer focus only on Wheelchair Users, as taking on the whole spectrum of Disabled Persons would have implied an amount of work that would have taken a longer time than two semesters;
- The strategy and the design detailing have not been tested on actors.
- The Utility Shed will be further developed.
- All unreferenced images are property of the author

TO BE CONTINUED:

The designer will engage in trying to obtain a feed-back on the strategy and to promote it. Further details on the outcome of this work will be shown in the presentation part of this thesis.

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APPENDIX

A.

The Design Game

The design game simulates the issues wheel chair users have in nature. The small figurines simulate different conditions of wheel hair users (variation in capacities) and the board simulates challenges wheel chair users face in Natural Areas (vibration, slippery surfaces, ramps, different length of the road).

Participants (representing actors) were asked to communicate what they feel.

1.Annette enjoyed experimenting with the game and identified all problems.

This opens the discussion to recalling of own experiences. During the dissolution, Annette tried all 4 figurines and added new thoughts to the discussion.


1

2. Troels, tried the game and enjoyed it. During the dissolution he kept on playing with it and every time recalling another detail.

For the designer, this was a challenge because Troels has a vision disability. The methods of communicating on the design game change from “you see?“ to “can you feel?“


2

3. As an architect, Mathilde was interested in the object itself rather then what it represented. Once she engaged in the game she understood the idea and led the interview to reveling the needed information.


3

B.

DESIGN PROCESS

1.considering the user

User's point of view:

Considerations:

Abilities and body condition
Variation in capacities
Level of self-relince
Self-conception
Need of independace

Challenges:

Physical challenges:
Ramps
Obstacles
Slippery surfaces
Constant vibrations
Unpredictable events
Special toilets

Other challenges:
Need to plan in advance
Constant fear of accidents
Inability to reach destination

Benefits:

Feeling of belonging
Development of new practices and abilities
Increase in physical and psychological health

2. considering technology

THE TECHNOLOGY PART OF IT:

Considerations:

Access might be enabled or constrained depending on the type of wheelchair
In relation to Natural Areas there some solutions:

Manual Wheelchair

lighter and easier to control
requires good physical condition
needs more human power in certain situations

Electric Wheelchair

heavier and harder to control
does not require a big effort
easier to navigate spaces
higher risks of accidents

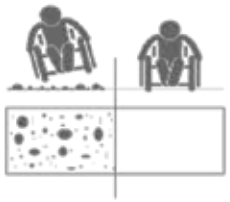
3. considering planing

THE PLANNING PART OF IT:

INFRASTRUCTURE ISSUES FOR WHEELCHAIR USERS:

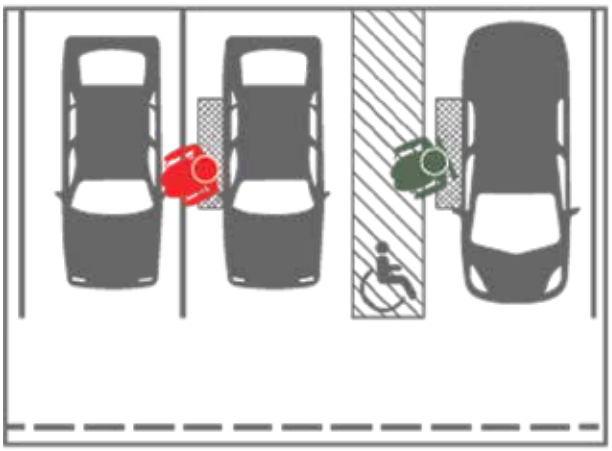
SLOPES

STAIRS AND SIDEWALKS

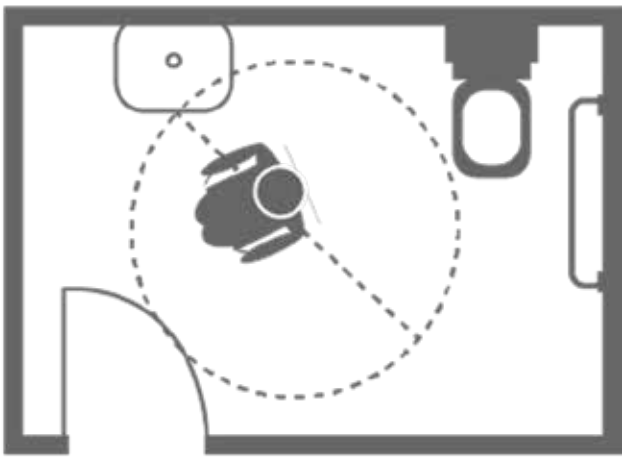


TEXTURE

ROAD DIMENSIONS

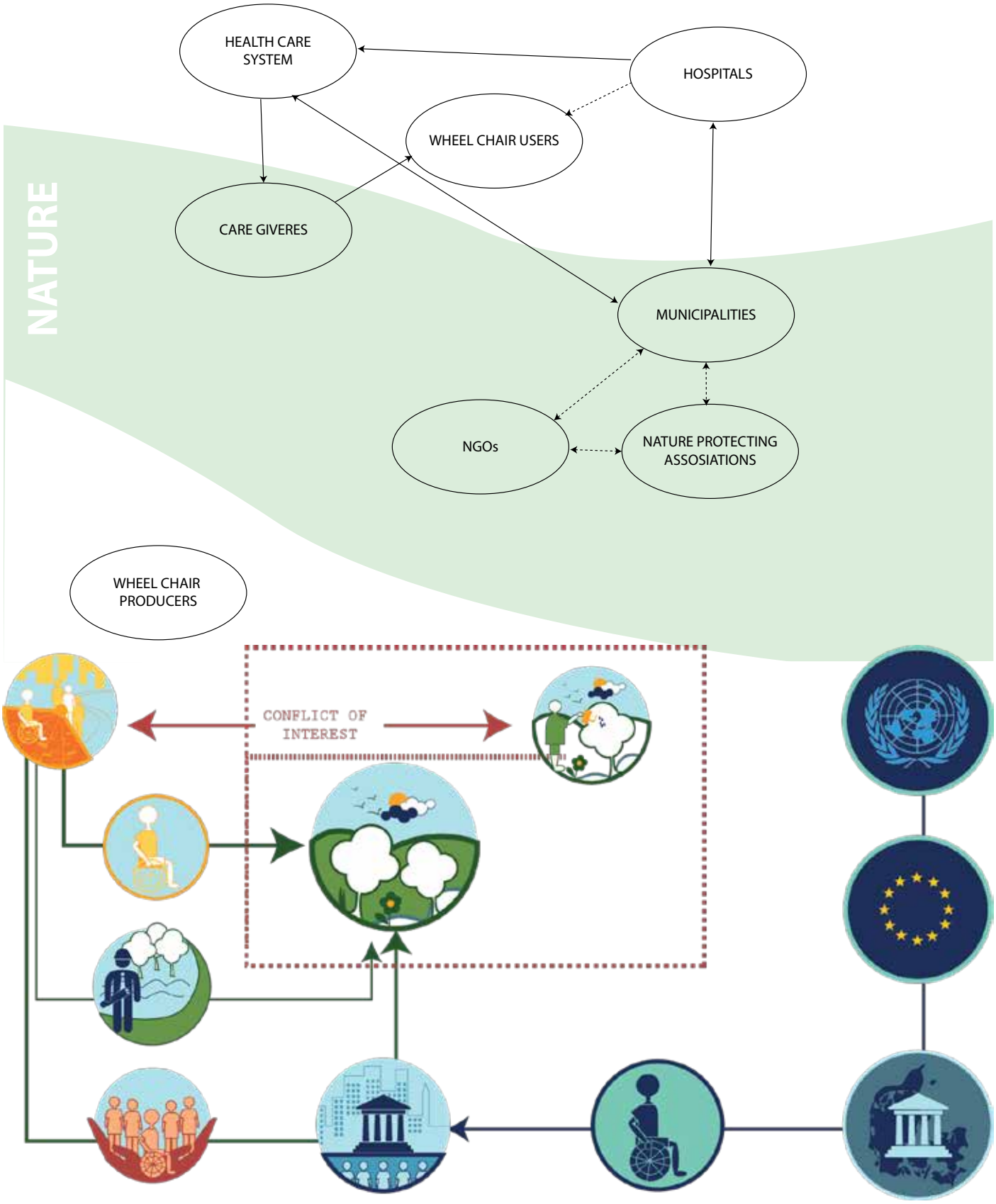


SPECIAL PARKING LOT



SPECIAL TOILETS

3. analyzing the network



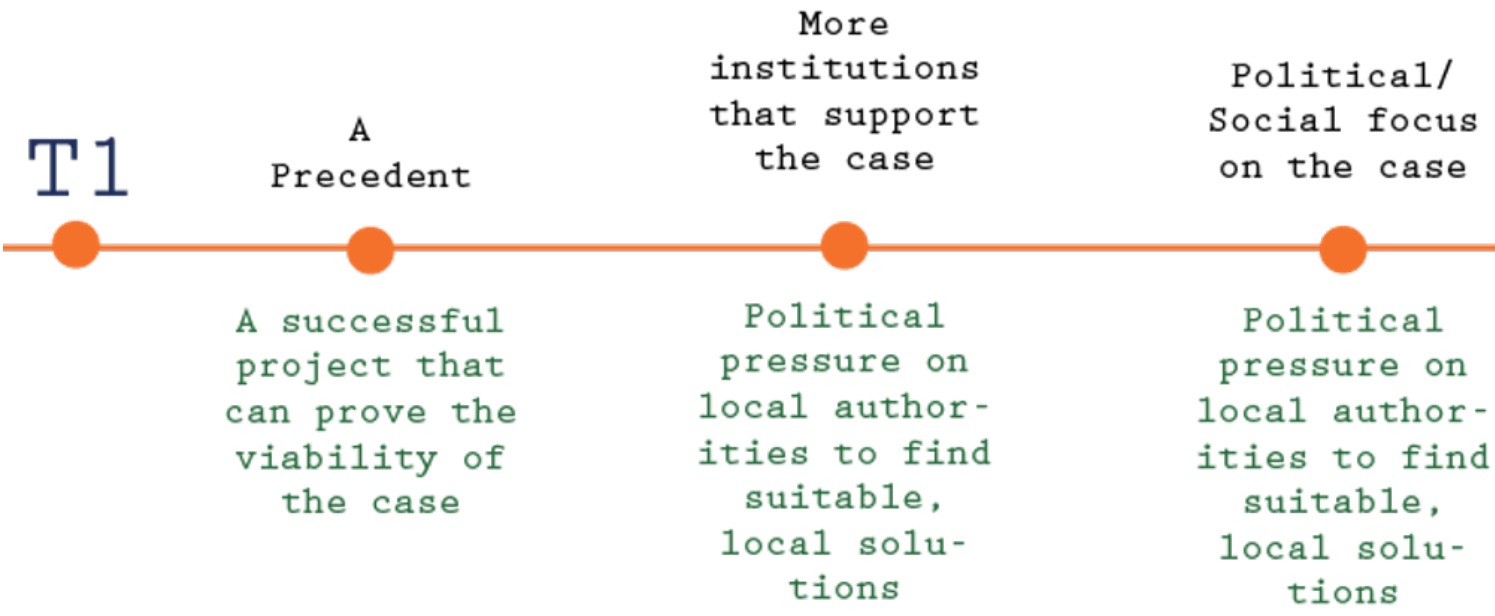
COMPETING PERSPECTIVES BETWEEN:

USER: Desire to go in Natural Areas

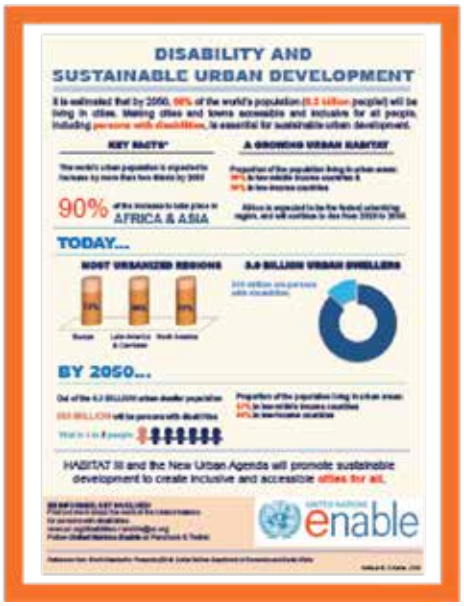
DANSKHANDICAPFORBUND: fights for Disabled Rights

DANSK Naturfredningsforening: Protects Natural Areas in Dk

UN and EU: Enforce disabled people rights on accessibility, but have diffrent focus



UN and EU frame on accessibility



Extensive research

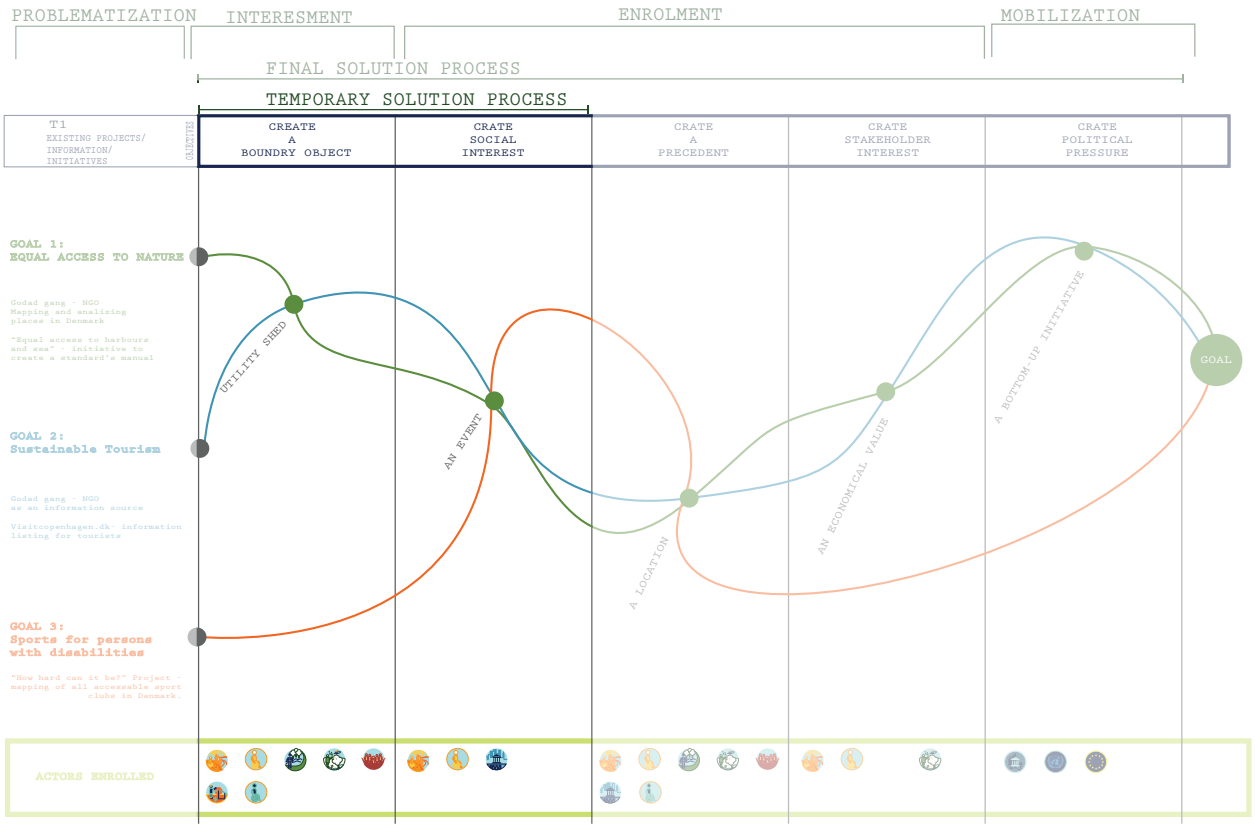
Multidisci-plinary approach to solution finding; USER INVOLVEMENT

Infrastructure

Solution to solve issues that does not affect Natural Environments

End Goal

WCU have access to Natural Areas



Short term Strategy

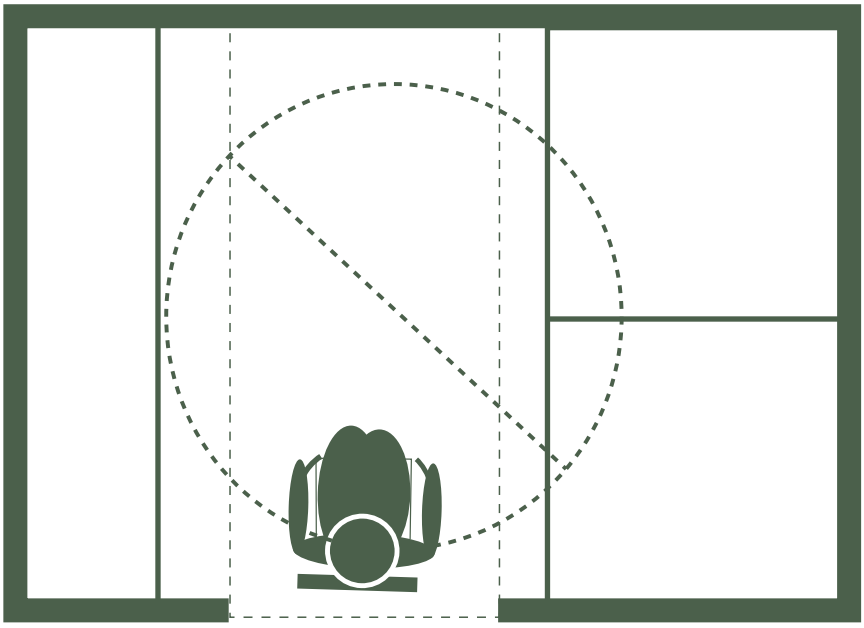
Problematization

how to design a sustainable utility shed for wheel chair usere to acess natural areas?

Interesment

- workshops, design competitions on what technology can be included and waht can be developed, or used as a helpfull tool.

- workshop, design competion on how to use resiliance and/or sustainable materials to build a shed.



Enrolment

- Engage diffrent actors (ex: STENA reclying) to support the shed. Wheel chair useres, architecture firms, social groups.

Mobilization

- 1st experiment with a shed in a natural area _ colect data and perfect shed based on feed back.

#californiaadventure #igla #californiadreaming #californialove #californiacoast #redhairdontcare #wheelchairlife #wheelchairexplorer #visitcalifornia #ca_usa #disabledtravel #lifegoesonwheels

Hello

So cool, I love this

I always wish I could get closer to the water though

thanks!

130 likes

Add a comment...

Shove your stereotypes up your ****

#DisabledTravel #TravelGram #ScottishHighlands #WheelchairLife #Wanderlust #Adventure #Waterfall #PicOfTheDay

We stayed up near there on the hydro electric site where the builders cottages had been turned into tourist cottages

My Hero!

It's beautiful, isn't it? I've just got back from one heck of a trip around Scotland!

and you're mine... Hope to meet you someday

225 likes

Mission complete.

#Vietnam #muine #sanddunes #redsand #travel #pushinglimits #wheelchairbackpacker #wanderlust

Great photo!

Thanks do you still want me to contact you guys about writing a blog piece? :)

Hope u have a great vacation in Vietnam :)

Great!!!!

Awesome feed!!! You go!!!

This is such an epic shot!

80 likes

Start at breakfast, dry and ready, and she is asking you, "What is my role here if they try to stop you? They told me on the phone they don't think you can do it. I want to advocate for you, but I don't want to speak for you." So you tell her that you have to wait and see. They might be right. Your usual trick is to show you can do the thing they think you can't. To make a display of your skills early. If they have the right spirit, that is always enough.

They have the right spirit, she has the right

Considered to be the happiest sign of the zodiac, #Sagittarius takes risks and is very optimistic. They believe the universe will provide everything they need ♐⭐ #dowhatyoulove & #lovewhatyoudo
#lovewhatyoudo
#LOVEYOUSOMUCH
❤️😍❤️

mud. Your shoulders ache and so does the right side of your body where the muscles do most of the work. But then the path clears. The entire #range of #mountain is in #view. You are the #emperor of this #land, this hike, this #pose. Back down, you are so completely spent. The sun is fading and the way back home is #arduous. You need your #travel friends for more than just filming. Now you need them to #boost you every time you get stuck. They're patient. You just #focus on one short stretch at a time. You make it. Back at the oil tanker, you crawl up

50 likes

Add a comment...

take time to escape ... #marcherdanslamemedirection . Some pictures of the few days that we spent on the island of ré! We love going there! It was our first time at three and it was great! Some places are well accessible and it allows us to leave with peace of mind it's great! There is the lighthouse of the whales but also the restaurant La bazenne with the doors in D. Several beaches are equipped with the seahorse armchair to go swimming (a little too cold for us this weekend), and for those who love handbike there are bike paths everywhere! The dream 😍 #babybloggeuse #wheelchairlife # îlederé #weekendenfamily

Hi hi, it looks like I know these 2 silhouettes ... 😍😍😍

80 likes

Stuck in the sand. 🤷 Wheels can get you all lot of places but not everywhere 🤷‍♀️. #wheelchairlife #offroad Anyway it Doesn't stop me from trying #onwheels #thismoment #graffiti #accessibility #reallife #paraplegic #sci #wheels #wheelchairgirl #lifegoesonwheels #rolling #mermaid #urban #struggle #paralyzed

Made a cool picture your stop! 😊

#florida #beach

Fun!!! Thanks for following
Very nice pic
What kind of a smart model wheelchair can drive on sand? Such one I wish 😍 too
It's a Permobil M400, but it's not because it's running in sand. It's concrete under the thin layer of sand 😊
Well, for the heck, I was stuck in the sand and ended up lending a beach chair with huge tires. How is your wheelchair to fly with? You know - weight limits, height, battery and that kind of?
wheelchairexplorer take it in DM 😊

1,975 likes

don't be scared to like it.
Send meeee our pics 😍😍
You're SUPER- AWESOME!!
So true I have found solo trips really help me mentally. I think in today's world we need to disconnect from others to reconnect with ourselves even if it's only briefly
❤️

193 likes

Soon after taking this picture a guy on a bike shouted "Scheiß Leben" at me, twice. It means "shit life" and I can only imagine he was directing his comments towards a description of how he viewed my existence. Jokes on you mate, I adore my life!
How clueless. 😂😂 that guy has NO IDEA. Love my life, as you love yours. 🤷‍♀️💙
@kellypeebz amen to

524 likes

1 year ago we were venturing through Southeast Asia to realize a dream that was to know Thailand and Indonesia! We had a little idea that it would not be so simple. We knew that there would be no access ramp, level asphalt, elevator in most hotels and everything else that would make our accessibility easy. But even so, we went after that dream. It would not be a wheelchair that would stop us. That's where we started our adventure of almost 1 month! If they wanted to trouble us, we'd find a way! I think the was the first wheelchair in Southeast Asia 🤣 everyone looked and could not imagine how that guy had gotten there, on that tiny island with no structure at all! We became famous! Many gringos greeted Leo, he seemed to have known everyone for decades! Me and him we thought we