



AALBORG UNIVERSITY
DENMARK

CLIMATE ADAPTATION AWARENESS

WHAT CAN WE LEARN FROM COPENHAGEN?

Master Thesis, MSc. in Sustainable Cities
Supervisor: Matthew Cashmore
Student: Eduardo Peralta López
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PREFACE

The present problem based learning project report has been written in the fourth semester of the Master Programme Sustainable Cities, Department of Development and Planning at Aalborg University Copenhagen. It accounts for 30 ECTS and has been carried out in the period from 1st of February 2016 to 2nd of June 2016. This report has been written by Eduardo Peralta López, with Matthew Cashmore as supervisor providing with help and advice.

The thesis aims to study ways to improve climate adaptation awareness and provide with guidance based on the examples and experience gained in Copenhagen. Copenhagen as a frontrunner city in climate adaptation can provide good example for other cities to adopt measures in order to raise citizens' awareness.

The study aims to develop a tool that may provide of a more sustainable and efficient approach to fulfil these demands, by maximizing synergies in the process through the integration of different activities.

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To all thank you.

ABSTRACT

This study looks into initiatives and organizations working to raise climate adaptation awareness in the context of Copenhagen; aiming to provide best-practices examples and guidance for the improvement of climate adaptation awareness-raising processes.

The study focuses on the study of three initiatives and organizations. It studies the characteristics of these initiatives, the experience of the participants and experts, and the context in which those are taking place.


The description of the initiatives is based on a conceptual framework that provides guidance (i) to analyse the educational approaches; (ii) the settings in which those are taking place; and (iii) to identify the factors that enable this type of initiatives to take place (e.g. network relations and funding). It also studied the benefits that network governing can offer in order to improve the current state of knowledge sharing and social capital building.


The study concluded that the initiatives studied present potential to improve awareness and build social capital. However they would be improved through a well coordinated network governance of the actors providing climate adaptation education. A well ingrained set of actors formed by autonomous or state founded organizations that develop strong ties with communities and provide knowledge through diverse settings. Organizations and initiatives funded by both public and private sector investments The Municipality in this way would delegate competences to third parties and play a role of structure of authority coordinating strategies and joint actions.


Key words: climate adaptation, Awareness-raising, network governing, social capital, Organization, citizens.


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Photo: "Park in a Week", Climate adaptation projects information tour.

1. INTRODUCTION

1.1 THE CHALLENGES OF CLIMATE CHANGE

Climate change represents a huge problem for humanity and most of the species and ecosystems in the world. Researchers have been studying this process for decades. Scientific consensus on the importance and challenges that climate change represent, has grown since the Intergovernmental Panel of Climate Change (IPCC) published its first scientific assessment of climate change in June 1990. The point of no return has been passed, and although mitigation measures are necessary, it is important that adaptation measures to the effects of climate change take place. Even though awareness of the repercussion of climate change has grown over the years, awareness of the importance to adapt to its effects is not yet on the same level in governmental and public spheres. There is a lot of work ahead to improve this situation so that governments and society work together to adapt to climate change (Swart et al., 2012; European Commission, 2013a).

The consequences related with climate change are uncertain and will vary spatially and over time. Climate adaptation thus needs to have a local approach that adjusts to the nuances of each case. To do so, it is highly desirable to have approaches that involve citizens in their communities' adaptation. This is because city planning is no longer a solely institutional issue, but a job of cooperation between all the parties affected by the changes. However, in order to do so a well-informed society is needed (UN, 1992; Baas & Ramasamy, 2008; EEA, 2012).

The European Union and the UN have shown concerns regarding the state of public awareness on climate change and pointed out its importance to reach a sustainable climate adaptation (UNEP, 2007; European commission, 2013). The European commission in its Strategy on adaptation to climate change (European commission, 2013) share eight actions, of which Action 4 and 5 focus on reducing the knowledge gap between the scientific community and institutions. Also, the UN in its climate change strategy (UNEP, 2007), reveals that two out of the four Strategic priorities of UNEP's climate change programme are related with information sharing and public awareness-raising.

There is a need to increase public awareness on climate change and climate adaptation. Copenhagen in its climate adaptation plan (City of Copenhagen, 2011) also points out the need to improve the supply of information and knowledge to the public in order to improve and ensure climate adaptation. Most of the work being done around the world is based on the engineering and architectural solutions* needed to reduce the damage and vulnerability of cities and systems. However, the social side of adaptation has been less extensive. Greater involvement of the population is needed in order to ensure that climate change policies and strategies have a better outcome and can be successful in the long term (Adger, 2010).

This all led to the formulation of this research; to study ways in which climate adaptation awareness-raising was taking place in Copenhagen.

To do so three cases were selected, due to their characteristics, to study how climate adaptation information-education was taking place. The focus is on the educational approaches that are being used and the setting in which they are provided. Further focus is given to the study of the scenario and the dynamics of the work and relationship established between these organizations, citizens and institutions.

In order to reach a good understanding of this process, it was necessary to analyse the different actors involved, their points of view and their experiences. In this case three main actors were identified: The Municipality of Copenhagen, organizations and citizens. In this way a closer view was obtained of the dimensions that enable climate adaptation awareness and its limitations. The aim being: to understand the process; discuss if this model can be applied to other contexts; and identify what the recommendation would be to move towards this scenario in other cities.

* The term “solution” is used a way to describe the actions that can be taken to adapt in order to simplify, even though there is a debate whether real solutions to exists.”

1.2. RESEARCH QUESTION FORMULATION

This led to the development of the following the research questions.

- What are the strategies set in the Copenhagen context to improve climate adaptation awareness?
- What can be done to improve the current scenario?
- Can this model be adopted in other cities to improve climate adaptation?

Copenhagen can teach a lot about sustainability. Denmark is one of the leading countries in sustainability and climate adaptation policies and strategies. Copenhagen is top-ranked in several indexes: third in the 2015 Arcadis sustainable cities index, and first in the European Green Cities Index 2009. In the 2016 Environmental Performance Index (EPI) and the ND-GAIN Country Index, Denmark is ranked in the 3rd place (Siemens, 2009; ND-GAIN 2014; Arcadis 2015; Yale, 2016) . The ND-GAIN Country Index shows countries vulnerability to climate change and other global challenges in combination with their readiness to improve resilience. It could be said that Copenhagen is a research city when it comes to sustainable development and climate adaptation. In Copenhagen, new projects and approaches are being tested to improve the current scenario; Institutions, organizations and citizens work together to reach a more sustainable future (City of Copenhagen, 2007; City of Copenhagen, 2012; City of Copenhagen, 2015).

But what is understood by climate adaptation?

According to the Intergovernmental Panel on Climate Change, adaptation can be defined as “adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities” (IPPC, 2007, Appendix 1)

Adaptation can be differentiated in several ways depending on the process itself (its goal) being distinguished: (i) anticipatory adaptation (Also called proactive adaptation) takes place before impacts are observed; (ii) autonomous adaptation (Also referred to as spontaneous adaptation) is the result of ecological changes in natural systems and/or market/ welfare changes in human systems, it does not constitute a conscious response to climatic stimuli; and (iii) planned adaptation, the result of a deliberate policy decision, mainly based on an awareness that action is required. (IPPC, 2007, Appendix 1).

The city of Copenhagen is working in a situation where short-term changes are needed to adapt to climate change. The city understands the necessity to integrate all types of capital to do so. Though there is not general agreement regarding the different types of capital that exist, they can be reduced into 3 main types: Economic (manufactured and financial), Social (Human, social and political) and Natural Capital (Goodwin, 2003). To achieve the necessary adaptation, the city is trying to improve the way in which social capital, the potential of which is currently underexploited, is tapped to enhance sustainable development in the city.

However, in order to create social capital in relation to climate adaptation, it is necessary to enhance the overall environmental awareness that citizens have. More specifically, environmental awareness regarding climate change and climate adaptation solutions must be enhanced in order to ensure adaptation to climate change. Social awareness is described as the consciousness and knowledge that citizens have on a specific issue, as in this case, with climate adaptation (UN, 1992).

The present research question sets the study to:

- (i) investigate the state of current climate adaptation awareness in Copenhagen and what the city is doing in relation with it in order to understand the reasons behind the initiatives studied.
- (ii) analyse several initiatives developed by organizations that work to improve climate adaptation awareness, to learn from their experience and their knowledge.
- (iii) assess if those initiatives are helping to raise climate adaptation awareness and in which ways they do so.
- (iv) analyse the network that enables education for climate adaptation; whether those approaches can be used to develop a more efficient and sustainable model for climate adaptation by putting more emphasis on the role of autonomous organizations* and social capital?

*The term autonomous organizations refers to those organizations that are not part of the institutions and structure of authorities. Organizations that work with autonomy and can collaborate with institutions playing a role of intermediaries between them and the general public.

1.3. EMPIRICAL EXAMINATION OF THE RESEARCH QUESTION

The presented research question, as explained before, congregates the main topic of study in the present research. It focuses on the state of climate adaptation awareness in the city of Copenhagen and the initiatives that are working to improve it. Such questions are relevant as climate adaptation awareness is a topic that is currently being discussed in order to improve adaptation processes. As such, studies that focus on how local cases take place and the ways they promote climate adaptation education, can provide a valuable view for experts and planners in other parts of the world. The facts that these cases are framed in a front-runner city as Copenhagen, adds value to the study because it provides examples in an unique context.

1.4. RELEVANCE OF THE STUDY

The relevance of the research lies on the need to have a better understanding of the processes that are taking place to improve climate adaptation awareness. There is a need to learn from these experiences and provide with best practices examples. There is little amount of studies done on this specific topic and there are not clear strategies and approaches for cities to raise awareness on climate adaptation. Even in a city like Copenhagen the amount of information available in relation with the ways in which the city is facing this problem is scarce, as it also happens in other the cities and countries.

That is why it is important to study the state of art in a city like Copenhagen, so more cities can learn from the experience gained here.

The study focuses in a frontrunner context, as is the city of Copenhagen, which can provide cases to analyse the challenges that climate adaptation awareness-raising processes are facing and examples of good practices to improve them. The research takes the recommendations that experts and international organizations are giving and provides with guidance to improve the current context in the city of Copenhagen, setting example for other cities to improve the way in which climate adaptation awareness-raising takes place.

1.5. OUTLINE OF GENERAL ANALYTICAL FRAMEWORK APPLIED TO ANSWER THE RQ

The analytical framework used to answer the research question was based on the concepts and theories described in the conceptual framework. It provided with the theories and guidance to analyse the data and find answers to the questions raised. In order to answer the research question the first step was to find guidance on the types of awareness and how they can be improved was needed.

Social capital theories provided the base to answer the research question. The construction of social capital is the main reason behind the efforts to raise awareness on the population. The three dimensions of social capital (structural, relational and cognitive) were used to study the effect that these types of initiative had over the awareness raising process and construction of social capital for climate adaptation.

Educational theories were looked into to obtain guidance for the analysis on the educational initiatives studied here. The study of the initiatives analysing them from an educational perspective had a great importance to examine the characteristics and outcome of these.

Network Governance theory was used to study the effect that the context in which the organizations worked had on the process of raising awareness, also to study what strategy or model could be used to improve the process.

That analytical framework permitted answering the research question; by providing information of initiatives and strategies taking place in Copenhagen to improve climate adaptation awareness, and how they can be used as a model to improve climate adaptation in other parts in the world.

1.6. DELIMITATION OF THE STUDY

This report aimed to answer the research questions through the analysis of three cases which main focus was to raise climate adaptation awareness, and the context that enabled them. The cases were comprised for three organizations; Miljøpunkt, Den Grønne Friskole and LIFE exhibitions and tree initiatives; “Park in a Week”, “Des fælle bedste” and “styr på 20 klimaet løsninger”, correspondent to each of the organizations respectively.

It was focused on the Copenhagen context due to the characteristics of the context and the initiatives that are taking place, it constitutes an interesting context for climate adaptation, environmental awareness of the population and the relation that institutions have with their citizens. The case is also influenced by the European context, as Denmark is part of the European Union, which is why the search of international guidance was mainly focused on European sources and some global ones as the UN. It also led to the limitation of the review conducted to the state of different countries and the strategies that are being set in European countries.

However there were limitations mainly related with the amount of time provided to conduct this thesis. The study focuses on the means to improve climate adaptation awareness; and how this presents an opportunity for social capital building in relation with climate adaptation. However the methods to integrate social capital in climate adaptation processes were not addressed, the study was limited to the ways in which climate awareness could be raised and how it would help building social capital.

The study also focused on the network in which these organizations work, but the ties linking them with other actors were not deeply analysed; also due to limitations in time. The basic information was collected but a further research could provide a clearer path to improve the current situation.

There were also limitations regarding the data collected. The study would have benefited from a higher number of interviews conducted, also from surveys to obtain a clearer view of the citizens' perceptions. Even though the number of interviews conducted permitted to obtain a good perception of the general state of awareness, more information would have provided a more reliable outcome. There were also difficulties to contact the school staff of "Den Grønne Friskole" and obtain information from the educators, even so the information available online regarding the school and its' policies was enough to analyse the case; and the rest of the efforts were directed to interview the families related with the school.

There were also limitations due to language barriers as some of the information was only available in Danish. The interviews were not conducted in the interviewees' mother tongue, which might have limited also the information obtained from them.

1.7. REVIEW OF THE STATE OF ART

This section focuses on the state of climate adaptation awareness in the European context, how it is being addressed and what guidance international organizations are providing to undertake this task.

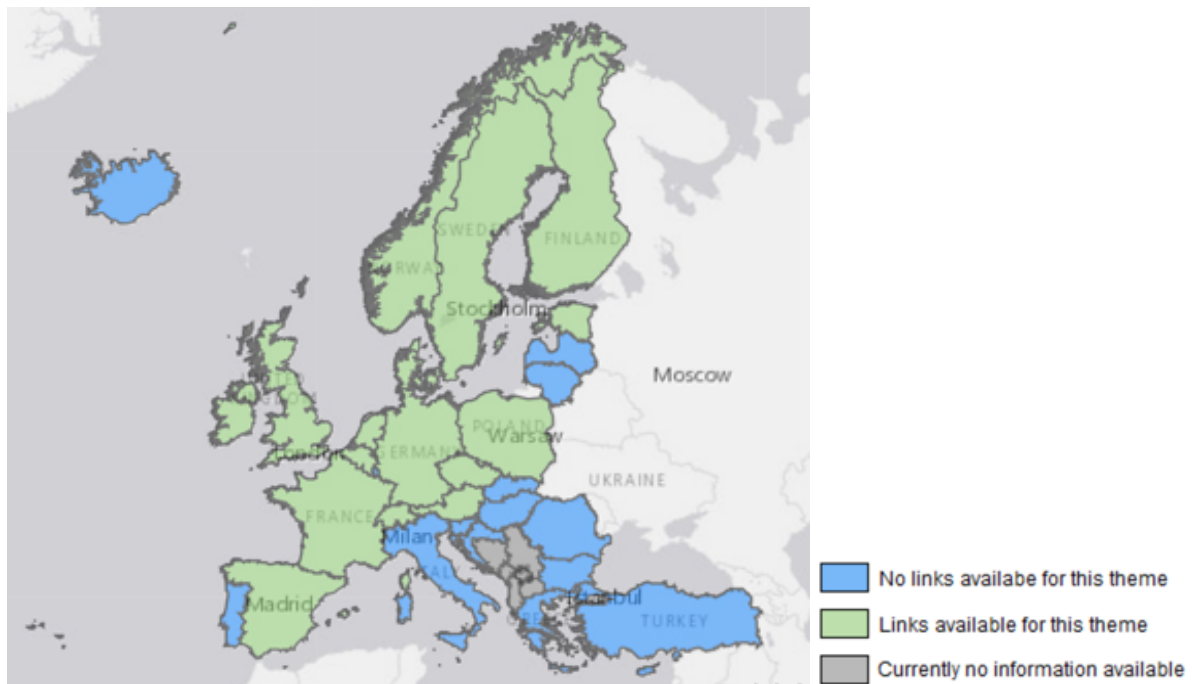
Countries in Europe are adapting to climate change, adopting measures to reduce the vulnerability of cities. The European Union has urged the creation of national policies for climate adaptation. The European Environmental Agency has been working on this for many years now. Most of the population lives in urban areas and the impacts will affect more people in these areas: "Three quarters of the population of Europe live in urban areas and this is where climate change will be most apparent in everyday life." (EEA, 2012, p.6).

There is not a single solution to adapt cities to climate change due to the particularities of each case. Nevertheless, there are some guides to help establish successful adaptation on urban planning. The European Environmental Agency points out several factors that should be taken into consideration (EEA, 2012, p.79):

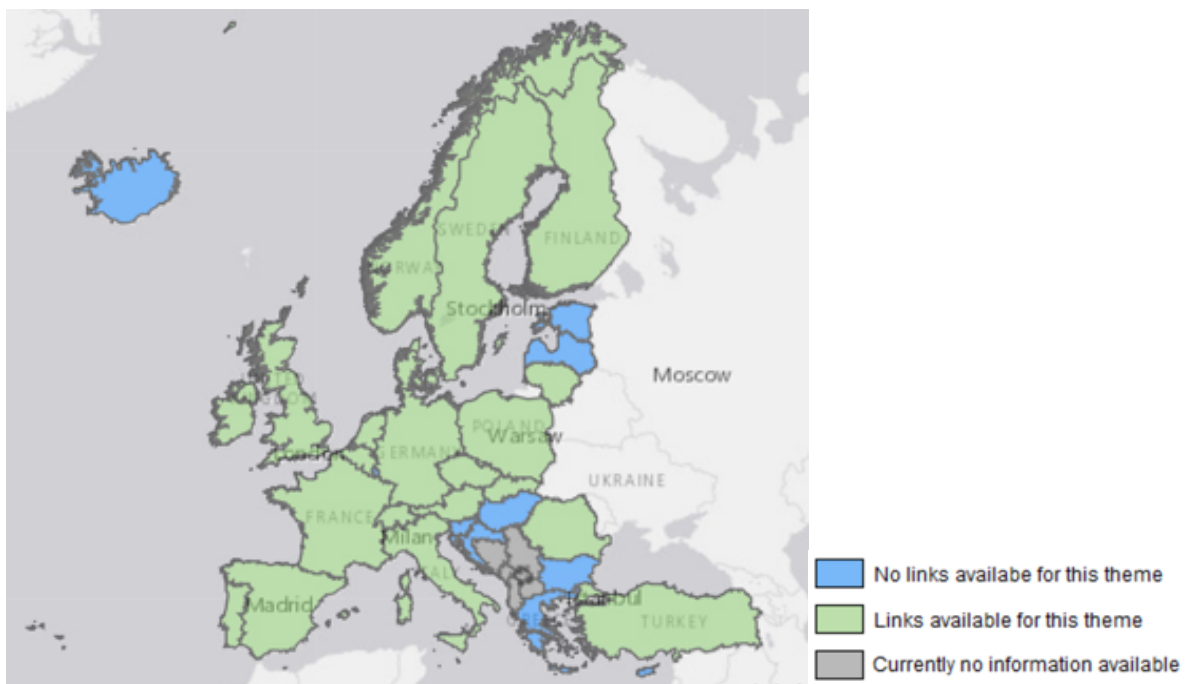
- Awareness-raising actions should be targeted at stakeholders, ranging from citizens to national and European governments, and cover various aspects of climate change adaptation.
- Successful adaptation cuts across sectors and scales. Planning and implementation needs to involve horizontal collaboration between different sectors or policy departments, as well as vertical coordination between different administrative levels.
- Adaptation solutions that deliver additional benefits, such as green urban areas, increase the willingness to accept and implement them.
- Working with nature, instead of working against natural processes, and using green infrastructure are sustainable solutions with multiple benefits.
- Many climate change adaptation measures can be implemented at low-cost or contribute positively in other areas. However, a sufficient resource base in terms of financial, human and institutional resources needs to be developed and secured.

Climate adaptation processes are linked with communication or information of citizens. In Europe, this information sharing is taking place in different ways. In general terms most of the information is being shared from a national approach, as part of the National Adaptation Strategies. Several online platforms have been made available for citizens to access information on climate adaptation. An example of those are the European Climate adaptation platform, from the European Environmental Agency, or the Danish Information Centre on adaptation, with the same objective. This can be an indicator of the action that European countries are taking in order to provide basic information about climate adaptation.

As the following figure shows most western and north European countries have platforms specialised in adaptation to climate change (16 out of the 28 countries that currently form the European union). Such specialised platforms being absent in most of the east and southern countries, with the exception of Spain.



Besides that, most European Union countries have created National Adaptation Strategies as can be seen in Figure 2, which also illustrates that not all of the work being done in climate adaptation in Europe has a strong communication aspect related.



The nature of these strategies are diverse, and their implementation may differ between countries. Even though strategies are set to adapt cities to climate change, this does not necessarily mean that they are being implemented or communicated to the population.

The General trend in European countries is to integrate or mainstream climate adaptation into very different sectors, based on the concept of Environmental Policy Integration and Climate Policy Integration (Jordan & Lenschow, 2010; Adelle & Russel, 2013; Bauer & Steurer, 2015). These are built upon the integration of climate policies horizontally across different sectors and vertically across levels of government (European Commission 2007; Gupta 2007; Gupta et al. 2007; Yohe et al. 2007; Bauer & Steurer, 2015). This approach has shown challenges in some cases as cross-scale interdependencies might not be matched with adequate cross-scale linkages (Adger et al. 2005). This complicates the proper implementation of those strategies in an efficient way due to the lack of developed networks. This is further complicated by the frequent lack of consistency between the levels of governments in terms of coordination for adaptation and communication (Swart et al, 2009; Bauer & Steurer, 2015).

European countries as independent states have approached climate adaptation communication and awareness-raising by putting emphasis on different approaches. According to the majority of them: communicating and informing about adaptation is vital for an effective adaptation process. However, there is no common understanding of the most appropriate approach to do so (Swart et al, 2009).

National Adaptation strategies and communication

Something common to most of the National Adaptation Strategies is the sparse evidence of any clear communications strategies in them as Swart et al. (2009) pointed out. Instead, mitigation is the main focus of these strategies. This is despite most of them highlighting the importance that communicating and raising awareness has, in order to adapt to climate change. This is especially important if it is provided to a wide audience, in order to gain support for public policies. However, they all leave aside the role that citizens can play in adaptation on a local scale (Swart et al, 2009).

The next table illustrates the measures that countries have set in their national strategies as their approach to raise awareness and educate citizens in climate adaptation. However, the way in which they decide to implement these strategies is not specified (Swart et al, 2009).

Table 1: Awareness raising in national adaptation strategies (Swart et al, 2009).

Country	Strategy	Raising awareness
Denmark	"Strategi for tilpasning til klimaændringer i Danmark"	NAS explicitly highlights communication and raising awareness as one of three main core initiatives. Proposes the establishment of an information strategy and the organisation of a web-portal. Recognises citizens, businesses and municipalities as key players.
Finland	"Finland's National Strategy for Adaptation to Climate Change"	Proposes to conduct further research on public participation in climate adaptation. Recognises that municipalities, regional and sectorial administrations as important stakeholders when developing adaptation policies.
France	"Stratégie nationale d'adaptation au changement climatique"	Proposes to spread information and pay special attention to making local decision makers aware of the need to adapt to climate change.
Germany	"Deutsche Strategie zur Anpassung an den Klimawandel"	Proposes the establishment of an information strategy and the organisation of a web-portal. Spread information through KomPass (stakeholder dialogues, newsletters, workshops, brochures, risk maps) Recognises that municipalities, regional and sectoral administrations as important stakeholders when developing adaptation policies.
Netherlands	"Maak ruimte voor klimaat!"	Together with public and private organisations enhance society's awareness and increase its willingness to act; develop a national communication strategy on the impacts of climate change.
Spain	"Plan de nacional de adaptación al cambio climático"	Although the strategy stresses the importance of good communication, and the Environment Ministry provides some information and links on its websites (primarily linked to mitigation), no comprehensive climate change adaptation communication strategy appears to have been developed.
United Kingdom	"Adapting to climate change in England. A framework for Action"	Communication is one of the four work streams.

By looking at the National Adaptation Strategies, we can observe how there is general agreement on the importance of raising awareness, particularly through a cross-level approach, giving a bigger role to sectorial and local institutions in terms of communication with citizens. This is because they can have an important role on this process, even if they lack knowledge on climate change, they can take action to adapt to the impacts at an individual level. (IPCC, 2007; Swart et al, 2009; European Environment Agency, 2012; European Commission, 2013; Bauer & Steurer, 2015).

Involvement of citizens

Many projects are being carried out in order to raise climate adaptation awareness and to find good practices to educate people on it (Swart et al, 2009). Most of these approaches, even where coordinated by a national strategy, are conducted by local authorities (Swart et al, 2009). Despite strategies aiming to raise support for policies, most authors defend the need for empowerment and involvement of citizens on climate adaptation processes. This is based on the premise that Baas & Ramasamy (2008) expressed: “Climate adaptation is a social learning process that creates the capacity to cope with climate change-related impact”. Thus, climate adaptation and social learning are linked concepts. As such, attempts have been made to develop them together, with the complimentary goal of communities empowering throughout the promotion of decision-making and capacity-building processes linked with this social learning (Baas & Ramasamy, 2008).

That is why many experts express the need to enhance communication on climate adaptation by integrating education and participation in local projects (Adger, et al., 2003; Paavola and Adger, 2006; Resilient Cities, 2014). As Ton Verhoeven from Nijmegen shared “Communication about climate change adaptation is achieved mainly through cooperation between people: Through a project you convince people to join a movement” (Resilient Cities, 2014). By enabling citizens to relate the challenges that climate change brings in both cognitive and affective dimensions, there is an opportunity for climate adaptation to be improved. As Sebastian M. Witte from Arnsberg and Marie Gantois from Paris reported, ‘We can’t raise awareness by telling people we’re getting four degrees warmer on earth; we need to show people local vulnerabilities.’ (Resilient Cities, 2014).

This builds a two way learning process, as Marie Gantois explained, referring to the knowledge gained through the experience made in Paris where urban technical service and maintenance workers were involved in the vulnerability assessment. In this way the experience that workers had about the impacts that occurred in previous events, was used to improve the knowledge that planners had on this context and the best ways to respond to it. At the same time workers raised their awareness on climate adaptation, so they had a bigger understanding of the reasons behind some of the work that was being done. This case illustrates the efforts of experts and institutions to bring climate adaptation awareness-raising to the local level, by actions like the involvement of citizens in these processes (Resilient Cities, 2014).

Multilevel governing and the role of local approaches

As previously explained, it is generally understood that multi-level governance is key to plan for climate adaptation. Upper levels of governing are in need of the lower levels, and vice versa, in order to communicate and involve citizens and other stakeholders in the process of adapting. Upper levels have many restrictions on providing information, despite their provision through webpages and campaigns. Lower levels have limitations on human resources, funding and expertise in some cases. This approach suits the needs of awareness-raising, as communicating about climate adaptation needs a tailored approach to provide information in the most effective manner to the different audiences (Baas & Ramasamy, 2008; Resilient Cities, 2014).

In this way, even though National Adaptation Strategies play an important role as guidance and main regulatory mechanism, they are a limited asset when providing specific directions for the implementation of climate adaptation awareness-raising processes. There is generally a lack of consistency between the different levels as the European Commission shared on his Adaptation Strategies for climate adaptation (European Commission, 2013).

Beyond the general understanding of the improvement of climate adaptation processes and climate adaptation awareness, is horizontal integration of different stakeholders. This includes the academic and research institutes, organizations and the private sector and providing them with an important role on the development of adaptation both in projects as in communication and information processes (European Environment Agency 2012; European Commission, 2013; Resilient Cities, 2014).

REPORT STRUCTURE

The report will be structured in several chapters; in chapter 2 the conceptual frame will be described, which will provide the framework for the analysis and study of the problem. In Chapter 3 the methods used in the study will be detailed in order to give a clear idea of the components of the research and the way in which it was conducted. In Chapter 4 the cases will be presented and described to be analysed in chapter 5 through the data collected, in the appendices.

The last chapters, 6 and 7 focus respectively on presenting the discussion of the data analysed and the conclusion answering the research question.



Photo: "Det fælles bedste", Kompost Budene stand.

2. METHODOLOGY

The next chapter discusses the methodology used in this study. Where it will be explained how did the study take place and what was its structure, in order to clarify the procedure and the aim of this research. The first section describes the strategy selected to conduct this study. The second describes the reasons behind the choice of case study for this report. And the third one clarifies the conducted experiments and materials used to do so, it will also explain how the material was collected and how it was used in the analysis.

2.1 STRATEGY OF THE STUDY

The research strategy adopted in this study was shaped with the aim of finding the best approach to answer the research question.

The present study is a descriptive and deductive case. As it describes and studies several awareness-raising initiatives and develops a hypothesis based on existing theory and collected data. In addition, it was set with an action research approach: it tries to solve the current problem through a reflective process of dynamic problem solving (Whyte, 1991; Reason & Bradbury, 2001). It does this by working in collaboration with other teams as part of a community practice, to improve the way in which they can solve a specific problem and to produce guidelines for best practices.

The principal idea for this study was to identify and examine multiple awareness-raising initiatives that could be used as a guide to develop a model that may improve the way climate adaptation awareness takes place and how it may play a role in the improvement of the overall adaptation processes. To learn from the cases, the different educational approaches and the settings in which this information was being shared were analysed. Special attention being given to the context in which it took place in order to gain understanding not just from the processes but also from the factors that are facilitating or obstructing it.

The first step to develop the study was to conduct a literature review, looking into previous studies and research in relation to climate awareness. This was necessary, as to gain knowledge on the role that it plays in international and local policies in relation to planning for climate adaptation. It was also crucial to gain knowledge about the different approaches for environmental education and how it might be improved. Both of which were necessary to select the cases to be studied.

2.1.1. RESEARCH STAGES

The study was carried out in several stages that provided the study with a strong base and structure.

1

The first stage of the study consisted of a literature review on the environmental education and awareness approaches, in order to learn about the state of art and to know more about the different approaches recommended by experts.

2

Once the state of art on the topic was studied, a second stage was carried out, where reflection on the problem led to the formulation of the research question.

3

The third stage consisted of the selection of a conceptual framework for the study. The problem formulation and the research question were the main drivers in choosing a suitable theory. It was also based on the aim of the study itself and the methodological characteristic of the research.

4

In the next stage, awareness-raising projects in Copenhagen were identified. From all of them, three cases were selected, due to their unique and different characteristics that made them useful examples to be studied.

5

Once those cases were selected the fifth stage took place. Here, data and empirical material were collected in order to analyse the three cases. Also, information that would provide a proper view to study the context in which they function was also collected.

6

The last stage consisted of the analysis and discussion of the collected data. The study of the cases provided knowledge on how climate adaptation awareness-raising was taking place and in which ways it could be improved. Finally, a conclusion and recommendations were provided, taking all the information into account in order to answer the research question.

2.2. CHOICE OF CASE STUDY: AWARENESS RAISING INITIATIVES

For the selection of the case study, some goals were first established to have a clear idea of the study targets. The aim of the research was to learn about the state of climate adaptation awareness in a frontrunner city such as Copenhagen. Copenhagen can provide a great number of projects, initiatives and examples for climate adaptation. The cases selected to be studied are framed in the context of Copenhagen and they provide good examples that appears to be at the forefront of developments, which might present a high awareness comparatively speaking due to these approaches for climate awareness raising.

The approach selected to carry out the study was a case study based research. The reasons behind this decision was based on the type of study that was intended to be carried out. The research intended to investigate a contemporary phenomenon within its real-life context and how it unfolds in practice (Yin, 1984). It was further intended to develop knowledge and establish a school for the domain that the case concerns, which is described as paradigmatic cases study (Flyvbjerg, 2006). The cases had an informed oriented selection. This was because it was intended to maximize the utility of information that several cases could provide, selecting the cases based on the information content expectation (Flyvbjerg, 2006).

The reasons behind the selection of multiple cases was that: (i) A wider view of the phenomenon would provide a better outcome than a single case. This is because boundaries of the phenomenon and the context are not clearly evident, so multiple sources of evidence are useful (Yin, 1984); (ii) because of the characteristics of the problem it made sense to look into different approaches that could provide practical solutions for awareness raising instead of a single type of approach; and (iii) because studying several cases and how they relate provides with a better view of the overall context.

The cases studied in this research were selected according to a conceptual base; examples that embodied the guidance that theories and previous experiences in the field set. The aim was to study cases that could be framed as best practices to provide guidance for future initiatives.

A broad search was carried out to identify what awareness-raising initiatives were being undertaken in Copenhagen, drawing on contacts in Miljøpunkt Amager. They provided valuable information regarding initiatives and organizations that worked in the field.

The next step was to identify cases to focus upon. Several criteria were to identify them: (i) innovative approaches that were attempting to generate awareness on climate adaptation strategies, with (ii) an holistic and synergic approach, as they tried to take advantage of the initiatives to provide more services besides educating such as greening of the city, leisure, participation, etc.; (iii) that they were different from each other, to provide a wider view of approaches; and (iv) Their work was framed in direct relation with citizens.

The three cases selected, represent good examples of organizations that worked in the same context, facing the problem from different angles and with different approaches to achieve similar goals. However, they all maintained one common goal: to achieve greater climate adaptation awareness. The cases were three organizations and an example of an initiative that each of them carried out to raise awareness on climate adaptation (A more detailed description of the three cases studied is presented on Chapter 4):

- Miljøpunkt a Non Governmental Organization, focusing on their pop-up initiative “Park in a Week”.
- LIFE Exhibitions an art company, focusing on their “Styr på 20 klimaet løsninger” or “Track 20 climate solutions” initiative.
- Den Grønne Friskole a private school, focusing on their workshop-system initiative, taking as an example “Det fælles bedste” event.

With this selection, it was intended to study different approaches from different angles in order to obtain a better view of what is being done and of the diversity of approaches that can be taken to achieve this common goal. Learning at the same time about the role of some organizations as intermediaries to improve public awareness.

To reach this goal it was of great importance to study, not just the initiatives’ characteristics, but also how they took place, and how it influenced the participants and what their experiences were in relation with it. It was also of importance to understand the reasons behind the development of these initiatives.

In conclusion, studying specific cases could provide very valuable information about the state of climate adaptation awareness and the processes that have the ability to improve it. This gives a clearer view of the flaws and advantages that they present, providing the grounds to construct a model that could be used by other cities and countries in the world to enhance their climate adaptation plans.

2.3. RESEARCH MATERIAL

The research was based mainly in collection of qualitative data, the data collected can be differenced in six types; (i) literature review of the current scenario, problem, institutional documents, and initiatives, (ii) in depth interviews with different stakeholders, (iii) Educational material from the different initiatives (Event programs, posters, descriptive information), (iv) photographic report (photos and videos from the initiatives) (v) Direct observation and interaction with stakeholder in the initiatives, (vi) Secondary data that the Copenhagen population has on climate adaptation policies.

2.3.1. Literature review

The present study was based on a conceptual framework developed from a literature review conducted prior to the report writing. The review was focused on the state of the art on climate adaptation awareness research. Both background and theory chapters were written out of this literature review. The literature review also informed the analysis and discussion.

Furthermore, research of several projects was carried out. Projects in relation to climate adaptation, climate change awareness and environmental awareness in Copenhagen. This was performed in order to identify similarities between them and trends in the initiatives and projects. The purpose was to provide a better selection of cases for the study, specifically those examples that were in line with the guidance provided by the conceptual framework.

2.3.2. Collected Data

2.3.2.1. Interviews

The main source of data in this study was collected through interviews. “Particularly when investigators are interested in understanding the perceptions of participants or learning how participants come to attach certain meaning to phenomena or events, interviewing provides a useful means to access” (Berg & Lune, 2004, p.72). The interviews conducted aimed to obtain information from several stakeholders related with different initiatives, learning from their experience and from their thoughts and ideas.

The selection of interviews was based on different considerations. Depending on the different organizations, several actors were selected as important to understand the role of organizations and the outcome of the different initiatives. N° interviews were conducted (Appendix 1);

Municipality of Copenhagen

- Anders Folke Henningsen. Educational consultant for Copenhagen Municipality at the Department of Sustainable Development. He was selected to be interviewed because of the work he does in the Municipality, developing and participating on environmental education on public schools. He provided very helpful information about the strategies and approaches of the Municipality in relation with sustainability and climate adaptation education.

Miljøpunkt

- Two of the constituents of Miljøpunkt Amager and organizers of the pop-up event; (i) Claus Knudsen, Centre Director at Miljøpunkt Amager, and (ii) Lise Nygaard Arre, Project Manager at Miljøpunkt Amager. They are experts in climate adaptation projects and initiatives and also part of an organization at a local level, both with an environmental and social focus. They were selected because of their knowledge and their interaction in a local network with different organizations that work with climate adaptation and awareness.

- Three citizens participants of "Park in a Week"
Citizens were selected because of its participation in an initiative, to obtain knowledge on his experience in a climate adaptation awareness event. To understand the reasons behind his participation and the ideas and opinions that raised from it. From several citizens contacted they agreed to be interviewed in relation with their participation in "Park in a week".

Den Grønne Friskolen

The interviews in this case were focused on the families that decided to choose this type of school for their children's education. It made special sense as the school's policies and strategies were very clear and specified in their webpage. There might be ethical concerns in relation with interviewing minors; the interviews conducted here were carried out with the consent and collaboration of the parents.

- Family Grubb. Parents and children. Students at “Den Grønne Friskolen”
They were selected in order to learn about the experience with this type of school and its’ educational approach, as well as the experience that kids had from growing up in an environment where sustainability and climate change are part of they everyday.
- Marusa Balić. Mother of a Studen at “Den Grønne Friskolen”
She was interviews at “Det fælles bedste” event, She provided with Knowledge about the school, the event in which they where participating, as well as the experience that kids had from growing up in an environment where climate change awareness and adaptation is part of they everyday.

Life Exhibitions

- Søren Rud and Stine Trier Norden. Founders and Partners of LIFE exhibitions.

They provided knowledge about their organization, the work they are doing and the focus they have towards climate adaptation awareness. They also shared information about the initiative they were carrying out with schools in Denmark about this topic, and the experience they gained from it. In this case no citizens where interviewed as it was not possible to contact participants that agreed to be interviewed.

The structure of the interviews was set according to the type of research and the information intended to gain from them. The interviews had a semi-structured approach. These types of interviews are according to Bernard (1988) the best choice when there is only one unique opportunity to interview someone.

Semi-structured interviews present several benefits; they provide reliable, comparable qualitative data that allows the interviewees to share their opinions and information with a high degree of freedom and on their own terms. At the same time the interviewer can obtain the information desired by providing a group of questions previously set with a focused aim (Cohen & Crabtree, 2006; Harrell & Bradley, 2009).

A series of questions were set in the interviews in order to obtain specific information. Also a free space for dialogue was established in order to allow room for reflexion between interviewer and interviewee. This allows the possibility to find common ground, elements and ideas in relation to the problem. This was inspired by Nielsen & Lyhne (2015) who stated that there is a need to strengthen the role of interviews as an arena for generating action through mutual reflection.

Each of the interviews was different and specific to each of the study cases. The aim was to collect information through discussion and exploration of the topic in cooperation with the interviewee. During the interview the interviewer shared some small inputs to encourage the interviewee to further reflect on their thoughts and ideas. This was done to obtain more productive results from the interview and useful information for the research.

The interviews provided the study with very useful information in relation to the perception and experiences of different stakeholder. It obtained a more descriptive and practice oriented understanding from these practices and how they affect to public awareness.

There were two types of interviews: (i) those carried out individually; and (ii) those carried out in groups.

For those carried out individually it was decided that a more private and anonymous approach would provide better results. Due to previous experience where interviewees tend to stay quieter in presence of other people, being more talkative in a confidential environment.

For those carried out in groups the reason behind it was the nature of the interviewees relationship, the first one with the Family Grubb as the parents of the students from “Den grønne friskole”, and the second one with the founders and partners of LIFE exhibitions, in both of the cases because their decisions and experiences were linked.

The interviews aimed to collect information in both direct and indirect ways from the interviewees. The questions (Appendix 1), gathered information about the experiences and impressions that interviewees had from the different initiatives that are being studied here. On the other hand, it was also intended to obtain information regarding the suitability of the different initiatives and events to improve climate adaptation awareness. The combination of these two approaches resulted from the need to obtain analytical information without influencing the response.

The interviews were recorded and transcribed afterwards (Appendix 1). It was agreed with that there was no need to re-interview or check back as they were directly transcribed from the recordings.

2.3.2.2. Data collected from the initiatives

Also educational graphic material was collected from two of the cases (Miljøpunkt and LIFE Exhibitions). The nature of these data varies, from educational, project developments and art material. To collect these materials all organizations were contacted and asked permission to use it due to ownership rights.

The data collected was:

- Climate adaptation projects exhibit in “Park in a week” (Miljøpunkt)
- Climate adaptation solutions exhibit by LIFE Exhibitions in Danish schools

2.3.2.3. Observation and Photographic record

Another important source of information was observation of the events, projects and initiatives that are being studied. Interaction with some of the participants and constituents. To analyse them, filming and photographic reports were made from them. These tools helped provide a clearer view of the initiatives, their dynamic, and performance. Furthermore, those materials helped identify the strengths and weaknesses that they could present. This provided valuable information for future initiatives and projects in Copenhagen and other cities in the world, embodying in them a powerful awareness raising material.

2.3.2.4. Secondary Data

To supplement the study and obtain a better view of the state of awareness of the civil society secondary data was collected from <http://data.kk.dk/dataset> the Open data source from the City of Copenhagen. The secondary data collected was statistics on citizens' attitudes and knowledge of the city in relation to the environment. The data was in relation to citizen awareness on climate adaptation policies that the City of Copenhagen is carrying out, as well as their opinions on the need for these types of policies. The data gave very valuable information to understand what the actual state of awareness is on the importance of climate adaptation strategies. The data can be seen in the Appendix 4.

2.4. Analysis of the data collected:

The Data collected was analysed in order to obtain information on the cases studied. The analysis of the data varied depending on the ways in which it was used. The transcription of the interviews were analysed in order to identify four different groups of information:

- The way in which education was taking place and the characteristics of these initiatives.

- What are the actors involved in the process of raising climate adaptation awareness.

- The characteristics of the context and network in which climate adaptation education was taking place.

- The opinion of experts on ways to improve the provision of knowledge on climate adaptation.

Also the materials used in these initiatives were part of the analysis in which the initiatives studied were taking place and the characteristics of those. Also supported by observations at the initiatives.

The supplementary data was analysed focusing on the awareness on Municipality's policies, the citizen perception of them and how the awareness they have on climate adaptation topics.



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levested for dyr. Antallet af fiskearter er steget fra 4 til 25. Fugleartene er mangedoblet fra 6 til 36. Og antallet af insektarter er steget fra 15 til 192.

Gennem mange år var Cheonggyecheon omgivet af en faldende slumbebyggelse, og vandløbet var blevet omdannet til en åben og forurenede kloak. I forbindelse med Syd Koreas hurtige industrielle udvikling efter Koreakrigen i 1950-53 voksede Seoul drastisk. Slumbebyggelserne blev revet ned, og vandløbet blev tildækket med beton og gav plads til en fire-spor motorvejsbro, som blev ført tværs gennem hovedstaden. Men efter årtusindskiftet var byens indbyggertal steget til over 10 mio., og forureningen og udslippet fra trafikken var blevet nærmest uholdeligt.

For at gøre noget ved problemerne, blev i Seoul motorvejen ned og åbnede floden. Nedrevne beton blev genbrugt, og vand, grønne anlæg og gangbroer blev genopført i området og storbykunst.

Det har været en stor gevinst. Floden fungerer som et kølesystem i de varme sommermåneder. Den sænker den gennemsnitlige temperatur med 3,6 grader. I sommeren er det køligere langs floden, og det sparer på energien til kunstig nedkøling.

Photo: "Educational material from "Styr på 20 klimaet løsninger"

3. CONCEPTUAL FRAMEWORK

The selection of theories was based on the analytical needs for this research. As the research focused on the study of climate adaptation awareness, the theoretical foundation of environmental awareness is taken into account. It is important to understand how environmental awareness is enabled and built, the types that exist and their needs in order to develop plans to improve climate adaptation awareness.

At the same time, it is important to have the conceptual idea and background of how education can be implemented in the best way and what the theoretical bases are to increasing awareness through it. This will help identify the strengths and weaknesses of the cases that are being studied in this research. For that, theoretical guidance about environmental education would be followed, as education for climate adaptation is framed within the same field.

In order to get a more appropriate view of the process that is being studied, it is also necessary to look at the setting and relations that can enable it, for what network governing theory is used. This is linked with the role of social capital in sustainable transitions as a key actor in planning and sustainable transitions.

3.2. ENVIRONMENTAL AWARENESS

Raising environmental awareness has been identified by international organizations as a key process to improve climate adaptation (UNEP, 2007; European commission, 2013). Even though general environmental awareness has increased in the last decades, larger efforts need to be dedicated to achieve better results in a short period of time to overcome the problems associated with climate change and to raise environmentally-friendly behaviour (Kollmuss, & Agyeman, 2002). It is also necessary to fill the gap in knowledge on environmental issues, which is leading to a lack of environmental awareness and a general mistrust of the information provided (UN, 1992).

Action can be taken in many different ways and areas to increase environmental awareness. There are many sectors of society that can be involved in the raising of environmental awareness: Governmental institutions at the national, regional, and local levels; domestic and international NGOs; primary, secondary, and post-secondary schools; the media; and other individuals and institutions (UNEP, 2007).

The aim of raising public awareness can be addressed in different ways, like focusing on broad environmental issues or targeting a specific sector or problem (UNEP, 2007). There is a great need for education to improve the population's environmental awareness, as previous studies had found the direct effect of environmental education in creating pro-environmental behaviour (Meyer, 2015). Developing of environmental awareness can help change human relationship with nature and boost respect and a more responsible behaviour toward it (Meyer, 2015).

To raise awareness it is necessary to focus on both rational and emotional dimensions related with environmental awareness. In order for citizens to have a better understanding of the environment and commitment to protecting it, it is necessary to nurture their affection and knowledge about it (Littledyke, 1996).

Promoting environmental awareness is considered a crucial goal in the context of contemporary education (Slattery & Rapp, 2003). It is also the objective the UN has established as part of a global education resolution to strengthen attitudes, values and actions consistent with sustainable development (UN, 1992, 36.9).

To raise awareness this integration of rational and emotional aspects has particular relevance, to all its' different levels (Littledyke, 1996, p.204):

- Intra-relation (self awareness: how one's actions impact on the environment, influencing lifestyle choices that impact on the environment, e.g. consumer choices).
- Inter-relations (social awareness: how people interact socially to influence individual choices, e.g. the social dynamics that influence consumer choices).
- Co-relations (environmental awareness: how society impacts on ecosystems through political choices).

Several basic elements are necessary for successful city leadership to set the course for climate change adaptation. These include the following (The world Back, 2011):

- Political support, representing high-level commitment to adaptation, initiated and sustained by executive leadership of a mayor or other city officials, and supported by effective public communication.
- Operational knowledge of the rules and norms of city operations, as well as relationships to city and external actors who may need to be involved in adaptation efforts.
- Scientific expertise or competency, with which city staff can translate science into sound advice for decision makers.

3.2. ENVIRONMENTAL EDUCATION

Environmental education has been addressed in many different ways, and with different approaches. The importance of educating society to walk towards a more sustainable development, a development that takes into account the value of the environment and the problems that the planet is facing, is widely acknowledged. Helping citizens is key to developing competences in order to understand and be able address the problem. Many governments are working on this matter.

Defined by UNESCO in 1987, environmental education is “a permanent process in which individuals gain awareness of their environment and acquire the knowledge, values, skills, experiences, and also the determination, which will enable them to act individually and collectively to solve present and future environmental problems... as well as to meet their needs without compromising those of future generations.” (UNESCO-UNEP, 1987, p.6).

The United Nations defend in the Agenda 21 Document (UN, 1992) that to achieve sustainable development some actions need to be implemented. In their chapter 36 (Promoting education, public awareness and training) they state that “Education, including formal education, public awareness and training should be recognized as a process by which human beings and societies can reach their fullest potential”. Education can be seen as a tool to enhance societies and to enable them to reach a more sustainable future and it is key to achieve a higher public environmental awareness, which would lead to changing people’s attitudes (UN, 1992, 36.3).

There are very different visions of the environment and sustainability and their relation with human beings. As expressed by Sauvé (1996) environmental behaviour can be addressed in very different ways, educating citizens to have a more environmentally friendly practices and perception of reality.

It is needed to walk towards a more comprehensive environmental education process, that considers the different visions in a cumulative and integrated pedagogical approach. Through education and policy making, the links between educational and socio-cultural paradigms can be reinforced, making people aware of the reality we live in by giving and providing them with tools to look at it from other perspectives. However, in order to achieve this change new educational plans need to be implemented, as education is the “central economic investment for the development of creativity, productivity, and competitiveness” (UNESCO, 1992, p. 14).

There are very different recommendations to what an environmental education should look for and how the process should take place. UNESCO encourages reshaping the entire educational process (UNESCO, 1992), supported by experts that defend a more hands-on education in relation to the environment (Scoulllos, 1999; Ballentyne et al., 2001; Meyer, 2015).

To achieve the goals set by the UN, as well as the European Union, environmental education should be implemented as early as possible. It is of great importance at primary schools (Simsekli, 2015) to raise environmental awareness of current and future citizens (Simsekli, 2015). This is a trend that has been already implemented in some schools around the world. Many schools are involved in local environmental projects, and teachers and students in many parts of the world are involved in environmental education (Scoulllos, 1999).

There are many studies defending that environmental education has a large impact over citizen's environmental awareness and environmental behaviour (Ballentyne et al., 2001; Meyer, 2015), which can be extrapolated to climate adaptation awareness. Also, the effect of environmental education at schools also has influence beyond the students; Ballentyne et al. (2001) found that environmental awareness can increase in the whole community, spreading knowledge from children to parents.

Nowadays we are facing the challenge of educating the whole population in order to achieve real change within a generation time. As UNESCO (1997, p.4) stated, “The social and political role of adult education has become a central pillar of much of today's practice in the environmental field”, but much of the

environmental education is science or technological oriented, there is a great need to reorient the efforts towards a more social-environmental integrated view (UNESCO, 1997). Adult education on environment is a key tool to raise environmental awareness and promote the development of environmental behaviour in the population in the short-medium term (UNESCO, 1997).

The United Nations highlights the role of Non-governmental organizations in contributing to design and implement these educational programmes. They also urge Governments to update and prepare strategies to integrate the environment and sustainable development as a crosscutting issue in both children and adults education.

Educational approaches

Many different approaches have been tested for environmental education, this has led to several understandings which point out that the way in which learning processes take place should be taken into account to improve environmental education. First of all, it is necessary to understand that there are two important dimensions involved in the learning process for environmental education which are; cognitive and affective dimensions. It is necessary to have both an understanding of the relationship with the environment, which is complemented by respect and affection for the natural world. This interconnection will motivate individuals to act in a responsible way to protect the environment (Littledyke, 2008).

Applying these two aspects to environmental education is needed. The North American Association for Environmental Education (NAAEE, 1999) pointed out some guidelines to provide more effective education approaches. Those guidelines were based on the following premises.

- The learner should be an active participant. Becoming a natural process fuelled by the learner's interest and curiosity (NAAEE, 1999).
- Engaging in individual and group work helps the effectiveness of the learner development of capacities and knowledge, in a collective and collaborative approach that anticipate the problem solving process in real life. With strong emphasis in communications skills which will be also an advantage to apply and demonstrate their knowledge (NAAEE, 1999).
- As said before it is based on personal commitment and interest that can be fuelled through information, education, communication and building social capital. Doing so by sharing experiences, goals, plans or initiatives that can be delivered in both formal and informal settings but that through the integration of both better outcomes can be achieved (Monroe et al, 2008).

Cole (2013) also pointed out after a literature review of environmental education, that the approaches should be reframed from passive to active, individual to collective, and from only formal to also informal settings in order to improve the pedagogical process. The reasons behind this are: the need to increase the engagement of students, improve their interaction (person-person and person-environment) and improve their overall interest in the learning process.

3.3. SOCIAL CAPITAL

The first description was constructed by Pierre Bourdieu, who said that social capital is “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationship of mutual acquaintance and recognition” (Bourdieu, 1986, p.248; 1980).

Other authors followed him. Coleman in 1988 described the concept of social capital as “people’s ability to work voluntarily together”. Later on the concept was further described to fully define the complexity associated to it, studying also the attributes of this capital associating its’ functioning to people’s ability to cooperate based on the existence of trust between them (Fukuyama; 1995; Tsai and Ghoshal, 1998; Burt, 2000; Falk, 2000; Dasgupta, 2001; Fu, 2004).

Other descriptions conceptualized this term as a group of social resources engrained in relationships, that can be more or less promoted and exploited, associated to the norms, values within this relationships and the knowledge possessed by an individual or social unit (Putnam, 1995; Tsai and Ghoshal, 1998; Nahapiet & Ghoshal, 1998).

Social capital has also been characterized described, alluding to its building through the years, as capital that is accumulated through history in the form of social structure, which can be used for productive use by an actor (Coleman, 1988).

These diverse definitions by experts, shows the complexity of a concept that is interesting at different levels. Also in the present research social capital can be used as a tool to improve city planning in relation with climate adaptation. Adapting to climate change, and achieving sustainable development requires integrating all types of capital available; not solely economic and political but also social capital, which has a critical role to address sustainability.

3.3.1. Social capital Construction

However, enabling social capital is not an easy task; institutions have an important role in creating the arena for social capital creation (Adger, 2001a). The base for social capital building is the presence of human capital: all the knowledge and skills gathered by individuals through formal or informal learning. Once human capital is present and a network is established for the interaction between individuals or the interaction of individual with organizations, this is when social capital can be built. When both human and social capitals are rich, this is when knowledge is shared and promoted that might have a positive feedback on them (Falk, 2000; Fu, 2004).

Social capital is based on a well-structured and highly connected social network. In order to promote the creation of social capital, it is necessary to facilitate growth of knowledge in the population (Falk, 2000). Social capital is built through the interaction of individuals in a well-ingrained network. However for that, it is first necessary that the individuals have the skills and knowledge to exchange and put it to use.

A good learning environment should be promoted by institutions, not in a top-down approach, but instead a more multilevel perspective in cooperation. In this way, trust, self-determination and community movement help create adaptation to climate change, providing the platform for further actions and an environment where informed decision-making is encouraged (Falk, 2000).

When Human capital is present Social capital can be constructed, based on the presence of specific conditions. Several components need to be present. These components vary depending on the authors but all of them answer to the same principles: the existence of networks, trust between actors of the network, mutuality and reciprocity, sharing norms and values (Lesser & Prusak, 1999; Falk 2000; Paldam 2000; Huppé & Creech 2012).

Those specific principles can be differentiated in three dimensions within social capital (Lesser & Prusak, 1999; Inkpen & Tsang, 2005):

(i) The structural dimension of social capital refers to the network building that connects and allows individuals to collaborate and identify potential resources and the patterns in them (network ties, network stability, network configuration) (Inkpen & Tsang, 2005). These networks are based on relationships between

individuals and individuals with the social net. These can be “strong ties” or “weak ties” depending on the regularity of the interactions. It is an expression of the necessity of individuals to search in their surroundings for the resources that they don't have at their own disposal (Lesser & Prusak, 1999).

(ii) The dynamics of these networks is just as important for the building of social capital. It is important to look at the nature of the relations between actors and the dynamics of these relations (relational dimension); how individuals relate in terms of shared norms and values, trust, obligations, expectations, reciprocity, mutuality and identification. This asserts that social capital develops when individuals collaborate and receive reciprocity on their actions when they meet their social obligations (Lesser & Prusak, 1999).

(iii) The last dimension addressed is the cognitive dimension. This expresses the need to share common language and socio-cultural context to build social capital. One must have the ability to gain and exchange knowledge and skills in order to build a common understanding (Lesser & Prusak, 1999).

There is a need to rethinking the relevance that social development has in policy making and security in the context of adaptation to climate change (Pelling & High, 2005, Adger 2001). Social capital is linked with policy goals of social cohesion, resource management, and increased public participation in the political process. Taking advantage of this capital will improve the processes and help move towards sustainability (Killerby, 2001).

3.3.2. Social Capital in Sustainable Development

Population involvement is crucial to ensure a good functioning of policies and for them to remain sustained (Selman & Parker, 1997; The World Bank, 2011). Social capital underlines the importance of collectiveness and local bonds to develop strong communities that collaborate and work together (Putnam et al. 1995; Adger, 2001a). As Wasko stated “In recent years, social capital concepts have been offered as explanations for a variety of pro-social behaviours, including collective action, community involvement, and differential social achievements” (2005, p.38).

Social capital is a great asset, as it does not depreciate with use (Pelling & High, 2005), societies rich in linking capital between citizens as well as with institutions can benefit from pathways that ease the transfer of information and resources favouring social learning and social capital creation (Pelling & Dill, 2009; Pelling & High, 2005).

A higher interaction of citizens with institutions is needed to work collectively in climate adaptation (Adger, 2001a), as it is a dynamic social process determined by the ability to act collectively (Adger, 2001b). It is of great importance to understand this relationship, since institutions have a key role in planning adaptation to climate change, but it is the social capital that can sustain this adaptation in a long term. As Adger pointed out “The idealised situation is a synergy between state and civil society that promotes social and policy learning...” (Adger, 2001b, p.40).

Social capital is an important pillar linked with the concept of community, where it's strengths lead to a safer, more inclusive and sustainable environment. However, social capital is dependent on how social networks and norms are distinguished in the community (Kay, 2006). That is the reason why institutions through different policies can encourage or discourage the role of civil society in city planning, facilitating, or not, the environment for civil social capital to develop (Killerby, 2001).

3.3. NETWORK GOVERNANCE

Networks comprise a range of interactions between organizations, but those interactions can be organized in different degree. A focus on governance involves the participation of institutions and structures of authority in those networks, they have the role of providing guidance, allocating resources and coordinating and controlling joint action across the network (Provan & Kenis, 2008).

Goals with a high level of complexity create interdependence between actors (Pfeffer & Salancik, 1978: 41) and heightens the need for coordination between them (Jones et al., 1997). These actors are not limited to central and local governments but also outside of them. To achieve well functioning solutions, it is necessary to set aside a hierarchical control approach by the state, turning from top-down strategies to a multilevel governing approach (Kersbergen & Waarden, 2004; Sørensen & Torfing, 2005). Network governance theory promotes this model of governance, where governments at several levels, autonomous entities and the civil society are involved in a coordinated approach for problem solving. Network governance opens the possibility for a vertical integration of governments, where distribution of responsibilities is well divided in the different levels according to their competences. This theory also stresses the role of horizontal integration of actors, to move towards a more efficient integration of stakeholders on a well-engrained network (Huppé & Creech 2012).

The reason to adopt some form of governance lies on the need to facilitate that organizations collaborate and mutually support action to reach collective goals, in that way network resources are efficiently and effectively used (Jones et al., 1997; Provan & Kenis, 2008).

The theory asserts that leaving room for organizations outside central institutions in Governance increases efficiency and reduces organizational issues. Efficiency is enhanced due to the use of distributed skills and knowledge that face problem solving through a decentralized perspective (Huppé & Creech 2012).

The role of network governing in environmental topics makes particular sense due to the decentralized source of the problem. Thus, problem-solving emerging from autonomous actors in collaboration with institutions can improve the process (Huppé & Creech 2012).

Actors like NGO's, the private sector or scientific networks (Dedeurwaerdere, 2005; Stone, 2013) can play a role in governance and problem solving, enabling the involvement of the civil society in several ways. One of the ways this can be done is by involving and providing the knowledge that helps to build social capital (Haas, 2004; Dedeurwaerdere, 2007; Head, 2008).

Good governing has a great impact over efficient and effective adaptation to climate change. That is why it is important to improve governing for climate adaptation (The World Bank, 2011). Network governance can play an important role in enabling climate adaptation awareness-raising, and also to provide a closer opportunity for citizens to get involved in adaptation processes. Thus, this theory provides a good guidance for the creating of an arena for climate adaptation planning.



4. CASE STUDY

In this chapter the three cases selected to be studied in the present research will be described. Focus will be given to the characteristic of the organizations selected and the goals in which their activities are framed. Also, an initiative from each of the organizations will be looked into in a more detailed form, initiatives that focus on the development of climate adaptation awareness on the population.

1

MILJØPUNKT



"PARK IN A WEEK" INITIATIVE

2



DEN
GRØNNE
FRISKOLE

"DET FÆLLES BEDSTE" INITIATIVE

3

LIFE
EXHIBITIONS

"STYR PÅ 20 KLIMAET LØSNINGER" INITIATIVE



4.1.

MILJØPUNKT



Miljøpunkt is a Non-Governmental Organization based in Copenhagen, formed by several local branches. Their task is to promote sustainable development and environmental protection at a local scope. They play a role in citizen education, with a big commitment to the local communities, they work to raise awareness on the environmental problem and the social issues related to it.

They have a growing role in connecting the needs and claims of citizens from different areas of the city, with the local communities and the Municipality of Copenhagen, with whom they collaborate closely.

In September 2015 Miljøpunkt organized a green pop-up event with the intention of raising environmental awareness and to share knowledge about climate adaptation solutions.

It took place in the district of Amager. An unused grey square was temporally transformed through the installation of a set of green infrastructure, activities and exposition of climate adaptation projects. The event intended to be a showcase to attract citizens and show in an easy and interactive way the possibilities for local initiatives and projects.

It was inspired by “Parking day” an initiative that began in 2005 in San Francisco, organized by an art and design studio called Rebar. They turned a single metered parking space in downtown San Francisco into a temporary public park (parkingday.org). This initiative has turned into a global annual event where citizens transform parking spaces temporarily into public spaces of different nature. The event organized in Amager lasted a week, instead of a single day, with the purpose of extending the assets that the initiative brings to the population.



Photos: Green infrastructure built in "Park in a Week"

The workshops that took place had a very different nature, from informative tours as "Tour of the climate adaptation exhibition "Rain in the City"", Street debates as the one with Amager East Local Committee, Building Green infrastructure as a green bicycle rack or Several info stands; As it can be seen in the Appendix 3.

The project was characterized by its temporary nature; the intention of Miljøpunkt was not to change permanently the site with this project. They intended to bring something new and interesting to the community to promote and enable a better dialogue between citizens and planners, creating an exchange of knowledge between them.

Photos: Public meetings and information workshops "Park in a Week"





4.2.



**DEN
GRØNNE
FRISKOLE**

Another organizations that was taken as case study is “Den Grønne Friskole“ a private school located in Amager (Copenhagen). The characteristics of the school made it a good case to study how environmental knowledge is shared and incorporated into the education of future generations.

In their teaching process, they aim to educate children in the context of green transition, to actively promote a future based in sustainability, learning from environmental, political and social systems.

Their teaching is based in different visions and approaches. They intend to turn learning into a more natural process by setting an environment that raises the interest of children for learning. Traditional approaches are boring and leave little space for creativity, when in the context proposed in “Den Grønne Friskole” their natural desire for learning and curiosity are promoted so children can have a more fulfilling experience when learning.

The reason that makes this a good case to be studied is not just the different teaching approaches, but the environment in which the learning process is set.

At Den Grønne Friskole they argue that children need to have a sense of belonging to nature, learning from it and its value, in order to promote their inclusion in the green transition to sustainable societies. They use nature as the starting point to gain skills and knowledge. They also put a strong emphasis on the interaction of the school with the community, and the sharing of knowledge and skills with each other. They emphasize collaborative learning as a key actor to improve education in contrast to the isolated schools that traditional learning entails.

They have successfully integrated environmental education with the learning of traditionally taught subjects in other school. This approach is based on their vision of educating future generations to be the first green generation, by setting the space for them to gain knowledge and experiences in nature and a green and sustainable school.



The school has been involved in several projects in relation with climate change and climate adaptation. Those projects were included as part of the education that children received in the school. A good example of this is the redevelopment of the schoolyard that they carried out. The school is situated in an old paint factory. In the beginning the schoolyard was a concrete based area, open and without any natural infrastructure. The school in collaboration with some parents, designed a new environment for the children to learn and enjoy their free time. This was done by also involving the children both in the design and the construction of the same.

The new schoolyard consists of greenery and diverse areas with green elevated beds and some small trees and bushes. It is a diverse and dynamic environment where the kids interact with nature and learn about environmental values. It also has a strong climate adaptation message. Turning grey based areas into green spaces provides many assets and advantages: accumulating rain water, reducing the heat Island effect, cleaning the air, increasing the city's biodiversity, helping the populations of different animal species, and providing several social advantages as well.

The school also implemented other initiatives as the composting of organic matter, that linked the green spaces, bringing waste reduction to the system, together with the reduction of the consumption, production and transportation of fertilizers.

All of this is linked with sustainability and climate adaptation education. As they state in the description of the school (<http://dengroennefriskole.dk/>) they work to create a network with other organizations which they also did in this case.





One of the initiatives they carry out are workshops. As part of their curriculum, they teach kids through these in different ways. For the analysis of this case the study will focus on both the experience of parents and students as well as one of these workshop in which they were involved; “Det fælles bedste” where the children went, participated and learnt with other schools and experts from different fields.

“Det fælles bedste” event was a sustainability event that took place on the weekend from the 22nd to the 24th of April of 2016. The aim of this event was to communicate to citizens the importance of getting involved and becoming part of the sustainable transition. To inform citizens about the challenges that climate change and other problems are bringing to their life’s and how they can be part of the implementation of solutions. Organized by eight associations all working with sustainability, ecology, climate change and environment. They are looking to create collaboration and knowledge sharing between associations, citizens, businesses and public agencies, strengthen networks and promote dialogue (www.detfaellesbedste.dk).

The event provided the arena to look at solutions, analysing their effectiveness. As the organizers shared there is not a single good solution, but rather multiple solutions that can help fight the causes of climate and environmental challenges. They believe that each and every citizen in the world has the seeds of ideas that can ease the pressure on the globe, and these ideas – both practical and impractical need to be shared, to be out in the open and exposed to questions, conversation and networking, so they can mature, multiply and create changes. As can be seen in the program of the event (www.detfaellesbedste.dk).

The workshops and stands present on the event were diverse: composting at home, debates about green transition and sustainability for children and parents, greening of the city, urban farming, permaculture and many others related sustainability and community bonding.

The way in which they learn and are involved matched the educational approach of “Den Grønne Friskole”, that is why it made special sense for their member to attend as an extra activity outside the school.



Storeby er fremtidens by

Brooklyn-distrikt. Taghaven er blot én ud af omkring 15 storebyhaver i New York og et utal af mindre. Den form for fødevarerproduktion i storbyen, 'urban gardening', er ikke blot et amerikansk fænomen, eller noget som kun findes i den vestlige verden. Haverne skyder også op i adskillige storbyer i Afrika, Asien og Latinamerika, hvor fødevarerforsyningen kan være knap, og transportvejene lange. I den cubanske hovedstad, Havana, er de 2,2 mio. indbyggere i dag selvforsynende med økologiske fødevarer.

Indtil for godt 20 år siden fik byen sine madvarer fra import og landbrug i fjerne landdistrikter, hvor afgrøderne blev dyrket med kunstgødning og kemikalier fra den socialistiske

storebror Sovjetunionen. Det var også fra det gamle Sovjetunionen, at Cuba fik brændstof til landbrugsmaskinerne. Da Østblokken brød sammen i 1989, svandt hjælpen fra Sovjetunionen til Cuba drastisk ind. Da USA samtidig havde blokeret handlen med Cuba, måtte beboerne i Havana skabe deres egen madproduktion. Det resulterede i en spontan kollektiv græsrodsbevægelse, og i løbet af kort tid skød der byhaver op på enhver ledig plet jord i byen.

Nu kunne de ikke få kunstgødning og sprøjtemidler, så de anvendte gødning fra husdyr og kompost fra husholdningerne, og dermed opstod økologien helt af sig selv. I dag beskæftiger de kollektive byhaver i Havana 50.000

mennesker. Det sparer brændstof, at fødevarerne ikke skal hentes ind til byerne fra langt ude på landet. Det sparer også energi, når der ikke skal produceres kunstgødning. Det er med til at bremse mængden af klimagasser. Samtidig optager de grønne tage, haver og gartnerier CO₂ fra atmosfæren og er med til at holde luften ren og temperaturen i byen nede.

Storebyhaverne er på mange områder med til at nedsætte udslippet af klimagasser og gøre byerne sundere at leve i. Med en hastigt voksende befolkningstilvækst i storbyen er de grønne havebyer fremtidens byer. Også i København er der de sidste par år blevet skabt flere mindre byhaver.

**STYR PÅ
KLIMAET 20
LØSNINGER**

**'Eagle Street Rooftop Farm',
Brooklyn, New York
USA**



Foto: Rose Callahan

4.3.



EXHIBITIONS

Life Exhibitions is an organization specialized in photographic exhibitions with the natural world, its value and the challenges that it is facing. The main objective that they have is to raise awareness on the importance of the natural world, the problem that the environment is facing and how we can act to protect it.

The organization was founded in 2001, when they organized their first exhibition “Earth from above” from the French photographer Yann Arthus-Bertrand’s. A 120 aerial caption from different parts of the world that captures the essence of nature.

After the first project came together with very good results, they strengthened their position towards nature related exhibitions. They organized Horses, also by Yann Arthus-Bertrand, followed by “Spirit of the Wild” by Steve Bloom and Wild Wonders of Europe created by 69 European top photographers, with photographs from 48 European countries.

However, they also are the creative minds behind another four exhibitions, “100 Places to Remember Before They Disappear” (2009), “Danmark Dejligst” (Denmark Naturally) in 2011, “Copenhagen Green” (2014), and the exhibition in which this study would focus “styr på 20 klimaet løsninger”. In total more than 30 exhibitions so far with around 25 millions visitors.

They focus the exhibitions on photographic projects from different organizations, companies and photographers that target sustainable development, environmental issues and climate change. The exhibitions aim to communicate these issues in a positive way in order to raise awareness and inspire people to take part of the protection of the environment. All of it brought using world-class photography as a channel.



The organization organises outdoor exhibitions in cities from all around Europe in order to reach as many people as possible and in this way multiply its effect on the civil society. They have placed exhibitions in twenty-five different cities in eleven European countries. They have collaborated with different organizations such as the UN, for whom they installed exhibitions in the UN city.

The organization constituents Søren Rud and Stine Norden were awarded with the 2010 CARE Denmark Price. Their work has also won several international awards.

“Styr på 20 klimaet løsninger” or “Track 20 climate solutions” is a Project that LIFE exhibitions started in 2014 with the objective to raise awareness on climate adaptation solutions through twenty different photographs that capture very different points of view of what climate adaptation means. Their goal was to provide this knowledge to primary and secondary schools in Demark and in the future to more countries.

They found twenty stories to tell through photography, and created twenty posters where explanatory text was added. The text was specially redacted by journalists and teachers to find the most appropriate and efficient way to communicate all that knowledge.





Photos: "Educational material from "Styr på 20 klimaet løsninger"

Educational material that was also concordant with the learning goals and targets set by the Ministry of education for children at that age was included. The main target of the educational material was 7th-9th grade, but students from all grade levels were involved in the exhibitions, being the most common children from 4th to 9th grade.

In 2014 they contacted all primary schools in Denmark, almost 2000, and sent them the climate adaptation educational material, in total around 45000 posters for more than 650.000 students. Many of those schools made use of the material by hanging the posters at schools, by using them in connection with theme weeks and workshops, or exhibiting them more permanently in libraries or other public areas.

The peculiarity of this initiative is that the educational approach was implemented in schools, as usual, but made a good example of how a simple initiative can bring an alternative educational material to all different schools and turn schools into galleries of knowledge. An art exhibition that could also take place outside the school and for a wider audience.



Seouls genskabte vandløb har givet byen nyt liv

Næsten 100.000 mennesker besøger dagligt den grønne kile langs Cheonggyecheon-vandløbet.

I næsten et halvt århundrede var det gemt under jorden og erstattet af en motorvej, men siden vandløbet og dets bredder blev genskabt i 2002, har det været med til at reducere luftforureningen betydeligt. Samtidig holder det

blev dækket til med beton og gav plads til en fire-sporet motorvej, som blev færdig i 1960'erne. Men efter årtusindskiftet var byens indbyggertal steget til over 10 mio., og forureningen fra trafikken blev

I andre områder af byen. Det sparer på energi til aircondition og andre former for kunstig nedkøling. Mange storbyer i verden er plaget af, at kunstigt skabt

Cheonggyecheon-vandløbet, Seoul Sydkorea





PARK IN A WEEK

FESTIVAL PÅ PRAGS PLADS D. 11. - 18. SEPTEMBER.
SAMMEN SKABER VI EN GRØN OG LIVLIG PLADS.
SE PROGRAMMET PÅ WWW.MILJOPUNKT-AMAGER.DK/PARKINAWEEK



Byhavemøbler
Børneaktiviteter
Workshop med TagTomat
Cykelpitstop
Høstehus-workshop
Klimaudstilling
Køkedama-workshop
Loppemarked

ARRANGERET AF
MILJOPUNKT

Photo: Green infrastructure "Park in a Week"



5. ANALYSIS

In this chapter the data collected will be analysed applying the theories as an analytical tool to support the study and to help with the understanding of the processes taking place, providing the bases for the discussion of the case study.

Here an analysis of the current situation will take place, in order to understand the awareness of the population of Copenhagen on Climate adaptation and policies, and the way governance of awareness is taking place. After that the analysis focus on the educational approaches that are taking place in Copenhagen, focusing on the tree cases selected to be studied. After that it will compare the existing situation with models of multilevel and network governance. Addressing on the last part of the analysis the relation between the Municipality, the organizations and citizens, as well as the level of trust and reciprocity between them in order to understand if the base for social capital construction is present in this context.

5.1 WHERE DO WE STAND?

To understand the current situation on climate adaptation awareness it is necessary to look at different aspect and actors involved in it.

First of all it is important to acknowledge that the Scandinavian context might be different from any other in the world. Copenhagen has a long history in sustainability and environmental education, being ranked on the top of most of the sustainability indexes (Siemens, 2009; ND-GAIN, 2014; Arcadis, 2015; Yale 2016). At the same time Copenhagen has very functional governance institutions who enjoy a high trust of citizens (Copenhagen Municipality). Being Denmark the country with the lowest corruption index in the world (<https://www.transparency.org>).

“...the Municipality of Copenhagen is very clever very outgoing, and I would say that they respect the people of Copenhagen and I think that is very important if you want to communicate with the people”

Claus Knudsen. Miljøpunkt Amager.

This factor should be taken into consideration when analysing the characteristics of the cases studied here, as trust is one of the main factors for social capital building. It is very important that citizens and organizations trust the Municipality of Copenhagen when looking at the relations that might take place for climate adaptation awareness raising.

5.1.1 Municipality's Position

In relation to climate adaptation Copenhagen is also one of the leader cities in the world. Copenhagen has become the world's Eco-metropolis, as the Municipality of Copenhagen explains (City of Copenhagen, 2007). One of the four themes that the Municipality has for the Copenhagen eco-metropolis (City of Copenhagen, 2007) is to become the Centre of world climate policy. Which puts Copenhagen in the spotlight when talking of climate adaptation. Other cities are already copying the Copenhagen model to implement these types of adaptations into their own cities. It is important to state that this is how the Municipality has positioned itself. There might be a degree of marketing here, and might not be directly related with the efforts that they are actually putting).

“...the development of New York seafront has been inspired by Copenhagen seafront. It is very interesting to see how Elements from Copenhagen are placed in other cities and especially in a city like New York and how they use all these climate adaptation measures”

Claus Knudsen. Miljøpunkt Amager.

Very different projects are taking place as part of the city planning where climate adaptation take place though an integrated development plan and public-private cooperation, all being planned with an holistic view and a long term vision. This approach aims to achieve a more cost-efficient approach and a high level of public support (City of Copenhagen, 2011; DI, 2014).

The Municipality of Copenhagen is aware of the need to adapt the city, as the Mayor for Technical and Environmental Affairs Morten Kabell from the Municipality of Copenhagen stated:

“In Copenhagen we always try to find solutions that do not just solve the problem, but also create a better quality of life for the citizens in Copenhagen. We incorporate climate change adaptation at all levels of city planning and prepare comprehensive solutions for the entire city.”

The Municipality of Copenhagen is also aware of the need to involve citizens in this process, to make them part of the solution. As Anders Folke from the Municipality stated:

"It is the citizens' money what we are going to use, so they should know why we are doing it, and be part of the solution too"

Anders Folke Henningsen. Municipality of Copenhagen

Also from outside the Municipality other stakeholders share this point of view regarding the work that the Municipality is doing and how responsive they are in terms of their relation with the civil society.

"As these are very large investments the ones that are needed, the municipality wants the people to know and understand that all that money put there is used for a reason. This is a way to create this understanding, between citizens and institutions, that is so needed and demanded in different ways."

Claus Knudsen. Miljøpunkt Amager.

"...that is money that comes from people, from taxes, so citizens really need to know that it is relevant to use this amount of money on climate adaptation."

Claus Knudsen. Miljøpunkt Amager.

The Municipality is carrying out several initiatives and plans to involve people, some of them related with raising awareness in relation with climate change. Also as Anders Folke explained, in collaboration with the companies that are in charge of conducting most of the adaptation plans, as are the water and energy management companies. They have their educational programs and are coordinated with the Municipality to include some of these activities with the public schools.

"...actually some of the educational projects are carried out by the company that is managing the sewage system, who is paid by taxes..."

Anders Folke Henningsen. Municipality of Copenhagen

"...we collaborate with them (HOFOR, DONG) and we take the teaching programs to the schools."

Anders Folke Henningsen. Municipality of Copenhagen

"...the municipality have been linking schools with engineering companies where they have created a course, down in Amager strand about climate change and how that would affect and how we can adapt by making some changes."

Lise Nygaard Arre. Miljøpunkt Amager

This shows that the Municipality is trying to adopt a network governance and involve different actors in governance, as the theories points out as a good approach to improve the current situation. Providing with some responsibilities and autonomy to organizations so they take care of raising awareness on the population. As are aware of the role that citizens should play in urban planning. The involvement that citizens should have in projects and plans, they take this into account, and they are making a big effort in education the younger generations in schools and also out of them:

"We teach awareness on what is the impact of the way they use things and what are the impacts if they don't do anything, and what are they able to do to cope with this problem, to be part of the solution."

Anders Folke Henningsen. Municipality of Copenhagen

"...we have a climate adaptation school(specific facility built to teach about climate adaptation), ... flooding is the main issue. And we are focusing a lot in what can you do as a citizen, what are the intelligent decisions that you can take when you face this problematic."

Anders Folke Henningsen. Municipality of Copenhagen

The Municipality also knows of the importance that citizens' awareness has on their strategies and plans for climate change, and so they are also interested in increasing what they know regarding climate adaptation. It is in the Municipality's plans to educate citizens and create in this way human capital, that under the proper circumstances can be built into social capital. Nevertheless it would be interesting to study how much are citizens being really involve in those processes, to see if there is a network established where they can be involved and ingrained as part of the adaptation process; strategies and policies might state the Municipality intentions, but that doesn't necessarily mean that they are actually promoting this involvement:

"...the Municipality wants people to know and they are doing things to communicate all of this. But I think that it can always be done more. And we want to help with this."

Claus Knudsen. Miljøpunkt Amager.

"The strategy is not common at the moment but there are strategies for every part of the population. "

Anders Folke Henningsen. Municipality of Copenhagen

Other stakeholders might have another point of view regarding the efforts that institutions are doing and about the outcome of these efforts, as in their opinion the Municipality is doing a great effort on adaption but they are putting less emphasis on sharing the information with the citizens:

"The Municipality of Copenhagen has been working with climate adaptation for many many years... But the general public has not been aware of this until after 2011, when they suffered directly and realised quickly that we need to do something"
Claus Knudsen. Miljøpunkt Amager.

"...the Municipality they work with the adaptation in practice, preparing for the flooding, adapting the streets and the city. But the are not really telling people about it, and the ministry even less."
Søren Rud. LIFE exhibitions.

5.1.2. Citizen Awareness

Copenhagen Municipality claims that Copenhageners are among the most environmentally conscious citizens in the whole world (City of Copenhagen, 2007). But to really understand what is the state of awareness on climate adaptation it is necessary to look at statistics and surveys on the state of citizens' knowledge on environmental issues as is described in chapter 2 (2.3.2.4) and attached in Appendix 4. When citizens were asked about their awareness on the city policies

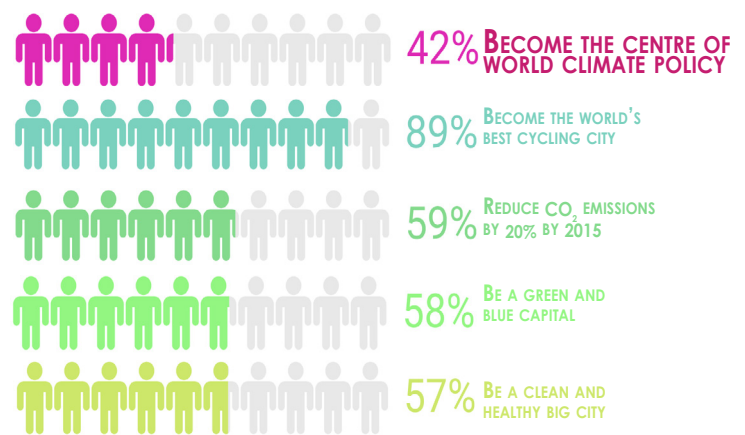


Figure 3: Citizens's awareness on Environmental Policies

that The Municipality of Copenhagen is carrying out, 42% of the people asked knew about the intention of the Municipality to become the centre of world climate policy. Which can be seen as a very positive result as almost half of the interviewees knew about it, but it is also important to take into consideration about the overall awareness of the population of Copenhagen in this matters, being 89% of the interviewees aware of the policy of Copenhagen to become the world's best cycling city, or almost 60% for other policies like: Reduce CO₂ emissions by 20% by 2015, Be a green and blue capital or, Be a clean and healthy big city (Table 3. Appendix 4).

Something that is also interesting to look at is the fact that the youngest age range [15-29] was the one with the highest awareness, being the range from [30-49] the one with the lowest (Table 4. Appendix 4).

But when they were asked to rank the most important environmental problems and / or challenges that Copenhagen Municipality should be an effort in relation to around 26% of the interviewees selected “Customizing Copenhagen to present and future climate change” as the most or at least between the three most important environmental issues, placing it in third place, after traffic and water quality (Table 5. Appendix 4).

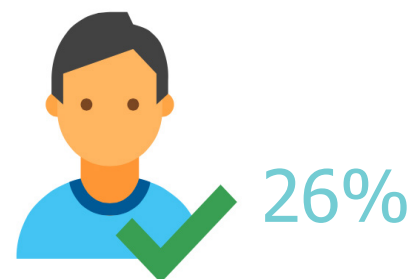


Figure 4: Citizens that think adaptation is between the 3 most important issues.

Is adaptation an environmental priority for Copenhageners?

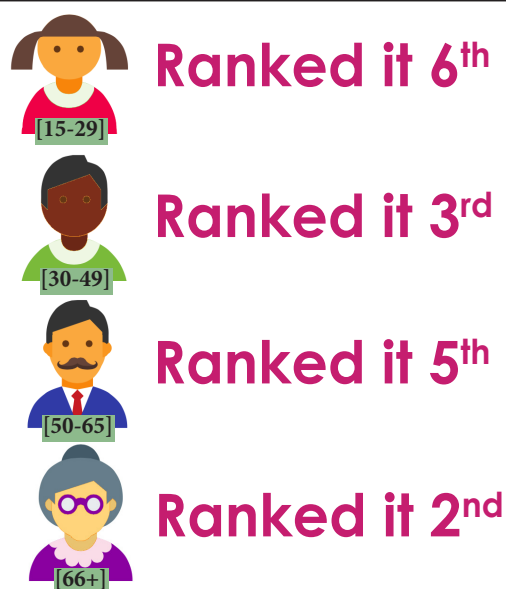


Figure 5: Citizens's priority perception of climate adaptation between environmental issues, according to age range

It is interesting to see that in this case the youngest age range [15-29] had climate adaptation as less important than the rest of the age ranges, ranking it in 6th place, when the rest of the age ranges placed it on 3rd, 5th and 2st respectively (Table 5. Appendix 4).

Through the interviews conducted with citizens in this research some interesting information was also collected. Citizens that participated in some of the initiatives carried out by the organizations studied in this research shared their level of knowledge regarding climate adaptation.

“I think mostly everybody know something about climate change, more or less, but I don't think that much people know that we can do something to be prepared... I used to think that this was something for the engineers, something very complicated for someone like me to do anything about it”

James Hunter. Citizen participant in “Park in a week”

“For me as I see it now, I think it is more in a professional level the measures that they want to implement. I assume that you need some deep knowledge on that in order to be involved and helpful ...Of course I am aware of all the goals that Copenhagen, Denmark and also Europe has and all these policies that they try to use the missions and try to create more green spaces for the citizens...they wanted to create spaces that can be used from the citizens all the year in incidents of future rain storms to collect the water but I don't know how I could be involved in such a process.”

Thodoris Kourtis. Citizen participant in “Park in a week”



Photo: Public participation workshop "Park in a Week"

"I don't have a great deal of prior knowledge about it but I think its not something that you learn so much about but I think its important for people to start learning about it, especially younger generations."

Amanda Rützou Arned. Citizen participant in "Park in a week"

So even considering that the statistics showed that a considerable percentage of people know about the Municipality policies and strategies, their self-awareness on the relation with climate adaptation and the role they can play is poor. The intra-relation awareness needs to be improved in order for the rest of levels of awareness to rise.

"I think they need to know more. It is difficult because they know about climate change, and in some cases they have heard about climate adaptation. Climate adaptation is not known in general, it is more difficult because of the technicalities of adaptation to climate change."

Claus Knudsen. Miljøpunkt Amager.

"I think that general awareness in climate change is very high because they have suffered it in their own life. But I think that regarding what kind of solutions you can apply its maybe more scarce"

Lise Nygaard Arre. Miljøpunkt Amager.

The state of the population awareness was also visible through the interviews conducted in the cases studied. Where some of the people interviewed showed concerns on climate change and the state of awareness of their children. There is a lot of information in relation to climate change that is most of the time of the negative effects that it carries: information about the problematic of climate change. Which was very necessary to raise awareness on climate change, the amount of information on adaptation possibilities is lower according to the interviewees' views.

"With this entire climate crisis they are very worried, they are growing in a world where we don't know how the future is going to look like and most of the things they want are not very promising."

Line Grubb. Den Grønne Friskole

*"Stine has a son that came one day from school asking when he was 10 "Is the world collapsing totally?"
Søren Rud. LIFE exhibitions.*

People awareness according to the experts interviewed is very low in relation to adaptation. As expressed before, most of the people knows about climate change, while their awareness about the possible solutions to adapt to it and the role that they could play is very low, even in Copenhagen where as explained before citizens are well aware on environmental issues and as Claus Knudsen from Miljøpunkt Amager said "... Copenhagen has this brand of being green and being forward on climate change and climate adaptation..." being a city very active in relation with climate change.

*"...after the event in 2011, people now see the need for climate adaptation. Until 2011 people through that climate change was something that would come in the future and that it will affect future generations, but they didn't think it was something they should care about that much."
Claus Knudsen. Miljøpunkt Amager.*

5.2. HOW IS CLIMATE ADAPTATION EDUCATION TAKING PLACE IN COPENHAGEN?

As explained before Copenhagen is a special case: there has been people working on climate change and adaptation for a long time and citizens had experienced those adaptation measures sooner than in most of the cities in the world.

In order to come with ideas to improve the current scenario and improve climate adaptation awareness in civil society it is needed to look at the experience of the institutions (Copenhagen Municipality), experts and the civil society. As well as analyse initiatives that have taken place, with the goal to raise climate adaptation awareness in the city of Copenhagen. To analyse them the conceptual framework will provide the guidance to contrast the situation in two different sections, first it will show if the position of the educators is aligned with the guidance provided by the theories in education for environmental awareness and secondly it will help analyse characteristics of the cases studied in this research to see if they fit these educational guidance.

5.2.1. Which educational approaches are being used to improve Climate adaptation awareness?

Most of the educational approaches to raise environmental awareness and environmental friendly behaviour have been focused on integrating the environment as part of school curriculums. Targeting the younger generations to reach people from very different backgrounds and communities and educate them to be more aware of their relation with the environment. But as the theories point out, what makes the difference is the way in which this education is taking place. Here it will be analysed if the trend in Copenhagen follows the directions set by researchers that are calling for the implementation of non-traditional approaches to provide higher diversity of educational approaches.

Even though The Municipality of Copenhagen has programs for the education of citizens in all age range they are doing large efforts to educate the younger generations at schools as Andels Folske shared on the interview.

It can be said that there is a tendency to implement innovative approaches in education, as traditional ones are not always very efficient when talking of environmental education (Chapter 3: Conceptual frame). The interviews conducted showed information about the way in which education for climate adaptation was taking place, and it was compared with the guidance provided by the conceptual framework.

It was observed that there was a common understanding between the different people interviewed in relation with the approaches needed to improve awareness of the population regarding climate adaptation. They shared the need for innovative approaches, as the traditional ones didn't fulfil the expectation of those who are looking for higher climate adaptation awareness.

“Non traditional approaches are better, specially if we want to have a dialogue with people...to get this communication working with people”
Claus Knudsen. Miljøpunkt Amager.

As Anders Folke expressed at the interview, the approaches that the Municipality is incorporating in the public educational system follow this trend. They are interested in strategies with a more diverse approach, where traditional and alternative learning are brought together. A more inclusive teaching where their experiences are linked with the problematic addressed, where through participation children and adults can learn by doing and experiencing how to adapt to climate change.



Photo: Educational workshop "Park in a Week"

"I think it is necessary to have diversity in the educational context as different kids learn better in different environments..."

Anders Folke Henningsen. Municipality of Copenhagen

"I think a more mixed approach between traditional and alternative approaches is a good approach to improve learning in schools and to your case teach kids about sustainable solutions to adapt to climate change."

Anders Folke Henningsen. Municipality of Copenhagen

"We are trying to teach in a more inclusive way, we like to get a case, that is familiar to the kids or the people, so they know what are we talking about..."

Anders Folke Henningsen. Municipality of Copenhagen

But the organizers didn't plan to provide information in a mere way, they also This matches the guide set by theories, which are based on the premise that not every person learns in the same way. Thus looking into more diverse programs and providing a larger variety of educational approaches could achieve raised citizens' awareness in climate adaptation. In this case much of the education that the Municipality is promoting is to younger generations, but that as Anders Folke said can be used with the same premises to adult education through other means.

The concepts and theories from chapter 4 show that education should take place with diversity of settings, but that to improve the efficacy of the transition of knowledge they should promote specific educational approaches. Some quotes from the interviews will be analysed next to see if educations and institutions share this point of view and are working towards these scenarios.

The Municipality and experts are aware that in order to improve awareness the involvement of the citizens plays a very important role. The learner should be an active participant, and to do so there are many different options: active citizen involvement in urban planning, empowering citizens in decision making processes, through workshops or other approaches as the cases study showed which will be analysed further down. Educators are looking for this type of active learning by involving citizens in experiments and workshops, or by involving citizens in the urban planning process to show them how climate adaptation is taking place, and what role they can play in it

"We are working for the kids to get the kids involved to experiment with their own hands how can be more sustainable."

Anders Folke Henningsen. Municipality of Copenhagen

"Also the involvement of citizens in urban planning processes can improve their knowledge on climate adaptation, as seeing how it is done and why is it done can make them understand the need for those adaptation measures..."

Lise Nygaard Arre. Miljøpunkt Amager.

"...you have to read something too, you need books, because it is a very fast way to learn, but if you have nothing to link it up to, they will think is not really related to them, is not their problem and they will just forget about it."

Anders Folke Henningsen. Municipality of Copenhagen

"That way we get them into the context and they learn in a less isolated way, and we can help improving their behaviour to better, because everybody wants to do good."

Anders Folke Henningsen. Municipality of Copenhagen

Photo: Green Technology stand "Park in a Week"



As explained before there are forms in which education can be more effective, and the way in which the knowledge is provided plays also an important role. Here the theory is clear too: there is a need to promote education through the exchange of knowledge and skills in a collective way, as the environmental issues need to be addressed collaboratively and strong emphasis needs to be put on communication between actors. In Copenhagen different ways of providing knowledge have been tested from the experience shared by experts in this matter. There is also a general opinion that the knowledge share should be based on a collective approach, focusing on dialog and communication between different stakeholders. This is based on the premise that climate adaptation is a process that has a very strong community aspect related. The education on climate adaptation should be based on the fact that to adapt to these problems it is needed collaboration, dialog and community ties:

“And we are focusing a lot in what can you do as a citizen, what are the intelligent decisions that you can take when you face this problematic.”

Anders Folke Henningsen. Municipality of Copenhagen

“I think that Park in a Week was very successful in several ways also because people were able to talk with us about climate adaptation, and learn with more people at the same time, in a more interactive way.”

Lise Nygaard Arre. Miljøpunkt Amager.

“It was very nice to see all the people that came and collaborated together, we built some green infrastructure together and they were very happy with what we did. I think it is important that learning takes place in a collective way. The community coming together to make a change, sharing information with each other and building something new.”

Lise Nygaard Arre. Miljøpunkt Amager.

“The Municipality has a strategy for citizen involvement and I think this projects and initiatives are a very very good way to get in contact with people and get this direct exchange of information.”

Claus Knudsen. Miljøpunkt Amager.

Non-traditional approaches are necessary to compliment the education that is taking place in the schools, to enable this knowledge sharing in more diverse ways. Theory points out that both formal and informal learning can be integrated to obtain a more advantageous outcome. While historically the application of these approaches have been segregated and confronted, authors express that by the integration of both of them a greater awareness can be achieved more effectively (Monroe et al, 2008).

In the interviews experts shared that there is a need for new arenas to set the dialog with people and between them. They think that education at schools is key to educate future generations, but educating also outside class is important, as it enable children and adults to learn in a more natural way, from a personal interest and curiosity, which matches the theoretical guidelines. As experts interviewed in Copenhagen shared education should also be taking place outside classrooms. Museums, exhibitions, workshops, films, art and other settings that make room for this informal learning, that raise more interest for the citizens.

“Our experience is that if you want to involve people you have to link it with their everyday life. And we have to meet people in other ways, for example as we did in “Park in a Week” we met the people in the street in their everyday life environment...It has to be something easier for them, easy and fun.”

Lise Nygaard Arre. Miljøpunkt Amager.

“It is quite simple and very often its fun and surprising. Of course books are necessary too but through photography you can tell a more difficult story in a simpler way... if they are good they want to know more so they read the text, and when they read the text, they learn more about climate adaptation.”

Søren Rud. LIFE exhibitions.

“...when it is in the wall in a common area in a school for example, people look at it, learn from it outside the standards of education, in their free time and out of curiosity.”

Søren Rud. LIFE exhibitions.

EDUCATIONAL GUIDELINES



Figure 6: Educational guidelines based on conceptual framework

5.2.2. How are the cases studied providing knowledge to improve climate adaptation awareness?

The previous analysis has shown how the intentions of the Municipality and organizations match the theoretical guidelines in terms of educational approaches for climate adaptation. In this part of the analysis the three cases will be looked into, to further analyse if they fit the guidelines that environmental education theories provide. In terms of the provision of knowledge to the learner and the settings recommended by them.

In this part of the analysis the three different cases will be analysed; Three different organizations and an example of the initiatives they realize. The examples studied are of organizations that meet environmental education in innovative ways, they were described previously in Chapter 4: Case study. The organizations analysed are external organizations, meaning that they are not part of governmental institutions, but that to some extent collaborate with them or are influenced by their work.

Next it will be analysed the characteristics of these approaches, what can it be learnt from their work and what advantages these approaches are bringing to help improving the current situation.

5.2.2.1. Miljøpunkt

Organization's Work

The organization works on environmental and social sustainability. Their main interest as they showed in the interviews is to raise climate adaptation awareness and involve citizens in urban planning and in climate adaptation. Through non-traditional approaches, looking at the solutions in an holistic way and promoting the active role of citizens in the development of their communities:

"But that is our project, to spread the knowledge, to let them (citizens) know that is possible to do something, that there are solutions, and that they can be part of it."

Claus Knudsen. Miljøpunkt Amager.

"...we are trying to create awareness about climate adaptation."

Lise Nygaard Arre. Miljøpunkt Amager.

"...we are going to be working to bring knowledge on projects where we think relevant that people get involved and take part on the decision making."

Lise Nygaard Arre. Miljøpunkt Amager.

As it has been previously analysed the constituents share some of the point of view with the Municipality, they work together and collaborate, nevertheless they are also critical of the Municipality's work.

"I think that the municipality in Copenhagen is doing a very great job. But of course we always have recommendations for how they can do some things better..."

Lise Nygaard Arre. Miljøpunkt Amager.

Initiative "Park in a Week"

One of the initiatives they carried out in relation with climate adaptation was "Park in a week". Where they addressed the problematic of lack of citizens' awareness on climate adaptation, Miljøpunkt Amager carried out this initiative to raise awareness through a green pop-up event as it is described in Chapter 4.

"...we tried to show citizens with "Park in a Week", we wanted to make them aware of the solutions we have to adapt and fight against climate change. How these green elements can be part of climate adaptation and how citizens can be part of it."

Lise Nygaard Arre. Miljøpunkt Amager.

With this event Miljøpunkt aimed to show the diversity of approaches, the different ways that climate adaptation can embody.

"...we have different areas with different problematic. You cannot have the same solution... People are going to experience climate change in different ways. And we need to show them about this diversity on solutions."

Claus Knudsen. Miljøpunkt Amager.

"We are trying to bring both concrete and abstract knowledge; we are teaching citizens that they can do things that benefit them and the environment at the same time."

Lise Nygaard Arre. Miljøpunkt Amager.

The baseline of the idea for this initiative was to have an approach to reach more people, to involve them in the planning of their communities and provide with an arena for information exchange. The event consisted of a series of workshops and activities organized by Miljøpunkt in collaboration with other local organizations. They had to main focus: (i) Climate adaptation information and (ii) social cohesion and community bonding. Most of the workshops had an integrated approach of both topics.

It was a project where citizens were involved to create a change in a public space. They worked with citizens; mostly neighbours, shop owners, schools or people that worked on the area, but also it attracted people from other parts of the city.

They approached the event focusing on first informing participants about the need for climate adaptation and greening of the city as a way of doing it. And secondly they involved participants in those processes. They worked collectively to improve the public space in different ways, they built green infrastructure as vertical gardens or green bike racks and they also worked in other sustainability related issues as composting or urban gardening.

It is important to analyse that one of the strong qualities was that through this process synergies were exploited. Besides education for sustainability and climate adaptation it was also promoted community bonding, by providing a new space for interaction between actors of the community. Provided with greenery through a pop-up green space and also brought dynamism to an area normally unused, through workshops, concerts, flea markets or new street furniture.

Educational approach

The educational approaches followed the description previously provided and matched the guidelines extracted from the theories.

Miljøpunkt promoted an easier access to information through the event workshops as well as the climate adaptation posters with adaptation projects proposed for the district of Amager (Image below), which provided educational material that was very visual and easy to understand. It was placed on a permanent stand throughout the whole week that “Park in a Week” took place, so everybody that passed by was able to learn something about climate adaptation, even if they didn’t participate in the workshops or passed by in hours when the organization was not present. So citizens were able to know more about what is being done, what can be done and in which ways they can be involved, and at the same time be able to collect citizens ideas and concerns to be implemented in the planning of the city.

Photo: Climate adaptation initiatives “Park in a Week”



"There were also different angles in "Park in a Week". We presented climate adaptation solutions through greening of the city and other approaches. We had also this exhibition about different kind of solutions for climate change..."

Claus Knudsen. Miljøpunkt Amager.

"The Municipality has a strategy for citizen involvement and I think this projects and initiatives are a very very good way to get in contact with people and get this direct exchange of information."

Claus Knudsen. Miljøpunkt Amager.

On the other hand they also wanted to provide a better arena for citizens to provide input to planners, and institutions. They created a platform that was located on their everyday environment, through a pop-up initiative, which made **easier access** to information and participation by removing obstacles.

By removing these obstacles they were able to reach and obtain more diverse input, including people from different backgrounds, social class and ages, as the setting was accessible for all.

The exchange of information and education took place in an **informal setting**, outside of the traditional arenas for education, which is something that also matches the guidance provided in the conceptual framework.

"I found that park in a week was able to address lot of the issues that it could be difficult to do through a formal meeting, where people don't know where to go or how to participate. Park in a week was more of an informal setting about ideas and knowledge."

Lise Nygaard Arre. Miljøpunkt Amager.

"...this type of approaches as park in a week has a lot of advantages that traditional approaches don't share."

Lise Nygaard Arre. Miljøpunkt Amager.

Those characteristics of this process created a unique setting for climate awareness education. It provided knowledge to citizens in a **diverse** and synergic way, by contributing to the improvement of the liveability on the neighbourhood and the involvement of the neighbours in climate adaptation process, the citizens became **active learner** through their participation in workshops and interaction with other actors. As citizens pointed out the event attracted people from other areas to a more interactive and fun experience. The pop-up event brought activity to a lifeless space, greenery to a grey area and a community hotspot for citizens to interact. It was based on **collective learning** through dialog information exchange and community collaboration. The initiative provided with a **non-traditional setting** in an interactive, creative, flexible and dynamic setting.

An approach that fulfils all the guidance that theories set to improve awareness. “Park in a Week” is an initiative that as the organizers expressed, fits what the Municipality wants to do and could be further developed to involve citizens in climate adaptation.

“I know that the municipality also wants to use this approach, they are very interested, in fact they were supporting financially “Park in a Week””

Claus Knudsen. Miljøpunkt Amager.

“It can take some of the workload from the Municipality, and make it easier for citizens to access that information... easing the process can make people want to participate more. As we saw also with the experience at Park in a week.”

Lise Nygaard Arre. Miljøpunkt Amager.

Citizens experience

According to the organizers and the participants that were interviewed, the outcome of the event was positive, both in terms of the amount of people reached and about the interaction with between them.

“...we saw a lot of people stopping by, reading the projects on their own, reading some of the signs and learning about climate adaptation. People with kids, or walking the dog, also shop owner of the area passed by and learnt something.”

Lise Nygaard Arre. Miljøpunkt Amager.

“They had these really interesting different billboards up about climate adaptations and greening the cities and those sort of projects... There was a cool vibe to it. They weren’t just posters hanging but set it up in a way that made it looked very modern and engaging in that way.”

Amanda Rützou Arnved. Citizen participant in “Park in a week”

All of the citizens interviewed expressed that due to “Park in a Week” they gained knowledge on climate adaptation approaches as well as on the role they could have in the development of these adaptation in their communities (inter-relational awareness). They expressed that after the event they had a higher self-awareness (intra-relational awareness) of the need for adaptation.

“Before the event I didn’t really have a great understanding of what climate adaptation was or what my involvement could be. I think that it is something that is not greatly publicised and there is not a deep knowledge in just like the general community.”

James Hunter. Citizen participant in “Park in a week”

"I also learnt a lot about how simple seemingly inane spaces can be used to better avail and better use for the community. How there is lots of different opportunities available that you may not have ever considered, whether it be from making green spaces or better use of water or just for animal habitats."

James Hunter. Citizen participant in "Park in a week"

"Here I think that you can learn more that this is not only for professionals but people like me can also do some things and participate in climate adaptation measures in your own way."

Thodoris Kourtis. Citizen participant in "Park in a week"

"That was very informative and just opened my eyes to what the different opportunities were out there available."

James Hunter. Citizen participant in "Park in a week"

"I learnt that it can be really easy for cities to start implementing. Something as making green spaces on flat roofs that we have in the city."

Amanda Rützou Arnved. Citizen participant in "Park in a week"

"I also learned that you can individually do a lot. You don't need organisations or institutions to do it, we can do it too. Even by just starting a garden in my back yard or teaching my family about it."

Amanda Rützou Arnved. Citizen participant in "Park in a week"

The participants showed to be very appreciative of the approach that the event had as they founded it fun and dynamic. Citizens expressed that this fact was behind their decision to participate in the event and was one of the main motives why they would come back to events like these.

"It has been very fun and entertaining, so yes I would do this again. I have also learnt some things that I didn't know before and I think this thing is very interesting"

James Hunter. Citizen participant in "Park in a week"

"I decided to go on my own terms because I was interested in it but if you are someone just walking down the street and you pass by it I think you would really want to check it out. Just the way they took over the area with this green space making it look very modern and innovative."

Amanda Rützou Arnved. Citizen participant in "Park in a week"

5.2.2.2. Den Grønne Friskole

Translated to English as “The Green Free School”, this case involves a decentralized school that operates with autonomy from the central educational system. It is a primary school that frames their work into teaching children of different ages in a non-traditional setting, a more active approach where children learn by doing in an environment where sustainability is the normal setting.

“...a very different way of teaching than what we do in public schools, but I think it would work out perfectly. They are focusing a lot on one thing, Sustainability in this case, and that might leave some other topics out of the picture, but I think it is a good part that they are focusing on, an important part...”
Anders Folke Henningsen. Municipality of Copenhagen

“I think that what they do is not that different from other schools, they still learn all the different subjects, but maybe with a higher moral standards than we or other schools have.”
Line. Mother from Den Grønne Friskole

A School that was born to fill the demand for non-traditional education methods, with the aim of providing with education that built individuals with skills to be part of the sustainable transition that is currently occurring, to build a more sustainable future. With this principal aim, children are involved in a non-traditional education where they learn about all the different subjects, with a sustainability aspect that encompasses the process.

Initiative “Det fælles bedste”

One of the initiatives that the school carries out is the involvement of the students with experts through workshops, which in most of the cases take place within the school, but that in some others happens outside of it; as it is the case of “Det fælles bedste” event. In this event the students assisted together with their parents to participate in several workshops and activities with sustainability as their main topic and located in an area next to “Hvalsø Skole”.

“... a workshop that is part of their studies too, because they are learning a lot about the green transition.”
Marusa Balić. Mother from Den Grønne Friskole

The event had very different workshops all sustainability related. Organized on a weekend so citizens, and schools, children and parents could come and learn together. As they aimed for collective learning, and community bonding. Again in this case the organizers aimed to set learning in an active way. The workshops were organized by several different organizations, which frame their work as sustainability issues. A great number of experts that shared knowledge on their fields to kids and adults for them to be able to learn more about their role in sustainable transitions. The focus was set on what can you do as a citizen, as happened with Miljøpunkt's event, "Park in a week".

In this way children and adults experienced on their free time another approach for sustainability education, an informal approach where climate adaptation was also part of the curriculum.

"...the school is here because they are part of this drawing a new future, they are transitioning learning in an eco-friendly, green and sustainable way... They had yesterday a workshop where all the kids of eight years they had a talk about sustainable themes, which I'm not completely sure which one are, but they had a discussion about sustainability...they are doing some urban farming and learning about why should we do this things, and how are we adapting our cities to a more sustainable future."

Marusa Balić. Mother from Den Grønne Friskole

Educational approach

Their educational strategy places projects and workshops as their basic form of learning, an **active** approach where children learn out of curiosity and experience. Learning not just from books but also leaving space for other learning approaches, which was one of the main motives that convinced some parents to bring their kids to the school.

"...the sustainability context is very nice it is something that we like a lot, but we are there more because of the teaching approach."

Line Mother from Den Grønne Friskole

The approach based on workshops promotes **collective** learning, as the students collaborate with each other in them, not just with children of their own age but with different age ranges, putting great attention on communication skills so they relate with each other and build skills to overcome challenges in real life.



Photo: Soil & Compost Workshop "Det fælles bedste"

The educational approach takes place in a more **diverse** setting, the students learn in a Holistic view of the world and its processes. Studying all the different subjects that they learn in traditional schools, but applying it through projects and workshops. It is an **integrated** approach that takes sustainability as a main conductor for learning in both **formal and informal learning**.

"It is all integrated knowledge, they teach with books but they also practice... It is holistic, they will learn in a different way, it is integrated, because when you finish the school this is the real world, its not a subject, it's a complicated mix of all of them"

Marusa Balić. Mother from Den Grønne Friskole

"I think what is really nice about the school is that you learn when you do things and that the learning way understand humans as a whole."

Rasmus. Father from Den Grønne Friskole

"I think that the approaches in the school are very interesting and they do things where they learnt about different topics at the same time"

Line Mother from Den Grønne Friskole

The "Det fælles bedste" event tried to bring lot of actors together, in order to promote knowledge sharing and communication between them. To bring all these organizations, experts and communities together, promoting networking and community bonding in an environment of learning, once again as happened with "Park in a week". This setting promotes the rise in both intra-relational and inter-relational awareness, as they enhance their self-awareness, but also their social awareness, as citizens interact socially to influence individual decisions and habits.

Citizens experience

From the interviews with the parents that enrolled their children in "Den Grønne friskole" it can be seen that the sustainability context is something that convinced them to select this school instead of other, but that the main reason was the educational approach. This is an important factor to analyse, as also Anders Folke from the Municipality pointed out the necessity of diversity in educational systems, in this case for learning in schools, but that could also be extrapolated to different age ranges, and applied to Climate adaptation education.

"...some kids would flourish in "Den Grønne friskole" and others would do it in the traditional teaching system, and maybe other would be happier and learn more in other type of school."

Anders Folke Henningsen. Municipality of Copenhagen

According to the parents experience the school has had effect on their children development, the amount of knowledge that they have gained, as well as their environmental friendly behaviour, and it has not diminished the knowledge that they have in other subjects.

"I think they learn a lot and even more than they can tell you, I think it is something that is being built up within them and the way they are and the way they are going to behave in the future... He is very aware of it so they know that it is important and they care more about it. They understand the importance of the problems and that we need to do something. Something that I think they wouldn't do in another type of schools."

Line Mother from Den Grønne Friskole

"... is a very intelligent way of learning, he is learning extremely much on sustainability."

Marusa Balić. Mother from Den Grønne Friskole

In their opinion a great amount of the knowledge they have on sustainability, the environment and climate change is because of the type of school they are growing up in and the environment that surround them there.

"I think it is very nice also that they grow up in an environmental where sustainability is always present, because is one of the mayor problems their generation is going to face."

Line Mother from Den Grønne Friskole

"...something that for sure is because of the education they are receiving, because I never thought of that when I was a kid."

Line Mother from Den Grønne Friskole

As one of the parents from Den Grønne friskole also shared when she was asked if his child was learning about climate adaptation at school.

"Ohh! He is learning so much about it, he is learning everything about it!"

Marusa Balić. Mother from Den Grønne Friskole

They also shared something that Anders Folke from the Municipality pointed out to be a very important and strong point to educate children on climate adaptation. They have learnt from what their children learn at school, knowledge that was created at the green free school and transmitted to the households. That is an important process to highlight, as the knowledge is crossing the limits of the school and students to their family units.

“...they wonder about all these things that they do at school and share them with us. And we learnt from that too and we start thinking about some things that we wouldn't if it wouldn't be because of them.....they would come home and talk to us about what they did and what they learn, and we learnt things too in this way.”
Line Mother from Den Grønne Friskole

“...they (the school) make sure that a lot of the things are being shared so they can build a school that teaches also the community.”
Marusa Balić. Mother from Den Grønne Friskole

The level of awareness of the children was shown in the interview conducted with them, the children interviewed were seven and eight years old. They were asked several questions with help of images linked to them as can be seen in the Appendix 5.

From the interviews it can be concluded that the children had knowledge regarding climate change, as well as what can be done to adapt to it. From the interview with the parents and observation it was detected that when they talk about climate change at school they don't just do it addressing the problematic but they are educated also in the possible solutions to adapt to it.

When they were asked if they recognized a photography of solar panels and wind mills (Slide 2) they answered positively.

“Yes, we have talked at schools that we can use these things to have energy in the house and in the school. With the sun and the wind and more things that are better than burning things.”
Kid B. Student at Den Grønne Friskole

When they were asked about climate change (slide 7) both of the kids answered positive to the question:

Yes we learn about sustainable things. We know about the poles and the sea going up.
Kid A. Student at Den Grønne Friskole

Yes, something about that the CO₂ goes to the sky and is bad. But that the sun and wind energy are renewable I think.

Kid B. Student at Den Grønne Friskole

In the last question they were asked if there was something they could do to help they showed they knew about their responsibility and the things that they could do as kids in their homes.

"We can stop eating much meat and we can have more plants at home and get water from the rain."

Kid A. Student at Den Grønne Friskole

"We can have an electrical car and have sun and wind energy in your house. You can eat ecological food."

Kid B. Student at Den Grønne Friskole

It was also found that they were more comfortable with schools with lot of greenery as part of their installations and sustainable elements, like recycling bins, composting units, urban gardens which are part of their everyday environment. It can also be observed through the drawing that one of the kids did when she was asked how did she wanted her school to be (Figure 7). In the image it can be seen that the school she pictures is formed by great amount of greenery, urban gardening or a greenhouse in the right. One of the most important points to highlight is that she drew a space in the open.



Figure 7: "Den Grønne Friskole" student's view of the perfect school

They also showed their interest in outside activities, close parks, beach or fields, as a way that they like to learn new things. As also shared one of the parents from "Den Grønne friskole" that was interviewed at "Det fælles bedste" event:



Photo: "Den Grønne Friskole" Sustainable construction workshop

"...the school is installed in a renovated building with 100% eco-friendly material. Paint, glue, furniture material all eco-friendly, and the kids where even involved in this process, so even before the school was a school they were already learning about sustainability."

Marusa Balić. Mother from Den Grønne Friskole

It can be said that the general content in relation with the education conducted on "Den Grønne Friskole" and that the students are growing in their knowledge a concern for the environment and the need for climate adaptation. This knowledge is being transmitted to the communities with changes knowledge spreading to the households and changes on their habits.

5.2.2.3. LIFE Exhibitions

They have been very active since they started with their first exhibition in 2001. First with more nature related material but that with time started developing into a more climate change and climate adaptation work.

"...we mainly focus on the environmental and then with the years more and more in climate."

Søren Rud. LIFE exhibitions.

They have had a great evolution through the years, achieving goals like exhibiting at the UN city, with the visit of Ban-Ki Moon, The prime Minister of Denmark or European commissioners. They have been awarded with some recognition, one of them the CARE Denmark Price in 2010.

They have shown their concern about the lack of positive information regarding the capacity to adapt to climate change. They think that general awareness on climate change is already quite good, in contrast they defend that the amount of information regarding climate adaptation is not enough, that that there is a need to provide some inspiration and hope for the citizens to understand that is possible do something and that they can get involved.

*"Now it is about transmitting a positive message, we are in the start of involving people in the process by positive thinking."
Stine Trier Norden. LIFE exhibitions.*

*"...was the time to present the people that there are solutions, even though they are still not enough, but solutions that can help adapt to the challenges that climate change carries."
Søren Rud. LIFE exhibitions.*

*"It gives people ambitions, and I think ambitions are very important in this matter."
Stine Trier Norden. LIFE exhibitions.*

They want to spread knowledge about the environment and climate change, for what they have focused their efforts into big exhibitions, with photographs that show the natural capital, doing it in capitals and big cities around Europe. Mainly outdoor exhibitions following the same principles that Miljøpunkt had for their "Park in a Week", reaching people in their everyday life environment, out in the street, so they can become aware at the same time that they do other activities, go to work, walk the dog or just enjoy of their free time.

*"... we wanted to do it in a big outdoor exhibition, because when we have a big outdoor exhibition in a big city we have around one million visitors or more. In this way we reach a lot of people, and that is one of our objectives."
Søren Rud. LIFE exhibitions.*

The initiative "Styr på 20 klimaet løsninger"

The exhibition "Styr på 20 klimaet løsninger" or "Track 20 climate solutions" was a project born in order to raise adaptation awareness, focused on younger generations. Their focus group in general are people from all the age ranges, but they decided to focus in this specific initiative on children from primary and secondary schools. As said before they are looking to provide with positivity and show, in this case, future generations that they can become part of the solutions.

*"I think that the most important thing for the kids is to be aware, to know more, and give them hope and inspiration."
Søren Rud. LIFE exhibitions.*

This project that had a great reach, more than 650.000 students from all around Denmark. According to the organizers, the project that was very well received by schools as they shared on their interview.

"... we got lot of calls and emails from some of them, where they expressed how happy they were about it."

Søren Rud. LIFE exhibitions.

"...other school we heard that they made a week with the theme of climate change, for what they used this material together with other activities."

Søren Rud. LIFE exhibitions.

"It was quite well received and after that we got some founding for doing another exhibition at high schools."

Søren Rud. LIFE exhibitions.

But as they said it was not an easy process. Their main challenge was to find funding for it. Now that the awareness in climate change is quite large, finding partners and founders has become a little easier they said. But they still had to overcome some challenges. They did this project without the help of the Municipality as it was a project with a state scope, and so they tried to involve the Ministry of climate and environment and they were not interested.

The Municipality was not involved; we directly sent it to all the schools. We got all the postal addressed from the Ministry of Education and then we just sent it."

Søren Rud. LIFE exhibitions.

"...we tried to make interested and supportive the Ministry of climate and environment in Demark, But they didn't."

Søren Rud. LIFE exhibitions.

Some of the challenges were related with their work load capacity as a small organization, which is something that the other two cases share. Their capacities were limited by the amount of people integrating the organizations and how much work they can reach to do on their own.

"It was one of the weak parts of the projects; we are not in direct contact with the schools as we are a very small organizations."

Søren Rud. LIFE exhibitions.

The use that each of the schools made of the material was open to their decision in this way the educators introduced it to the students in the way that they found more appropriate, in most of the cases the posters were placed in common spaces, where all the students had an easy access. As it was said in the description other schools used them in some workshops and thematic weeks.

The educational materials consisted of 20 different approaches to adapt or mitigate climate change, as it can be seen in the Figure 8, examples from around the world, that brings a global view of approaches and lectures that can be applied anywhere in the world. Water, energy, fuel, greening, transportation and many other examples of ways to mitigate and adapt to climate change. It is also important to note that the photographic material was complimented with educational text that explained the images and linked them with adaptation to climate change. They provide knowledge to learners triggered from their own curiosity, transforming a viewer into a learner with this material.

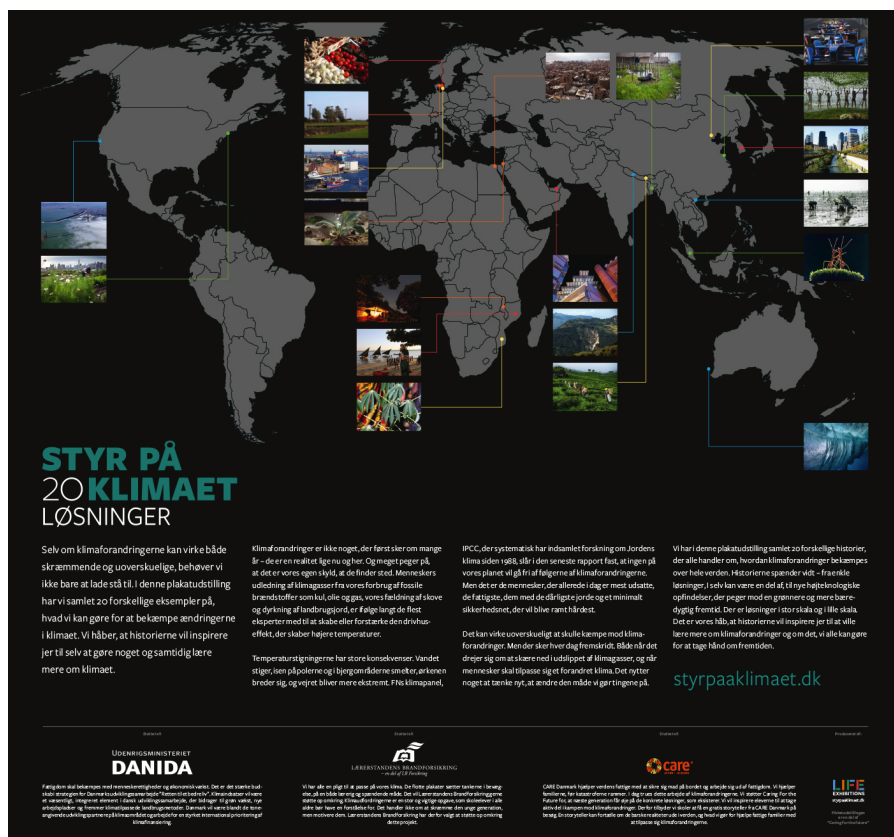


Figure 8: Examples of “Styr på 20 klimaet løsninger” educational material

Educational approach

The vision that the constituents had to enable knowledge sharing had a big emphasis on their opinion that there is a need to converge traditional education with a more innovative way of teaching. To have a more **diverse** educational material and approaches, this point of view is shared by Andels Folke from the Municipality of Copenhagen and matches the guidance that theories set to improve environmental learning. They saw the need to implement new approaches in schools, to find ways of learning that are more interesting for children, in a more informal setting even though it was part of school education.

“...when it is in the wall in a common area in a school for example, people look at it, learn from it outside the standards of education, in their free time and out of curiosity.”

Søren Rud. LIFE exhibitions.

They defended in this way the need for **non-traditional** approaches, as education can be shaped in very different ways, **integrating formal and informal settings** for education. They expressed that photography is an effective way to tell people about reality, to relate with them and to attract them to learn more about the world we live in through a very visual material.

“With this exposition when they look at the pictures if they are good they want to know more so they read the text, and when they read the text, they learn more about climate adaptation.”

Søren Rud. LIFE exhibitions.

“... some solutions for adaptations are very simple, they are not rocket science. It is quite simple and very often its fun and surprising. Of course Books are necessary too but through photography you can tell a more difficult story in a simpler way.”

Søren Rud. LIFE exhibitions.

In this case LIFE exhibitions also wanted to provide a better arena where citizens can access educational material by adapting an already existing platform as is art, to share in this case climate adaptation solutions. This approach provided of **easier access** to information by removing obstacles.

By removing these obstacles they were able to reach a public that might be difficult to involve in other ways: primary and secondary schools students. But that in other exhibitions they reached a more diverse public; people from different backgrounds, social class and ages, as the setting was accessible for all. A different approach with similar goals as the previous case “Park in a Week”


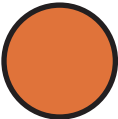






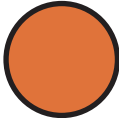
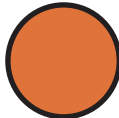





As explained before their initiative established education on climate adaptation in an interactive, creative, flexible and dynamic setting. In the case of “Styr på 20 klimaet løsninger” and in the rest of the settings, they meet people in their leisure environment, where learning comes from curiosity and self interest. The collective factor here is not present as this setting doesn’t call for interaction between actors and dialog about the solutions.

5.2.2.4. Summary initiatives’ Educational Approaches

The following table shows a summary of the education on climate adaptation that the different organizations are providing to citizens though the initiatives that they are carrying out.

The table shows what are the guidance points that the initiatives studied achieved .

Table 2: Educational guidelines achieved in the initiatives conducted by the three organizations studied.

	Non Tradicitional	Active Learning	Collective Learning	Informal & Formal
MILJØPUNKT 				
 DEN GRØNNE FRISKOLE				
 LIFE EXHIBITIONS				

“Park in a Week” achieved to provided education in non-traditional ways, through active and collective learning. It was set in an informal way that can act as supplement to formal education.

“Des fælle besdte” provided education in non-traditional ways, through active and collective learning. Children were educated in an informal way as complement to the formal education they also receive.

“Styr på 20 klimaet løsninger” provided means for education in both formal and informal ways at schools. The initiative didn’t promote axiomatically active and collective learning, however the material could be used to promote education in those ways. Nevertheless it provided with diversity of approaches for education in climate adaptation.

5.3. WHAT ARE THE KEYS TO PROMOTE THIS PROCESS TO IMPROVE CLIMATE ADAPTATION?

Here it will be analysed how the current context, looking into the relation between organizations and Municipality, fits the network governance theoretical frame. It will also be analysed how this can enable the provision of knowledge, contributing at the same time to the construction of a context favourable for social capital building, which will be analysed in the second part of this section.

5.3.1 How is network governance advantageous?

As analysed before education for climate adaptation can take place with different approaches but it can also take place through very different setting. Environmental education has been recommended by international organisations and experts to take place in a local scale (UN, 1992).

According to the information collected through the interviews, several organizations in Copenhagen have been focusing their work on climate adaptation education with this type of approach. A decentralized approach where local knowledge and entities specialized on communicating with people are used to raise climate adaptation awareness, in contrast to a centralized approach with a lower local interaction.

The present research has focused not just on what type of education is needed but also on the channels to provide this education. From the analysis of the data collected it has been detected that Municipality and Organizations in Copenhagen agree on the value of having a decentralized approach. Providing with greater capacity of working to local organizations, as they have a direct contact with citizens in their neighbourhoods and communities, working from a local perspective to raise their knowledge about climate adaptation. The experience and opinion of actors in the context studied in Copenhagen meets the network governance theory, which defends that a division of duties throughout different organizations within the local level, instead of having Municipalities taking care of these actions. Andels Folske from the Municipality defended that organizations like the ones studied here can ease the process as the presence of the Municipality in the streets is very reduced and it would need of a great deal of resources to make this work on their own.

When problematic have the level of complexity that climate adaptation carries; solutions that are engrained through the involvement of more actors may provide better functioning solutions, “empirical evidence suggests that polycentric arrangements, such as networked governance initiatives, emerge to produce solutions that are more beneficial.”(Huppé & Creech 2012, p.1).

Anders Folke from the Municipality of Copenhagen shared in the interview the interest that the Municipality has on implementing actions to walk towards this scenario of network governance in relation with climate adaptation education, and other citizen involvement activities.

“We like to collaborate with other local organizations too, like Miljøpunkt and Lokaludvalg ... they know everybody and they are in contact with people at a Local level.”

Anders Folke Henningsen. Municipality of Copenhagen

But this can be opposed to the point of view to some organizations that think that there is a need for more real support for network governance to really take place, as they had to find external investors for their projects. This also highlights the problematic of inadequate funding and limitation of resources for part of institutions.

“But in other cases we had worked with the Municipality, ... the problem with the Municipality is that they don't really allocate money on this, we had to find money from external partners and foundations and so on.”

Søren Rud. LIFE exhibitions.

As municipality tasks are sometimes very far from the contact with society, and the amount of assets they need to allocate to enable participation processes and education of citizens are very cost and time consuming. This fact might be behind some of the reasons why they also share the view of involving external actors and collaboration with organizations that take care of these actions.

“...they (The Municipality) are people working in an office and they are not used to going out, to be in the streets. They have their own routines and organizational issues and that is why sometimes they miss the target in the way that they communicate with people...”

Claus Knudsen. Miljøpunkt Amager.

“...if you have to do this events for every project and every neighbourhood, it is a lot of people that you have to put from the Municipality out in the street. It is a lot of time and resources that the municipality would have to use, instead of being used for another tasks for what they are more valuable.”

Claus Knudsen. Miljøpunkt Amager.

"...if we have to do these awareness processes alone then we would have to be there all the time just to keep it going, but if we do it on collaboration with organizations like Miljøpunkt and Lokaludvalg they would be there to keep it flowing and keep it going, saving lot of time and resources to the Municipality"
Anders Folke Henningsen. Municipality of Copenhagen

This is linked with the specialization of processes, as experts from organizations like Miljøpunkt shared, they have gained lot of knowledge and skills through the years both as practitioners and organization. These skills are a great asset for the Municipality when they intend to carry out involvement and awareness raising activities as Anders Folke from the Municipality shared.:

"...they have a lot of knowledge on how to do it, that from the Municipality we sometimes don't have as that is not our main field of work."
Anders Folke Henningsen. Municipality of Copenhagen

"I think that up until now the sharing of information about projects was present quite late in the process, but now the municipality is trying to do something new and involve the interested parties earlier in the projects and see if that makes better process"
Lise Nygaard Arre. Miljøpunkt Amager.

"...by now we have had lot of experiences like this and communication with people. Institutions can use our experience and put it to work in collaboration with them to raise climate adaptation awareness."
Claus Knudsen. Miljøpunkt Amager.

"This is always a try and error process and we have gone far in this process, we understand what approaches are more successful and which ones have been less attractive to people... we are also closer to the people and we are very good communicators."
Claus Knudsen. Miljøpunkt Amager

The main reason why this distribution of duties is established, as the theories show is due to the necessity to have a local approach to connect with citizens and relate with them sharing a common language in a friendly environment. Having a closer and more visible organ with a higher presence in the local spheres can ease the access to climate adaptation information.

"With a big organization like the Municipality that is always changing is difficult to know where to go and who to talk to... As we are not part of the municipality we can start the dialog from another context, and provide a better understanding of what is going on."

Claus Knudsen. Miljøpunkt Amager.

Citizens also expressed their concern about the difficulty to find out about the location and time of activities, workshops and event, which relate with the limitations that organizations have and the lack of coordination and platforms available to share this type of information in an joint way.

"I don't really know where can I go to know more about this, I usually learn some things online"
Citizen

"...it is complicated to know when this events are happening, and I don't really get involve sometimes just because I don't know this things are happening"
Citizen

Due to the experience that organizations constituents gained over the years, they strongly recommend that climate adaptation education should take place in a local approach as the educators have to link this learning to the citizens' experiences in order to improve the way they relate to the problematic. In this way they learn from self-interest in a more natural way.

"Also we teach awareness on what is the impact of the way they use things and what are the impacts if they don't do anything, and what are they able to do to cope with this problem, to be part of the solution"
Anders Folke Henningsen. Municipality of Copenhagen

"We have an advantage already and it is that we are already suffering the effect of climate change, its not anymore something that we tell people that they kids may suffer, but something that they have faced already. We are not going to say that this is a good thing, but it does for sure ease the task of involving people and it is in itself a raising awareness process."
Lise Nygaard Arre. Miljøpunkt Amager.

Our experience is that if you want to involve people you have to link it with their everyday life."
Lise Nygaard Arre. Miljøpunkt Amager.

“...in the new set, one of them is about food waste, and it is a picture of Roskilde Festival, something that lot of people has live in their own lives here in Denmark.”
































Søren Rud. LIFE exhibitions.

It also matches the educational approaches that “Den Grønne Friskole” implement to teach at the school, as is described on their webpage (www.dengroennefriskole.dk)

Networking on the tree cases studied

From the analysis of the tree cases study it can be said that the work of the tree organizations is characterized by a high dependency on networking. An analysis of the actors involved in the different initiatives show the dependence to other organizations, experts and entities. Which at the same time can be seen as resourceful use of skills and capital.

Table 3: Initiative's Network

	Park in a Week	Det Fælles Bedste	Styr på 20 Klimaet Løsninger
Organizers	MILJØPUNKT 	      Slow Food* Copenhagen - North Zealand	
Collaborators	 KOMPOST BUDENE  KVARTER HUSET  Amagerbro Høvedsplan  SHARING COPENHAGEN  AMAGER WEST  Community  TAGTOMAT  FOREBYGGELSES-CENTER AMAGER  KØBENHAVNS GUITARSKOLE  CASA DE LA GUITARRA  PRÆS	 ØSTER GRO  SKOLEN FOR LIVET  Træstribben  Hvalsø Skole + 60 other companies and organizations	Danish Schools
Funding	 KØBENHAVNS KOMMUNE	 TUBORG FONDET  MERKUR  Information  coop  ROSKILDE FESTIVAL FONDEN  HANEGÅRD	 DANIDA  LEBERSTANDENS BRANDFREMFORING  CARE  I SAMARBEJDE MED  gettyimages

All those actors contributed in one or other way to the development of the initiative. A highly connected networks that function as intermediaries between citizens and knowledge. But they also get involved not just with organizations but also with other experts, as in the development of the educational material of “Styr på 20 klimaet løsninger” where journalists, teachers or geographers, where involved in order to create proper educational text linked to the photographs, taking into account the public targeted. Søren Rud from LIFE exhibitions explained in the interview some of these connections.

I mean besides the organizations that provided us with funding we also have been communicating with other organizations. Regarding climate we have been in contact with some of the UN organizations and they also supported the project, We worked together with the organization CARE... In other projects we have worked with organizations like WWF...
Søren Rud. LIFE exhibitions.

This is something that was shown very clearly in the interviews as well as in the observation conducted in the events.

If we look into Miljøpunkt's work they are being founded by the Municipality in some cases, as was "Park in a Week", and they collaborated with lot of local organizations to organize the event as well as to realize workshops and share knowledge in sustainability.

"We as an organization are often talking with schools and collaborating with them in some aspects and they are quite interested"
Claus Knudsen. Miljøpunkt Amager.

In their case they are very happy with the Municipality work, and they think they are doing a lot of work related with climate adaptation, nevertheless they also think they could do more to improve climate adaptation awareness.

"I think that the municipality in Copenhagen is doing a very great job"
Lise Nygaard Arre. Miljøpunkt Amager.

"I know that the municipality also wants to use this approach, they are very interested, in fact they were supporting financially "Park in a Week"
Claus Knudsen. Miljøpunkt Amager.

Life Exhibitions have been collaborating with organizations like CARE, WWF or the UN as well as schools, but one of their main networking has been with Municipalities as most of their exhibitions had taken place in public spaces in several European cities, even though they didn't provide funding, as they told in the interviews:

Of course they (The Municipality) were happy about the project and supportive, but not in practice."
Søren Rud. LIFE exhibitions.

When looking at “Den Grønne Friskole” even though they are a private school they work as an open source school, so they collaborate with lot of experts and organizations like Miljøpunkt, Kompost Budene or Ramboll that act like educators through workshops that teach the students about sustainability as was the case of “Det fælles bedste” event were as it can be seen in Figure 9, a lot of different organizations acted like educators.

“...they are doing a lot of collaborations with local but also with organizations from around the world or the country.”

Marusa Balić. Mother from Den Grønne Friskole

“There is also another green school here today, so they are also learning with other schools.”

Marusa Balić. Mother from Den Grønne Friskole

Even though in some aspects they all work differently, in general all of them are highly dependent on the Municipality, as it is the organ that enables most of these actions in the city, though permits or funding. That is why the Municipality plays a key role on facilitating the arena for networking governance; which would liberate some of their workload by dividing responsibilities with the integration of local organizations. These organizations have the knowledge, skills and expertise to promote awareness in climate adaptation, that the Municipality does not.

“The Municipality need to be more aware of how to involve the local organizations that works with climate adaptation, and of those that help raising the awareness of all citizens so the become part of the solution too.”

Claus Knudsen. Miljøpunkt Amager

“For us as a small organization dealing with these types of projects makes lot of sense as they are very local and citizen related, while the municipality can focus and use all their resources into large projects with a higher engineering difficulty.”

Claus Knudsen. Miljøpunkt Amager.

“I think that up until now the sharing of information about projects is being there but I think that quite late in the process, but now the municipality is trying to do something new and involve the interested parts earlier in the projects and see if that makes better process”

Lise Nygaard Arre. Miljøpunkt Amager.

In the case of Miljøpunkt and LIFE Exhibitions, it can be said that they are interested on network governance approaches not just because they would be able to reach more people but also because they could benefit from more funding. Local organization are working to gain a bigger role so they can

address better the challenges and concern that were identified from the different cases, connected with the difficulties they have due to the limitation of resources they face as small organizations to deal with the networking. As well as the difficulties to reach more citizens in some cases also due to limitations in the amount of people working there and budget. And they want the Municipality of Copenhagen to take a more active role in enabling this processes some organizations that think that there is a need for more involvement of them in the municipalities goals and financial support to do so

“But in other cases we had worked with the Municipality, ... the problem with the Municipality is that they don't really allocate money on this, we had to find money from external partners and foundations and so on.”

Søren Rud. LIFE exhibitions

5.3.2 How can social capital be involved to improve climate adaptation?

According to the theories social capital can play an important role in the development of cities. But in order for a city or community to acquire social capital some specific conditions are needed. First of all the presence of human capital is necessary to build social capital, which can be constructed through education on climate adaptation, in this way self-awareness (intra-relation of awareness) skills and knowledge on this topic is provided to the population.

According to the theories for human capital to turn into social capital other elements need to be present in the scenario. One of them is the presence of existing networks (structural dimension) that as analysed before are present to some extent in this context.

Other of these components is trust, citizens trust in the rest of the network. In order for citizens to work together they need to trust the community and the organizations involved, and most importantly the institutions, as they are doing most of these adaptation to climate change. As one of the other components is reciprocity, citizens when work together need to see that they are respected and the effort is mutual between them and the rest of the network (relational dimension).

The case of Copenhagen is very specific, as the rest of the Scandinavian regions they present the lowest corruption rates, this is a key factor as the interviews showed. According to Claus Knudsen the well functioning of the Municipality of Copenhagen, together with the branding of the city as a Green city and the visionary politicians, create a great arena for social capital creation.

"...this element of trust for the institutions; citizens trust that the institutions would do the best for their interests...that is a key aspect when we try to analyse the reasons behind the way Denmark is working...they (the Municipality) are very responsive, they are very good at listening and they act according to what they hear from citizens and experts. That maybe is quite unique. We have this combination of a brand, visionary politicians and a Municipality that is very responsive underneath of the public"

Claus Knudsen. Miljøpunkt Amager.

Comparing the dimension of social capital with the current state of the city of Copenhagen, there is a good ground for social capital building in Copenhagen; It seems that the level of trust that citizens have on the Municipality of Copenhagen is high based on the interview data. And their opinions are heard and respected, even though there might be room for improvement.

Also due to a good level of awareness in environmental issues, as analysed before, the level of self determination in relation with climate adaptation could be described as good at least according with the data obtained; and it could be improved through education. That matches the findings from the interviews, that also showed signs that citizens are willing to become part of this sustainable transition, to collaborate on changing cities into a more sustainable ones, adapted to the uncertainty patterns of climate change.

"It was very fun and interesting to learn about these things. I didn't really knew what could we do to help. It is not that complicated to help, there are some small things that we can do too"

James Hunter. Citizen participant in "Park in a week"

"I think we need to do more, because climate change is already affecting us, so If we don't do anything now its going to be very bad in the future."

James Hunter. Citizen participant in "Park in a week"

"I think I would go to more events like this, but I think that it is not very easy to find or to be aware of these events."

Thodoris Kourtis. Citizen participant in "Park in a week"

"I went over because I was interested in green events sort of in an urban setting."

Thodoris Kourtis. Citizen participant in "Park in a week"

"I'm interested in learning different green approaches for cities and climate adaptation seems to be something important for cities to start thinking about."

Amanda Rützou Arned. Citizen participant in "Park in a week"

The finality of these approaches is to built human capital and address the cognitive dimension of social capital by informing people about the challenges, and the need to do something to adapt to climate change. These actions would raise intra and inter dimension of awareness, and enable citizens to become part of the adaptation process. As the conceptual framework shows, increasing knowledge in the population can lead to a raise on social capital in relation with climate adaptation. From the interviews it was possible to see that citizens might be willing to collaborate if they had a higher knowledge, as also pointed out the literature review.

"I also think that is not just the Municipality who is working but also there is a lot of bottom-up movement."

Claus Knudsen. Miljøpunkt Amager.

"...will bring more awareness, also because they can become ambassadors for projects, so they have the opportunity to apply what they learn and ask for improvements."

Lise Nygaard Arre. Miljøpunkt Amager.

"Of course I knew about climate change, I think lot of people are aware that we have to do something. But I didn't think I could do much to adapt to it...this is something new that I didn't think about before."

James Hunter. Citizen participant in "Park in a week"

The analysis of the cases studied showed that the structural dimension of social capital is present to some extent in the context of climate adaptation; there is a multilevel structure that enables the provision of knowledge, as Municipality, big organizations (DONG, HOFOR) and local organizations (Miljøpunkt, Den Grønne Friskole) are providing education with different approaches.

The analysis also showed that the relational dimension was good according to the interviews conducted to some of the participants and to the view of the organizers. The dynamics of "Park in a Week" as well as the one from "Det fælles bedste", promoted not just education but also the building of networks and ties between actors, which leads to the creation of social capital. They promoted a relation based on trust with the goal of building the arena to share obligations and involve citizens on the climate adaptation processes.



6. DISCUSSION

From the analysis of the data collected, the cases studied and the context in which they are embedded, some aspects that show the state and dynamics of climate adaptation awareness-raising in Copenhagen can be discussed.

6.1. WHERE DO WE STAND?

From the analysis of the context, it can be said that the Municipality of Copenhagen is quite visionary in relation to climate policies. In the case of climate adaptation, they have been working for years now, to adapt the city and become the world centre of climate policy. According to the data collected, the integration of society in this process is mostly recent. Most of the work that has been taking place is at a high engineering-level where citizens' involvement is very limited. Nevertheless, the Municipality showed their willingness to involve people in the adaptation process by highlighting the need to raise awareness.

According to the data collected, citizens in Copenhagen have a high awareness on environmental issues as institutions and society have been involved in the environment's protection in the city of Copenhagen for several decades now. The analysis of surveys conducted by the municipality showed a high rate of awareness on environmental issues, and the citizens' perception of the need to adapt to climate change. However, from the interviews conducted with both experts and citizens, a general theme was found that highlights that although Copenhageners present a high awareness of climate change, awareness is considerably lower in the case of climate adaptation. The information collected illustrates that citizens think that climate adaptation is mainly a problem for the Municipality and engineers. In their eyes, it entails a high degree of difficulty and they have a low understanding of the ways in which they can be a part of adaptation.

To take in

It is necessary to highlight that some assumptions have been made to discuss the analysis conducted of the data, in order to reach to conclusions.

As this research has been mostly based on interviews the information obtained from it has been used to describe the state of climate adaptation awareness, even though they might be based on personal perception, and in some cases on self-interest of the interviewees, due to their positions.

The data collected is used to describe the state of climate awareness, even though it might be difficult to make general assumptions from small samples.

Some of the descriptions were based on observations from the interactions at two of the events in which I participated

What shows more clearly in the commitment of citizens to climate adaptation is their perception of the need for the Municipality of Copenhagen to strive to customize Copenhagen for present and future climate change. 26% of the citizens surveyed highlighted it as one of the three most important environmental challenges, ranking it in third place.

6.2. HOW IS CLIMATE ADAPTATION EDUCATION TAKING PLACE IN COPENHAGEN?

International organizations have urged countries to take action to improve citizens' awareness on climate adaptation. From this need to raise awareness, governmental institutions and autonomous organizations have started taking action. The Municipality is focusing the effort to implement new approaches in public education systems, but they are also interested in raising the awareness of adults.

Due to the need of raising climate adaptation awareness in the population in the short term, some organizations have dedicated their work to improve citizen awareness on climate adaptation. The organizations studied think that there is a need to take more action to increase it. The organizations might have different motives to raise awareness, they can be NGO's like Miljøpunkt; or be schools, public or private, as is the case of "Den Grønne Fiskole"; private entities like LIFE Exhibitions or even state founded organizations. Thus they might be looking for raising awareness together with other goals, as can be commercial ones.

These organizations are approaching climate adaptation awareness from largely non-traditional approaches as a complementary work for what the municipality is doing in public schools (and collaborate with big organizations as DONG and HOFOR for some of these educational activities). From the data collected, it can be observed that citizens have welcomed these initiatives and found them more interesting than other approaches that could be called traditional (as public meetings or traditional teaching methods).

Non-traditional approaches are encouraged by international organizations and previous studies. According to the data collected, the characteristics of the initiatives studied were found to be attractive to citizens and provided assets to the community. This is because they were more enjoyable, entertaining and interesting than traditional methods.

Educational approaches

In order to understand how these organizations contributed to improve citizens' awareness it is necessary to look into two main aspects: the characteristics of the educational approaches and the setting in which they took place (NAAEE, 1999; Monroe et al, 2008).

From the study and analysis of the cases studied in this research, it can be said that they were characterized as being non-traditional approaches to raising awareness through education in diverse settings.

If we focus on “Park in a week” the event achieved its goal to provide knowledge on climate adaptation to citizens in a series of workshops and activities. It presented knowledge in an informal setting where learners took an active role and collaborated to change their community, gaining valuable skills and knowledge in the process. It also presented some limitations as the number of citizens that attended could have been improved by more effective communication.

The second initiative analysed was “Det fælles bedste”, which can be integrated with the general educational approach of “Den Grønne Friskole” of providing knowledge using workshops as a tool. They provided an arena for active and collective learning, again in an informal setting, for both children and adults. This approach could be implemented in other schools to provide climate adaptation education, as most of the workshops can take place within the school, as it usually happens in “Den Grønne Friskole”. This case could be considered a good definition of formal-informal learning integration, where students learn collectively by collaborating in those workshops and activities.

In the case of “styr på 20 klimaet løsninger”, they aimed to integrate into schools both formal and informal learning for climate adaptation. Even though conclusions on the outcome could be reached, because it was not possible to interview any citizens that participated in this initiative, the organizers were content with the outcome and shared that after this initiative some investors were interested in taking it to more schools, especially secondary schools. This type of approach promoted climate adaptation learning in an informal setting within a formal environment, but did not promote an active role of learning or collective learning, unless schools made use of them in some other way besides exhibiting them.

All three approaches provided diverse and non-traditional ways to improve climate adaptation awareness. According to the data collected they were well received and the organizers were content with the outcome. It could however be argued that in the interviews may aggrandize the positive aspects, dismissing the negative ones. As such, in order to have a more advantageous outcome,

improvements could be made. This could be with finding more effective channels of publicity or linking the initiatives to examples that are currently being planned and implemented in the city, for what a larger collaboration with the Municipality would be necessary.

Initiatives' settings

As the literature points out, there is a need for diversity in the methods of communication and education on climate adaptation. The Municipality and the organizations studied shared this point of view. Those organizations set initiatives to expand on approaches, looking to improve the ways knowledge is provided to citizens. Taking advantage and learning from previous experiences can lead to the selection of more advantageous approaches, keeping also in mind that diversity would also be advantageous for knowledge sharing.

Some settings were found to be practical from several points of view; "Park in a week" represented an especially interesting case for municipalities, as it was set to exploit synergies. This initiative brought knowledge and information to citizens and provided more assets for the community and neighbours like; temporary activities, promoting a more dynamic, diverse, active and interactive city. They also provided a new community hotspot, a new public space for citizens to enjoy the city; they increased the green infrastructure of the city and improved liveability. It was a setting that could enable the involvement of citizens in urban planning not just for adaptation but also for other topics, as according to the data obtained, it seems to be a good arena for information exchange in both directions.

In the other two cases studied, the synergies were not as abundant, as both of the projects were mainly focused on raising awareness. The case "Det fælles bedste" presented some similarities with "Park in a week"; it brought temporary activities to the neighbourhoods, promoting a more dynamic, diverse, active and interactive city. It also enabled a community hotspot for networking and bonding. Nevertheless, it was found that other interesting settings should have been studied further.

Citizen experience

Citizens' experience in the initiatives were positive, the participants interviewed in both "Park in a Week" and "Den Grønne Friskole" shared that they were satisfied and that they enjoyed the way in which knowledge was shared and the setting in which it took place. Also knowledge seems to be transmitted to participants to some extent.

In “Park in a week” citizens had an entertaining experience, where their knowledge on climate adaptation was raised. They stated in the interviews that they gained knowledge on the ways adaptation can be shaped and the role they can play as citizens in climate adaptation, knowledge that prior to this initiative they did not have.

In the case of Den Grønne Friskole” Parents expressed their contentment with the way in which their kids were being educated. Also, they explained in the interviews that their children were very aware of the climate problematic and the need to do something to adapt to it. This could also be noticed from the interviews conducted with the children.

The study shows indicators that those initiatives raised awareness on climate adaptation in both children and adults. However, a more extended period of education proves to be more effective to raise concerns and knowledge, as “Den Grønne Friskole” case showed. Nevertheless, this is based on subsamples from these initiatives; a wider span of samples and events may garner a more reliable statement, still the findings show encouraging results.

In order for these initiatives to create a real impact, they need to reach more citizens and be held in different areas of the city. It might be difficult to reach all citizens, but these initiatives studied have a high potential to achieve that goal. This is because they are set in public spaces and schools, areas that are part of the everyday life of the citizens, which can be integrated into their normal life.

Some groups of citizens might have a higher predisposition to participate and learn. Those citizens with a previous interest in the environment and affective links with the environment are those who will have more environmentally friendly behaviour (Palmer et al., 1999). The citizens that participated and were interviewed were most likely those with a higher interest for environmental issues; this must be taken into consideration.

6.3. WHAT ARE THE KEYS TO PROMOTE THIS PROCESS TO IMPROVE CLIMATE ADAPTATION?

The Cases studied showed diverse approaches to achieve knowledge sharing in ways that follow the guidance provided by theories and the literature. It is also necessary to look into the means that enabled knowledge sharing through the platforms studied here.

Even though the overall outcome of the event was successful, and all the parties were pleased with it, it could be improved for future cases. This could be done by providing more information to citizens and collecting more from them. The number of people that participate could also be increased, though this will probably improve with time, if this type of initiative is accepted and becomes an activity of social interest.

How is network governance advantageous?

The study of the state of knowledge sharing in Copenhagen identified for a higher inclusion and coordination of autonomous organization in climate adaptation education to raise awareness, which matches the guidance, set by network theory (Chapter 3.3). The Municipality is working to improve citizens' awareness, but more efforts are needed to improve the current scenario. The data collected shows indicators that the current awareness in the general population is low. This fact raises the question, how can the current model be improved?

From the analysis of the actors studied here, it has been found that there may be high willingness from citizens to get involved in this learning process (and further adaptation process). However, there needs to be an improvement in the network connections and ties between local institutions and autonomous organizations, in order to provide knowledge in a more efficient and effective way, promoting innovative approaches as the ones studied here. Admittedly, this finding is based on the interviews conducted on participants at the events, which might influence the willingness of these citizens to get involved in other environmental issues.

It was also found that diversifying the actors involved in the communication and education on climate adaptation would be beneficial. This may lead to a more diverse and effective network, what matches the recommendations given by network theory (Chapter 3.3).

The challenge lies in the way in which this network can organize and function in the most desirable way. A frame of network governance to coordinate different organizations and engage citizens in different arenas is best placed to provide innovative education. Such a frame should enable local organizations, with direct connection and ties with communities and citizens, to provide knowledge on climate adaptation.

It could be argued that there are already organs like schools or municipalities that are essentially local and are engaged in providing knowledge to citizens with approaches that fit the theoretical guidance. Thus, focusing on enhancing the operation of these, could improve population awareness. However, as said before, the current context would benefit from diverse approaches. Further, the characteristics of the everyday tasks and organizational issues they have to overcome might hinder the outcome.

In addition the skills that autonomous organizations can deliver would improve the process. This is because, if we focus on the case of municipalities, these are not specialized on communicating with citizens. Thus, the process of learning and the amount of internal resources they would have to use to carry out the task would not be efficient as interviewees shared.

It may be argued that the problematic found in the cases studied might only be related to a lack on funding, as such, increased spending on climate adaptation education would improve the situation. However, other factors were also detected in the study that needed to be addressed in order to improve the situation: (i) there is a need for higher coordination between organizations facilitate the networking process, as some of these tasks are hindered by the limitations of local organizations, as lack of resources (Chapter 3.3); (ii) there is also a lack of clear objectives and guidance, it seems to be a very wide span of initiatives and organizations working in related topics based on people's ideas and perceptions rather than truly coordinated toward a clear goal; (iii) it might also be interesting to promote the search for private funding, not limiting it to public expenses (The World Bank, 2011); and (iv) there is a great need to address education in the short term by reaching people from all different ages and backgrounds, which is the focus of the cases studied here. Short term approaches could, in this way, supplement education approaches that focus on raising awareness in the long term like education for future generations in schools.

This leads to the proposal of a model based on Network governance (Chapter 3.3). Here autonomous organizations take care of the distribution and communication of knowledge over citizens in coordination with the Municipality and other state founded institutions. The Municipality plays the role of structure of authority. This provides the basis for an efficient functioning of the network by allocating resources and coordinating strategies and joint actions. It facilitates such linkages and sets a framework through guidance, sets of goals and principles to work towards a clear objective to raise climate adaptation awareness. This model is illustrated in figure 9:

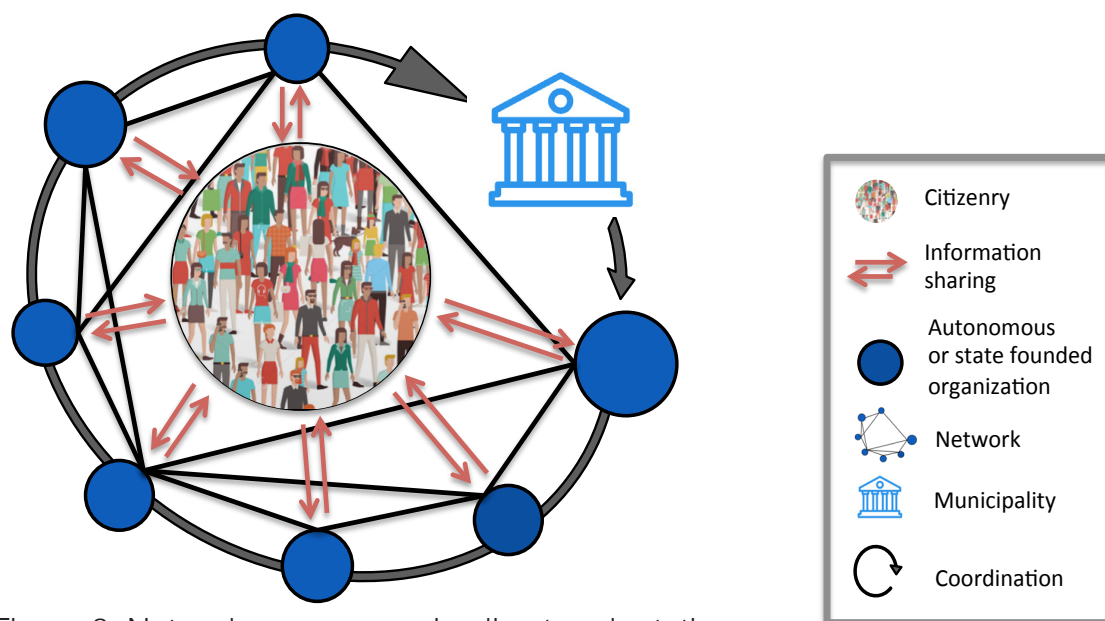


Figure 9: Network governance in climate adaptation

The model described might improve the current situation and also be implemented in other cities to improve climate adaptation awareness. This permits a more coordinated network with a more defined scope, which channels the actors' skills, resources and time in order to align the efforts towards a common aim.

How is social capital involved to improve climate adaptation?

As social capital is one of the main factors needed to achieve a sustainable adaptation to climate change (Adger, 2001a), it is important to look into ways to nurture its' growth and how the context studied here might influence it. To do so, it is necessary to check how the initiatives studied and network governance, influence the three dimensions of social capital.

The first dimension or structural dimension would benefit from a well-established and functioning network (Lesser & Prusak, 1999) that would enable citizens to build stronger and more numerous ties with different actors. This would be enhanced by the development of a model based on strongly coordinated network governance. It can be argued, that in the Copenhagen context, this dimension is already existent. However, as explained before, there is room for improvement, which might be achieved by moving towards the explained model.

Well-coordinated network governance can set the arena for local initiatives to take place in a more efficient and goal-oriented ways. It presents the potential to raise social capital through knowledge sharing and social learning (Huppé & Creech, 2012).

There is a reciprocal relationship between social capital and network governance; social capital depends upon interactions across network actors, while those interactions that are the base of network governance are dependent on a certain level of social capital (Huppé & Creech, 2012).

The settings of the cases studied in this research can also influence positively the second dimension of social capital or relational dimension. Those initiatives can improve the dynamic of the educational processes for climate adaptation. This is especially true in the cases of “Park in a Week” and “Det fælles bedste”, which have strong qualities to improve this dimension: they focus a lot on the relationship between the actors. Contrastingly, while the approaches that Life exhibitions gave were interesting from the cognitive point of view, it was more limited in the other two dimensions, as it did not promote active and collaborative learning though the “styr på 20 klimaet løsninger” initiative.

The third dimension of social capital or cognitive dimension, would be the one most influenced by these approaches, as they would increase the amount of knowledge, skills and abilities that citizens have. The assets gained would be present in the population to share and enrich the community and networks through exchange and collaboration.

The model presented facilitates the construction of social capital as it eases the functioning of the communication and education on climate adaptation (Huppé & Creech, 2012). Through the implementation of approaches and settings that share qualities with the ones studied in this research, these networks could enhance social capital and empower citizens to be part of climate adaptation. It would be valuable to research the ways in which aware citizens can be integrated and involved in climate adaptation projects and processes in order to benefit from an aware population.

6.4 Discussion of the reliability and limitations of the results of the analysis

The reliability of the results of this projects are a function of the characteristics of the data collected, which is legitimate and justifiable because it is based on well-grounded research structure with a diversity of both social data and theories. The study was based on several cases, which provided a wider view of the processes studied. The context in which they are developed was also studied in order to obtain a clearer view of the process.

However, the data collected from interviews is limited as the sample cannot represent the whole of the population. In light of this, some surveys with a higher sample population were used to better illustrate the state of the process being study. Moreover, the impossibility of reaching participants of the initiative carried out by LIFE exhibitions made it impossible to draw on the results of this specific case.

The reason of some of these issues is the limited time provided to write the present thesis, and the low collaboration received from some actors.



7. CONCLUSION

This report aimed to answer the research questions through the analysis of three cases, which main focus was to raise climate adaptation awareness, and the context that enabled them. The cases were comprised of three organizations; Miljøpunkt, Den Grønne Friskole and LIFE exhibitions and three initiatives; "Park in a Week", "Des fælle bedste" and "styr på 20 klimaet løsninger", corresponding to each of the organizations respectively. To do so the conceptual framework was taken as a guide to analyse the cases and come up with conclusions.

The main objective of raising awareness on climate adaptation is the construction of social capital that can be integrated into climate adaptation processes. However, the ways in which this capital could be used in the most beneficial way is a matter that need to be further researched in future studies.

For this reason, it is necessary to look at the ways in which these climate adaptation awareness-raising initiatives take place and how they can be enhanced. Further importance must also be given to the ways in which they influence the construction of social capital. .

The main objective of the initiatives that these autonomous organizations are carrying out is: to raise self and social awareness in the population and to create human capital by raising skills, knowledge and abilities in relation to climate adaptation. It can be concluded that they had a good impact over the citizens and that these types of initiatives have a good potential to raise general awareness of the population.

They followed the guidance set by theories and previous studies and experiences, implementing non-traditional approaches, with the aim to diversify and enhance the climate adaptation awareness-raising process. The diversification can be divided in two dimensions.

Diversification of educational approaches, looking for innovative educational approaches that improve the way in which knowledge is provided. The theoretical frame set several aspects as guidance for better learning, which are: (i) citizens should engage learning in an active way; (ii) doing so in a collective manner, looking after building communication and collaborative skills; (iii) aiming to reach an integration of formal and informal educational approaches.

Diversification of settings in which this education is taking place, which is linked with the three factors described before. Informal settings for education can provide more assets for the construction of climate adaptation awareness and social capital. They can introduce synergies into the same process, and create a good arena for the construction of social capital. As in “Park in a week”, and to a lesser extent in the “Des Fælle Besdte” events, the cases provided a dynamic, diverse, active and interactive public space with the aim of facilitating the creation of a network based on community. Such cases bond and improve the ties between actors involved in climate adaptation. These approaches could have beneficial influence over the relational dimension of social capital.

The context in which these organizations are working and climate adaptation awareness-raising is taking place is highly dependent on networking. There are a high number of actors working to raise climate adaptation awareness. In order to improve the efficiency and effectiveness of those, it is necessary to establish well coordinated and goal-oriented network governance models. Those models also benefit the structural dimension of social capital as they enhance network stability through a configuration that enhances the ties between actors. The development of strategies in Copenhagen would benefit from a stronger network governance model, as currently there is poor effective governance of third party activities being undertaken. Following this model, knowledge would be provided to citizens by autonomous organizations and state founded entities, through diverse coordinated settings. Those settings or initiatives would set educational approaches following the guidance and coordination set by the Municipality. The Municipality in this way would delegate competences to third parties and play a role of structure of authority coordinating strategies and joint actions. It would allocate resources but also leave space for further private investment.

This model aims to improve the way in which climate adaptation education is taking place. This will be done by exploiting the skills and abilities that the different local actors can provide, to have a strongly coordinated network with a more defined scope. It aims to make a more efficient and effective use of the resources available in Copenhagen and align the efforts towards a common aim of a higher climate adaptation awareness.

This model can inspire and provide guidance for other cities to take action to raise climate adaptation awareness and improve the overall adaptation process.

Copenhagen and the Scandinavian context is very unique; it enjoys, for example, an environment in which Governmental institutions have very low corruption rates and are very visionary and reactive to societal demands. There seems to be a high level of trust between citizens and institutions and a high willingness to become part of sustainable transitions.

The examples and contexts studied in this research, embedded in this described situation, makes it a good example to study best practices and approaches to improve climate adaptation awareness. Nevertheless, due to the difference with other countries contexts the implementation of these approaches might present more difficulties.

Even so, other cities can take advantage of the experiences carried out in Copenhagen where there is already a process of trial and error and the processes are being improved over time. It is necessary to share experiences, best practices and challenges to improve the way in which climate adaptation is taking place as experts points out.(Resilient cities, 2013). The educational approaches and settings described in this study show ways to carry out climate adaptation awareness processes in a way that meets the guidance provided by the conceptual framework (in lesser or greater degree depending on the cases), to raise awareness and create social capital.

Also, a model based on network governance would be beneficial for other cities that aim to raise awareness on climate adaptation and create social capital in relation with it. Cities that face problems related with: (i) low intra- and inter-awareness of the population across the different age ranges; (ii) the demand for a higher investment for climate adaptation awareness by finding investors in both public and private spheres; (iii) challenges to establish network connections and ties between actors; or (iv) present low trust rates between governments and citizenry. This is because autonomous organizations can approach citizens from a different context, taking advantage of this perception of autonomy that might heighten the interest and involvement of citizens by having an intermediary that might enjoy better relations and ties with citizens and communities.

Nonetheless, it is still necessary to keep studying these processes in the long term, because their performance may vary from case to case, and improve when citizens get to know more about them and a greater reach is achieved.

Recommendations for further research

Knowledge on climate adaptation awareness-raising approaches would benefit from further research of several topics.

It would be very helpful to obtain specific information on the population awareness on climate adaptation, e.g. their perception on the need for adaptation to climate change or the role they can play on this process. It would also be valuable to research the ways in which aware citizens can be integrated and involved efficiently in climate adaptation projects and processes in order to benefit from an aware population. A better understanding of these processes would be achieved by further studying the ways in which organizations are being funded to carry out these processes and ways to attract more investors and sources of funding.

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APPENDIX

1: INTERVIEWS

**2: CLIMATE ADAPTATION PLANS
EXAMPLES FROM “PARK IN A WEEK”**

**3: INITIATIVE PROGRAM “PARK IN A
WEEK”**

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APPENDIX 1: INTERVIEWS



Interview N°1

Anders Folke Henningsen.

Educational consultant Copenhagen Municipality. Department of Sustainable Development.

What is the work that you do in relation with environmental education here in the Municipality?

We are teaching, we are part of the public education department of Copenhagen. Where we are teaching sustainability in many levels, making new educational material, specifically I am now teaching in waste management, how can we reduce the production of waste, how can we separate more waste and how we can reuse it. Also we teach awareness on what is the impact of the way they use things and what are the impacts if they don't do anything, and what are they able to do to cope with this problem, to be part of the solution. Because this is actually an easy problem to work with as a citizen, as a kid. It is very easy for you to do something and it would have a great impact if you do so. So that is what we try to teach from this office, also some of my other colleagues are working in climate change, specifically, how can we have a more climate friendly lifestyle, and what are the consequences of climate change. Issues like energy, water or waste management in my case, how we do things and how we should adapt for the future, and what are the consequences if we do not.

Is there any specific strategy to raise awareness in climate adaptation solutions?

In our department we have a climate adaptation school, is not here, it is in (Danish word 5:00) where we have built an education facility where you can flood the streets you can flood a house, how to deal with this problem and what is the municipality doing in relation with it.

Copenhagen has a very important problem with water, because of its geographical position and its climate flooding is the main issue. And we are focusing a lot in what can you do as a citizen, what are the intelligent decisions that you can take when you face this problematic.

Is the education focused in kids or it's a trans generational education strategy?

We are here teaching kids, but there are other divisions where they also do some programs to teach adults and professionals. The strategy is not common at the moment but there are strategies for every part of the population.

Do the Municipality collaborate with other organizations? In which ways?

Yes we do, actually some of the educational projects are carried out by the company that is managing the sewage system, who is paid by taxes, so I think they have an strategy to how to teach the kids, and they ask us to do it. Companies like DONG or HOFOR, we collaborate with them and we take the teaching programs to the schools.

We like to collaborate with other local organizations too, like Miljøpunkt and Lokaludvalg, because they know everybody and they are in contact with people at a Local level. The local organizations can develop this projects in an easier way, because of their contacts and presence there, if we have to do these awareness processes alone then we would have to be there all the time just to keep it going, but if we do it on collaboration with organizations like Miljøpunkt and Lokaludvalg they would be there to keep it flowing and keep it going, saving lot of time and resources to the Municipality, they have a lot of knowledge on how to do it, that from the Municipality we sometimes don't have as that is not our main field of work. And they also have their own interest getting involved with the Municipality in this process. Our goal is to make the school and the kids to have the opportunity to get in initiatives like this as you explain, green pop-up events, exhibitions and other type of awareness rising activities.

We can bring also lot of knowledge and the schools and contacts. And organizations can bring the local knowledge and the working force, it is a win-win collaboration.

Do you think that using other organizations as intermediaries could improve the process?

We from the Municipality agree with this, with our work we want the kids to get involve and collaborate in their neighbourhoods, so the kids get to experience the processes and understand its importance. It is a good way to provide of a good education for kids and it can be the same also for adults, they can get involved with their communities and learn also in that way.

These organizations can enable the people to do that, to provide with this strong way of teaching. They would say; that it was we were talking about and what we were doing, and know I know the importance, and then they will remember. And kids when they learn like this they will go to their parents and tell them about what they have been doing and learning, and in this way the knowledge will also get to the households.

In your experience information in climate adaptation can be spread in non-traditional ways?

Yes we are working a lot in relation with other type of education to complement teaching in the class. We are working for the kids to get the kids involved to experiment with their own hands how can be more sustainable. We are out there we are looking at the things that are happening, what real life is.

It requires of a lot of time and effort to do things in this way, we spent lot of time with that in this office, and we think that is working very well. Of course you have to read something too, you need books, because it is a very fast way to learn, but if you have nothing to link it up to, they will think is not really related to them, is not their problem and they will just forget about it. But if they go out there and feel it and talk to the people for just 20% of the time, then the outcome will be much better, they will understand more and they will be more motivated.

If we look at what they are doing at "Den Grønne friskole", they are for sure a very different way of teaching than what we do in public schools, but I think it would work out perfectly. They are focusing a lot in one thing, in Sustainability in this case, and that might leave some other topics out of the picture, but I think it is a good part that they are focusing on, an important part. And kids like it a lot, and they will learn also the other topics embedded in the sustainability framework, they are using that as a way to teaching everything else. They as they are a private school has more freedom when choosing their subjects of study, when here is public educational systems we have more limitations and we are more strict.

I think it is necessary to have diversity in the educational context as different kids learn better in different environments, and not all kids need to learn the same abilities either. I think a more mixed approach between traditional and alternative approaches is a good approach to improve learning in schools and to your case teach kids about sustainable solutions to adapt to climate change.

Some kids would love to be in “Den Grønne friskole” and some other would hate it, and the same in the public schools. I was teaching yesterday and I can tell you there were some kids that were loving being there, very interested and participative, and learning a lot in this way. And there were others that hated being there. So I tell you some kids would flourish in “Den Grønne friskole” and others would do it in the traditional teaching system, and maybe other would be happier and learn more in other type of school. Kids are diverse so teaching should be diverse, but we need to have a middle ground in the public system to be able to teach all the kids, that is the value that we defend on public schools. Or at least that is the way that it is now, maybe in the future the context would be different.

We are trying to teach in a more inclusive way, we like to get a case, that is familiar to the kids or the people, so they know what are we talking about, like the waste in you own school. But why are we talking about this, they need to know also the reasons, the problematic, the why, Why is this important? Then we learn where do we want to go in the future and how we get there. The relation with other problems and that maybe the solutions can be easier than we think. We focus a lot in getting the story around the problem, this is a global problem that affects all, for small kids we focus in simpler views, like how is your school yard, is it full of rubbish? Do you like it? So if you don't, then lets go and change it, and lets tell everybody that is nicer if it stays clean and is better for everybody.

That way we get them into the context and they learn in a less isolated way, and we can help improving their behaviour to better, because everybody wants to do good.

Do you think the municipality is interested on the development of new tools and approaches to change the participation and involvement of citizens in climate adaptation process?

The Municipality is interested in using the adaptation to climate change for something positive for the city, if we have to do this, how can we take something positive about it? We are going to use a lot of money, so how can we do it in the best way, to get the best results out of it. We want a practical way of adapting to climate, so lets do some green areas, lets improve the city at the same time and lets get also people interested. Is the citizens money what we are going to use, so they should know why we are doing it, and be part of the solution too. And climate change is happening already and we can't change what we have done already, we can stop what we will do, but for now we have to find a way to cope with it. And we need to think of ways of doing it, because this, the scale of this problem is new so we need new ways of solving it.



Interview N°2

Organizer of “Park in a Week”

Lise Nygaard Arre, Project Manager at Miljøpunkt Amager

In your opinion, what is the average awareness on climate adaptation of the population?

Well I think that anyone in Copenhagen that is a home owner know a lot by now, because lot of them had problems in 2011, and out here in Amager we also had problems in 2014 and 2015 related with some local cloudburst, I think that general awareness in climate change is very high because they have suffered it in their own life. But I Think that regarding what kind of solutions you can apply its maybe more scarce. That is why we are trying to create awareness about climate adaptation. In general for example there was this meeting at Hofor, the water supply company, last year in August and they were using a lot of time about why are they implementing climate adaptation in the city, and what are the future prospects for rain in the city. But everyone was like....yeah yeah...we already know about that, its better if you tell us about how we can get the money and what we can do. So yes I think the general message is out there, we just need to teach people more about how to find the solutions and how to collaborate in the implementation.

How do you think we can improve this problematic, how to create awareness in adaptation?

I think that demonstration projects would really help us, some more accessible solutions in the city were people can actually go and see what it is. For example the climate neighbourhood in Østerbro is going to make a difference, and it would be really great if it could have some solutions out here in Amager as well where we can take people and tell them how it works and how is better than other solutions. There is a garden were the home owner re-arranged everything so it can actually contain water from the rain, that was very inspiring to see how we had used the space and how the water could be managed, and I think that this simple but practical solutions can enlightened people and show them what they can do in their own homes.

Also the involvement of citizens in urban planning processes can improve their knowledge on climate adaptation, as seeing how it is done and why is it done can make them understand the need for those adaptation measures, that is what we where trying to achieve also with events like “Park in a Week”. Citizens coming and collaborating to redesign their communities to be more prepared to climate change.

Did “Park in a week” spread knowledge about climate adaptation?

Well we tried to create several levels in the exhibition; it was both the grand projects like how you can turn a bridge into a green space, or plans from the municipality that are going to implement in green spaces, but it was also having a level about what can you do in your own courtyard, or backyard and we tried to arrange guided tours through the exhibitions. But it was difficult to bring people there to do the tours, even though we saw a lot of people stopping by, reading the projects on their own, reading some of the signs and learning about climate adaptation. People with kids, or walking the dog, also shop owner of the area passed by and learnt something. So it was difficult to make people come and look at pictures, but at the same time some of them came on their own.

I think that Park in a Week was very successful in several ways also because people were able to talk with us about climate adaptation, and learn with more people at the same time, in a more interactive way. We reached people that usually don't come to our meeting and at the same time a feeling of community was created, we got contacts from shop owner and citizens that would like to be involve in the future too. But of course we would have liked to have more people there.

I think that “Park in a Week” brought something important to the area also because people were able to talk with us about climate adaptation, and learn with more people at the same time, in a more interactive way. I think that maybe if we had some solutions there or it was related with a project that was being done, it would have been even more successful.

But yeah, It was very nice to see all the people that came and collaborated together, we built some green infrastructure together and they were very happy with what we did. I think it is important that learning take place in a collective way. The community coming together to make a change, sharing information with each other and building something new. I think it is also a very natural way to learn about the environment.

What do you think is the peculiarity of the Danish context in contrast with other countries?

I think you are asking something very important here, because the way we work is focused on what do people experience in their local areas and in their life, and what they can do there. Because it is very abstract for them to see that their actions here have an effect on Bangladesh, but it is different when they see that they have 30 cm of water on their basements, because we have been laying out a lot of concrete in the city instead of leaving or creating some green areas. But still we see a lot of people that don't have problems on their own home but they still have a good perception of the problematic because of what has happened on their communities. We are trying to bring both concrete and abstract knowledge; we are teaching citizens that they can do things that benefit them and the environment at the same time. It is very weird that we talk about climate change in a global scale but more in a local.

What do you think can be done to improve climate change awareness?

We have an advantage already and it is that we are already suffering the effect of climate change, it's not anymore something that we tell people that they kids may suffer, but something that they have faced already. We are not going to say that this is a good thing, but it does for sure ease the task of involving people and it is in itself a raising awareness process.

Our experience is that if you want to involve people you have to link it with their everyday life. And we have to meet people in other ways, for example as we did in "Park in a Week" we met the people in the street in their everyday life environment. As I said before with the traditional public meeting or the meeting and talks we have we usually reach a specific public, in this way everybody was able to pass by and learn. I don't think people are going to learn that much about climate adaptation in other way. It has to be something easier for them, easy and fun.

Do you think institutions are doing enough to increase awareness in relation with climate change?

I think that the municipality in Copenhagen is doing a very great job. . But of course we always have recommendations for how they can do some things better, we have different opinions regarding transportation and other fields. Also the manage of the organic waste. But they are very open and they look to collaborate with other organizations. I also know that they want people to be involved more. I guess it is also complicated to have variety of solutions, some times they might tend to standardise it, policies about waste management for example.

I think that up until now the sharing of information about projects is being there but I think that quite late in the process, but now the municipality is trying to do something new and involve the interested parts earlier in the projects and see if that makes better process, so that is going to be interested to see how it evolves with the technical and environmental department of the municipality. And this for sure will bring more awareness, also because they can become ambassadors for projects, so they have the opportunity to apply what they learn and ask for improvements.

found that park in a week was able to address lot of the issues that it could be difficult to do through a formal meeting, where people don't know where to go or how to participate. Where park in a week was more of an informal setting about ideas and knowledge. But I don't know how people will perceive it in the end if it doesn't evolve into some kind of real change. I So I think that this type of approaches as park in a week have a lot of advantages that traditional approaches don't share. I think it would be very interesting to work with this more in the future.

In your opinion are people involve enough in climate adaptation processes?

It is quite interesting because it is in an early beginning of the municipality plan to adapt the whole city, so we don't really know enough about how citizens are going to be involved, so it is early to see. But we are going to be working to bring knowledge on projects were we think relevant that people get involved and take part on the decision making. Because some times the projects that are of a very complex more of an engineering complexity it doesn't make sense to involve citizens. But other times, like with redevelopments and green areas for example, participation can play a very important role and people should be part of it, increasing at the same time awareness about climate adaptation. So now that we already have to adapt, involving citizens brings a very interesting and efficient tool for increasing awareness.

There is actually this project where the municipality have been linking schools with engineering companies where they have created a course, down in Amager strand about climate change and how that would affect and how we can adapt by making some changes. It is a very interesting collaboration where the municipality relied in other organizations to carry out this job, and enabling connection between stakeholders. Local engineering companies are creating climate adaptation awareness for the future generations.

It is very important from my point of view to involve all these other local organizations that also have a great value and provide of a great asset, because they are in the end the ones with a lot of knowledge that can be easily shared with the rest of the population in different ways.

It can take some of the workload from the Municipality, and make it easier for citizens to access that information. It is very relevant to include some of these organizations as links and easing the process can make people want to participate more. As we saw also with the experience at Park in a week. If I would have to recommend something for other cite that will go for these process in the following years, it would be that involving people from early stages can bring lot of advantages. Of course it is needed to have a general idea of what is needed, but not too specified, and let people define some of the final outcomes.

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Interview N°3

Organizer of “Park in a Week”

**Claus Knudsen. Centre director,
Miljøpunkt Amager.**

In your opinion, what is the average awareness on climate adaptation of the population?

I think they need to know more. It is difficult because they know about climate change, and in some cases they have heard about climate adaptation. Climate adaptation is not known in general, it is more difficult because of the technicalities of adaptation to climate change. It requires in some cases knowledge that people have and it is difficult as a normal person to get into it.

But that is our project, to spread the knowledge, to let them know that it is possible to do something, that there are solutions, and that they can be part of it. We need to help them find the solution because it is difficult.

Do you think there are people with no awareness at all?

Specially after the event in 2011, people now see the need for climate adaptation. Until 2011 people thought that climate change was something that would come in the future and that it will affect future generations, but they didn't think it was something they should care about that much.

If we think of the meeting that was celebrated here in Copenhagen in 2009 about climate change, people were not aware of climate adaptation at all, they knew about climate change but they didn't know that they needed or could do anything about it. The Municipality of Copenhagen has been working with climate adaptation for many many years, because Copenhagen is very close to the sea and is going to be very challenged by rising sea levels and as we have suffered already by heavy rains. But the general public has not been aware of this until after 2011, when they suffered directly and realised quickly that we need to do something directly in the city to stand against these changes.

How do you think we can improve this problematic?

We have tried different angles on it, because different solutions are needed, we live in cities where we have different areas with different problematic. You cannot have the same solution for single housing units and for apartments of 15 floors tall. People are going to experience climate change in different ways. And we need to show them about this diversity on solutions. Here people can see very easily that problems are already here, you can easily let them now how do we protect our basement! Because everybody had this problem in 2011, all basements were filled with water. And maybe this is the way to talk to them, by appealing to what they know; they understand that one of the first effect of climate change is water in your basement. We also had problems with the metro system, that is supposed to be protected against these problems but that still were very affected in 2011.

This is a way to make it very concrete and easier for us to communicate and for people to connect with climate adaptation.

Did “Park in a week” spread knowledge about climate adaptation?

There were also different angles in “Park in a Week”. We presented climate adaptation solutions through greening of the city and other approaches. We had also this exhibition about different kind of solutions for climate change, in this case based in large investments, as they were large projects. It was a way to show that this part of the city (Amager), as one of the most vulnerable to climate change, needs to adapt and evolve to mitigate climate change. But as I said before we also had all these green elements as green elevated beds, to show that small, easier and cheaper projects can also be part of the solution for climate adaptation. So now its not just about securing your basement, that was the first step; now the second step can be to adapt also other areas in our households’ backyards or neighbourhoods.

For us as a small organization dealing with these types of projects makes lot of sense as they are very local and citizen related, while the municipality can focus and use all their resources into large projects with a higher engineering difficulty.

That is what we tried to show citizens with “Park in a Week” we wanted to make them aware of the solutions we have to adapt and fight against climate change. How these green elements can be part of climate adaptation and how citizens can be part of it.

Do you think this approaches are better than more traditional approaches?

Yes definitely, Specially if we want to have a dialogue with people. For us as a small organization is a tool that we can use to get this communication working with people. And I would also recommend for the municipality to try and use these experiences that we do. And I know that the municipality also wants to use this approach, they are very interested, in fact they were supporting financially "Park in a Week" because then can see that these very local initiatives is a very good way to make people understand that we have to do something to adapt to climate change. As these are very large investments the ones that are needed, the municipality wants the people to know and understand that all that money putted there is used for a reason. This is a way to create this understanding, between citizens and institutions, that is so needed and demanded in different ways.

The Municipality has a strategy for citizen involvement and I think this projects and initiatives are a very very good way to get in contact with people and get this direct exchange of information. I think that "Park in a Week" is a very good way to communicate information to people as well as to collect their ideas and opinions.

What is the role that organizations can have on climate adaptation awareness?

We can definitely help with that, by now we have had lot of experiences like this and communication with people. Institutions can use our experience and put it to work in collaboration with them to raise climate adaptation awareness. This is always a try and error process and we have gone far in this process, we understand what approaches are more successful and which ones have been less attractive to people. But not just because of that, we are also closer to the people and we are very good communicators.

At the same time when they go out to the street people see them as responsible for many things, and sometimes they start complaining about so many things instead of focusing on the specific topic being addressed. As we are not part of the municipality we can start the dialog from another context, and provide a better understanding of what is going on.

And I think that organization like "Miljøpunkt" can help to do so. Because if you have to do this events for every project and every neighbourhood, it is a lot of people that you have to put from the Municipality out in the street. It is a lot of time and resources that the municipality would have to use, instead of being used for another tasks for what they are more valuable.

Do you think institutions are doing enough to increase awareness in relation with climate change?

I think that the Municipality is doing a lot. To be honest the Municipality of Copenhagen is very clever very outgoing, and I would say that they respect the people of Copenhagen and I think that is very important if you want to communicate with the people, but still they are people working in an office and they are not used to going out, to be in the streets. They have their own routines and organizational issues and that is why sometimes they miss the target in the way that they communicate with people and that is why they sometimes have problems to make understand people this quite technical knowledge about climate adaptation.

We are still learning about what we are doing and maybe using organizations like Miljøpunkt more in this communication can ease the job. And that is something that the Municipality wants, because they want to use two billions Danish korones on climate adaptation in the next twenty years, and that is money that comes from people, from taxes, so citizens really need to know that it is relevant to use this amount of money on climate adaptation. Of course if we get another cloudburst next year, then people will be ahh! Ok I think we need to do this because it has happened twice already. But we need to do this before the cloudburst and not after. And that is what I mean, the Municipality wants people to know and they are doing things to communicate all of this. But I think that it can always be done more. And we want to help with this.

Is climate adaptation process in Copenhagen a bottom up or a top-down movement?

One of the things is that Copenhagen has this brand of being green and being forward on climate change and climate adaptation, and it is very important to see that the municipality understand this and the role that this branding has over the city. They are very aware that they need to defend this position and to defend this position they have to be constantly going forward on this issues. And then we also have politicians in the municipality and in the city council that are quite visionary, and of course if you have visionary politician in the central government then things will happen in this direction. I have also seen that they are very responsive, they are very good at listening and they act according to what they hear from citizens and experts. That maybe is quite unique. We have this combination of a brand, visionary politicians and a Municipality that is very responsive underneath of the public. So how you can develop other cities in that direction, I'm not sure. But that is also something that the Municipality of Copenhagen should be aware of, that other cities might be looking at them as a reference to follow and learn from.

We can see it in traffic planning, and lot of cities could do the same about climate adaptation, how other cities can follow the same approach.

It has happened before; the development of New York seafront has been inspired by Copenhagen seafront. It is very interesting to see how Elements from Copenhagen are placed in other cities and especially in a city like New York and how they use all these climate adaptation measures.

I also think that is not just the Municipality who is working but also there is a lot of bottom-up movement. Which comes from lot of years back, when the discussion about energy consumption and the first topics on climate change were being established, Denmark was one of the first countries in having a discussion about it, and one of the first countries in have an environmental ministry. But there is also this element of trust for the institutions; citizens trust that the institutions would do the best for their interests. And I think that is a key aspect when we try to analyse the reasons behind the way Denmark is working, and also for climate adaptation issues. That is also quite unique, and very important if you want to make changes, taking care of climate change and climate adaptation, because if you don't trust that they can do it or you don't trust them at all, they citizens are not willing to allocate this money into that.

No doubt communication and dialog is a key aspect in this trust and that is again why organizations are important, because we are part of that dialog, and part of that communication between citizens and the municipality.

In your opinion are people involve enough in climate adaptation process?

We still have a long way to go, we have these living areas where people are organized. Local organizations that come from the way the city is organized too. There are some streets that are private and some that are public. In those that are private, people are well organized, and we have been talking with the municipality about how we can do something about climate adaptation in these cities. Lise is working with this; how can we make them being proactive with climate adaptation, and that has to be a lot with what instruments are available for the private organizations on these roads. It has been difficult to get into this issue with the Municipality, because of course they are focusing on public roads because that is where they have their obligations, and they don't have these obligations in private roads. But these private roads can play a very important role in the involvement of people in climate adaptation. It of course also have to be with the finance aspect, why should the neighbours allocate money in this type of projects when they know that the issue should be solved by the municipality. For a group of twenty families is not easy to find the money to dig the road and design a new one with elements that makes it adapted to climate change.

When they don't even know if their solution fits with the municipality plans and in some cases they don't even know what should they do to adapt. So we are involving these local organizations and enabling them to be part of the solution and helping with the founding. Because as I said it is very difficult for them to do anything when they don't know how they fit in the general outline of adaptation. With a big organization like the Municipality that is always changing is difficult to know where to go and who to talk to.

The Municipality need to be more aware of how to involve the local organizations that works with climate adaptation, and of those that help raising the awareness of all citizens so the become part of the solution too.

Is environmental education integrated enough in the public system in Denmark?

Schools and teachers are very aware that they should educate children on environmental issue sand what are the consequences of the way we live. The Danish educational system also understands that if we want to solve these problems we should educate people for them to be able to solve these problems.

We as an organization are often talking with schools and collaborating with them in some aspects and they are quite interested. I would say things are going very well. Also you can see on the higher education system the amount of educational choices related with sustainability and environment that there are in our universities. So I think that in the whole range of ages this aspect is integrated an that we are going in a good direction.



Interview N°4

James Hunter

Citizen, participant in “Park in a Week”

What brought you to the Event?

It just stood out on the day as I was walking past as something that seemed different and interesting so I stopped to explore further and get a better understanding. I haven't really seen much like this going on in the area so decided to get involved. As it was interesting to be part of something like this for once, usually I don't really know where can I go to know more about this, I usually learn some things online. I think that it is complicated to know when these events are happening, and I don't really get involved sometimes just because I don't know these things are happening.

How was your experience of the event?

The experience was very informative but also very enjoyable. It was good to be able to get some hands on experience and understand how I can be useful in the community. It was also something that was quite out of the ordinary and outside my comfort zone. And it was very fun and interesting to learn about these things. I didn't really know what could we do to help. It is not that complicated to help, there are some small things that we can do too. I think we need to do more, because climate change is already affecting us, so if we don't do anything now it's going to be very bad in the future.

Do you know a lot about climate adaptation?

I think mostly everybody knows something about climate change, more or less, but I don't think that much people know that we can do something to be prepared. Before the event I didn't really have a great understanding of what climate adaptation was or what my involvement could be. I think that it is something that is not greatly publicised and there is not a deep knowledge in just like the general community. I think just as a general layperson you're not going to have

a great understanding of climate adaptation what it involves or how you can become involved. I used to think that this was something for the engineers, something very complicated for someone like me to do anything about it. I think just for the general public their needs to be a better mouthpiece to emphasise what is going on and how to become involved.

Did you learn anything about it at the Park in a Week Event?

Of course I knew about climate change, I think lot of people are aware that we have to do something. But I didn't think I could do much to adapt to it or that it would be helpful in any way, this is something new that I didn't think about before. I also learnt a lot about how simple seemingly inane spaces can be used to better avail and better use for the community. How there is lots of different opportunities available that you may not have ever considered, whether it be from making green spaces or better use of water or just for animal habitats. That was very informative and just opened my eyes to what the different opportunities were out there available. It has been very fun and entertaining, so yes I would do this again. I have also learnt some things that I didn't know before and I think this thing is very interesting.

I think that Denmark is a place that really embraces new ideas and innovative approaches like this and by showing how this could be done in Copenhagen was really interesting as it seems like something that could be sustained and taken on further. Whereas, I'm not sure this would be taken much further in other places and other cities.

I think Copenhagen is an ideal place and a special case for this type of event. I think in the city its partly just to do with the general culture how we are just a lot more embracing of not solely the profit motive or what will make money but more understanding of the wider more holistic approach. That this will benefit society as a whole, so actually lets not just focus on the profit motive. I also think its not just on an individual level but its embedded throughout business and politics where there is more of a drive towards the environment, towards efficiency, towards a forward thinking modern approach that we need a more sustainable lifestyle and I don't think that's present in many European cities or countries.



Interview N°5

Thodoris Kourtis

Citizen, participant in “Park in a Week”

What brought you to the Event?

I work in an office near to the area where this pop up event took place. I heard about this event and was very interested to go and see what they were actually doing and what they could propose for better climate adaptation in all these green spaces within the city.

First I went there mostly because I was curious but then I really enjoyed it because it was a very real example of how we can make some simple changes to our city and take advantage of some potential that Copenhagen has and how we can create more green spaces for people.

How was your experience of the event?

I really enjoyed the fact that you can actually participate in the process and use these spaces where the pop-up-event was based and see how spaces can be used differently. For example it would be very nice for this to be there all the time of the year or for a large part of the year. I liked having a more hands on experiences, not only a presentation of the projects or possible solutions.

You know sometimes you read about climate adaptation measures and policies and ways to do it, but when you are just a simple citizen I think it needs more than that in order to be convinced that this can actually happen and be functional. To have more real examples of the projects that they did and not only describe them and inform the citizens about that.

You can say that the event was one way to make it more real of what they were actually doing but I think they need something more real. Like when they are doing a project you go there and actually see it.

Do you know a lot about climate adaptation?

Well I am working at an office. I don't know a lot about climate adaptation. Of course I am aware of all the goals that Copenhagen, Denmark and also Europe has and all these policies that they try to use the missions and try to create more green spaces for the citizens. I also know in Denmark they had some problems with floods in the roads and basements and they wanted to create spaces that can be used from the citizens all the year in incidents of future rain storms to collect the water but I don't know how I could be involved in such a process.

For me as I see it now, I think it is more in a professional level the measures that they want to implement. I assume that you need some deep knowledge on that in order to be involved and helpful, and this is why I didn't go further with that myself.

Did you learn anything about it at the Park in a Week Event?

Yes actually, and this is what I wanted to say before. Because I think that this kind of event, I don't know, you usually learn more about policies or goals or some technical issues. Here I think that you can learn more that this is not only for professionals but people like me can also do some things and participate in climate adaptation measures in your own way.

I think I would go to more events like this, but I think that it is not very easy to find or to be aware of these events. I went because it was near to my workplace because I was curious but can't be sure that I would go to another if I just heard, but sometimes they often just present the events the same. It is better to present it as some event people can go and spend their free time in a productive way and do things that can actually bring them joy. Not being informed like a lecture or something more like going for coffee or cocktails and learning something.



Interview N°6

Amanda Rützou Arnved.

Citizen, participant in “Park in a Week”

What brought you to the Event?

I follow a lot of these sorts of events on Facebook and I really like to be part of different pages on Facebook that share these kinds of events. I don't live in Amager but I had some friends that told me about this event and I heard before of Miljøpunkt and their work.

So someone shared the event on my network and it looked interesting as it was something different and some of the activities seemed fun. I went over because I was interested in green events sort of in an urban setting.

How was your experience of the event?

I liked that it was informative in different ways. I saw they had workshops for younger children there, who were making different things. But also if you didn't want to participate in those workshops you could at your own pace and own time look at the different displays that they had there. They had these really interesting different billboards up about climate adaptations and greening the cities and those sort of projects.

There was a cool vibe to it. They weren't just posters hanging but set it up in a way that made it look very modern and engaging in that way. They had them lifted on these wooden pallets. In fact, at first it looked like it might be something on architecture, it was a very innovative looking approach to greening the city. It was really cool to read about the different projects in a way that made it seem that it was a really cool thing for the city to have not like a hippy-dippy sort of thing.

Do you know a lot about climate adaptation?

To be honest I don't know too much about it actually, but I am always interested in learning. I don't have a great deal of prior knowledge to it but I think its not something that you learn so much about but I think its important for people to start learning about it especially younger generations.

I went to a regular school, regular classes and regular gymnasium where we have a certain curriculum for the environment. It was just a typical education but specifically climate adaptation I can't really recall. Also with my higher education I didn't study that but of course like I said I'm interested in learning different green approaches for cities and climate adaptation seems to be something important for cities to start thinking about. So I think it should be mandatory for people to start learning about these things. Events like park in a week put it right in front of you in a way that makes you want to look at it.

I decided to go on my own terms because I was interested in it but if you are someone just walking down the street and you pass by it I think you would really want to check it out. Just the way they took over the area with this green space making it look very modern and innovative.

Did you learn anything about it at the Park in a Week Event?

Yeah. I learnt that it can be really easy for cities to start implementing. Something as making green spaces on flat roofs that we have in the city.

I also learned that you can individually do a lot. You don't need organisations or institutions to do it, we can do it too. Even by just starting a garden in my back yard or teaching my family about it.



Interview N°7

Line and Rasmus Grubb.

Parents from “Den Grønne Friskole”

Which were the reasons why you decided to enrol your kids at an eco-school?

Line: I think that the ecological part of it is very nice, but it was more about the teaching approach for the kids. I think that it is a green school of course also brings a lot to the plate, I agree with all of it but what we liked the most was the teaching way.

We both me and Rasmus were very good at school but we were also very bored and didn't really understand why we learnt things. The way you teach kids in a traditional way is teaching them things in small parts unrelated and you don't really see why we should learn that, and you see that also the way public schools are planned is that we are all aiming to be smart intellectuals, you cannot be a smart carpenter. And we all need to go to university otherwise you are loosing your potential, and I think it is quite the opposite is in this way that we are loosing a lot of potential, a whole part of the world.

We for example have two kids and for one them would be very good at any type of school but the other one would be very bad at being sited down in a table in front of a book all day, while here we see that he is learning much more.

Rasmus: If you look to a country like china where the education is a very layered approach, you go from primary school to secondary, to university, as we do here in Europe too, but in their case when they pass from one level to the next are only the best that pass to the next level. And usually also corruption plays a role in this, so rich people would also pass even if they were not the best. But it is like that it is only the children that are the best at being sitting down and reading and memorizing the ones that are the best and keep going forward. So what they are promoting is very low creative population, they are probably very good at maths and literature but it generates something that is not very desirable in my opinion. And that is an aspect that we wanted for our kids, we wanted them to have more abilities, to built something for their own

and navigate in a context world where they are opportunities all the time, where it doesn't become a question of I'm good at math so I choose to do that and if I'm good at building things then I will focus on that, and you never know, you can always end up becoming an engineer anyway, but in this way we let our children find their way. I can be good a lot of things but if I cant really choose the one that I want then there is not point on it.

Line: But again the sustainability context is very nice it is something that we like a lot, but we are there more because of the teaching approach.

Do you think your kids have grown on their concerns for the environment? Do you think they would have the same type of concerns if there were at an average school?

Line: Not, definitely not. I think they learn a lot and even more than they can tell you, I think it is something that is being built up within them and the way they are and the way they are going to behave in the future. But I think that they learn very much, and I think that the approaches in the school are very interesting and they do things where they learnt about different topics at the same time. They did this tree weeks workshop theme, were they combined. They learnt in the first week about farming and industry, food production in the 70's , and then they will move the next week to the present time and learn how is farming now, and how is the production and learn about the issues that we are facing and generating because of the present system. And then the last week they would move to the future, how we should do thing in the future, what are the things that we have improved and what thing we have to improve in the future. I think it is a very inventive and interesting way of learning. And they were very very interested, they would come home and talk to us about what they did and what they learn, and we learnt things too in this way. And how in the last week they had to save the world and decide what to do in the future and invented all this things that could be done.

With this entire climate crisis they are very worried, they are growing in a world where we don't know how the future is going to look like and most of the things they want are not very promising. One day my younger kid when we was falling sleep he told me about the melting poles and how scared was about it. And I don't think they speak so much about the negative things a school but he hears it and he picks it up. He is very aware of it so they know that it is important and they care more about it. They understand the importance of the problems and that we need to do something. Something that I think they wouldn't do in another type of schools.

Rasmus: I mean when we were kids we had other issues we worried about nuclear energy and it was also very scary but I think this is a whole new level. What if we drawn because of the rise of the sea level?

In your opinion, what could we learn from the school?

Rasmus: I think what is really nice about the school is that you learn when you do things and that the learning way understand humans as a whole, not just a memorizing machine. I think we made in this way more complete persons, persons that are able to solve problems when they start working and persons that understand the way the world works in a more complete way.

Line: Kids are interested and willing to learn. I think it is very nice also that they grow up in an environment where sustainability is always present, because is one of the mayor problems their generation is going to face. They have like nine different recycling bins, an urban garden, they have all these sustainable materials in the school, something that makes them grown in a place where this is something normal something that we all should have, and something that sometimes they ask why we don't have at home. Why do we have this little amount of recycling bins at home?

Do they bring any knowledge home?

Line: Yes as I said before they wonder about all these things that they do at school and share them with us. And we learnt from that too and we start thinking about some things that we wouldn't if it wouldn't be because of them.

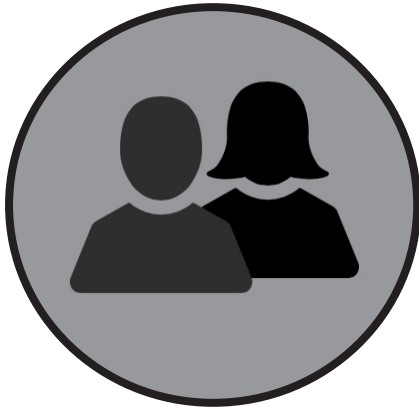
Like they ask why don't we have meatless days, when Rasmus is not home, because they know how much Rasmus likes meat. But it is actually their idea, they have learnt at school all the issues related with meat production and they have choice that they want to eat less meat.

And more things like that, something that for sure is because of the education they are receiving, because I never thought of that when I was a kid, I don't know that meat could be something bad. And my father was a vegetarian, so it was something that it was there in my family too but still I never thought of it in this way.

Do you think that your kids would have had other opinions about everyday practices if they grow up in other type of school?

Both: Yes definitely.

Line: I think that what they do is not that different from other schools, they still learn all the different subjects, but maybe with a higher moral standards than we or other schools have. And they do things like not eating meat or processed sugar at school, they recycle and compost, they have gardening and they learn about sustainable at so many levels, they get that into their behaviour.



Interviews N°8 & N°9

Family Grubb Children

Students at “Den Grønne Friskole”

Slide 1

Kid 1: Left, its more fun, it has more trees and bushes, you can play more and do more different things in the schoolyard

Kid 2: Left one. I like it better because it is more easy to invent things and do stuff in that kind of playground. It is more fun you can play and hide with the plants.

Slide 2

Kid 1: Yes, we learn about it at school. It is wind and sun eco energy, sustainable energy

Kid 2: Yes, we have talked at schools that we can use these things to have energy in the house and in the school. With the sun and the wind and more things that are better than burning things.

Slide 3

Kid 1: Yes we compost and recycle, its very fun and then we can do it at home too.

Kid 2: Yes we use this to recycle at school. But we have more bins, seven different bins, so we have more than these.

Slide 4

Kid 1: Yes, we learn about plants and the natural world, and

Kid 2: Yes we have a garden at school and we go there some times. We learn about what species is the plant and if we can eat it, and what to use it for. And how to plant it.

Slide 5

Kid 1: Yes, we go with school to the beach, and we went to the field and the forest. We go a lot to the park close to the school too.

Kid 2: Yes and we also go to camping and sleep outside and learn about things.

Slide 6

Kid 1: Yes we learn about sustainable things. We know about the poles and the sea going up.

Kid 2: Yes, something about that the CO₂ goes to the sky and is bad. But that the sun and wind energy are renewable I think.

Slide 7

Kid 1: We can stop eating much meat and we can have more plants at home and get water from the rain.

Kid 2: We can have an electrical car and have sun and wind energy in your house. You can eat ecological food.



Interview N°10

Marusa Balić.

Mother from “Den Grønne Friskole”

Do you think that your children are learning about climate adaptation at school?

Ohh! He is learning so much about it, he is learning everything about it! The green school “Den Grønne Friskole” is focus in sustainability, so they always make sure that they learn about it, not just with books but also in practice. For example the school is installed in a renovated building with 100% eco-friendly material. Paint, glue, furniture material all eco-friendly, and the kids were even involved in this process, so even before the school was a school they were already learning about sustainability.

They have plants, they have outdoors learning areas, they even go to the beach to learn about climate and many other things. It is all integrated knowledge, they teach with books but they also practice.

And that is a very intelligent way of learning, he is learning extremely much on sustainability.

Do they collaborate with other organization and green projects?

They are doing it extremely much, this is an open source school, first of all they make sure that a lot of the things are being shared so they can build a school that teaches also the community. Secondly they are doing a lot of collaborations with local but also with organizations from around the world or the country, so people come in and show kids what they can do and also always the school schedule is not a fixed and boring thing. Every week is different, a different theme so they have like learning oriented with a topic and they learn lot of things integrated in that. Of course they have foreign languages, Danish language, history, biology, etc but they are inside of these themes. It is holistic, they will learn in a different way, it is integrated, because when you finish the school this is the real world, its not a subject, it's a complicated mix of all of them.

Mathematics you can learn with anything, so why should we do it on its own in a boring way, where you can't find the reason to it.

Yes it's the way the world works, it is more natural way of learning and also it is more fun. It is so much easier to see why are we learning this s**t at school. When I was in school and I was a leaning thing about so many things like we were out of all those problems. It is not putted in the bigger scheme of what actually happens who is the people who did it and what is going to happen.

He doesn't know it, because he started studying in this school, but I can tell you that this type of learning is very efficient and natural.

Why did you come here today?

“Det fælles bedste” event is implied as workshop, a workshop that is part of their studies too, because they are learning a lot about the green transition. This is one of the central pillars of the school education, and the school is here because they are part of this drawing a new future, they are transitioning learning in an eco-friendly, green. Sustainable way.

They had yesterday a workshop where all the kids of eight years they had a talk about sustainable themes, which I'm not completely sure which one are, but they had a discussion about sustainability, they are also doing some urban farming and learning about why should we do this things, and how are we adapting our cities to a more sustainable future. There is also another green school here today, so they are also learning with other schools.

You know and they do so many things like this, I want to go to this school, I want to have this school when I was a kid.



Interview N°11

Søren Rud, Stine Trier Norden.

Founders and partners, LIFE exhibitions.

How was born the idea of LIFE expositions?

Stine and I started to work together 16 years ago, it was because we decided to organize the exhibition earth from above. We are both photographers and one exhibition lead to another, it was first Copenhagen and then Aarhus, Stockholm, Oslo, Amsterdam, Lisbon, Vienna, etc. After that we started a project about wild animals and then we did some, we mainly focus on the environmental and then with the years more and more in climate. In 2009 when Copenhagen hosted COP15, we did a big exhibition called 100 places to remember before they disappear, because at that time people didn't know that much about climate change. So that was about 100 places in the world in danger of being destroyed or about to disappear. We did an European Nature project and then in 2014 we decided to do an exhibition on solutions for adaptation to climate change. We didn't find sponsors for a big exhibition so we did so we do it for the schools, it was also at the time when the IPCC report (Fifth assessment report, AR5) came out and presented in Copenhagen, so we found this was the time to present the people that there are solutions, even though they are still not enough, but solutions that can help adapt to the challenges that climate change carries. We worked together with the organization CARE, the case of CARE Denmark was also very helpful for us as they are in charge of all the climate work that the organization do internationally. So it really helped to work together with them, I went in a few trips with CARE, like Nepal and Vietnam, where I took pictures about adaptation and the work they do.

We found twenty stories to tell, we made some posters (Figure 8) and we sent it to all primary schools in Denmark which are almost 2000. Which are 45000 posters with a text explaining about climate adaptation solutions. It was quite well received and after that we got some funding for do another exhibition at high schools. With some new stories plus the previous ones.

How was the process to contact the schools? Did the Municipality help in any way?

The Municipality was not involved; we directly sent it to all the schools. We got all the postal addressed from the Ministry of Education and then we just sent it. Of course when you do a project like this you have to make sure that the educational contact is in line with the demand from the ministry, they have clear targets related with the goals of learning in every grade. That is why we had some teachers doing this so the text that the kids will access would be in concordance with their age.

Did you get any feed back about the exposition at the schools?

It was one of the weak parts of the projects; we are not in direct contact with the schools as we are a very small organizations. Even so we got lot of calls and emails from some of them, were they expressed how happy they were about it. Some of them wanted another set of posters as their schools were very big, some others called because they heard about the project but they didn't receive a set and they wanted to have them in their schools too. From other school we heard that they made a week with the theme of climate change, for what they used this material together with other activities. They made some essays about climate change, they were very impressive, very clever views and ideas.

So we know they have been used for educational purpose, and that schools had a very good experience about it. We have been invited to some of their activities too.

What do you think are the key aspects to succeed in sharing this type of information?

We think that there are of course different reasons, the first thing we hear is that the pictures. And I think that in our case that is very important, the quality of the picture should be so good that people would look at them and be impressed. With this exposition when they look at the pictures if they are good they want to know more so they read the text, and when they read the text, they learn more about climate adaptation. It is kind of surprising for people when they know that you are talking about climate adaptation and see a picture of a wave, just water. People ask them selves how can just water be a solution for climate change? And then they understand and learn that energy can be produced from the waves force.

I think that the most important thing for the kids is to be aware, to know more, and give them hope and inspiration. We have seen this also from our own lives, Stine has a son that came one day from school asking when he was 10 "Is the world collapsing totally? Kids are afraid of climate change but they need to know that we can do something to reduce the impact and to adapt to what is coming. Also because most of the information we hear is about the problematic and the catastrophes related with climate change, but the information in relation with solutions and adaptations is not share with the same magnitude and we need to do something to change that. Kids and people from all the ages need to get inspiration so make something, to collaborate and to become part of the solutions.

In your experience information in climate adaptation can be spread in non-traditional ways?

Yes definitely. In fact some solutions for adaptations are very simple, they are not rocket science. It is quite simple and very often its fun and surprising. Of course Books are necessary too but through photography you can tell a more difficult story in a simpler way. As I explained before, it can also be accompanied by text to it makes the process easier and people learn more. I am sure that through all this process when it is in the wall in a common area in a school for example, people look at it, learn from it outside the standards of education, in their free time and out of curiosity.

One of our posters is a F1 car, and people look at it thinking how is this a solution?, and then they learn that is an electric car, which they didn't know was possible before for this type. Or in the new set, one of them is about food waste, and it is a picture of Roskilde Festival, something that lot of people has live in their own lives here in Denmark. In the festival last year the round table organization that fight food waste, they saved 35 tons of food and was reused.

What is your relation with the Municipality? Do you think you could have a bigger role in raising awareness?

In this case, as we wanted to do a project at a national level there was no much point to be involved with the Municipality. But in other cases we had worked with the Municipality, as we did a big project in called Copenhagen Green, in 2014 when Copenhagen was Green Capital. We did an exposition and published a book.

But you know the problem with the Municipality is that they don't really allocate money on this, we had to find money from external partners and foundations and so on. Of course they were happy about the project and supportive, but not in practice.

It seems that Copenhagen have now a little money like two hundred thousand Kr to allocate in small projects related with climate adaptation, but enough maybe for around twenty projects, and just our project is around two millions. So there is need for a little more of investment.

Do you think institutions are doing enough to increase awareness in relation with climate change adaptation?

We don't think they do enough, that is why we did this project and that is why we wanted to do it in a big outdoor exhibition, because when we have a big outdoor exhibition in a big city we have around one million visitors or more. In this way we reach a lot of people, and that is one of our objectives. Of course the Municipality they work with the adaptation in practice, preparing for the flooding, adapting the streets and the city. But they are not really telling people about it, and the ministry even less, of course we tried to make interested and supportive the Ministry of climate and environment in Denmark, But they didn't.

Do you collaborate with more organizations?

Yes, I mean besides the organizations that provided us with funding we also have been communicating with other organizations. Regarding climate we have been in contact with some of the UN organizations and they also supported the project, with words of course, but sometimes that is enough. When we had the 100 places exhibitions, we had Ban-Ki Moon visiting together with the Minister of course and we showed them around. We also had a visit from Connie Hedegaard who was the first minister for climate in Denmark, and was later on European Commissioner for Climate Action, and now she is head of a foundation here in Denmark about environment and Climate.

In other projects we have worked with organizations like WWF, right now we are planning a new project and try to find funding for it, in relation with Øresund, you know? The sea in front of Copenhagen, because it is very healthy ecosystem, which is strange if you think of the cities surrounding it and the boat traffic that is supporting.

What do you think can be done to improve climate change awareness?

To reach more people, as much as we can, for example we are starting a new project to bring the exhibitions not just in the streets like before, but on the Metro. In this way reaching more people and more diverse people. We just had a meeting with Metro and they accepted this, so if we find the money we will do it. Because we will meet people in other kind of way, we will meet people when they are going to work or to school, when they go for drinks or to the airport. We can meet lot of people in this way. I think it can complement what people see on Television, in the newspaper or on the internet. It will be surprising for them because there are normally an advertising there, they will ask themselves what is this picture from a beautiful garden doing here?

Stine: I think it is a matter of time, you know? Because when we started nobody wanted to sponsor us, they had other priorities, but something that is between fields, like awareness and environment was not in 2001 very easy. But after our first exhibition "Earth from above" it was easier it went up and up, The sponsors saw and the Ministry realised people is interested on this.

In 2009 as Søren said before it was about awareness of climate change, people and also sponsors didn't know that much about climate change yet, but now they know about this they now about climate change and the problems that brings with it. Now it is about transmitting a positive message, we are in the start of involving people in the process by positive thinking. It is an important role what organizations have now to show the positive view of this that is possible to adapt and to help reduce the impacts. The pictures we show are positive stories that are true and show another reality that we need to communicate. It gives people ambitions, and I think ambitions are very important in this matter.

I think that if I could dream about something more, it would be that the UN would take us a little bit more serious, because we can communicate with people in this form, communicate and involve more people, but we need more money, because we are a small organization and is putting all his efforts in showing people about adaptation to climate change and other environmental issues, but we need funds to do so. We show a way to go forward we have knowledge about this approach that can be used by them. (Søren jokes, "Yes they should learn from us"). I think it is important, people is curious they want to do more, it time that we put our efforts on it.

APPENDIX 2 :CLIMATE ADAPTATION PLANS EXAMPLES FROM “PARK IN A WEEK”



KOM SELV I GANG MED KLIMATILPASNING

Privat veje bliver også våde

Hvis byen skal klimatilpasses optimalt, må også de private veje medtænkes i den samlede løsning. Derfor er Miljøpunkt Amager og Klimavej.dk gået sammen om at vise, hvordan private grundejere kan søge om økonomisk hjælp til at sikre private veje og grønne områder mod heftige regnskyl.

Frem til nytår er det muligt at søge forsyningselskabet HOFOR om 100% medfinansiering af private klimatilpasningsprojekter i Københavns Kommune.

Fra nytår 2015/2016 nedsættes medfinansieringen fra 100% til 75%. Grundejerforelæsskabet Grundejeren.dk og konsulentfirmaet Klimavej.dk er derfor gået sammen, for at tilbyde alle en gratis vurdering af mulighederne for at skybrudssikre offentligt tilgængelige veje og grønne områder.

Læs mere om medfinansieringsordningen på www.hofor.dk/boeredygtige-byer/skab-plads-til-regnvand www.klimavej.dk

LØRENSKOGVEJ - EKSEMPEL PÅ EN VEJ DER HAR FÅET MEDFINANSIERING



FÅ HJÆLP TIL PROJEKTET

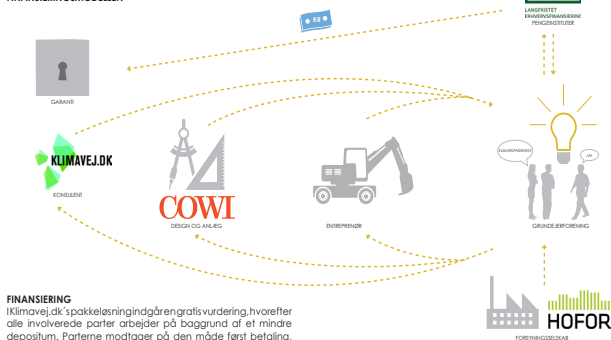
Klimavej.dk kan hjælpe gennem hele processen - b.l.a. med udformning af skitseprojekter, hydrauliske beregninger, indsendelse af ansøgning til HOFOR, endelig udførelse af projektet, udbud og afslutning af projekter, styring af selve anlægsprojektet samt finansiering af projektet.

Sammen med COWI og LEF - Langfristet Erhvervs Finansiering har Klimavej.dk lavet en procespakke, der sørger for, at grundejerne får den nødvendige faglige vejledning, mens de sammen udvikler det projekt, der passer til deres vej.

Klimavej.dk arbejder to løsningsprincipper. En minimumsløsning, der udelukkende har til formål at håndtere regnvandet, hvor HOFOR afholder alle udgifterne.

Og en udvidet løsning, hvor grundejerforeningen kan kombinere egne ønsker med klimatilpasningen. Den udvidede løsning forudsætter dog, at foreningen selv dækker differensen fra minimumsløsningen til den udvidede løsning. Det er altså muligt at give veje eller fællesarealer et markant løft, samtidig med at de skybrudssikres.

FINANSIERINGSMODELLEN



FINANSIERING

Klimavej.dk's pakkeløsning indgår en gratis vurdering, hvorefter alle involverede parter arbejder på baggrund af et mindre depositum. Parterne modtager på den måde først betaling, når projektet står færdigtilrettet, og HOFOR begynder sin årlige tilbagebetaling af projektet.

Grundejerforeningen har altså ingen større udlæg, før det er klart om projektet kan realiseres. På denne måde bliver det nu muligt, at komme i gang med klimatilpasningen af private veje, på en overskuelig og professionel måde.

NÆSTE SKRIDT

Klimavej.dk holder informationsmøde om deres pakkeløsning d. 15. september kl. 17-19 i Klimakvarter Østerbros lokaler på Vennemindevej 39, 2100 København Ø. Find kontaktoplysninger og tilmeld dig på www.klimavej.dk. Du er velkommen til at kontakte partner Signe Thora Larsen på 28309111, hvis du vil vide mere.



MILJØPUNKT

Del dine idéer!



AMAGER

Miljøpunkt Amager er et miljøcenter, der laver inddragende miljøaktiviteter for alle på Amager. Det er vores opgave at bidrage til at børn, voksne, institutioner, skoler, boligforeninger, grundejerforeninger og virksomheder bliver opmærksomme på deres miljøpåvirkninger, ser dem i en større sammenhæng og får redskaber til at påvirke dem i en positiv retning.

Miljøpunkt Amager arbejder med langt mere end klimatilpasning og grønne byrum. Hvert år vælger vi en række temaer, hvor vi gør en særlig indsats. Lige nu er vi i gang med at lave en plan for næste års projekter og vi vil meget gerne høre dine gode idéer til miljøprojekter på Amager. Sæt dine forslag på plakaten eller send en mail til post@miljopunkt-amager.dk.



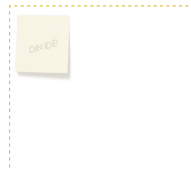
GRØNNE NETVÆRK
Sammen kan vi dele viden og lave projekter på Amager. Hvordan får vi skabt nye netværk og holdt de gamle ved lige?



GRØN BYDEL
Vi elsker grønt, men i byens rum er der ikke altid plads. Hvordan sikrer vi at byens rum kan blive grønnere og giver plads til folks egne idéer?



MILJØAMBASSADØR
Det er godt og effektivt at dele viden om miljøvenlige tiltag. Hvad kunne være spændende at lave kurser om og hvordan får vi del den nye viden?



CYKELTRAFIK
Cyklende er en miljøvenlig måde at komme rundt i byen. Hvordan gør vi det nemmere og mere bekvemt at vælge cyklen som transportform?



AFFALD
Når vi genbruger og affaldssorterer bidrager vi til et bedre miljø og sparer penge. Hvordan gør vi det nemmere og mere bekvemt at sortere vores affald og genbruge mere?



KLIMATILPASNING
Klimaforandringerne giver flere skybrud og mere ustabilt vejr. Hvordan sikrer vi os mod skybrud og klimaforandringer hverdagen?



MILJØPUNKT AMAGER

LEDELSESPARTNER
Klimavej.dk

MILJØPUNKT AMAGER

AMAGER ØST
LOKALUDVALG

AMAGER VEST
LOKALUDVALG

APPENDIX 3 : INITIATIVE PROGRAM

PARK IN A WEEK

FESTIVAL AT PRAGS PLADS FROM 11. - 18. OF SEPTEMBER

TOGETHER WE CREATE A GREEN AND LIVELY SPACE

Miljøpunkt Amager invites you to a number of activities that provide ideas about how urban spaces can become greener and more inclusive. In addition to the daily activities, you can enjoy the temporary park and visit the climate adaptation exhibition "Rain in the City." Meet Miljøpunkt Amager every day at 13-17 except Sunday, September 13th.

FRIDAY, SEPTEMBER 11TH

- 9-12 Bicycle pit stop with free bike check and coffee
- 9-12 Build a green bicycle fence
- 15-17 Make your own seed bombs - workshop
- 15-17 Make the church wall green - workshop
- 15-17 Info stand about "edible plants in the city"

SATURDAY, SEPTEMBER 12TH

- 10-17 Flea market
- 10-15 Stand where you can exchange used things
- 10-15 Info stand with Mødested Amager
- 10-17 Info stand about mini farming by Lotte Andreasen
- 11-11.40 Concert with Copenhagen Guitar School Casa de la Guitarra

SUNDAY, SEPTEMBER 13TH

All day: Enjoy the temporary park and the climate adaptation exhibition

MONDAY, SEPTEMBER 14TH

- 13-14 Tour of the climate adaptation exhibition "Rain in the City"
- 15-17 Workshop about ideas for the green lawn on Prags Boulevard
- 17-18 Tour of the climate adaptation exhibition "Rain in the City"

TUESDAY, SEPTEMBER 15TH

- 15-17 Come and build a hen house - workshop
- 15-17 Info stand with Forebyggelsescenter Amager

WEDNESDAY, SEPTEMBER 16TH

- 15-17 Street debate with Amager East Local Committee
- 15-17 Come and build a hen house - workshop

THURSDAY, SEPTEMBER 17TH

- 13-17 Say hello to the chickens
- 15-17 Learn about composting in apartment buildings

FRIDAY, SEPTEMBER 18TH

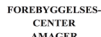
- 13-17 Say hello to the chickens
- 15-17 Kokedama workshop
- 16-17 Tour of the climate adaptation exhibition "Rain in the City"

Gratis
aktiviteter

Kom og
vær med

Læs mere på www.miljopunkt-amager.dk/parkinaweek eller på www.facebook.com/miljopunkt.amager
Arrangeret af

I samarbejde med



APPENDIX 5 : SLIDES INTERVIEW CHILDREN

How is your school?

Hvordan er din skole?

Slide 1

How does it look like?

Hvordan ser det ud?



Slide 2

Do you learn about this?
Har du lære om dette?



Slide 3

Do you recycle or compost?
Har du genbruge eller kompost?



Slide 4

Do you have a garden?
Har du en have?



Slide 5

Do you ever go to the forest?
Har du nogensinde gå til skoven?



Slide 6

Have you learn about...

Klimaforandringer?

Climate Change?

Slide 7

Do you know

What can we do to help?

Hvad kan vi gøre for at
hjælpe ?

