

## Regional Climate Change Adaptation Project in the Capital Region of Denmark - From planning to implementation

Jens Rønnow Lønholdt<sup>1</sup>, Nina Caspersen<sup>2</sup>, Martin Moneaux<sup>3</sup>, Jacob Eric Nielsen<sup>4</sup>,  
Ivar F. Rosendal<sup>5</sup>, Marie-Louise Sune Andersen<sup>6</sup>, Mille Wilken<sup>7</sup>, and Michael  
Øllgaard<sup>8</sup>

<sup>1</sup>Corresponding Author, LYCEUM, DK, [lonholdt@lyceumconsult.dk](mailto:lonholdt@lyceumconsult.dk). <sup>2</sup>Lyngby  
Taarbæk Public Utility Company, DK. <sup>3</sup>Municipality of Gladsaxe, DK. <sup>4</sup>M2-advice,  
DK. <sup>5</sup>Municipality of Gladsaxe, DK. <sup>6</sup>Municipality of Frederiksberg, DK.  
<sup>7</sup>Addendum, DK. <sup>8</sup>Municipality of Egedal, DK.

### Abstract

*This paper describes the partnership process and the final results of an untraditional joint innovation project between municipalities, public utility companies, and regional authorities in the Capital Region of Denmark. The project, which was concluded at the end of 2014 were organised as a cross municipal partnership, aiming at finding innovative climate adaptation solutions in response to increasing and more intense rain events in Denmark. Based on a comprehensive partnership approach the project has addressed legal issues, internal as well as external communication, decision support systems, and training and competence development. The final results, which concern partnership processes, cooperation mechanisms as well as pure technical results are presented in this paper. Some of the main findings are that this kind of partnership processes are difficult to run and establish and should be carefully designed. Especially the anchoring is important but difficult. Further that it is advisable to separate project wise the needs for here-and-now operational results from the long term innovation needs. Based on the tangible results and especially the strong network and partnership established the project will continue in a version two in 2015 with emphasis on supporting the implementation of the municipal climate change adaptation plans. This new project is organised as two separate project activities, the outline of which is presented in this paper.*

*Key Words: Climate Change Adaptation, Storm Water, Partnership Processes, Team Innovation, Loosely Coupled Network, Dialog and Process Tools for Participation.*

## **1. Background and Introduction**

Like other countries, Denmark has felt the consequences of climate change. The capital region of Denmark has suffered recurrent heavy summer rainfalls that are unequalled to any other historical data, which has been extremely costly. In Denmark it is the local municipalities which are the public authorities responsible for addressing flooding and climate change, and consequently establish the necessary measures.

As a result the municipalities in the Capital Region of Denmark (29 municipalities out of the 98 municipalities in Denmark) in January 2012 formed the KLIKOVAND partnership (an abbreviation of the Danish words for climate, municipalities, water: **k**lima, **k**ommuner, **v**and) to jointly face these challenges.<sup>1</sup> For more detailed background information and the preliminary lessons learned the reader is referred to [1] and [2]. Figure 1 below illustrates the KLIKOVAND concept including its four main development tracks.

The main aim of the project, which was concluded at the end of 2014, were to help develop individual municipal climate change adaptation plans through a structured and co-ordinated process between the participating municipalities and public utilities, taking the specific needs of each participating municipality and public utility into consideration, sharing insights and supporting this with research based knowledge transfer.

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<sup>1</sup> <http://www.klikovand.dk/english>

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Figure 1: The KLIKOVAND Project 2012 - 2014.

Below we document how the Project has generally succeeded in building fruitful political as well as administrative municipal partnerships across the Capital Region of Denmark and provided the necessary technical results including supporting the municipalities in formulation of the 1<sup>st</sup> generation of the Municipal Climate Change Adaptation Plans, which were due at the end of 2013.

A summary of the main results and lessons learned is presented in the following, under the following headings:

- **The Legal and Regulatory Track** dealing with legal issues in relation to climate change adaptation including a proactive approach in relation to where there is a need to change or amend the legal and regulatory framework.
- **The Communication Track** dealing with internal as well as external communication in relation to citizens as well as private companies.
- **The Decision Support Track** dealing with aspects in relation to decision support including technical modelling as well as improving planning and administrative procedures and the political process.
- **The Competence Development Track** dealing with competence development and targeting technical, planning, and administrative groups

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as well as the political level. Further the important knowledge transfer within municipalities as well as between municipalities.

In addition to these technical tracks, the following cross-cutting issues are also addressed in the following:

- **The Partnership Process** including tough challenges and hard lessons learned for the formulation of KLIKOVAND2 (se later).
- **The Project Management Capacity** that is crucial to these kinds of projects, and the important lessons learned for the formulation of KLIKOVAND2, and generally for other kind of multi-stakeholder, and multi-disciplinary projects.

## **2. The Legal and Regulatory Track**

The overall objective was to ensure a broad understanding of the importance and the consequences of the legal and regulatory framework in relation to climate change adaptation. An important part of the work was to collect information about challenges faced by the authorities while implementing climate change adaption projects. The track interacted with the relevant national authorities in order to ensure that local concerns and needs are voiced at the national level where laws and regulations are prepared.

The results of the above work were compiled in a digital database which were presented and continuously updated at the home page. This document, which includes decisions and accepted interpretation concerning the legal and regulatory framework, supports the local planning and implementation of climate adaptation measures and in this way ensures that they are in line with the national and local legal and regulatory framework [3].

The main lessons learned are that support within this area are in high demand now and in the future, and that it should be provided in an easily accessible and easily readable form, as the format used in this project.

## **3. The Communication Track**

The overall objective was to collect, exchange and test methods and tools for reaching out to citizens and private companies.

Several workshops have been conducted about citizen participation, and national and international types of cooperation. The workshops have given the participants not only tools and methods but also provided a unique possibility for exchanging experiences, difficult issues and new ideas. The group has been able to gauge the change in needs and experiences throughout the three years and continuously adapted workshops to meet the new challenges.

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The group has worked with different layers of communication and produced several results: Workshops, study tours in Denmark, an exhibition, and an animated interactive film, KLIKOMAND (in Danish “mand” means man). KLIKOMAND explains in layman terms how to establish rain water harvesting facilities for the benefit of your flowers and the environment in your own garden. It also explains the difference between a traditional management of the rain water and a greener version in a pedagogical way.

Within KLIKOVAND, the group has lifted several tasks in unison with the other working groups. A workshop was conducted jointly with the Competence Development Group focusing on private companies and their role in climate change adaption. The purpose was to discuss and focus on how to engage private companies in taking responsibility themselves and perhaps use climate adaption as part of their own CSR (Corporate Social Responsibility). This is not an easy topic and one to be dealt with in KLIKOVAND2.

What did the communication group learn? The majority of the participants in KLIKOVAND do not possess competencies or education within communication. The project has contributed to all by giving the possibilities to exchange experience and providing simple communication tools and methods. However, climate adaption has entered a new phase in Denmark: The municipalities have developed their 1st Generation Climate Change Adaption plans and now they have to implement these plans. Thus in KLIKOVAND2, we have to interact more actively with the citizens and the private companies and this makes the need for communication competencies an even greater issue.

#### **4. The Decision Support Track**

This group is responsible for all elements of decision support from mathematical modelling to political processes. Consequently the work is closely related to the work in the communication track and in the competence development track. First step was the development of a decision support matrix given commented overview of which models could be used for which purpose and the data requirements. It was divided into models for streams, areas with sewerage systems, and areas without. A description of preconditions for using the different models, and the costs in terms of economy and resources needed, is also given. It was presented and discussed with users on workshops and amended in accordance with the discussions. The matrix has been supplemented with another matrix which suggests which models to use depending on whether the municipality is located in the countryside, near the coast or is basically urban.

Concerning the previously mentioned Municipal Climate Change Adaptation Plans, developed and approved in 1<sup>st</sup> generation versions by the end of 2013, support has been given to the municipalities that missed the deadline. A map was produced showing potential “risk areas” defined in the municipal plans and if the plans were

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not present – an expected date for the publication of the plan. This allowed a regional overview of these plans, thereby also facilitating technical as well as political action needed for trans-boundary municipal cooperation.

A so called *Green Spot Project* has been conducted, which aims at using rain water as an attractive resource for recreational functions within each municipality, as well as across municipal and regional borders. This introduces blue-green tracks in the Capital Region of Denmark which transform a climate adaptation problem associated with water into a resource and a value. The project has resulted in guidelines describing how to handle the process, and which maps are relevant to use in the process, and how to use them.

## **5. The Competence Development Track**

This group is responsible for all elements of competence development from technical, planning and management competences of the municipal administration and the organisation of the public utility companies, to competences of the politicians to make informed decisions. In this context the group co-operated with professional training and educational organisations in order to ensure that courses given reflect the practical needs and special circumstances of the ones working in day-to-day professional life with hands-on climate change adaptation strategies, projects, and not least construction, and daily operation.

The work in this group, which started one year into project implementation, was based on a needs assessment by a web-based survey. This revealed that focus should be put on the political process including risk- and value estimation and economy, the formal hearing process, prioritisation of risk areas, level of ambition and modelling.

The political level was successfully addressed at two workshops targeting politicians and top executive public servants from the participating municipalities and the utility companies. In addition to this a number of workshops were conducted concerning the technical, planning and administrative development and implementation of the municipal climate change adaptation plans.

The track has been quite successful in applying the multidisciplinary approach, which is a cornerstone of the KLIKOVAND Project. A tangible output of this track is the development and publication of a *Course Catalogue* on the home page covering external courses considered relevant for KLIKOVAND Partners.

In cooperation with The Danish Technological Institute a 5 day course was implemented with the aim of answering the many common questions within the very different professions and technical aspects of climate change adaptation. An equally important aim of the course was to secure a high level of interdisciplinary understanding and networking.

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Furthermore a strategy for the competence track was produced in which it is described how the track fulfils the intentions and goals originally set for the Project. Moreover the Strategy evaluates the work carried out and builds the foundation for the competence track in KLIKOVAND2.

The Strategy, Course Catalogue, PowerPoint shows and descriptions of the workshops and courses held are all available (in Danish) at [www.klikovand.dk](http://www.klikovand.dk).

During the last two years we have learned that there are some indispensable elements in achieving successful competence development results. Professionally diverse composition of the work group, cooperation and coordination internally and externally, and a robust network comprising both knowledge persons and the target group. Last but not least professional as well as personal passion for the issue in question.

## **6. The Partnership Process**

As mentioned in [1] and [2] it took three years to mature the project. It was not technically complicated to formulate the project. However, building the partnerships was very time and resource demanding as cross functional and multidisciplinary collaboration is not widely used in Danish Municipalities. In this way the project has been ground breaking.

The considerable achievements of the project are due to a very limited number of highly skilled and especially highly dedicated people from a few of the participating municipalities and utility companies. Consequently, great emphasis was put in the last implementation year of the project (2014) on how to get a broader and firmer anchoring. Three local and marketing oriented breakfast meetings in different parts of the Capital Region of Denmark has been conducted demand driven in order to identify the different local needs and expectations in relation to a KLIKOVAND2.

In continuation of the above one of the main lessons learned is that, despite the relevance and the professional interesting topics that KLIKOVAND deals with, only limited staff resources are available within the Municipalities and the Public Utility Company as the daily work is demanding and severely prioritized by staff as well as management. Consequently the tangible benefits of participating in KLIKOVAND2 have to be much more specific and visible.

In addition to this the whole networking concept and the networking capacity should be further emphasised and strengthening. In connection with the formulation of KLIKOVAND2 a lot of emphasis will be put on this. Consequently it is very important to develop a very clear, transparent and easy understandable strategic platform and tactical and operational framing of KLIKOVAND2. This also in order to distinguish it from and ensure coordination with the large number of other innovation and development projects within this area.

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As mentioned previously it is a general requirement that the results should be very specific and easily implemented. This has been and will be a major internal challenge as the project in essence is an innovation and development project with focus on knowledge exchange where the products and the benefits is not always very tangible and easily implemented. It has been difficult but KLIKOVAND has been fairly successful in striking the right balance, and consequently emphasis will be given to this issue in KLIKOVAND2.

## **7. The Project Management Capacity**

Cross functional and multidisciplinary projects require not only substantial project management capacity but also special competences. It basically requires seasoned project managers with a well-equipped and not least field tested tools and methodology box. This should be supplemented with well-developed social and diplomatic skills, and not least team building and team management capacity. Finally there should be capacity for persistency as well as resilience as these kinds of projects frequently are challenged internally and externally from both friends and foes. One should be very lucky finding all this capacity and skills in one person. Normally a project management team has to be set up covering jointly all the necessary skills and capacity.

In the case of the KLIKOVAND Project the setting of the project management team took its point of departure in the above, and especially from the lessons learned from similar projects in the past. Based on this a Project Management Group was formed consisting of a daily overall responsible project manager, project managers for each of the four tracks, and a supporting project management specialist.

In setting of the team, focus for the project manager chosen was on driving force, persistence, and resilience and daily project management capacity. Focus on the track managers was more on technical competences within the area in question, but also on the above issues mentioned for the project manager. As for the supporting specialist a long track record with similar projects and capacity for the supporting role was prioritised. It is not always possible to get the *Dream Team* from the start but in terms of the KLIKOVAND Project the Dream Team has developed over time based on internal capacity development. However, there is still a need for more structured capacity development of the present management team, which is under implementation as internal as well as external activities.

There will be a major shift in focus from KLIKOVAND to KLIKOVAND2 as the latter now need to focus on the implementation of the 1st generation Municipal Climate Change Adaptation Plans, and as we are talking about investments in the area of 10 billion EUR in the Capital Region of Denmark. In accordance with national policies these investment should also support green growth. This green agenda is supplemented with a blue agenda where solutions should be developed which on one side solves a technical handling problem with excessive rainwater and the other side is done in a way that enhances the architectural, nature and user values

of the area in question, and thus contribute to the wellbeing of the people of Denmark, and the further development of the Danish welfare society. This constitutes a fairly huge export potential for Denmark. This is the Blue-Green Agenda of Denmark for the coming years, which KLIKOVAND2 will have to address and support.

### 8. The KLIKOVAND2 and KLIKOVAND2+ Project

Based on the lessons learned and the green growth strategy both presented previously, and in order to make the project more dynamic and agile, a hybrid construction has been developed for KLIKOVAND2 as given in Figure 2 below.

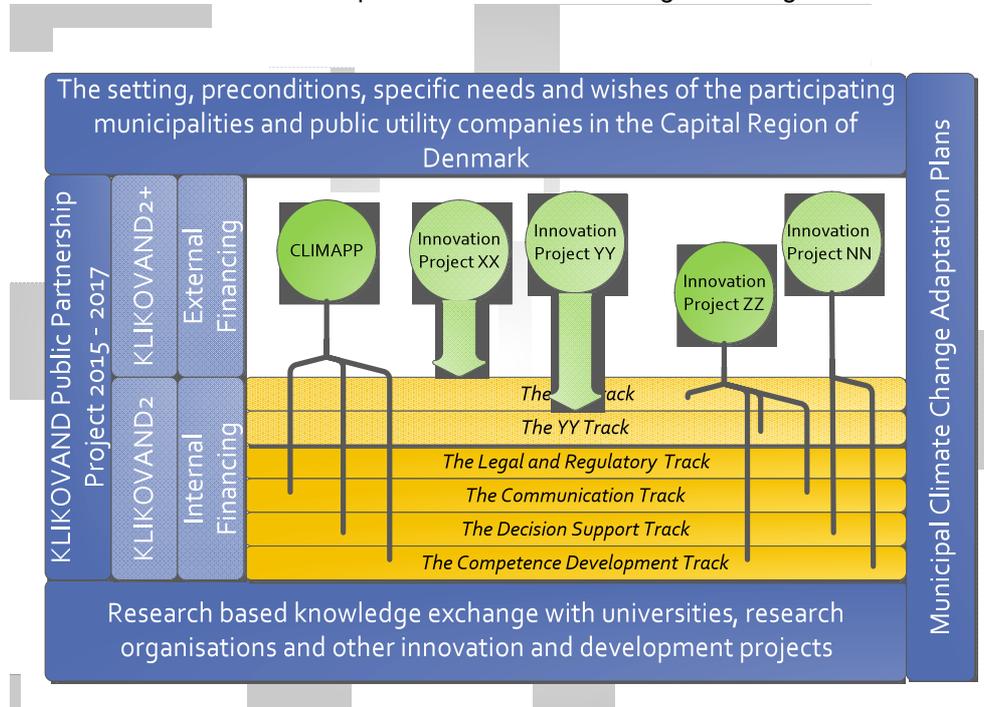


Figure 2: The KLIKOVAND2 and KLIKOVAND2+ Project 2015 - 2017  
 As can be seen from this the new project has been divided into two separate project activities. An operational part called KLIKOVAND2, where the work within the four topic tracks are continued, further developed and adapted based on lessons learned. An innovation part called KLIKOVAND2+, which will be the incubator for new ideas related to climate change adaptation based on the blue-green strategy. When ideas and project concepts has been developed and matured as part of KLIKOVAND2+ activities, and are ready for implementation, they will be anchored in the operational KLIKOVAND2 either as new and separate tracks or as part of one of the four original tracks.

One of the main strengths of this hybrid model is that on one hand the operational work is separated from the innovation work. On the other hand they are closely intertwined through being part of the same project setup. Another strength is that administrative and organisational capacity for the innovation projects can be "rented" from the operational, part and consequently there is no need to build this for each innovation project.

The operational KLIKOVAND2, which will be solely financed by the participating municipalities and public utility companies based on an already agreed distribution key, is scheduled for a three years project period starting 1st of January 2015. The project will start with a comprehensive evaluation of the previous project covering technical results as well as organization issues and networking processes and capacity. The results of which will be presented at an Inception Workshop for all interested parties and stakeholders.

KLIKOVAND2+ was pre-launched in the last part of 2014 as an idea for developing an app, which could be used for more active and networking based participation of all walks of life in developing efficient and blue-green based climate adaptation projects. This idea was matured in cooperation with the insurance sector in Denmark.

## **9. Discussion and Conclusion**

KLIKOVAND was originally conceptualised as a regional municipal partnership project jointly addressing the political, planning, technical, administrative and organisational challenges caused by climate change in relation to increased and more intensive rain. There was a dual rationale underlying the relevance of this partnership building. Firstly that because water does not respect municipal borders trans-municipal co-operation is needed. Secondly that each municipality faces more or less the same challenges and it is therefore cost-effective to co-operate, divide and distribute the necessary development projects and costs, and then facilitate trans-municipal knowledge transfer. This has been the basic strategic platform for the KLIKOVAND Project since 2008.

It is not easy to build partnerships spanning municipalities of different size and with different geographic and demographic features, and not least different political priorities and different organisational and management cultures. Consequently the partnership process and capacity has been a major issue of the KLIKOVAND project since inception and will be in KLIKOVAND2 and KLIKOVAND2+. A continuous effort is needed to drive the partnership process and ensure that project implementation and project results is firmly anchored in the participating municipalities and utility companies.

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As for technical results the KLIKOVAND Project has been quite successful in addressing the legal and regulatory issues, providing overview of modelling tools, initiating awareness building, ensuring cross-municipal communication and knowledge transfer, and planning and initiating competence development activities. However, as mentioned previously the major part of the work has been done by relatively few people from the participating municipalities and utility companies, and fairly substantial consultancy support.

The main lessons learned from the KLIKOVAND Project have been carried over in the design of the operational KLIKOVAND2, which will focus on a broader and deeper anchoring of issues addressed and results provided. In this connection project management will be strengthened and working groups will be replaced with extensive work by fewer people and the presentation and discussion at broader issue workshops. Project management will continue the focus on how to ensure as broad and deep as possible anchoring of the project.

KLIKOVAND2+ is another outcome of the lessons learned. It was clear that a division of the operational part from the innovation and development part was needed. This was mainly due to that there was a high request for here-and-now operational results and low focus on the long term development needs. In addition very few professional people have a balanced capacity for operation as well as innovation. Either one tend to be one or the other. This was very visible through the KLIKOVAND Project where innovation tend to suffer from the need of results in relation to the daily work, and consequently this part has been put into a separate project activity, which should seek its own funding.

## 10. References

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