

Carl-Emil Larsens tale til konferencen iWater i Barcelona (15.-17. november 2016)

First of all, thank you so much for inviting me here today.

I am really pleased to be here to discuss our experiences with water governance and I look forward to a fruitful discussion.

In this presentation I will go through some of the lessons learned in Danish water resource management. And I will look into the Danish or maybe we can call it the Nordic governance structure, organisation and planning and present a few of our results.

And finally I will present a couple of cases from cities that have excelled in water supply, climate change adaptation, energy production and wastewater management.

What we do

Members of DANVA cover all aspects related to urban water management from groundwater protection through afforestation to drinking water supply, waste water treatment and discharge. Storm water management and related urban climate change adaptation is also a responsibility for our members.

Drinking water supply is based entirely on groundwater. Wastewater is treated with advanced treatment methods, even to a higher degree than government or our legislation demands – in average only appr. 30 % of the outlet permits on Nitrogen and Phosphor are used.

In recent years we have seen an increase in energy production from waste water treatment plants which is linked to municipal goals to contribute to mitigating climate change.

Most of this I will come back to.

Several of our members are so-called multi utilities that also cover district heating and cooling or supply of gas for households, or solid waste collection and management or even production of electricity is covered by some of our members.

History of Water Resource Management

Denmark is small, densely populated and highly urbanised. More than 75% of our population live in cities.

We have a large agricultural production, not least livestock and especially the production of pigs. This is not as such a responsibility of our members, but it is a challenge for water and environment especially in inner Danish waters, fiords, lakes and streams – highly vulnerable recipients to point sources and area sources of pollution.

Modern water management took off as in most of Europe when the large cholera epidemics hit Denmark hard in the mid-19th century.

Water works were constructed – the first in the city of Odense in 1853, open canals were replaced by underground sewers and treatment plants were constructed. Gradually we developed into the present stage with very advanced water distribution and wastewater management systems.

Improving Water Governance in Denmark

In terms of policy and management a significant step forward was taken in 1971 and 1973 when the first ministry of the environment was created and the first environmental protection law was passed.

But it was also at that time we experienced some of the consequences of the huge urbanisation and industrialisation that had taken place, and this includes the industrialisation of agriculture for water and environment

There were many incidents of pollution of surface and marine waters and growing eutrophication caused by large-scale farming and heavy use of nutrients.

In the summer of 1986 pictures of dead lobsters on national television caused public uproar.

The first of a series of water action plans was adopted as early as in 1987. The plans regulated farmers' use of nutrients and set national standards for removal of this at wastewater treatment plants and since then we have seen a gradual improvement.

The Danish water action plans were a source of inspiration for the EU Water Framework Directive, especially by presenting tools (virkemidler) and setting standards for improving the water environment.

Organisation, policy and regulation

Legislation and governance structures are, as we all know, key to a healthy environment, but it needs to be followed by a solid governance system.

This is vital to ensure environmental protection alongside with sustainable supply and waste water management.

Ministry for Environment and Food is responsible for water and environment in Denmark. The ministry is responsible for the policy part and the implementation of the WFD, DWD, UWWD etc. as well as the adaption to climate change.

The Ministry for Energy, Utilities and Climate is responsible for the economical part of the legislation and the governance of the water sector.

An independent economic regulator is securing that the sector is efficient by setting efficiency demand - company by company through a price cap every 4 years.

We have this year got a new water act, where efficiency demand from the 1st of January 2017 will be on TOTEX which means both OPEX and CAPEX.

Annually the cost is reduced by a bit above 2 % in average.

Water governance in Denmark – a public good

Now I will focus on how we are managing water at local level in Denmark. Since 2009 separation of authority (municipalities) and operations (water companies) has been a key guiding principle.

98 municipalities are the local water and environment authorities. They deal with permits and are responsible for local water plans and compliance with legislation.

The Danish municipalities set in addition local standards and service levels and are responsible for compliance with national environmental standards and national service levels.

All water and wastewater companies in Denmark are public owned.

The larger ones – appr. 120 companies - dealing with drinking water, sewage, treatment of wastewater and adaptation to climate change – are owned by the municipalities - either one municipality or a group of municipalities. These companies, the core members of DANVA (for short just water companies in the following), are responsible for water and waste water for more than 5 million Danes or appr. 90 % of the Danish population.

We have in addition appr. 2.300 small companies, dealing only with drinking water. They are serving people in the countryside and villages and are owned and operated as cooperatives. This has been a tradition for many years.

All companies are organised and regulated as private companies in compliance with Danish legislation. This means that the municipality often has a double role; one as authority and one as owner and it is very important to keep these roles separated.

Financial management – to break even!

All municipal owned water companies are organised as private entities. In accordance with legislation they are all organised as limited companies.

The Danish or Nordic model for governance includes 3 levels:

- The owner
- The board
- The management of daily operation

The owner - in our case the municipality - appoints members of the board. Members of the board are elected among members of the local city council or other stakeholders appointed by the owner. The owner is not allowed to interfere with the tasks of the board. If the owner is not satisfied with a member of board the owner can appoint a new board member. The board includes in addition members representing the staff and consumers. Often - but not always - the owner has the majority.

We have at national level policy that states, that politicians and civil servant from the central administration cannot have a seat in the board of companies owned by the Danish state.

We foresee a similar code of conduct for companies owned by municipalities to ensure the relevant and necessary competences to be present at board level to avoid stupid decisions which can ruin the company.

The board is responsible for all activities in the company; strategy, investments, financial results etc. And this means personal responsible. When you are working at a board you have to work for the best interest of the company and not for other interest. It is not ok only to work for the interest of the owner or the consumers if you represent them.

The board appoints the management but is not interfering with the daily operation.

The management – the CEO and the CFO etc. – are responsible for the daily operation of the company and the CEO is referring to the board – chair of the board. The management is not part of the board and the CEO cannot vote. The CEO of course facilitates the board meetings and supports the chairman.

Financially the water companies comply with a break-even principle. This means they are not for profit, but also not for loss of course - and surplus from running the water companies must be reinvested for future use.

Full-cost recovery

In order to pursue realism in policy making and not to make promises towards the public that we can't keep, it is deeply anchored in Danish governance traditions that all policy areas must be funded.

The first question to ask when new initiatives are discussed is: who will pay for it and how? And when it comes to water management full cost recovery is applied as the basic principle.

If the water companies by legislation or by a national or a municipal raise in service level is imposed to invest in new areas the companies will get a supplement to its pricecap, which regulates the total revenue. This makes the companies capable to make the necessary investments and to finance them by raising the tariffs. This means that the consumers pay all the utilities' costs related to water supply, sanitation and stormwater management.

The funds are collected with the water tariffs and as you can see from this figure the major costs are related to wastewater treatment or are different kinds of taxes.

The funds collected allow the utilities in general to cover expenditures and invest in infrastructure.

The water companies themselves follow a break even principle. In average however 50 % of the operation and maintenance and 85 % of the construction projects are in public tender and the contracts are done by private companies. And of course the private companies have a surplus if they are clever enough to negotiate the contract.

We have a tradition in Denmark to have public-private-partnerships. We have also extended that to the abroad and an example of that is our agreement with the Spanish Water Association AEAS for mutual best.

Water price

And this is the price: You pay on average 8,5 € pr. M3 of water

This is more expensive than in most European countries, but when we compare at household level with our very low consumption and small households several countries in Europe are more expensive than Denmark.

For this price water companies deliver the water to your tap – 24/7

It is entirely based on groundwater, receives only minimal treatment and no chlorination

It is clean, healthy and is tested more frequently than bottled water.

And the tariff includes also the treatment of wastewater and a secure outlet back to the environment as well as projects to adapt to climate change.

Current status in Denmark

And what have we achieved in Denmark – based on this governance structure.

I hope you will allow me to be a bit proud of some of our successes.

We have a very low water consumption per capita in Denmark. We consume only 106 litres of water per person per day in the households. This is all groundwater receiving only minimal treatment such as aeration and sand filtration.

Water consumption in Denmark has decreased 15% over the last decade and this has been followed by increased economic production.

So this is really a sign of improved efficiency.

We have also very low leakage rates; in average 7% of the water in the distribution networks is being lost.

Many countries have i.e. Norway has a leakage rate close to 50 %. Imagine your product was wine. Every second truck

90% of Danish households are connected to advanced, modern wastewater treatment plants and almost all the rest have local treatment, which means that literally all wastewater in Denmark is treated.

In recent years climate change has been in focus and all municipalities are forced by law to develop local climate change adaptation plans.

I will now proceed with two examples of planning and management in Danish cities and some of the results achieved. I have added two extra cases in my presentation; one on drinking water and one on energy production. I will not talk about these two cases but feel free to contact me in the break or by email if you like. The first example I will show you is from Copenhagen.

Copenhagen – flooding and Climate Change Adaptation plan

The capital of Denmark is developing very advanced solutions for storm water management and climate change adaptation. Solutions that people travel from near and far to learn from.

The development was initiated by severe flooding events in 2010 and 2011. The event in 2011 flooded major areas of central Copenhagen and costs for insurance companies have been estimated at close to 1 billion euro.

The population demanded a reaction from the city council and the operator, the utility. This came in the form of a very ambitious Cloudburst Management Plan.

Copenhagen has an ambitious target to become carbon neutral by 2025, but of course this does not prevent the changes that we are witnessing even today and the city prepared a plan to adapt to climate change, which was followed by the cloudburst management plan once it became clear for everyone how serious flooding we have to prepare ourselves for.

The plan was developed by the municipality of Copenhagen in close collaboration with HOFOR – the utility of Greater Copenhagen. The overall objectives are to protect against a 100 years rain event, establish ownership: who invests and who owns the new infrastructure, to make a clear distribution of roles and responsibilities.

Based on the plan it has been possible to decide on 300 new projects to be developed on public areas and to support thousands of initiatives on private land.

Parallel to this the government has been able to put in place the necessary legislation to finance these huge investments.

The city of Copenhagen expects construction of the many new projects to take place for the next 20 years. On this slide you can see just one of the projects - a new urban park being developed in a way so that it can contain excess rain water in case of heavy rain.

Aarhus

Our next and final case from Aarhus is a demonstration of what can be achieved through careful and integrated planning of storm- and wastewater management.

The wastewater plan covers domestic and industrial wastewater as well as rainwater runoff and measures related to climate change adaptation that are funded by the water tariffs.

The plan is also the framework for delimitation of catchments and establishment of what will be covered by the utility and by the individual consumers. It contains in addition the framework for timing and funding of necessary projects in this period.

The overall objective is to manage wastewater in a safe manner and in doing so to contribute to a healthy environment in and around Aarhus. This also includes improving bathing water quality.

One of the ongoing activities is to secure the capacity to treat wastewater and among this to centralise wastewater treatment into two central plants. The plan also aims towards more local management and use of rainwater.

There are also many activities related to climate change adaptation in the plan.

Aarhus Water – the utility has developed a system where sewers and retention basins are managed jointly to make sure all capacity can be used. In this way it may be possible to avoid building more infrastructure than necessary. Information is collected from rainwater radars and sent to central computers that monitors where it is raining and distributes water in an optimal manner.

In this way it is possible to avoid stormwater overflows and flooding, and in doing so to improve water quality in nearby surface waters and in the city itself. If you wish to learn more about this I can highly recommend watching this nice little movie in English. It explains the technology behind the whole system in a very simple manner.

Improved management based on the joint wastewater plan was a precondition for opening the Stream of Aarhus, which used to be running through the city centre in underground channels.

I think you can see for yourself how much this has contributed to improve urban liveability in Aarhus.

Thank you for your attention. I am happy to take one or two questions if we still have the time.