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# A SUSTAINABLE DRINKING WATER SUPPLY FOR ÅLAND

## CLEAN DRINKING WATER FOR EVERYONE

*"Åland Water / Ålands Vatten produces and supplies drinking water to 75 percent of Åland's population from the treatment plant at Dalkarby träsk. Today we have a very good starting position and a high water quality in our raw water resources, the lakes Långsjön, Markusbölefjärden and Dalkarby träsk. But the water quality is deteriorating. We live in a time of climate change, increasing population and declining natural resources. Therefore, we chose to begin new work towards a sustainable water supply, and we are already off to a good start. "*

CHRISTIAN NORDAS, CEO ÅLAND WATER



## OUR PROCESS AND PLAN – RAW WATER

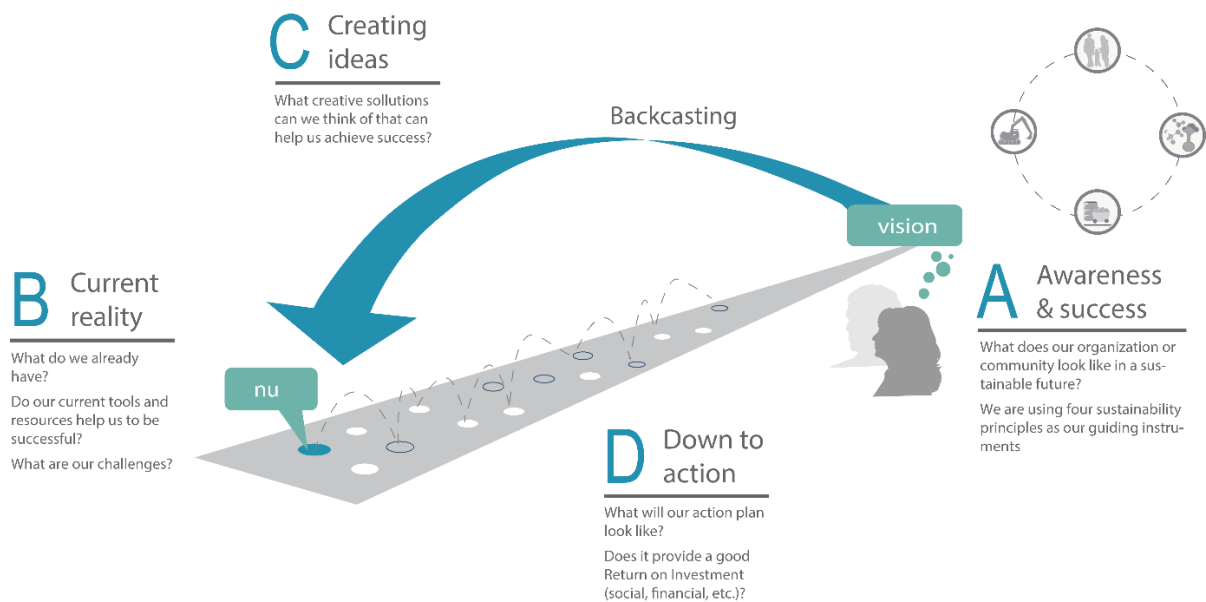
Åland Water has put new focus on our strategic and sustainable development work since the autumn of 2016. Our work process has been linked to two ongoing processes in Åland- the work with a sustainable food strategy for Åland and the Åland Development and Sustainability Agenda, where Goal 3 reads "All water is of good quality" ([www.barkraft.ax](http://www.barkraft.ax)).

A great effort to lay the foundation for a sustainable drinking water supply for Åland has already been done and we at Åland Water are very pleased with the result.

We have documented our process to help and inspire other actors who want to do similar sustainability work within their organization. A clear vision and defined targets are a prerequisite to be able to start analyze, plan, develop and cooperate for sustainability. Here we describe our process and the road map towards a sustainable drinking water supply for Åland.

### The ABCD model

In accordance with the Åland Development- and Sustainability agenda we have used the ABCD-model with back casting as a tool in the process. Creating a sustainable society where sustainable drinking water is a part of the bigger picture is a tough and complex challenge. In order to succeed we need to think in new ways, wherein we take into account the smaller parts with the bigger picture and the present with the future. When doing this the ABCD-model is an efficient tool for finding solutions without creating new problems along the way.



### A – Awareness & success / vision

Everything starts with awareness. We need to understand how to define sustainability and what it means for individuals, business and other organizations, society, and ultimately the Earth. We use a science-based and ‘whole-systems’ definition as a firm foundation to build a vision of what your sustainable organization looks like in the future.

### B – Baseline assessment / current reality

This step uses the four sustainability principles to conduct a sustainability ‘gap’ analyses of the major flows and impacts of the organization to see how its activities are running counter to sustainability principles. This way we can identify critical sustainability issues and strategic opportunities for change.

### C – Creative solutions / creating ideas

Now that we have identified the gap between where we are today (current reality) and where we want to go (vision), we can start to think about innovations and solutions. These will incrementally bring us closer to a sustainable product, service and/or organization. We are clear on what success looks like, and which process we must set up or change in order to get us there.

### D – Devise a plan / down to action

What do we need to do, and when should we do it? What are the first steps and “low hanging fruits” that will bring quicker benefits, and what needs longer term planning? We make a plan for our path to a sustainable future.

# Definition of Sustainable Development

In 2014, the Åland Parliament and the Åland Government took a decision on a common endeavor for one fully sustainable Åland by 2051. This is in accordance with an internationally used definition of the concept of sustainable development. The definition consists of four so-called sustainability principles as even we have used to define sustainable development.

The four sustainability principles define the basic conditions for a sustainable society, as well as helping to ensure that we do not systematically destroy the social and ecological systems to which we depend. They act as instructions for creating a well-being society today and in the future.

The sustainability principles provide a clear reference point for strategic planning – within these limits, we must keep to change to sustainable development. They help us understand what we are aiming for, which is crucial in order to take effective steps towards a sustainable society.

## The four sustainability principles

In a sustainable society, nature is not subject to systematically increasing...



1... concentrations of substances from the earth's crust (such as fossil CO2 and heavy metals)



2... concentrations of substances produced by society (such as antibiotics and endocrine disruptors)



3... degradation by physical means (such as deforestation and draining of groundwater tables).



4. And in that society there are no structural obstacles to people's health, influence, competence, impartiality and meaning.

Source: [www.thenaturalstep.org](http://www.thenaturalstep.org) and the network [www.barkraft.ax](http://www.barkraft.ax)

## WORKSHOP A – 9 NOVEMBER 2016

# We create a vision

### On the Agenda

1. A system description, what is the vision to include?
2. Key core values, and how do we define success?
3. What is a sustainable water and what qualities does water of good quality have?

## 1. System description and scope of the vision

### Which waters are relevant to the vision?

Lakes, groundwater and coastal waters (desalinated drinking water). Drinking water resources and reservoirs, emergency waters, catchment areas, possible new reservoirs, groundwater.

### Areas, customers, stakeholders:

Everyone is concerned! Everyone needs clean drinking water – companies, individuals, industry etc. We also need to include shipping considering air pollution, as well as the value chain of drinking water producers, i.e. chemical producers, distributors, suppliers etc..

## 2. Core values

- Solidarity, which can also be expressed as inclusion and shared responsibility.
- Openness, Transparency and Participation.
- Proactiveness and long-term planning and advancement.
- Sustainable production of drinking water. Åland Water should be able to deliver a good and healthy water to our consumers

## 3. Our definition of sustainable water

When is a lake “healthy” and have water of good quality? There are different types of lakes with varying levels of nutrients. Today, the lakes are classified biologically, physicochemical and ecologically. Some questions were answered and others had to be put on hold.

After a discussion of words and formulations, a first vision was put together. Later in the process the vision was refined and it is presented in a separate document. Here's how the first version was formulated:



“Outstanding quality raw water with ecosystems in balance, regardless of human impact, which enables sustainable drinking water production.”

## We analyze the current situation

On the Agenda

1. Mapping of processes and flows.
2. This is how we violate the sustainability principles today.
3. SWOT analysis.

### 1. Mapping of processes and flows.

We are creating a picture of the current situation regarding our raw water as a basis for drinking water supply. In part, the factors that today directly affect the quality of the raw water we use are analyzed, and external factors that may affect future raw water processes are defined.

#### Analysis of external stakeholders and actors

##### QUESTIONS

- What actors help or hinder the prospects of reaching the vision?
- What actors are missing?
- Which relationships are strong respectively weak?

##### OUR ANSWERS

**Stakeholders / actors:** Operators, industries, road users, car traffic, shipping, air travel, interest groups (NGO's), trade associations, farmers; agriculture and animal husbandry, forestry, landowners, beach owners, water owners, residents, water companies

**Missing:** Experts in decision making, crayfish fishermen and water owners, municipal representatives. Nobody has historically driven the issue of sustainable drinking water supply in Åland.

**Helps / hinders the opportunities:** Participants in this workshop, water consumers, the entire society, former actors, and old sins.

**Authorities:** Åland Government, supervisory and licensing authorities (ÅMHM and municipalities), environmental authorities, health organizations, planning bodies.

#### External analysis according to the PESTLE-model

PESTLE is an abbreviation for English's Political, Economic, Social, Technological, Legal and Environmental. A PESTLE analysis covers different areas of society where decisions in external bodies or at other levels in society can affect or risk affecting the prospect of reaching a vision of sustainable drinking water supply.

The more clarity, transparency and consensus we have about this aspect of the present/current reality, the greater the chance we have to integrate action in the roadmap that prevents possible future challenges, problems and obstacles to reaching the vision.

## QUESTIONS

- Which external factors influence or risk affecting the prospect of reaching a sustainable drinking water supply?
- How do these factors affect / help / hinder the ability to reach the vision?
- What aspects can be considered threats? Or possibilities?

## OUR ANSWERS

**Political:** Priorities, support for using the sustainability principles, fees vs. tax financing, the polluter - i.e. the water companies - pays, compensations, Trump.

**Economic:** Water fees, process that creates acceptance, inclusion, transparency, participation, shared responsibility, Water and Sewage fees, compensations, short-term financial incentives, limited use of rights.

**Social:** Consensus, Acceptance, Conflicts of Interest, Limited Use of Rights.

**Technological:** Innovations such as reducing chemical use, circulation in individual households, recycling solutions. Cheap technical solutions are not available, for example, for precision farming, manure management and/or biogas production.

**Legislation:** The Water legislation in Åland is currently under revision, EU directives, and different application of legislation.

**Environmental factors:** Climate change, drought, air emissions.

## Internal analyses according to the HUS-model

Internal analysis of processes and factors that we can influence ourselves. This is about: 1) which processes, actors and value chains we depend on, that affect the water as a raw material for sustainable drinking water supply; 2) factors affecting drinking water and the services offered to consumers; and 3) the residues remaining in the various parts of the treatment process.

## QUESTIONS

- What factors, processes and events affect the ability to reach the vision?
- Do these factors prevent och create opportunities to reach the vision?
- What aspects / factors can be considered strengths / weaknesses?

A general comment highlighted was that it is important to have good measurement data to see changes and trends in the water quality.

In order to further analyze the current situation, we worked in groups to answer additional questions:

*What do we offer today to society; product or service?*

Recreation, fishing and birds.

*What needs need to be met?*

Hygiene, access to drinking water, high standard.

*What are we dependent on?*

Habits and safety.

*What environmental factors, land use, suppliers, traditions / values / standards etc. needs to be taken into account?*

Ditching, agriculture, forestry, settlements, roads, climate (rainfall, drought, temperature rise), boats, asphaltting, cars, car washing, bathing, showers, laundry, irrigation, human activity (violating the sustainability principles), contemporary influences and old sins, water withdrawal and water consumption, poor knowledge, physical change of the environment; for example building and water drainage/storm water.

(a) Diffuse sources: runoff in urban areas, households, arable land, air pollutants shipping and air traffic, waste storage, roads, road wear, oil and chemical cisterns, grazing animals; risk of viruses and parasites (dogs, cats, grazing animals: cows and sheep, birds and game).

b) Point sources: sewage (sewage content: nutrients, BOD and hazardous substances from hygienic products, pharmaceuticals, cleaning chemicals, etc.), industry, household / garden, geothermal heating, road accidents, motor boat traffic.

c) Current impact and old sins: fox farm, slaughterhouse in Gölby, former fertilizer use.

## **2. This is how we violate the sustainability principles today.**

The next step is to see if the information from in the HUS analysis complies with the sustainability principles. In this way we can map the gap between the current situation and the vision we have created. The sustainability gap serves as a creative and solution-focused "rubber band" to keep us moving forward, towards our vision. See the sustainability principles on page 4.

### **Systematic increase of substances from the earth's crust**

- Poor knowledge / knowledge about ditching, dredging and blasting.
- Settlement, roads and climate.
- Too large outtake can lead to leaching from the bottoms.
- Dewatering of land.
- Geothermal energy outtake



- Minerals in sludge.
- Agriculture and forestry.
- Use of boats.

### Systematic increase of substances produced by society

- Household: substances that come from sewage water.
- Settlements.
- Storm water: chemicals, pharmaceuticals, other foreign substances.
- Road constructions.
- Use of roads: nitrogen oxides, tire and double wear, asphalt residues (particles).
- Air pollutants: nitrogen oxides.
- Use of boats.
- Chemical residues.
- Waste storage: Depends on what you have put there.
- Forestry.
- Cisterns with a risk of leakage of, for example, oil or chemicals.
- Since we do not have enough knowledge and control on chemicals and hazardous substances, we do not know whether they are in our waters or how they affect us as humans.

### Systematic degradation by physical means

- Hard surfaces, such as residential areas and roads, increase the risk of wrong surface drainage to water reservoirs.
- Exploitation, for example, that agricultural land becomes residential area, forest land becomes farmland, and water outtakes are made at the wrong time or in excess.
- Dams or other barriers that prevent wildlife.
- Roads, forestry, farms, settlements, ditching.
- Recreation - recreational housing and docks.
- The construction of residential and other infrastructure may not undergo sufficient risk analysis / control and there is no requirement for environmental impact assessment, which may affect water reservoirs to a greater extent than we think.

### Systematic structural obstacles to people's health, influence, competence, impartiality and meaning.

- Viruses and parasites affect human health.
- Opposition, for example, if business operators or boat owners, suffer from restrictions.
- Recreational activities, big decrease of the water level, algal blooms and other physical changes.
- Frustration due to restrictions to farming and forestry, experiences of unequal treatment.
- Anxiety or fear of accidents, for example related to leaking cisterns.

- Since we do not have enough knowledge and control of chemicals and hazardous substances, we do not know whether they are in our waters or how they affect us as humans.
- If you get ill, you will not be able to meet your needs.
- Sludge can be a sanitary nuisance.
- Experience of that "someone else has decided".
- Frustration over failure to comply with regulations.
- Lack of influence.

### 3. SWOT analysis.

By mapping and creating a common picture of our strengths, weaknesses, opportunities and threats, we can get further clarity on which factors are smart to use as levers and as part of the solution when we brainstorm in Workshop C and prioritize actions in WORKSHOP D in our ABCD process.

#### Strengths

- We have gathered many who participate in the process, with many approaches and different areas of knowledge.
- We currently have plenty of clean water in a global comparison.
- We face a specific problem.
- We live in a small society.
- Everyone is affected by drinking water, everyone needs good drinking water.
- Åland Water Ab is a strong company.
- Environmental awareness and political will exist.
- This process puts words on challenges, threats and risks.

#### Weaknesses

- Resource shortages.
- Some relevant stakeholders do not participate in the process.
- Lack of measurement data.
- External influence.
- It is difficult to compile everyone's opinions.
- We have poor knowledge of the "old sins" impact on water and health.
- A prevailing social attitude towards water as an endless resource. The awareness of current problems is low among the public.
- Lack of communication between the Åland Government and the municipalities.
- Increased consumption creates more waste.
- We have few water protection areas.
- Åland is an island.
- Strength / weakness: the price of water.

## Opportunities

- Technology development and innovations.
- The work on Ålands sustainability agenda is ongoing.
- Small resources can give great positive effects on Åland, it should be easy to reach consensus in smaller communities.
- Different collaborations are under way, such as Sustainable Food Strategy.
- In a small society it is easy to influence.
- Everyone is concerned with the water issue.
- Local democracy and autonomy.
- Good access to surface water.

## Threats

- Population growth.
- Exploitation.
- Conflicts of interest.
- Political instability globally.
- New types of pollutants.
- Imported food.
- Climate change is a threat with changes in temperature, rising sea level and more unpredictable weather.
- Fertilization and eutrophication.
- Destruction of habitats.
- Chemical / atmospheric (radioactive) deposition.
- Invasive / alien species.
- Hazardous cleaning chemicals and hygiene products.
- Opportunity / threat: political governance and political priorities.

## WORKSHOP C – 1 DECEMBER 2016

# Creative solutions

### On the Agenda

1. We formulate our success story
2. Brainstorm of creative solutions

## 1. Our success story

Participants were divided into four groups to collectively summarize a dream scenario – what does our sustainability work look like in 2030 and how did we get

there. Through this exercise, we can in advance define the obstacles we will encounter, our key challenges and the leap boards we need to move on.

### These are the conclusions made by the groups.

#### GROUP 1

In the best of worlds, by year 2030, we have:

- Secured catchment areas for existing water resources/reservoirs.
- Secured more water resources/reservoirs.
- Climate adaptation of the drinking water supply including the distribution.
- Ensure that Åland is included in BAT–best available technique / technology.
- Efficient water use including recycling and reuse.
- Increased public awareness with easy-to-understand and engaging information.
- Cleaned up old sins.
- Implemented sustainable regional planning and land use.
- Secured pipes and infrastructural systems and pumping stations, developed a sustainable water and sewage plan.
- Implemented gentle soil and forestry measures and working methods.
- Increased the use of rainwater.
- Changed consumption and travel habits so that rainwater is no longer acidified.
- Storm water to recipients are within quality standard with delay and purification solutions–enhanced knowledge and help for action management.
- Closed the road “Jomalarakan” to traffic for increased water protection.
- Increased recirculation within:
  - Households and individual sewage systems.
  - Agriculture.
  - Land use.
  - Industry.

#### GROUP 2

Our keys to success for a sustainable drinking water supply in 2030 were:

- A knowledge-based process that started with a broad commitment and is characterized by openness.
- All involved felt participation and responsibility.
- We showed understanding of each other's situation and acceptance for the necessary actions.
- Everyone was involved in meetings, campaigns and discussions, which led us to find new innovative collaborations, new partners, new technical solutions we did not think of before.
- Then it "helped" that we experienced the crisis around the lakes Markusbölefjärden and Långsjön in the summer of 2021. That made the attitudes changed and we really began to appreciate our clean drinking water.

- This in turn led us to better preparedness, both around our water reservoirs and system plans.
- We found a good, economically sustainable way of compensation the restriction of usage rights, that is, we can now compensate someone who has suffered in one way or another, such as farmers, people living around the lakes, etc.
- Åland's natural school took all Åland school children to water reservoirs and taught them the importance of clean water.
- We drink water directly from the lakes in 2030!

### **GROUP 3**

This is what the drinking water supply look like in 2030.

- Emergency water is secured, including groundwater.
- We have removed impossibilities and focus on opportunities.
- We have a good control system for pollutants.
- Several surface water reservoirs are used and secured.
- Separated catchment areas between Markusbölefjärden and Långsjön have been created so that pollution in one lake does not cause problems in both.
- The public has good knowledge because we have informed more about water and water protection.
- We have recirculation of nutrients!
- Cooperation between organizations and units works well.
- Everyone takes responsibility for the water protection issue.
- Water is a prioritized issue.
- Extra responsible farming, which does not affect the water quality in a negative way, is carried out. The farmers have the tools they need.
- We see agriculture as an asset thanks to nutrient recycling and raw materials for biogas production.

### **GROUP 4**

This is what the drinking water supply look like in 2030.

- Polluting sources are known and fixed.
- We have created custom-adapted protection zones based on the geographical prerequisites.
- The internal load is down to zero.
- Recycling of nutrients (nutrient rich bottom water with low oxygen).
- We control traffic around water reservoirs.
- There are protective ditches around our lakes.
- All land near or close to the lakes is redeemed.
- Research on new purification methods is conducted.
- Knowledge (basic facts).
- Action.
- Everyone thinks that clean lakes are important.

## 2. Brainstorming creative solutions

Now we have identified the gap between where we are today and where we want to be/go. It's time to start thinking about how to move forward. In a creative brainstorming process, we list everything from visionary solutions to simpler actions that can help us take the next step in the right direction.

During our brainstorming we created ideas for solutions regarding:

- Land use that affects our raw water.
- Settlement / Infrastructure and Industry.
- Other activities that affect our raw water.

We used post-it notes to list suggestions for solutions and actions. This made it easy to under workshop D - Roadmap preparation - sort the proposals under categories.

### WORKSHOP D – 13 DECEMBER 2016

## We devise our plan

### On the Agenda

1. We formulate strategic development goals
2. Creation of a plan

## 1. Strategic development goals

In the first exercise we discussed and provided suggestions for strategic development goals related to the vision and the goal of creating a raw water of excellent quality. The exercise begun with a joint discussion and after that, three people were responsible for concluding a number of strategic goals based on the discussion. The next step was to go through the goals in the bigger group and then some reformulations and additions were made.

### Seven strategic development goals

for a sustainable drinking water supply for Åland until the year 2030.

1. In the year 2030 95 % of the Åland population make active decisions and take active responsibility from a water protection perspective in their everyday life.

2. The ecological status, concerning nutrients, in our raw water lakes have stabilized at a good level according to the Water Framework Directive by 2030 and at an excellent level by 2051.
3. The knowledge of harmful substances in the raw water has increased significantly by 2025, reduced to non-harmful levels by 2030 and emissions have stopped in 2051.
4. The risks of contamination of microbiological compounds related to human activity have been minimized and detection and warning systems have been established, in established/present raw water lakes by 2020 and in reserve water lakes by 2051.
5. Ensure adequate access to water by ensuring water quality in a sufficient number of raw water lakes by 2030. Sub-objectives include establishing new water resources by 2018, and action programs for the same will be established by 2020. The water quality is good by 2030.
6. In the catchment areas, business activities are flourishing and do not affect water quality in the lakes in a negative way. New innovative methods have been developed and implemented through cooperation across the sectors.
7. The biodiversity is high in and around the lakes, and ecosystems are well functioning (in balance).

## 2. Our roadmap for a sustainable drinking water supply on Åland.

- All post-it notes with suggestions for solutions and actions from workshop C were placed by category in a time axis. A few notes were doubled to clarify that they belong in several categories.
- To ensure that the summary contains measures to solve all of the challenges identified, the solutions were checked in relation to the current reality, the SWOT analysis and the strategic development goals. By doing this we could identify a few more actions and actors.
- One final measure was to clarify the vision for sustainable drinking water supply because the phrase "independent of human activity" had raised so many questions.

### The vision now reads

*"Independent of human impact, our raw water is of excellent quality, and ecosystems in the lakes are in balance. At the same time the production and distribution of drinking water is made in a sustainable way."*

*The vision is further explained in the document 1:*

**VISION, CORE VALUES AND STRATEGIC DEVELOPMENT GOALS – RAW WATER**

Here we describe the roadmap, divided into seven subject areas/categories:

- Overall process measures for sustainable drinking water supply
- New raw water lakes / water protection areas
- Legislation / rules / supervision / economic instruments
- Infrastructure; roads / construction / industry / planning
- Information / communication / collaboration / facts / training
- Agriculture / forestry / fishing / sewer / water conservation
- Innovations / "New Thinking" concerning use of water

Our core values of **participation, openness and responsibility** form the basis of the continued process. The itinerary is divided into areas that we at Åland Water take responsibility for, as well as areas with proposals for other main actors.

## 1. Overall process measures for a sustainable drinking water supply

*It is better to prevent pollution and to find preventive measures and collaborations than to put energy and resources in to cleaning problems that should never have occurred.*

### RESPONSIBILITIES OF ÅLAND WATER (ÅV)

- Åland Water is a member of the “Åland Co-operation Group for water and sewage” (from the Åland framework directive action programme).
- Leads the work with a water and sewage plan for Åland.
- Joins as an actor in the Åland development and sustainability network “bärkraft.ax”.
- Shares responsibility for the organization of annual water days with the Åland government. A follow-up of the roadmap is conducted annually in connection with the water days.
- The roadmap is discussed in the Åland Water Board in connection with the treatment of the Annual business and operation plan for the company.
- Åland Water monitors processes related to drinking water and sewage water on Åland, informs other interested parties about this process and invites them to inform Åland Water when it comes to water protection areas and / or Åland Waters area of operation.



**IF FUNDING IS SECURED, ÅLAND WATER CAN ALSO TAKE RESPONSIBILITY FOR:**

- Initiate an ABCD process for sustainable drinking water production 2018.
- Initiate a sustainability index process by model from Swedish Water, in 2018.
- Initiate work to secure and investigate future drinking water reservoirs.
- Develop Geographic Information Systems (GIS) for the water and sewage sector in Åland.

**OTHER PROPOSALS, RESPONSIBILITIES AND ACTORS:**

The Åland Government (environmental unit, agricultural department and the infrastructure department) and Åland Environment and Health inspections authority in cooperation with the municipalities and the rescue service/emergency authorities should develop and clarify rules and responsibilities in the water protection areas. It would also be very positive if all could agree that the same rules and regulations should be applied around all the other raw water reservoirs already today and that water protection areas for all raw water reservoirs should be introduced as soon as possible.

**WHO?** To ensure that the core values are taken into account, an information and communication plan and a policy for action in case of violations of the water protection regulations are developed.

This process also raises the importance of good communication and transfer of information between different organizations and ongoing work and projects e.g. the Sustainable Food Strategy for Åland, the revision of legislation (2017: Water law, Waste law, Building and planning law, etc.), Regional Planning, Forestry Program and Various Processes in the Development and Sustainability Agenda for Åland.

## 2. New raw water reservoirs/recourses and water protections areas.

*We are probably facing a water shortage in the future, which implies that we need to secure water quality in existing water reservoirs and ensure sufficient water supply with new raw water resources/reservoirs. In addition, it is also important to secure systems for emergency water to solve the drinking water issue in emergency situations.*

## RESPONSIBILITIES OF ÅLAND WATER (ÅV)

2017

- Leads the work on the WATERCHAIN project and the project "concrete knowledge-enhancing and environmental improvement measures at lakes Långsjön and Markusbölefjärden".
  - Mapping of existing load sources (and likely load) is carried out by a consultant to identify good measures for reducing nutrient load in Långsjön and Markusbölefjärden in 2017. The consultant's work should also indicate where additional measures are needed.
  - Measures for ditch outlets, zones around ditches and the water bodies are identified.
  - What could need-oriented protection zones around the lakes and the protective ditches look like?
- Leads the work on Water and Sewage plan for Åland.

2018

- Initiates the work and presents proposals for revision of the existing water protection plan (2018).
- Detects the possibilities and conditions for buying land near lakes and ditches. List of land owners, calculation of costs and possibly an interest inquiry to landowners.
- ÅV continues to spread knowledge about emergency water.

### **IF FUNDING IS SECURED, ÅLAND WATER CAN ALSO TAKE RESPONSIBILITY FOR:**

- Initiating an ABCD process for sustainable drinking water production 2018.
- Initiating a sustainability index process by model from Swedish Water, in 2018.
- Initiating work to secure and investigate future drinking water reservoirs.
- Develop Geographic Information Systems (GIS) for the water and sewage sector in Åland.

Additional funding for projects with the above points as a focus would be good. The work covers the waters of Åland Water, but may also include water protection and conservation measures for Åland as a whole.

### **OTHER PROPOSALS, RESPONSIBILITIES AND ACTORS:**

#### Proposed investigations

- Climate change impacts on the raw water reservoirs.
- Mapping and investigation of risks with invasive species.
- Measures to reduce nutrient loads to raw water reservoirs (several measures listed under Agriculture / Forestry / Fisheries / Sewage / Water Treatment).
- Investigate facts about the possibility and economics of land redemption at lakes and ditches within the water protection area.
- Examine the biological and chemical status looks like "lakes in balance".

- Map risks in water protection areas and propose measures for risk minimization.
- Examine the possibility of specific coastal protection regulations by raw water reservoirs.

### 3. Legislation, rules, supervision and economic instruments.

*Key words for this category are: Supervision, education and legislation at the forefront. Several processes and jobs that involve sustainable drinking water supply are in progress. It is important that all actors get to know each other and work together.*

#### **RESPONSIBILITIES OF ÅLAND WATER (ÅV)**

- Decision about the roadmap in ÅV board. Roadmap for sustainable drinking water supply is submitted to the Åland Government for discussion.
- Åland Water monitors processes related to drinking water and sewage water on Åland, informs other interested parties about this process and invites them to inform Åland Water when it comes to water protection areas and / or Åland Waters area of operation.
- Ålands Water has a responsibility to follow other processes that in one way or another concern drinking water production. We also aim to raise awareness and knowledge of others so that we in the future will become a natural contact for infrastructure work as well as work concerning planning of programs and policies.
- ÅV will make a film about the process spread within WATERCHAIN and within the network bärkraft.ax.
- The defined roadmap for sustainable drinking water supply is spread to the relevant organizations, authorities and entities (forestry agency, education department, real estate agency, etc.), preferably in combination with meetings to give the information orally.
- Preparation of information material.
- Meetings with stakeholders and discussions with the Åland government.

#### **OTHER PROPOSALS, RESPONSIBILITIES AND ACTORS:**

- Develop the document with responsibility in the area of water protection.  
Actors: Agricultural department, Environment unit, Infrastructure Department, Åland Environment and Health Agency, Municipalities, Rescue Service.
- More resources for supervision of Åland Environment and Health Agency and the Agricultural Department (when EU aid rules are not complied with, it will be deducted from the aid).
- Meeting with the healthcare sector and pharmacies.

- Develop different cooperation projects between Åland Farmers Association, “The Åland Rural Economy and Agricultural Society”, Åland Water and others.
- Inform shipping companies about the outcome of process so that they also can contribute to a better drinking water quality as their air emissions affect Ålands raw water reservoirs.

Åland Environment and Health Agency is an important player when it comes to compliance with rules. Åland Water would look very positively on a separate process about compliance with current rules in cooperation between the Environmental unit, the Agricultural Department, the Åland Environment and Health Agency and representatives from farmers.

#### **Questions to jointly answer:**

- How do we get good compliance with the rules?
- Can we develop the concept of “preventive supervision and monitoring”?
- Do we need more supervision and how can resources for this be freed?
- Which legislation needs to be developed for better water protection?
- Is it possible to develop the concept of "self-control for agriculture", but with minimal administration?

The Åland Government and the Åland Parliament as a legislator has a responsibility to have proactive legislation at the forefront and for Åland in a sustainable direction. The following questions about legislation have been identified in the process and forwarded to the Åland Government:

- Cost coverage for water and sewage services.
- Requirements for water companies to work with water protection, information and other preventive measures.
- Classify water protection of water resources/reservoirs as a socially useful activity (common winning), which always has to go before own gain.
- Preventive measures should always be taken into account in particular when there is a risk of contamination of water.
- Legislation should promote sustainable solutions.
- The Polluter Pays Principle should be emphasized in water legislation.
- Set requirements for information texts and warning symbols on drugs and other substances that may harm the aquatic environment.
- Establish quality standards for storm water.
- In case of road works and other infrastructure measures in water protection areas, there should be even greater demands on environmental assessment works.
- Legislation that ensures the testing, permitting and supervision of sewerage infrastructure and sewage pumping stations.

- The water companies should be referral bodies for all types of activities that could affect the water protection areas and/or the catchment areas.

Concrete proposal for amended legislation:

§ Substitution of pharmaceuticals.

§ Cost coverage for water and sewage services.

§ Legislation that ensures the testing, permitting and supervision of sewerage infrastructure and sewage pumping stations.

§ Reduce prescriptions of medicines (not box, but number of tablets)

§ Sustainable requirements for all procurement, not just a policy of Åland Government (and City of Mariehamn, but all municipalities).

## 4. Infrastructure, roads, building, industry and planning

*Key words in this category are cooperation, reference groups, referral bodies and information flow. It would be important that more organizations in infrastructure and planning begin their own sustainability processes promptly.*

### **RESPONSIBILITIES OF ÅLAND WATER AB (ÅV)**

- Informs about the process and actions to the concerned persons and organizations.
- Meeting with the National land and survey, the infrastructure department and the municipalities.
- Initiates discussion about education on water and sewage in Åland.
- Works with sustainable water and sewage plan for Åland.
- Provides information material that municipalities can send out during construction permit processes etc.

### **OTHER PROPOSALS, RESPONSIBILITIES AND ACTORS:**

Current water protection issues include several measures to raise for discussion and further development together with the municipalities and infrastructure department, for example:

- Environmental Impact Assessment (EIA) procedures and Local protection and disposal of storm waters (Swe – LOD, Lokalt Omhändertagande av Dagvatten,).
- The ability to control or limit certain traffic around water protection areas.
- Closed zones around roads within water protection areas.
- Good planning processes, a good dialogue and routines for referral procedures.
- Several measures regarding education and training for water and sewage technicians have been raised in the process.
- Public procurement rules are also mentioned as an important tool.

! Specific actions mentioned in this category are protection of groundwater areas, GIS tools, alarms and surveillance, procurement criteria and education / training for water and sewage Åland.

## Information, communication, cooperation, facts and education

*There is a clear need for more communication and cooperation to ensure a sustainable drinking water supply. Information and communication is a cost-effective and preventive measure. We need to raise public awareness and knowledge about the water issue in order to achieve increased responsibility.*

### **RESPONSIBILITIES OF ÅLAND WATER (ÅV)**

- Developing an information and communication plan.
- Informs about the process and actions to concerned individuals and organizations.
- The water day concept is formalized more than it has been before and ÅV takes responsibility as one of the actors. ÅV takes responsibility for implementing water days in the autumn of 2017.
- Obtains information and begins work on a water protection website.
- Provides information signs for water protection areas that can be placed in strategic locations.
- Compiles information and creates a film about the process of sustainable drinking water supply for Åland.
- Provides a policy on how the company will act in case of violations of water protection regulations.

## 6. Farming, forestry, fishing, sewage and water protection

*Even in this category communication, information and collaboration are raised as cost-effective methods for increasing awareness and responsibility for water issues. Much research has been done and there is plenty of information available, for example around resource efficient and climate-smart agriculture.*

### **RESPONSIBILITIES OF ÅLAND WATER (ÅV)**

- Maps the nutrient supply in Åland Water's raw water reservoirs / lakes.
- Looks at the possibilities of developing a database of research related to water protection and a list of good examples.
- Initiates meetings with the Agricultural Office, Ålands farmers association (Swe- ÅPF, Ålands Producentförbund), The Rural Economy and Agricultural Society (Swe- Hushållningssällskapet) and the State department of Åland.
- Provides information material as well as power point images that can be used for advice to farmers.
- Meeting with the Forestry Department (Swe-skogsbruksbyrå på landskapsregeringen) about forestry from a water conservation perspective.
- Meeting with the fisheries department (Swe-fiskeribyrån på landskapsregeringen) and Åland's anglers (Swe- Ålands sportfiskare) as well as (possibly) Husö biological Station, Åbo Academy University.
- Co-ordination between the two processes sustainable water and sewage plan for Åland and sustainable drinking water supply for Åland.

### **OTHER PROPOSALS, RESPONSIBILITIES AND ACTORS:**

- Obtain facts about hazardous substances in bio/compost materials and sewage sludge and compare to what it looks like in existing farmland.
- Make Åland a pilot area.
- Clean old sins "vacuum bottoms" for return to agriculture. Test in a lake that is not a raw water reservoir first!
- Disposal of biomass (fish out "junk fish") and planting of predatory fish (e.g. pike-perch).
- Create a knowledge bank for resource efficient and climate-smart agriculture as well as technology development and crop development.
- New vision: Best in the world on agriculture that does not affect the aquatic environment. Actors: farmers, researchers, advisors, authorities, water companies, innovation / development.

## **7. Innovations and new ideas on water use**

*Water concerns us all!*

### **RESPONSIBILITIES OF ÅLAND WATER (ÅV)**

- Works with water and sewage plan for Åland and raises relevant actions from this process in that work.
- Informs about this process in different contexts and is careful to elevate our success factors and core values.

#### **OTHER PROPOSALS, RESPONSIBILITIES AND ACTORS:**

- Technology development and information. Dare to think new! See some examples in the list of creative solutions in the appendix.
- Water awareness campaigns.
- Water concerns us all!

## A big thank you to all who have contributed with participation and commitment!

Åland Water initiated this process in October 2016 and has welcomed all those who were interested to participate in the process. Together with our partners, we identified about fifty key people who were invited to the various parts of the process. All participants have contributed with their expertise, experience and dedication. The wide range of actors have together developed a system perspective on the task and the common challenges.

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\* We also tried to get young people, people from the pharmaceutical- and healthcare sector, as well as the culture / social side to participate, but the short advance meant we did not succeed.

The full list of solutions from the brainstorm, workshop C for creative solutions is available in Swedish here <https://vattenskydd.ax/hallbart-dricksvatten/>