



Arvika municipality, Sweden

Local progress report on the implementation of the 10 Essentials for Making Cities Resilient (2013-2014)

Mayor: Claes Pettersson
Name of focal point: Ida Andersson
Organization: Arvika municipality, Sweden
Title/Position: Security Coordinator
E-mail address: ida.andersson@arvika.se
Telephone: +4657081477

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Essential 1

Put in place organization and coordination to understand and reduce disaster risk, based on participation of citizen groups and civil society. Build local alliances. Ensure that all departments understand their role to disaster risk reduction and preparedness.

How well are local organizations (including local government) equipped with capacities (knowledge, experience, official mandate) for disaster risk reduction and climate change adaptation?

Level of Progress achieved: 5

Description of Progress & Achievements:

Arvika municipality has experienced a number of severe floods in the past, of which the great flood of year 2000 remains one of the worst. The water level of Lake Glafs fjorden then rose by 3 meters above average and flooded parts of the city center as well as the surrounding areas. Due to the vulnerable location by the shores of Lake Glafs fjorden the municipality of Arvika has worked hard to improve its resilience regarding floods by creating an efficient organization for handling risk and crisis reduction.

Different groups have been formed to cover all aspects of risk and resilience. There is a Collaboration Council (Samverkansråd) for risk and security issues, under which there are three different sub-committees: The Risk Group, The Management Group for Collaboration (Ledningsgrupp för samverkan) and the Crisis Advisory Group (Krishanteringsrådet). The Risk Group has been assembled to increase collaboration and coordinate risk and safety matters within the municipality organization. The group works with risk management and consists of representatives from the departments of Care of Elderly and Disabled, the Environmental Office/Health and Safety, Education and Social Services, The Technical Department, Housing and Real estate (Arvika Fastighet AB) and the Fire and Rescue Services. The Management Group for Collaboration, which consists of The Municipal Management Office (Kommunledningen) and representatives from the Police Services and the County Council (Landsting), discuss risk and security questions. The Crisis Advisory Group consists of the Municipal Management Office, volunteer organizations, parts of the business sector and other authorities that are important when it comes to risk management. This group aims to share knowledge about crisis management and improve the collaboration within the municipality organization as well as the collaboration with other sectors and organisations.

Between them, these groups contain extensive knowledge and experience regarding disaster risk reduction.

To what extent do partnerships exist between communities, private sector and local authorities to reduce risk?

Level of Progress achieved: 5

Description of Progress & Achievements:

The Crisis Advisory Group, which has been mentioned previously in this document, consists of the municipal management office, volunteer organizations, parts of the business sector and other authorities that are important when it comes to risk management. This group gathers once a year so that the participants can make a presentation of their work and preparedness, with the aim to share knowledge about crisis management and improve the collaboration within the municipality organization, as well as improving the collaboration between the municipality organisation and other sectors/organisations.

How much does the local government support vulnerable local communities (particularly women, elderly, infirmed, children) to actively participate in risk reduction decision-making, policy making, planning and implementation processes?

Level of Progress achieved: 5

Description of Progress & Achievements:

Due to long standing democratic tradition, the Swedish people have many opportunities of taking part in decisions concerning disaster risk reduction. At municipal level the inhabitants are welcome to attend the meetings of the Municipal Council (Kommunfullmäktige). At the council meetings time is allocated for questions from the public. Inhabitants of the municipality are also welcome to contribute to the Municipality Council meetings by formulating propositions (medborgarförslag) on how

to improve the municipality and how it is managed. Thus, the public can influence the decisions made by the Municipality Council. These possibilities are available to all inhabitants of Arvika municipality, regardless of their age, gender or origin.

As mentioned previously in this document, there is a committee called the Risk Group which aims to encourage collaboration and coordinate risk and safety matters within the municipality organization. Representatives from the departments of Care of Elderly and Disabled attend this group to ensure that the interest of the elderly and disabled are considered in different matters.

The Crisis Advisory Group, which consists of the Municipal Management Office, volunteer organizations, parts of the business sector and other authorities that are important when it comes to risk management, is another setting in which the public can take part in developing municipal policies as well as in decision making regarding disaster risk reduction.

One of the disaster risk reduction measures that will be implemented by Arvika municipality is the building of a barrier in the narrow strait separating the main part of Lake Glafs fjorden from the smaller bay of Kyrkviken, by which Arvika city resides. Arvika municipality needs permission from the Environmental Court to build the barrier. The permission process includes a consultation stage (samråd) in which affected civilians and organisations can make their opinions heard and thereby influence the process.

To what extent does the local government participate in the national DRR planning?

Level of Progress achieved: 4

Description of Progress & Achievements:

Arvika Municipality is a member of the regional group for crisis management (Regionalt krishanteringsråd) which aims at improving the management of crisis within the county. The group consists of representatives from the County Administration Board (Länsstyrelsen), the Police authority, the County Council (Landstinget), SOS Alarm, municipalities, the Fire and Rescue Services, the Swedish Radio, the Swedish Transport Administration (Trafikverket), Fortum (the main hydropower company in the region), the Swedish Armed Forces, the Region of Värmland and Telia (communication company).

Another regional collaboration group is the Border Rescue Council

(Gränsräddningsråd), which aim is to promote cooperation regarding Fire and Rescue Services, police, emergency care and crisis management across the border between Sweden and Norway. Although these groups mainly operate on the regional level rather than the national level, their conclusions and findings are communicated to the national level.

Arvika municipality has also been involved in the making of a number of national investigations and reports commissioned by Swedish authorities. For example, in the process of assembling the national report The Climate and Vulnerability Investigation (Klimat- och sårbarhetsutredningen), Arvika acted as referral organisation. Furthermore, Arvika municipality has been involved in the work process aiming to fulfill Sweden's obligations according to the so called Floods Directive (Directive 2007/60/EC), which requires European Union member states to engage their government departments, agencies and other bodies to draw up a Preliminary Flood Risk Assessment, etc.

From a national point of view Arvika has a moderate position to be able to participate in national DRR planning. There are other local governments with more resources that have even greater conditions to participate.

Essential 2

Assign a budget for disaster risk reduction and provide incentives for homeowners, low-income families, communities, businesses and public sector to invest in reducing the risks they face.

How far does the local government have access to adequate financial resources to carry out risk reduction activities?

Level of Progress achieved: 4

Description of Progress & Achievements:

The Swedish Government has decided to reduce state funding aimed towards risk reducing efforts during the year of 2013. For Arvika municipality, this reduction of state funding is a troubling prospect. Arvika municipality is dependent upon state funding to be able to build the planned barrier in the strait towards Lake GlafsJordan, which is designed to protect the area from natural floods.

To what degree does the local government allocate sufficient financial resources to carry out DRR activities, including effective disaster response and recovery?

Level of Progress achieved: 4

Description of Progress & Achievements:

The flood barrier in the strait between the Bay of Kyrkviken and Lake GlafsJordan is very expensive but it will protect the city of Arvika against high water levels. The municipal of Arvika has planned this barrier for a long time and a budget has been set aside for this project. However, the municipality will also need state funding in order to afford to carry this project through.

The municipality of Arvika has a long-term investment plan for the water and sewage system. The investment plan contains a budget for planned measures. Since the

municipality not only have been affected by floods caused by longer periods of rain, but also by so called urban floods caused by short-term heavy rain falls, this investment plan is an important part of strengthening the infrastructural capacity to cope with heavy rains.

The Fire and Rescue Service has a budget for preventive action which increases preparedness and enables efficient measures to be taken in times of crisis.

What is the scope of financial services (e.g. saving and credit schemes, macro and micro-insurance) available to vulnerable and marginalised households for pre- disaster times?

Level of Progress achieved: 5

Description of Progress & Achievements:

In Sweden it is comparatively easy to get a loan. More or less everyone can get a loan, but the terms of the loan may differ depending on whether you have a fixed income or not. Vulnerable and marginalized households may therefore receive loans which have somewhat worse terms than loans given to households with a fixed income. Everyone can open their own bank account regardless of income, etc.

If you live or work in Sweden you are automatically covered by the Swedish social insurance. It provides financial protection for families and children, for persons with a disability and in connection with work injury, illness and elderly care. This means that you, for example, only have to pay a set fee when you visit the doctor or are in hospital. It also means that you may be entitled to various benefits from the state. The social insurance is administered by the authority Försäkringskassan.

Apart from the social insurance, which covers everyone who either works or lives in Sweden, there are also many possibilities to sign up for private insurance policies. In many countries it is difficult, not to say impossible, for most people to get insured as private civilians. This is not the case in Sweden. More or less everyone have private insurances of some sort. This means that in case of floods or other disasters, affected civilians receive financial compensation from their insurance companies to cover costs due to the flood.

Social assistance is financial support under the Social Services Act. You can receive support for your upkeep and for other items that you need to have a reasonable standard of living. You can apply for welfare from your local municipality/Social services.

To what extent are micro finance, cash aid, soft loans, lone guarantees etc available to affected households after disasters to restart livelihoods?

Level of Progress achieved: 5

Description of Progress & Achievements:

The Swedish welfare system and insurance system are comprehensive enough to be able to handle various claims on financial compensation, due to disasters.

How well established are economic incentives for investing in disaster risk reduction for households and businesses (e.g. reduced insurance premiums for households, tax holidays for businesses)?

Level of Progress achieved: 1

Description of Progress & Achievements:

There are few economic incentives for households and businesses to invest in disaster risk reduction. For example, local insurance companies don't use differentiated pricing. This means that clients who have invested in disaster risk reduction still pay the same premium to the insurance companies as those clients who haven't invested in disaster risk reduction. Therefore real estate owners do not see any advantages in investing in risk reduction.

To what extent do local business associations, such as chambers of commerce and similar, support efforts of small enterprises for business continuity during and after disasters?

Level of Progress achieved: 5

Description of Progress & Achievements:

The local Chamber of Commerce doesn't generally give financial support to small businesses in order to help them sustain their function during or after the occurrence of a disaster. However, they can provide business owners with other types of support, such as advice/counseling and help with practical issues.

This type of support is also offered by a number of other private associations, such as the Swedish Federation of Business Owners (Företagarna). The Swedish Federation of Business Owners (Företagarna) is active in Arvika municipality through their local branch. They offer their members free legal counseling as well as favorable insurance policies.

One of the local banks gave financial support to those affected by the flood in the year 2000 by paying for their deductibles ("självrisk").

Essential 3

Maintain up-to-date data on hazards and vulnerabilities, prepare risk assessments and use these as the basis for urban development plans and decisions. Ensure that this information and the plans for your city's resilience are readily available to the public and fully discussed with them.

To what degree does the local government conducted thorough disaster risk assessments for key vulnerable development sectors in your local authority?

Level of Progress achieved: 5

Description of Progress & Achievements:

The Risk and Vulnerability Analysis for Arvika Municipality is used to identify risks, threats and vulnerabilities, to detect opportunities for improvements as well as necessary preparations. This information enables the municipality to improve its ability to manage different crises. It also helps the municipality to achieve a less vulnerable society. The work process consists of a combination of risk inventory and the scenario method.

Arvika has been part of a number of different European Union projects. One example is the Interreg IVB project Climate Proof Areas (CPA). As part of the project, the municipality of Arvika made a survey of the storm water system and suggested measures to reduce risks relating to it. Another important part of the project was to develop an inundation map based on high resolution data and inventory for Arvika municipality. The map makes it possible to locate areas around the lake Glafs fjorden that are at risk of flooding. Through the map, the municipality of Arvika can identify specific objects and infrastructure that are at risk, but also locate where measures should be implemented, in case of a flood. The map is used to implement restrictions and building codes along Glafs fjorden since there is a threat from rising water levels and floods.

The Swedish Meteorological and Hydrological Institute (SMHI) have conducted studies, within the Climate Proof Areas project, on how climate change will affect the risk of floods in Arvika. The studies show that climate change will not increase the risk of severe floods. However, SMHI's study on extreme short-term rain fall intensities in Arvika show an increase by 10–30 % of today's short-term rainfall extremes by the end of the century. If no measures are taken, the consequences of this will involve more frequent overflow of untreated wastewater and basement

flooding.

To what extent are these risk assessments regularly updated, e.g. annually or on a bi-annual basis?

Level of Progress achieved: 5

Description of Progress & Achievements:

Every four years the Risk Group updates the Risk and Vulnerability Analysis concerning the municipality. The Risk Group holds meetings approximately four times every year, during which “new” risks are discussed and addressed. The members of the Risk Group are mutually responsible to update the municipality’s database covering detected risks and vulnerabilities. It is also stated in the law that the municipal annually have to report new risks and other changes in the Risk and Vulnerability Analysis to the County Administrative Board

How regularly does the local government communicate to the community, information on local hazard trends and risk reduction measures (e.g. using a Risk Communications Plan) including early warnings of likely hazard impact?

Level of Progress achieved: 4

Description of Progress & Achievements:

Arvika Municipality updates information on different risks and vulnerabilities on the municipality’s website. When it comes to the risk of flooding, the water level in Kyrkviken is measured and published on the website for the residents’ knowledge and is updated every hour. The Fire and Rescue Services compile an action programme in accordance with the results found during the process of assembling the Risk and Vulnerability Analysis for the municipality. This programme communicates the risk reducing efforts made by the Fire and Rescue Services to the public, other authorities and organisations. Furthermore, the Fire and Rescue

Services frequently put information on the municipality's website. They also have the opportunity to inform the citizens about risks and incidents through an "Important message to the public". This information is distributed on TV and on the Radio. Arvika municipality also investigates the possibility of implementing an early warning system where property owners get a text message on their cell phones if the water level is getting close to the level of their houses. All public premises in Arvika have evacuation plans. All health facilities and schools also have crisis plans. Different courses about disaster prevention and safety issues are held at all schools in the municipality in collaboration between the schools and the Fire and Rescue Services. It is very difficult to predict heavy rain falls that occur during the Swedish summer. This kind of rain fall is often the cause of urban floods. SMHI are looking into how to better warn the citizens about heavy rain.

How well are local government risk assessments linked to, and supportive of, risk assessments from neighbouring local authorities and state or provincial government risk management plans?

Level of Progress achieved: 5

Description of Progress & Achievements:

Based upon the results from the different municipalities' Risk and Vulnerability Analyzes, the County Administration Board (Länsstyrelsen) compiles a regional Risk and Vulnerability Analysis for the entire province of Värmland. Arvika municipality also participates in a number of different collaborative groups. The purpose of these collaborative groups is partly to bring the policies and practices of different municipalities and organisations together, regarding risk reducing efforts. As previously mentioned, Arvika municipality is a member of the Regional Group for Crisis Management (Regionalt krishanteringsråd) and also of the Border Rescue Council (Gränsräddningsrådet). Apart from these collaborations, Arvika also partakes in the so called River Group-meetings (Älvsgruppsmöten), at which the municipalities of Arvika and Säffle, the County Administration Board (Länsstyrelsen), SMHI, Fortum and the The Norwegian Water Resources and Energy Directorate (NVE) participate. The River Group gathers once a year, before facing spring peak water level, to discuss the water level in Byälven including Lake Glafs fjorden. NVE is participating in these meetings since 30 % of the watershed area is located in Norway. This group revolves around information sharing between the involved parties. There are sluices in Säffle which to some extent can be used to increase the water feed from Lake Glafs fjorden and Byälven, and thereby lessen upstream damages due to high water levels.

The three neighbouring municipalities of Arvika, Eda and Säffle have decided to coordinate their Fire and Rescue Services in order to increase efficiency regarding information, travelling distances, etc. This is of mutual benefit to all parties.

How well are disaster risk assessments incorporated into all relevant local development planning on a consistent basis?

Level of Progress achieved: 5

Description of Progress & Achievements:

The Risk and Vulnerability Analysis is a public document and its results are considered in the planning and building processes handled by the municipality. The Swedish Planning and Building Code (Plan- och Bygglagen) regulates how the process of planning land use and giving building permits are to be conducted. The permit process includes considerations regarding public safety (e.g. weather related risks, fire safety), sustainability issues and so on. The legislation also stipulates how and when supervisory inspections are to be conducted during the building process, to ensure that relevant standards are met. The city planning process takes risks into consideration. Especially flood risks are assessed at an early stage of city expansion and development. The inundation map is often used in the land use planning.

Essential 4

Invest in and maintain critical infrastructure that reduces risk, such as flood drainage, adjusted where needed to cope with climate change.

How far do land use policies and planning regulations for housing and development infrastructure take current and projected disaster risk (including climate related risks) into account?

Level of Progress achieved: 5

| | |
|----------------|-----|
| Housing | Yes |
| Communication | Yes |
| Transportation | Yes |
| Energy | Yes |

Description of Progress & Achievements:

There are general rules and restrictions addressing planning and building principles, in accordance with Swedish legislation. The city planning process takes risks into consideration. Especially flood risks are assessed at an early stage of city expansion and development. The inundation map and building codes is a great tool and is often used in the land use planning.

How adequately are critical public facilities and infrastructure located in high risk areas assessed for all hazard risks and safety?

Level of Progress achieved: 5

Description of Progress & Achievements:

The Risk and Vulnerability Analysis for Arvika municipality contains relevant and detailed risk assessments regarding critical infrastructure (e.g. communications, electricity), public buildings, etc.

Reference documents

> [The Risk and Vulnerability Analysis Arvika Municipality \(2013\)](#)

How adequate are the measures that are being undertaken to protect critical public facilities and infrastructure from damage during disasters?

Level of Progress achieved: 4

Description of Progress & Achievements:

When the planned barrier in the strait between the bay Kyrkviken and Lake GlafsJordan is built, the city of Arvika and the surrounding areas will be protected against floods caused by rising water levels in the lake. Other practical measures have already been taken. For example, a protective embankment has been constructed around the main sewage waters treatment plant to protect it from rising water levels.

The Risk and Vulnerability Analysis for Arvika municipality contains relevant and detailed risk assessments regarding critical infrastructure, public buildings, etc.

Essential 5

Assess the safety of all schools and health facilities and upgrade these as necessary.

To what extent have local schools, hospitals and health facilities received special attention for "all hazard" risk assessments in your local authority?

Level of Progress achieved: 5

| | |
|------------------------------|-----|
| Schools | Yes |
| Hospitals/ health facilities | Yes |

Description of Progress & Achievements:

The Risk and Vulnerability Analysis for Arvika municipality contains relevant risk assessments regarding critical infrastructure, such as schools and hospitals. However, since hospitals in Sweden are run by the County Council, which is a separate authority, the main responsibility regarding risk assessments rests upon them rather than upon the municipality. The Fire and Rescue Services organises continuous inspections of all schools and health facilities. There is also training on fire safety for the staff. Except for the supervision made by the Fire and Rescue Services, the safety in schools and health facilities is assessed in the risk and vulnerability analysis. All public premises in Arvika have evacuation plans. All health facilities and schools also have crisis plans. National and European safety regulations are being followed.

How safe are all main schools, hospitals and health facilities from disasters so that they have the ability to remain operational during emergencies?

Level of Progress achieved: 4

| | |
|---------|-----|
| Schools | Yes |
|---------|-----|

Hospitals/ health facilities

Yes

Description of Progress & Achievements:

The Risk and Vulnerability Analysis for Arvika municipality contains relevant risk assessments regarding critical infrastructure, such as schools and hospitals. Since the hospitals in Sweden are run by the County Council the main responsibility regarding risk assessments for the hospitals rests upon the County Council rather than upon the municipality. The hospital has access to back-up power generators. The main drinking water plant also has back-up power generators and there are procedures in place to ensure that the hospital and other vital public premises receive enough water, even in difficult situations. When it comes to heating, the Risk and Vulnerability Analysis states that it is highly unlikely that the system for district heating could be entirely knocked out since there are two separate thermal plants. The plants can be run on different types of fuel and there are several different electrical supplies. In case of major accidents or disasters, rooms in Arvika city hall have been assigned to be utilized for different purposes and needs due to the situation (administrative center for crisis management, etc.). During 2015 the Risk and Vulnerability Analysis will focus on, among other public sectors, how to make schools and health facilities more resilient by using a new method. The result will help us determine what to invest and how we should prioritize the investment in DRR.

To what degree do local government or other levels of government have special programs in place to regularly assess schools, hospitals and health facilities for maintenance, compliance with building codes, general safety, weather-related risks etc.?

Level of Progress achieved: 5

| | |
|---------|-----|
| Schools | Yes |
|---------|-----|

Hospitals/ health facilities

Yes

Description of Progress & Achievements:

The Swedish Planning and Building Code regulate how the process of giving building permits are to be conducted. The permit process includes considerations regarding public safety (e.g. weather related risks, fire safety), sustainability issues and so on. The building code also stipulates how and when supervisory inspections are to be

conducted during the building process, to ensure that relevant building standards are met.

The Fire and Rescue Services organise continuous inspections of all schools and health facilities. These supervisory inspections are stipulated by Swedish law (The Swedish Planning and Building Code, The Law of Extraordinary Events, The Law of Protection against Accidents). The Fire and Rescue Services also hold courses on fire safety for the staff of these public premises. In addition to supervisory inspections made by the Fire and Rescue Services, the safety in schools and health facilities is assessed in the Risk and Vulnerability Analysis. The office for Health and Safety/Environmental Protection also constitutes a supervisory function since they can force managers of the businesses/premises in question to remedy deficiencies pertaining to inadequate maintenance, etc.

In Sweden, the hospitals are generally run by the County Council (Landstinget), not by the municipalities. The County Council is therefore responsible for managing them in accordance with Swedish legislation, such as the Law of Extraordinary Events. This means that the County Council is obliged to ensure that the hospitals are prepared for extraordinary events, such as floods.

How far are regular disaster preparedness drills undertaken in schools, hospitals and health facilities?

Level of Progress achieved: 4

| | |
|------------------------------|----|
| Schools | No |
| Hospitals/ health facilities | No |

Description of Progress & Achievements:

The Fire and Rescue Services provide extensive training courses on disaster prevention measures aimed at various target groups on a local level. These include courses in CPR (cardiopulmonary resuscitation) and how to act in case of a fire. Different courses on disaster prevention and safety issues are held at schools in the municipality. The Fire and Rescue Service also has a goal to educate 2700 citizens every year on how to prevent and manage accidents (approximately 10,5% of the population of Arvika municipality).

The Fire and Rescue Services organise continuous inspections of all schools and health facilities. There is also training on fire safety for the staff. Except for the

supervision made by the Fire and Rescue Services, the safety in schools and health facilities is assessed in the Risk and Vulnerability Analysis.

Essential 6

Apply and enforce realistic, risk compliant building regulations and land use planning principles. Identify safe land for low-income citizens and develop upgrading of informal settlements, wherever feasible.

How well are risk-sensitive land use regulations and building codes, health and safety codes enforced across all development zones and building types?

Level of Progress achieved: 4

Description of Progress & Achievements:

The municipality is responsible for implementing the Swedish Planning and Building Code (Plan- och Bygglagen) when planning the use of land and water areas. The Swedish Planning and Building Code contains regulations which states that land use planning procedures must take climate aspects into consideration. The purpose of this is to make sure that the planning process works towards a sound environment by considering the effects of climate change as well as minimizing the contributions to climate change from building and exploiting of land and water areas. When planning new buildings/exploitation of land, it must be made sure that the location is suited for the purpose and that it isn't liable to flooding, erosion etc.

Evaluation questions regarding informal settlements are not applicable in Arvika municipality. Due to strict legislation on building and planning in combination with a comprehensive welfare system informal settlements are non-existent.

How strong are existing regulations (e.g. land use plans, building codes etc) to support disaster risk reduction in your local authority?

Level of Progress achieved: 4

Description of Progress & Achievements:

A weakness in the Swedish building code, when it comes to encouraging disaster risk reduction, is possibly the fact that it does not have very powerful tools to demand that risk reducing efforts are made in preexisting buildings.

Aside from the national regulations, the planning process in Arvika municipality also follows internal policies and guidelines based upon local conditions and experience. In order to attain a more comprehensive knowledge, Arvika municipality has made an inundation map based on high resolution data and local inventory results. The map makes it possible to localize areas around the lake Glafsforden that are subject to high risk of flooding. Through the map, the municipality of Arvika can identify specific objects and infrastructure that are at risk, but also to locate where measures should be implemented, in case of a flood. The map is used to implement restrictions and building codes along Glafsforden since there is a threat from rising water levels and the risk of floods.

Essential 7

Ensure education programmes & training on disaster risk reduction are in place in schools and communities.

How regularly does the local government conduct awareness-building or education programs on DRR and disaster preparedness for local communities?

Level of Progress achieved: 3

| | |
|---|----|
| Programs include cultural diversity issues | No |
| Programs are sensitive to gender perspectives | No |

Description of Progress & Achievements:

The Fire and Rescue Services provide training courses on accident prevention measures aimed at various target groups on a local level. These include courses in CPR (cardiopulmonary resuscitation) and how to act in case of a fire. The Fire and Rescue Services' goal is to educate 2700 citizens (approximately 10,5% of the population) every year on how to prevent and manage accidents.

However, the training conducted by the Fire and Rescue Service do not focus on how to prevent or prepare for floods or act in case of rising water levels. The Fire and Rescue Service is aware about the risks of flooding and how to act in case of an event, but at the moment there are no planned courses for the citizens to engage in.

To what extent does the local government provide training in risk reduction for local officials and community leaders?

Level of Progress achieved: 5

Description of Progress & Achievements:

The Fire and Rescue Services provide training courses on disaster prevention measures aimed at this specific target group annually. These include courses in CPR (cardiopulmonary resuscitation) and how to act in case of extraordinary events, fires etc. Different courses on disaster prevention and safety issues are held in the municipality. The Fire and Rescue Services' goal is to educate 2700 citizens every year on how to prevent and manage accidents

To what degree do local schools and colleges include courses, education or training in disaster risk reduction (including climate related risks) as part of the education curriculum?

Level of Progress achieved: 5

Description of Progress & Achievements:

The school itinerary contains courses on climate change and related risks. Different courses on disaster prevention and safety issues are held by the Fire and Rescue Services at all schools in the municipality. A project called "A risk-and-safety-conscious generation" was organised by the Fire and Rescue Services during the years 2007-2010, which targeted youths of different ages. There are no universities located within the municipality of Arvika. There is a university in the neighbouring municipality of Karlstad. At Karlstad University there are several courses on climate change and risks connected to it. The Center for Climate and Safety is also based at Karlstad university. This knowledge center seeks to find solutions to the risks connected to extreme weather events such as rainstorms, floods and windstorms.

How aware are citizens of evacuation plans or drills for evacuations when necessary?

Level of Progress achieved: 4

Description of Progress & Achievements:

There is no overall evacuation plan for the entire municipality, nor is there one for the city of Arvika. However, all public premises in Arvika have evacuation plans. All health facilities and schools also have crisis plans. The Fire and Rescue Services hold fire drills etc. annually.

The signalling system "Important message to the public" (VMA) is generally well known among the public.

Essential 8

Protect ecosystems and natural buffers to mitigate floods, storm surges and other hazards to which your city may be vulnerable. Adapt to climate change by building on good risk reduction practices.

How well integrated are local government DRR policies, strategies and implementation plans with existing environmental development and natural resource management plans?

Level of Progress achieved: 5

Description of Progress & Achievements:

As previously mentioned Arvika municipality plans to build a barrier to protect the city and surrounding areas against rising water levels. According to Swedish environmental law (Miljöbalken) the enterprise must be sanctioned by the environmental court. In order to gain permission to build the barrier an environmental impact assessment (EIA) must also be written. The EIA takes climate change and environmental impacts due to the building of the barrier into consideration. As a part of the process of writing the EIA, those parties affected by the enterprise must be informed and consulted (samråd). During this consultation stage the affected parties can specify which aspects they want clarified in the EIA. They can also propose alternative methods to those advocated by the driving party/builders. The opinions expressed during this consultation stage are then to be considered in the EIA. The purpose of the consultation stage is to minimize the environmental impacts as well as the impact upon the health and safety of those living close to the planned enterprise.

The Swedish Parliament has established 16 so called environmental quality goals in order to enforce protection of ecosystems and natural buffers, which in turn help to mitigate floods, storm surges and other hazards. It's a continuing work in accordance with sound environmental principles and in such a way as to promote sustainable management of land, water and other resources. The national environmental objectives are translated into regional goals. Arvika municipality is also developing local equivalents to the national and regional goals.

All disaster risk reducing efforts and other enterprises embarked on by the municipality of Arvika are conducted in accordance with Swedish environmental law, as well as other relevant national and international regulations.

To what degree does the local government support the restoration, protection and sustainable management of ecosystems services?

Level of Progress achieved: 3

| | |
|-----------------|-----|
| Forests | Yes |
| Coastal zones | No |
| Wetlands | No |
| Water resources | Yes |
| River basins | No |
| Fisheries | No |

Description of Progress & Achievements:

The Swedish Environmental Code is comprehensive and includes strict regulations ensuring effective environmental protection. For example, there are national restrictions about deforestation, logging and ditching dykes. Because of the strict national environmental legislation, the municipalities' role in the protection of important ecosystems is not a major issue in Sweden.

As previously mentioned, Arvika municipality is developing local equivalents to the national environmental quality goals. The work with reaching these specific goals contributes to protect ecosystems and natural buffers to mitigate floods, storm surges and other hazards.

Swedish municipalities can develop water protection areas. There are 12 water supplies in Arvika Municipality which provide drinking water to the residents. Three of them have this protection today and the municipality of Arvika is currently working with developing protection areas for the rest. There are also two nature reserves within the municipality of Arvika.

Arvika municipality is certified by the FSC. FSC is a global, not-for-profit organization dedicated to the promotion of responsible forest management worldwide. The standards of the FSC are even stricter than current legislation. By joining the FSC the municipality dedicates itself to protecting and maintaining natural communities and high conservation value forests.

How much do civil society organizations and citizens participate in the restoration, protection and sustainable management of ecosystems services?

Level of Progress achieved: 3

Description of Progress & Achievements:

The Swedish Environmental Code is comprehensive and includes regulations ensuring effective environmental protection. In other words, ecosystems are rather well protected which means that the benefits that can be obtained by them are also safeguarded.

However, there are a great number of civil organisations and societies which are interested in restoring or protecting certain parts of the environment and the ecosystems. For example, some organisations restore streams to their old meandering courses in order to help salmon to reach their mating site. Others scythe meadows in order to increase biodiversity. These organisations can apply for state funding.

How much does the private sector participate in the implementation of environmental and ecosystems management plans in your local authority?

Level of Progress achieved: 3

Description of Progress & Achievements:

The conduct regarding resource management, etc. of both the public and the private sector, is regulated by the Swedish Environmental Code. Nowadays environmental issues are high up on the companies' agendas and many corporations write their own policies and plans on how to incorporate "green" aspects into their work processes. Even though environmental issues are a well known topic, it would be desirable if the private mad a greater effort. To really make a different for the environment and the ecosystem a part of the society have to demand changes, the

private sector might be that part.



Essential 9

Install early warning systems and emergency management capacities in your city and hold regular public preparedness drills.

To what degree do local institutions have access to financial reserves to support effective disaster response and early recovery?

Level of Progress achieved: 5

Description of Progress & Achievements:

When disaster strikes, the main responsibility to aid the affected with monetary assistance does not befall the municipality. The main responsibility to give monetary assistance instead falls upon the insurance companies.

However, in case of acute need of financial assistance and if for some reason the insurance companies weren't able to come up with sufficient funding, both the state and the municipality would step in to aid the victims. The capacity of the Swedish welfare system and the private insurance systems is sufficient to be able to handle claims that could arise due to the kind of floods that occur in Arvika municipality.

It is worth mentioning that the nature of the disasters and accidents that may occur in Arvika municipality (or in other Swedish municipalities, for that matter) differs greatly from those occurring in other parts of the world. Floods occurring in Arvika do not happen overnight, but evolves over longer periods of time. This means that human lives are seldom threatened. The damages are mainly of a financial nature.

After the great flood in the year 2000, state funding was granted to the municipality of Arvika (the lion's share of these funds were allocated to the Fire and Rescue Services) to help the disaster struck areas to recover from the financial damages.

To what extent are early warning centres established, adequately staffed (or on-call personnel) and well resourced (power back ups, equipment redundancy etc) at all times?

Level of Progress achieved: 4

Description of Progress & Achievements:

There is a Preparedness Group in case of high water levels. The group handles the practical work in case of flood and cooperates with the Fire and Rescue Services. Their duty is to handle the communication with the public, media and so on. The Crisis Management Group (Krisledning) mobilizes in case of alarm and the chief of the municipality (Kommundirektör and kommunalråd) concludes to what extent the emergency management should operate, after consulting the Chief of the Fire and Rescue Services. Premises for emergency crisis management are prepared in Arvika city hall. There is a civil protection alarm system (VMA) in Arvika which signals loudly in case of major emergency so that the residents are made aware that the situation is serious. The alarm system is located in the urban area of Arvika, where the risk level is high. This is based on the fact that it's in this area where most people live close to industries and roads with hazardous goods. VMA also includes a system where a recorded voice message can be sent to all landlines in a certain area. Arvika municipality investigates the possibility to implement an early warning system where property owners get a text message on their cell phone in case the water level is getting close to the level of their houses. If there's a great risk of a disaster or some sort of severe event, information is provided to the public via the media.

How much do warning systems allow for adequate community participation?

Level of Progress achieved: 4

Description of Progress & Achievements:

The already mentioned civil protection alarm system (VMA) alerts the residents of major emergency situations. The VMA will soon include mobile phones as well which means that all mobile phones in a certain area will get a text message with the warning and information about what to do. Social media will also be an important tool to inform and communicate with the citizens. The challenge is how to alert people that do not use technology and are out of range from the VMA-signals

To what extent does the local government have an emergency operations centre (EOC) and/or an emergency communication

system?

Level of Progress achieved: 4

Description of Progress & Achievements:

Premises for emergency crisis management are prepared in Arvika city hall and at Arvika Fire Station. By installing a new radio communication system called RAKEL, vital communication possibilities are ensured. By securing free communication paths, RAKEL will also facilitate increased cooperation. To ensure the emergency communication more people need to be educated in using RAKEL and more organisations need to be able to use the system.

How regularly are training drills and rehearsal carried out with the participation of relevant government, non-governmental, local leaders and volunteers?

Level of Progress achieved: 5

Description of Progress & Achievements:

These types of exercises (regarding extraordinary events, for example school shootings) are held annually, in cooperation with the Fire and Rescue Services.

How available are key resources for effective response, such as emergency supplies, emergency shelters, identified evacuation routes and contingency plans at all times?

Level of Progress achieved: 4

Stockpiles of relief supplies

No

| | |
|--------------------|----|
| Emergency shelters | No |
|--------------------|----|

| | |
|-----------------------------------|----|
| Safe evacuation routes identified | No |
|-----------------------------------|----|

| | |
|--|----|
| Contingency plan or community disaster preparedness plan for all major hazards | No |
|--|----|

Description of Progress & Achievements:

The municipality of Arvika has developed different systems in order to be prepared against future floods. There is a Crisis Management Plan (Krisledningsplan) which includes organization, routines and resources for information.

The Preparedness Plan for water and sewage is a chart which states what measures should be taken at different water levels. It is used by the officials of the municipality.

The municipality of Arvika has a distribution plan for drinking water (Avstängningsplan för vatten) to ensure that the hospital acquire enough drinking water. The municipality is also making an emergency plan (Nödvattenplan). This plan's purpose is to outline how the residents of Arvika city can be provided with water, in case of water shortage or poor water quality.

A lot of investments have been made to reinforce infrastructure and strengthen the overall resilience of the municipality. For example, Arvika Municipality has devised a Barrier Plan which specifies where barriers need to be put up at certain water levels, as well as what kind of barriers that should be used at certain levels. The Barrier Plan is based on GIS-maps and constitutes a useful tool for the Fire and Rescue Services when facing a heightened flood risk. The local power company has, among other things, invested in placing former landlines below ground in order to increase the power grid's resilience towards storms, etc.

Arvika municipality has acquired mobile protective barriers which can be used in case of rising water levels. By investing in these barriers the municipality management has enhanced the chances of a quick response to rising water levels, which in the long run might constitute the difference between minor or major damages. The municipality has also invested in mobile pump stations.

The Fire and Rescue Services has a budget for preventive action.

Essential 10

After any disaster, ensure that the needs of the survivors are placed at the centre of reconstruction with support for them and their community organizations to design and help implement responses, including rebuilding homes and livelihoods.

How much access does the local government have to resources and expertise to assist victims of psycho-social (psychological, emotional) impacts of disasters?

Level of Progress achieved: 4

Description of Progress & Achievements:

Arvika municipality has organised so called POSOM-groups to take care of the psychological needs of victims/affected civilians, after a larger accident or catastrophe. This important work is conducted in cooperation with the church and a number of volunteer organisations.

How well are disaster risk reduction measures integrated into post-disaster recovery and rehabilitation activities (i.e. build back better, livelihoods rehabilitation)?

Level of Progress achieved: 3

Description of Progress & Achievements:

To enhance the resilience of important infrastructure and buildings against the possibility of flooding, a number of risk reducing efforts have been made. To protect the main wastewater plant of Arvika against rising lake water levels, a permanent fortification in the form of a barrier has been constructed around the plant. To ensure the functionality of the electrical power grid, electrical substations (transformatorstationer) have been elevated in order to protect them from rising water levels. In some instances, however, the principle of Build Back Better could have been implemented even more forcefully.

As previously mentioned, there are few economic incentives for households and businesses to invest in disaster risk reduction. The local insurance companies don't use differentiated pricing, which means that clients who have invested in disaster risk reduction still pay the same premium to the insurance company as clients who haven't invested in disaster risk reduction.

To what degree does the Contingency Plan (or similar plan) include an outline strategy for post disaster recovery and reconstruction, including needs assessments and livelihoods rehabilitation?

Level of Progress achieved: 3

Description of Progress & Achievements:

Arvika municipality doesn't have this type of document at present. Due to the slow nature of the type of floods etc. that occur in Arvika, the need for it isn't very great. The Risk and Vulnerability Analysis contains relevant information.