Kristianstads kommun

Räddningstjänsten

Skydd och säkerhet
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Making Cities Resilient: My City is Getting Ready

World Disaster Reduction Campaign

Annex II

Nomination form for ”role model” cities and local governments

City description:

Kristianstad is a municipality located in the southern part of Sweden, in the province of Skåne. The municipality has about 80,000 inhabitants and it covers an area of around 1,300 sq. km. It encompasses agricultural land, forests, plains and the coastline along the Baltic Sea.

The city of Kristianstad itself has about 35,000 inhabitants. At one time the municipality consisted of 35 small local authorities and there are still around 40 different towns and villages in the region. Around half of these have a population in excess of 200.

Nutrition, food and beverage make up the municipal’s profile. Every link of the food and sustenance is represented in Kristianstad, which includes excellent raw materials, production, refinement, machine development. Basic training and research and development in these areas are among the municipality’s assets. The municipality has the largest concentration of food production facilities in Sweden. Kristianstad has a highly developed and rationalised agriculture that produces high-quality ingredients in fine soil and a clean environment. Our country’s largest aquifer for drinking water is located here.

The Municipality of Kristianstad is part of the Öresund Region, one of the most rapidly expanding regions in Northern Europe.

Name of Mayor/ Governor / Community Leader

Kristianstad's participation is approved by the city council (See attached letter / decision). It will be the municipal experts that will participate as representative for this role model city.

Challenges for Sweden with a Changing Climate

Several observation and calculations were made in the Government commissioned report "Sweden Facing Climate Change: Threats and Opportunities" published in 2007. Below are some of the points made.

"The UN's Intergovernmental Panel on Climate Change (IPCC) has concluded that global warming so far has been 0.7 degrees over the last 100 years. The rate of warming in the last 50 years has been almost double that in the whole 100-year period, and it is very likely that this has been largely caused by human activities. The mean global temperature will in all probability rise further 1.8−4.0 degrees by the end of the century compared with 1990. If sharp reductions in global emissions are made, it will be possible for temperature increases to be limited in the longer term. Some continued warming is, however, unavoidable.

Temperatures are expected to rise higher in Sweden and Scandinavia than the global mean. The model scenarios we have used is that average temperature in Sweden will rise by 3-5 degrees by the 2080s in comparison with the period 1960- 1990. Winter temperature may increase by 7 degrees in northern Sweden.

Precipitation patterns will also change. Precipitation will increase in most of the country during the autumn, winter and spring. In summer-time the climate will be warmer and drier, particularly in southern Sweden.

The number of days of heavy precipitation will increase during the winter, spring and autumn in most parts of the country. There will be significant increases in the most intensive rains. Runoff will increase in most parts of the country, mostly in the west. High flows will increase sharply in some areas of the country. In other parts of Sweden the highest flows will decrease as warmer winters will result in less remaining snow cover, which will lead to a smaller spring flood. Local heavy rainfall, downpours, which mostly occur during the summer months, will increase in intensity throughout the country.

Several major floods have affected Sweden in recent years. The increased risk of floods affects building construction, roads and railways in particular. Other infrastructure, industry and agriculture may also be at risk. There is a risk of the supply of drinking water being disrupted by the contamination of water sources or pipe fractures. Flooding of electricity substations may lead to prolonged power outages. Increased interest in lakeside living has

meant that homes have often been built in areas threatened by floods. In the present climate, numerous buildings alongside watercourses are at risk in case of flooding. This area will probably increase. Local downpours causing surface-water and sewer systems to flood are already a major problem today. This leads to basements being flooded and sewage being discharged.

Heavy precipitation and increased flows in watercourses as well as raised and variable groundwater levels will increase the risk of landslides. The increased risks will arise in areas where there is already a high risk. This applies to the area around Lake Vänern, the valley of the River Göta Älv, eastern Svealand and almost all of the east coast (where Kristianstad is located).

The average sea levels are expected to rise in seas adjoining Sweden. Low-pressure movements and winds are also of great significance to sea levels and the risk of flooding and erosion along the coasts. With increased dominance of westerly winds, the maximum high-water levels in the Baltic Sea will rise substantially. This will increase the demands on the planning of new building construction and preventive measures. Coastal erosion affects areas that consist of highly mobile soil or sand.

Major disaster risks:

Frequent accidents in Kristianstad include fires in buildings and housing, fires in open areas and road accidents. These types of accidents in many cases result in injuries, extensive damage with major economic consequences. Major flooding of various parts of Kristiansand has occurred and is anticipated to occur in the future. Particular sites, buildings and the city's critical infrastructure need special protection against disasters due to potential material and structural damage and adverse affects to the environment. In addition, protecting the quality drinking water must be a consideration even in times of flooding.

The municipality has several large industries with special risks, including the handling of flammable gas (biogas, LPG) and large, contiguous settlements in Kristianstad's city centre.

Progress and results:

(Main areas of progress, based upon the “ten essentials”)

1. Organisation and co-ordination

Kristianstad has introduced a new organization to manage the disaster risks. The municipality encourages participation of citizens. There are already municipal emergency services, a department for environmental and planning office all of which considers climate change issues. The municipality has been working with integrated risk management since 1995. The group comprises employees from rescue services, emergency preparedness and the emergency operations center. There is an emergency preparedness coordination officer in the group. The work is continually in progress and easy contact can be made with members of the groups since all representatives communicate and cooperate regularly regarding their diverse areas of responsibility.

2. Assign a budget

Since Kristianstad is a municipality with flood risk challenges, work continues on a longer term basis with these issues and the municipal governing body has allocated funds in the yearly budget for preventive measures. There is a local budget for risk reduction and mitigation work. There is a specified risk budget of 3,3 million Swedish kronor per year and the budget for flood protection measures is 300 million Swedish kronor for the period of 2002-2015.

In addition, Kristianstad is one of several Swedish municipalities that has applied for a grant from the former Swedish Rescue Services Agency and now from the Swedish Civil Contingency Agency (MSB) for climate adaptation measures. The municipalities have received grants in some cases. The municipalities feel that they receive good knowledge-based support from the national authorities involved and that the application process works smoothly.

3. Prepare risk assessments

Kristianstad maintains updated information on risks and vulnerabilities. This updated information is available on various parts of the municipality's website. The municipality is regularly in the media in different ways. The SOS emergency alarm center informs the public of current risks and incidents.

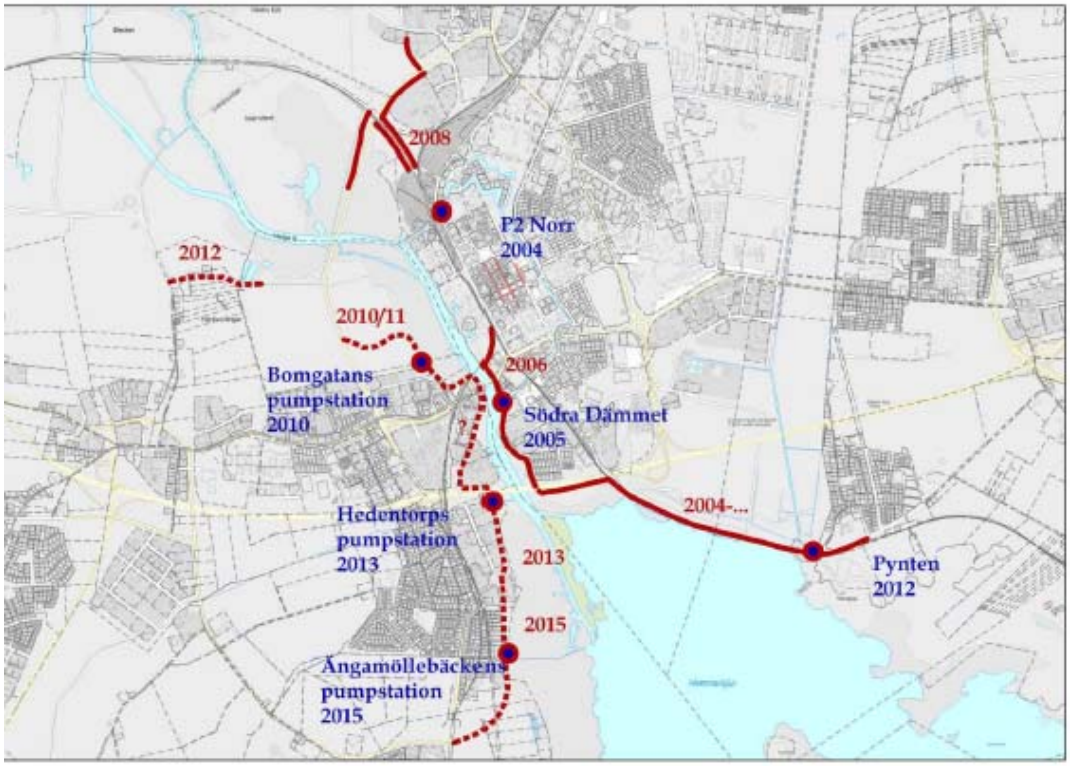
Right now the municipality’s Internet site highlights a link to Sweden’s national crisis information site “krisinformation.se”. This informs all interested parties about the situation in Japan after the earthquakes and tsunami.

Kristianstad has been and will continue to be active in European Union projects. Within the framework for the EU research projects PREVIEW

(prevention and early warning) and RISK-EOS (earth observation for risk management), Kristianstad has been a pilot municipality to define needs and test services.

4. Invest and maintain infrastructure that reduces risk.

The municipal offices strive to protect the city's critical infrastructure. This is accomplished through a flood management project. But it may need to be complemented to provide a more integrated approach. There is also a flood forecasting system project. As part of the project, water levels are measured at different locations in Kristianstad.



Several mitigation measures have been taken and are planned. The map shows which year the protective mounds have been constructed. Several pump stations have been installed and more will be constructed in the future.

Extensive work to protect the city of Kristianstad, began in 2002, when the municipality replaced and supplemented the old embankments and pumping stations. Otherwise, much of the city would be flooded when the water level rises.

Along the coast, sand dunes have been strengthened. Along parts of the coastline, the beach areas move according to natural processes. However, on other stretches, the municipality manually replaces the sand that was lost in the beach areas.

The threat from higher water level has led to building requirements along the coast. There is a minimum level for the ground floor for all buildings

which is +3 meters above sea level as a general rule, and +3.3 meters above sea level in areas of higher risk. In areas for example around the River Helge å, the ground floor of new developments should be at least 0.5 m above the highest expected water level. In addition, new buildings and infrastructure are avoided in the risk zone of 0-50 meters from the sea. Wastewater solutions have been reviewed. In areas that may be affected by the higher level of the water table, flooding or erosion, new settlements and infrastructure are avoided or adaptation is made to the future levels of risk.

Kristianstad has undertaken extensive work to protect the drinking water for the community. An ongoing project "Vattenrike" aims to build harmony with the natural environment while preserving the cultural aspects such as agricultural production and recreation. The project involves private-public partnerships.

The municipality cooperates with the Swedish National Food Administration to assure safe drinking water at the local level. The municipality also participates in an inter-disciplinary group for emergency preparedness (drinking water) called VAKA www.slv.se .

5. Assess the safety in all schools and health facilities

Kristianstad Municipality assesses safety in programs and activities for schools and health care.
Risk analyses are performed in collaboration with responsible authorities, fire prevention work, etc. There is also a reporting system called Flexite on the municipal internal website. On this site incidents, injury, and vandalism can be reported anywhere in the municipality. The reports are compiled and followed-up so that action can be taken to reduce injuries and damage in the municipality. The schools have been a focus since much damage has occurred at these sites, including arson. The municipality has a policy that any type of vandalism or other damage is followed up regardless of size.

6. Apply and enforce realistic, risk-compliant building regulations and land use planning principles.

Kristianstad applies building codes and good city planning. The city planning work takes into consideration risks. Especially flood risk is assessed at an early stage of city expansion and development. This includes the overall city plan and detailed site plans.

7. Ensure that there are education programmes and training on disaster reduction.

Kristianstad has established training programs for disaster prevention measures targeted at school children and other populations at the local level. The municipality has, for many years, run a school project involving all pupils 2-3 times during their years in elementary school. The project

deals primarily with fire and disaster prevention measures. The information the pupils receive can be added or modified based on the needs. Pupils are taught what to do when they hear the warning signal. Self-reliance and survival strategy is the focus. The goal is that children know how to prevent and respond to fires at home, school or elsewhere. Fire staff comes to the schools and provides practical demonstration for classes 2, 5 and 8. The schools stress the children's responsibility and their own personal liability.

8. Protect ecosystems and natural buffers to mitigate floods, storm, surges and other hazards

Environmental protection and climate adaptation work for the municipality of Kristianstad is an integral part of all municipal operations. City buses and municipal vehicles run as much as possible on biogas. Heat is generated at a central plant and distributed throughout the city to each individual house. The goal is that the municipality will eventually become free from the use of fossil fuel. For the same reason, consideration is given to increased windpower. It is important that such developments do not adversely affect people's everyday life and housing conditions.

Biosphere Kristianstad Vattenrike has an important role in increasing knowledge, in particular in conjunction with Kristianstad School of Nature and researchers in universities. Work is ongoing to preserve and make wetlands available to all, including wheelchair or stroller access. Excursions and activities are designed so that more people may come closer and can get to know our unique nature. Within the municipality, attention is paid to mitigating environmental damage caused by earlier generations. Large and costly clean-up project are underway.

Protecting ecosystems can reduce the damage caused by natural events. Climate adaptation measures are taken in Kristianstad. The wetlands project http://www.vattenriket.kristianstad.se/ is the best example, but the municipality has a holistic approach to climate adaptation. Based on the natural and cultural values mainly in Ramsar, Kristianstad has worked since 1989 to protect, develop and promote sustainable use of the values. This brings together the work of Biosphere Kristianstad Vattenrike. The work takes place within the framework of activities for Kristianstad Vattenrike that is coordinated by the Biosphere office (part of the mayor's office). Within the context of the Biosphere Kristianstad Vattenrike the municipality is helping to preserve landscapes, ecosystems, species and biodiversity. An important part is to collect data in the form of surveys and publish the reports. Research is an important part of this program http://www.vattenriket.kristianstad.se/forskning/ .

Some protective measures against natural hazards are tested for our long coastline. (See the answer to essential number 4.) The municipality is about to finish a plan for climate change adaptation.

See the attached preliminary Kristianstad's climate adaptation plan (in Swedish)

9. Early warning systems and emergency management capacities.

Kristianstad has installed a warning system for issuing early warnings in case of eminent threat from natural hazards. The civil protection alarm system (which is controlled and activated by a central rescue dispatch station) is located at sites where the risk level is high. We have our own forecasting system for flood risk http://floodwatch.kristianstad.se/. All schools, large halls and retirement homes are or will be provided with automatic fire alarms.

Flood Watch Kristianstad http://floodwatch.kristianstad.se is the municipality's monitoring and forecasting system, a part of preparedness to cope with flooding from the River Helge å. Every day two automatic forecasting of flows and water levels are run for a period of ten days in advance. The projections are made in the morning and at noon. Data is collected every night from six local weather stations in River Helge å catchment and three hydroelectric power plants. Water levels are measured continuously in Kristianstad and Åhus. A 10-day weather prognosis including anticipated sea level rise is calculated by the Swedish Meteorological and Hydrological Institute (SMHI). This is automatically downloaded from a weather station before each forecast is made.

The final forecast is then created by the programs MIKE 11 and Flood Watch (developed by *DHI)* based on extensive measurements of the River Helge å characteristics, cross sections, flood areas, etc., and extensive calibration with historically measured precipitation, temperature, water levels, flows, etc. .

The forecasts are generated automatically, so errors can occur which are not detected directly, because no manual control is done before publication. In times with risk for higher waterlevels the results are checked carefully. The forecasts are better for medium-and high waterlevels than at low levels. The forecasting system is maintained and controlled with continuous testing and improvements by the municipality's technical management team.

10. The need of the survivors

Due to past disaster situations, Kristianstad has worked for many years to improve prevention and mitigation protection. For example, after flooding events, school fires or chemical spills different prevention and mitigation measures are undertaken. Measures have been taken to ensure storm water runs off even in flood condition with 1) simply the closure of storm water drainage or 2) provisional pumping as well as an extensive refurbishment and enhancement of our fixed pumping stations for storm water.

All schools either already have or will have within a year, automatic fire alarms in addition to a number of other fire safety measures. Kristianstad's ice rink has been protected in particular against the emission of ammonia refrigeration plant.

A local institution that will also be engaged in the Campaign

Kristianstad Municipality already has good cooperation with the municipality's local private civil defence league. This organisation will be our partner in the campaign.

The part of the city administration that will be the focal point for the Campaign?

Kristianstad's Fire and Rescue Services and the City Planning Office will participate in the campaign. The participating member will be
Anders Pålsson at anders.palsson@kristianstad.se

Achievements in all of the ten essential areas

Essential	**Topic**	**Estimation** *1 = poor / nothing* *2= some progress* *3= well functioning or not applicable*
nr 1	Organisation + coordination	3
nr 2	Assign a budget	3
nr 3	Prepare risk assessments	3
nr 4	Maintain infrastructure that reduces risk	3
nr 5	Safety of all schools + health facilities	3
nr 6	Realistic building regulations and land use planning principles	3
nr 7	Ensure education programmes and training	3
nr 8	Protect ecosystems and natural buffers	3
nr 9	Early warning systems and emergency management capacities	3
nr 10	Needs of survivors are in focus	3

Attachments:

1. Decision from the Kristianstad's city council (in Swedish)
2. Kristianstad's preliminary climate adaptation plan (in Swedish)