

PUBLIC AWARENESS RAISING STRATEGY ON REDUCTION OF HAZARDOUS SUBSTANCES IN THE BALTIC SEA

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Baltic Actions for Reduction of Pollution of the Baltic Sea from Priority Hazardous Substances
Project LIFE07 ENV/EE/000122 – BaltActHaz

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Introduction

The Baltic Sea is connected to the ocean through extremely narrow Danish Belts which hinder the water exchange. Therefore the water with its organic and inorganic matter can remain the same for 25 to 30 years.

There are altogether 9 countries situated directly around the Baltic Sea (Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Russia), but as pollution is carried to the sea also by rivers from the whole catchment area of the Baltic sea, which is approximately four times the size of the Baltic Sea itself, we can say that there are altogether 14 countries whose industries and agriculture directly influence the health of the Baltic Sea.

As stated in Water Framework Directive: “Article 14 of the Directive requires Member States to encourage the active involvement of all interested parties in its implementation. In particular, **public consultation** is essential during the production, review and updating of river basin management plans which form the central theme of the Directive. For public consultation to be meaningful people will need a basic understanding of the principal features of the Directive and how these relate to the situation in their own local river basin.”

Due to circumstances mentioned above the Baltic Sea is among the most polluted seas in the world. Measures have been undertaken for more than 30 years to reduce pollution resulting from present and future human activities and to clean up historical contamination. Among these activities are efforts from different projects, including especially the activities carried out by **Helcom** (www.helcom.fi). This has led to noticeable improvements in many areas improving the marine environment and monitoring shows decrease in the concentration of certain hazardous substances, but still there is lot of work to be done. Especially the issues related to the presence of hazardous substances in the water environment. It is a very complicated issue and needs to be approached holistically taking into consideration all related interest groups from policy makers to general public. Since the topic is quite complicated to wider audience there is a need to develop a public awareness strategy. Moreover as hazardous substances are not visible in water and the wider understanding of the existence of hazardous substances in the society is low or no existing at all.

Providing information and raising public awareness on the topic of hazardous substances can help people to make better choices, understand and avoid possible health problems which may be caused by hazardous substances and also help protect their surrounding environment.

The strategy describes the pathways, how hazardous substances reach water and what can be the steps to take to prevent it. It gives an overview on the historic development

of public awareness in Western Europe and the attitude on the environmental issues in the Baltic States nowadays. It also describes how the general public could be divided into different target groups and with what kinds of tools and messages to approach them.

It is very essential to raise public awareness about hazardous substances in the Baltic Sea due to different reasons:

- The ecosystem of the Baltic Sea is very unique and highly sensitive to pollution;
- The Baltic Sea has a very specific geographical and hydromorphological conditions;
- Hazardous substances once released into the Baltic Sea can be very toxic, bio-accumulative and persistent;
- The fact that wherever you would discharge wastewater or pollute the land in Lithuania, Latvia or Estonia, the pollution would reach the Baltic sea – all Lithuanian, Latvian and Estonian rivers flow into each other and finally reach the Baltic sea;
- The Water Framework Directive (WFD, article 14), and other European Union regulations country authorities have the obligation for public awareness.

The target groups of the strategy. Who could use this strategy?

The strategy is meant to serve as a tool for the stakeholders who have a communication duty – a need to inform the society about the problems related with hazardous substances and a need to reduce or phase out hazardous substances in the Baltic Sea, explain why certain regulatory actions are necessary.

The target stakeholders of this document are **state authorities – ministries with subordinated institutions (permitting and law enforcing authorities, data and monitoring authorities, etc.), civil society organisations, etc.**

The strategy is envisaged to help stakeholders to build better communication with their target audiences about hazardous substances and to tell, why it is important to control this issue at legislative level.

EU requirements for communication are stated in **AARHUS CONVENTION**: Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters: „The subject of the Convention goes to the heart of the relationship between people and governments. The Convention is not only an environmental agreement it is also a Convention about government accountability, transparency and responsiveness.”

The goals of the public awareness strategy

The public awareness strategy has short term and long term goals:

- Short term goals are set to inform the target audiences about the reduction measures of hazardous substances, why hazardous substances must be reduced and why it is harmful to the Baltic Sea, by pointing out the potential negative effect on the environment and human health that can be caused by hazardous substances.
- Long term goals are set to raise public awareness on hazardous substances and to change public behaviour from passive involvement into active participation in environment protection and the Baltic Sea protection from hazardous substances. Long term goals include systematic information delivery to the target audiences by use of different tools: media, teachers, trainers for industries and medical personnel about the ways how to prevent the flow of hazardous substances to the Baltic Sea.

Public awareness strategy aims to comply with HELCOM's strategic goal and ecological objectives for hazardous substances (HELCOM 2007) and propose actions for helping achieve these goals through work with public.

Strategic and ecological goals of HELCOM:

- Baltic Sea with life undisturbed by hazardous substances;
- Concentrations of hazardous substances close to natural levels;
- All fish safe to eat;
- Healthy wildlife.

Outcome of the proposed actions

The outcome of the proposed actions is envisaged to have a better informed society regarding the existence of hazardous substances as well as change of the behaviour and values of the target audiences from environmentally neutral or passive to the environmentally concerned and active.

The long term goal is to transform the passive and observing society to active society with the willingness to be involved in the actions for reducing the flow of hazardous substances into the Baltic Sea. Reaching this goal could take up to 40 years, so that the remains of the Soviet thinking would be replaced by interest of involvement in the public actions and by forming groups for expression of opinion.

Definitions

Target group – stakeholders for whom this strategy is elaborated with the aim that they could use advices and recommendations in practice.

Target audience – with the term target audience in the frame of this strategy is meant group of people divided by the groups of age – kids, youth, adults, and elderly people

Hazardous substance – The term “hazardous” is usually used to indicate potential hazard of chemical. In principle, being “hazardous” is a consequence of one or more intrinsic properties of a substance. It may derive from physico-chemical property of the substance, toxicity to human health or toxicity to the environment (aquatic/soil organisms, bees, flora, fauna, deplete ozone layer, cause long-term effects in the environment etc.).

Hazardous substances in the Baltic Sea

In everyday life we are surrounded by chemicals, which are part of industrial and agricultural processes. Most of the substances used are not harmful, but there are substances which once released into the environment stay there for very long time and have an impact on the Baltic Sea and health of the humans. These substances are persistent, bio-accumulative and toxic.

Hazardous substances can be very persistent in the environment, with lifetimes of decades to centuries. The molecular structures of these compounds allow them to resist the natural degradation processes in the atmosphere, waters and biota. Such substances can be bio-accumulative, by accumulating via the food chain into the organisms. If toxic, they exert harmful effects to the living organisms (plants, animals, humans, aquatic/soil organisms, bees, flora, fauna), deplete ozone layer and cause long-term effects in the environment. These so called PBT substances (persistent, bio-accumulative and toxic) can be transported via air very long distances from the original emission source and they eventually can occur anywhere on the planet Earth. Because of PBTs ecosystems may take longer time to recover. Exposure to PBTs can cause several negative effects like death for smaller water or soil organisms and leave negative impact to the human health including disruption of the endocrine, reproductive and immune system, neurobehavioral disorders and increase the risks of getting cancer.

There are different ways how hazardous substances reach the Baltic Sea:

- From different discharges to river basins or directly to sea from point and diffuse sources;
- From industrial activities due to occurrence of hazardous substances in raw materials applied during production processes;
- From households due to occurrence of hazardous substances in the consumer products;
- From run-off from agricultural as well as forest areas, if the hazardous substances are applied as ingredients in the plant protection products;
- From atmospheric deposition.

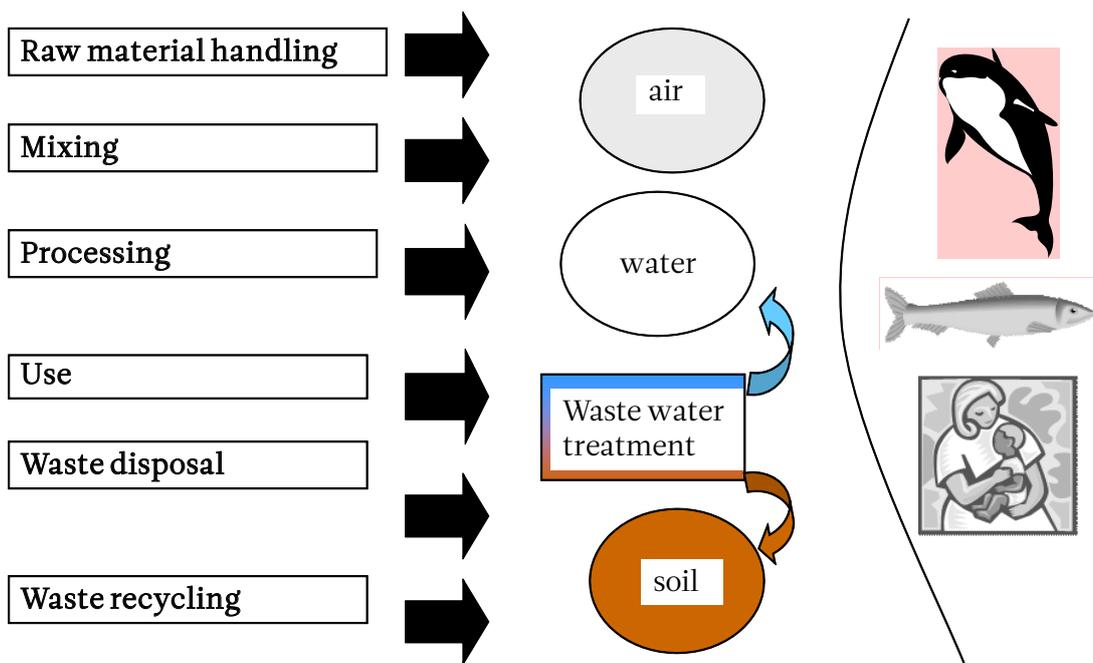


Figure 1. The life cycle of hazardous substances

Avoiding the use of hazardous substances in everyday life

The possibilities for avoiding the use of hazardous substances in everyday life can be approached in two levels – the industry level and the individual level.

1) At the industrial level:

Industrial enterprises are obliged to monitor, reduce or substitute hazardous substances. The limited information of environmental hazard of substances and rare practice on substitution from environmental perspective often leads to short-term decisions and later requires new investments.

Hazardous substances are most often occurring in the following industry branches and are used in the described production processes as auxiliaries and/or raw materials:

- Metal processing: cutting fluids, paints ;
- Electronics production: flame retardants, soldering agents, varnishes, flux agents;
- Textile finishing: flame retardants, printing inks, surfactants, antifungal agents;
- Furniture manufacturing: flame retardants;
- Plastic production: flame retardants, adhesives, binding agents, stabilizing agents, softeners, plasticizers;
- Rubber production: adhesives, plasticizers, flame retardants;
- Leather parking: impregnation agents, degreasing agents, finishing agents;
- Chemicals production: surfactants, cleaning agents, dispersants, softeners, flame retardants, binders, sealants, plasticizers;
- Pulp & paper: additives, solvents;
- Food industry: cleaning of equipment - surfactants;
- Aviation: de-icing agents.

2) At the individual level:

Environmental awareness influences several spheres of an individual's life – private, working and political. At working place a person may think and act differently than at home among his/her family.

Environmental awareness starts to develop when people notice that unfavourable, threatening changes in the environment emerge or impacts on human health appear. So in the first stage of environmental awareness, the motivation for increasing the level of knowledge and skills is often based on a growing concern over threats to health. At first people do not realise what kind of effect their personal choices have on the environment and they feel that some others should take care for it.

Individuals can come into direct contact with hazardous substances through the products they use, therefore it is essential to have the knowledge about the ingredients of products and about their effects on humans. People being aware of hazardous substances can pay attention to the labels on the products and demand more specific information from the vendor and producer of the product.

Avoiding hazardous substances is not only the question of consuming one product instead of another, but it is the question of a particular lifestyle chosen by an individual.

People can reduce the amount of hazardous substances released into Baltic Sea by changing their environmental behaviour, for example in the following ways:

- By buying ecological food products like honey, vegetables, where the synthetic toxic pesticides are prohibited to use;
- By not overdoing with fertilizing of gardens and not using pesticides, as they can contain hazardous substances;
- By limiting the use of paper products and choose ecological FSC paper and furniture. FSC paper or certificate means that paper is from well managed forests and other controlled sources;
- By preferring to go by bike or public transport or by sharing a car. Gasoline is cancerogenic and this is the example of HS used widely, as there is yet no economically good replacement for this;
- By being involved in environmental organizations or take a part in green activities;
- By not leaving hazardous waste (like unused paints, pesticide bags, other packages with dangerous symbols on it) in the environment.

Some examples of the hazard symbols which may occur on products and which pose a threat to human health and the environment:



Consumers should always read the labels and when in doubt ask for further information.

The change of behaviour and lifestyle of individuals can take more than a decade and usually requires certain actions to be taken by stakeholders.

The growth of environmental awareness in Western Europe and in the Baltic States

It can be said that the series of environmental accidents in the beginning in the 1960s play an important role in the growth of environmental awareness in Western Europe. The accident at the Sandoz warehouse in Basel, Switzerland, where fire fighting water contaminated with mercury, organophosphate pesticides and other chemicals caused a massive pollution of the Rhine river and the death of half a million fish, was only one of the accidents that stimulated general public's interest in clean environment and showed the dangers of chemicals used.

Besides numerous accidents, there were other stimuli to the growth of the environmental awareness, which are still effective today. One of these was a general shift in the values of the younger generation compared to the previous one and the raise in the personal affection or concern of an individual towards environmental issues. People wanted to get more involved and became active participants of environmental groups locally, regionally and internationally.

Many organizations like Greenpeace, the WWF, or the German nature protection organization Robin Wood and a countless number of local interest groups formed all over Europe to challenge the authorities about local environmental problems and demanded for a proper solution.

Key methods to catch the attention of people was to firstly inform about the dangers and to connect the dangers to something that directly affects people, e.g. danger to health through, food, e.g. pointing out the dangerous effects of Nonylphenols on the human hormonal balance, the use of cosmetics, or dangers that are found in every day products, like chlorine bleached paper. The chlorine bleached case provoked first activities in the mid 1980s, with campaigns, pointing out the "black sheep" – paper producers – on the market and continuous, simplified information from scientific research. By the late 1990s, the production of chlorine bleached paper stagnated.

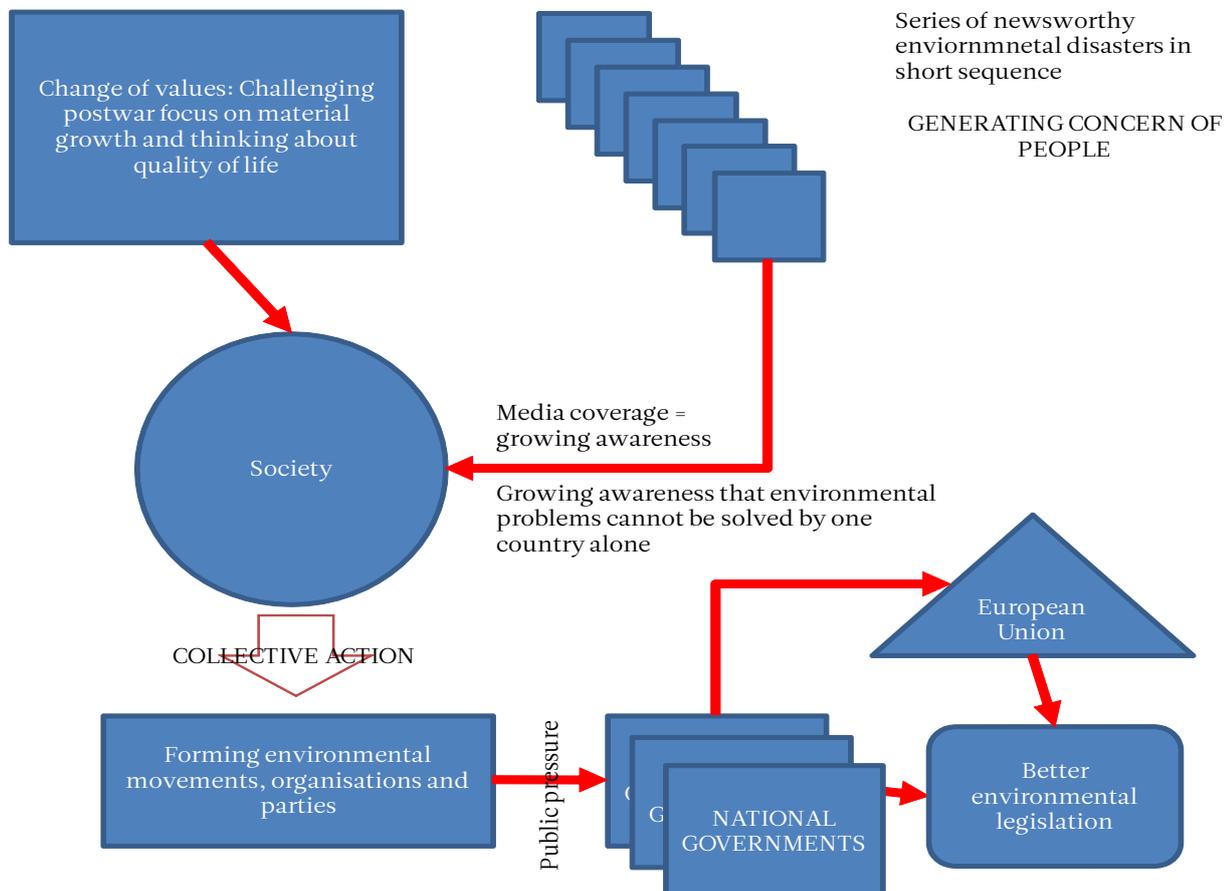


Figure 2. The growth of environmental awareness in the Western countries

Comparison of Western Europe situation to the current situation in the Baltic States

Looking at the whole evolution of the increase in environmental awareness in Western Europe, it must be stated that the pre-conditions for repetition of the same scenario of environmental growth is currently not given in the Baltic States, as there has not been a series of serious environmental accidents, that would drastically change the public's interest regarding environmental issues. The mind changing environmental disasters of the Western-Europe in 1960-1980s were also unknown to the people of the Baltic States as much of the information was not covered in the Soviet media.

The Soviet heritage additionally has left behind an additional obstacle that hinders the readiness of people to act. Acting for one common cause was forced upon people during Soviet times and has left the vast majority of people reluctant to become socially involved.

The environmental movement in the Baltic States has enjoyed quite some popularity in the end of 80's, beginning of 90's, during and after the collapse of the communistic regime. The green movement in Latvia, Lithuania and Estonia was defined as the expression of democracy.

However after a decade a big decline in interest of people can be observed due to the changes in the priorities of the society – the property boom and the domination of consumer thinking has made environment secondary in the thinking of people.

The Baltic societies seem to have more preconditions to develop strong attitudes towards environmental issues than old Western societies because of the long-lasting historical appreciation of the environment in general. But the Baltic States still lack the deeper understanding and the general level of awareness regarding environmental protection.

Based on that the following conclusion may be drawn:

- The environment is not a priority goal at the moment in Baltic States.
- People are not active to take part in different actions of environmental movement due to economical situation.

All these reasons together explain the big difference in environmental awareness between Western Europe and the Baltic States. To catch up with the Western Europe the work on the public awareness has to start from the individual awareness and on the construction of harmony between consumerism and green thinking, which most probably is the goal of Baltic States in the coming decade.

Target audiences of the strategy

In this chapter the potential target audiences are described. The target audience is basically every individual of the society, no matter to which age group she or he belongs. It is important that everybody from the professional and individual point of view receives information and would achieve common understanding of such an abstract topic as hazardous substances, which is difficult to grasp. Public relation experts or institutions responsible for awareness raising can work with these target audiences, and here is described that every group should be addressed differently.

The society in the Baltic States has shown little interest towards environmental issues and has been rather passive regarding involvement into environmental actions and campaigns. Majority of the people at the working age are also not part of any environmental movements or groups. In the past the school children and students have been the most interested target groups regarding issues referring to the sea and environmental protection. Focus on the students should continue, but there has to be ways to also reach other parts of the society.

In order to get across the right message and to reach the communication goals of the stakeholders, the target audience is divided into four groups:

- **Kids;**
- **Youth;**
- **Adults;**
- **Elderly people.**

Kids

Kids are the first target audience. They mainly learn about the world from their parents and teachers in kindergarten and at school. Kids can be easily influenced by the adults who take care of them and also by media. Kids are not consuming products themselves, but they strongly express their ego and needs which are from time to time fulfilled by the adults.

Youth

Youth are the second target audience. They have already formed their first opinions on life. Most of them are active participants in the social life of the school, of their family or some other organization. Some of them are spending money and therefore can consume food, clothes and other products themselves and form their own lifestyle, behaviour and attitude towards processes in society. They can be easily approached with ideas that are related to popular culture and fashion.

Adults

Adults are the third and the largest target audience of general public. They have probably already formed their opinion and follow a particular lifestyle, which is based on their experience. Their purchases are based on the beliefs and chosen lifestyle. Their decisions about purchases are strongly influenced by their education and profession. And finding an optimal ratio between real needs and consumption is a problem.

Once the opinion is formed, it is harder to change it and it takes a longer time to raise awareness on the aspects of life, which have never been in focus of a particular person. On the other hand this group of society has more spending money and is ready to make purchases based on wise decisions caring about health and mental growth.

Elderly people

Elderly people are the fourth target audience. They strongly care about the health and people living of pension are price sensitive. They are influenced by media as they spend a lot of time following the information on TV and radio.

Elderly people who also take care of their grandchildren can help in forming their opinions about the surrounding world. For most people in this target audience comfort is more important than following fashion.

Messages for the target audiences

This chapter contains a table with facts and examples to be given for the target audiences when communicating with them. The main messages for the target audience are based on the characteristics of hazardous substances and the potential harm they can cause from the view of local up to global perspective. The main characteristics of hazardous substances are that they are invisible to human eye and they cause harmful effects to human health and the environment.

The focal point of the message should be the idea that every individual in the long term can influence the status of the environment and the Baltic Sea. It is possible if he or she starts to act today by making the right choices, starting from their own consumption habits.

The suggested messages to help when communicating with target audiences are:

- 1) Water is you! Save water and you will protect yourself!
- 2) Water is life! It may contain invisible substances that can be hazardous to your health.

	Information/Messages	Facts
Kids	<p>Water is life! It contains invisible substances. Some of them may be harmful / dangerous to you.</p> <ol style="list-style-type: none"> 1. General knowledge of the Baltic Sea and water, why we need unpolluted water (for living in general - drinking, bathing etc); 2. Effects of hazardous substances on fauna and flora; 3. General knowledge on making a difference what is good and what is bad to the environment, why it is important to protect the sea, water, air, climate, for example what causes global warming, why animals and fish are threatened by human activity, etc. 	<ol style="list-style-type: none"> 1. For children can be explained, where the wastewater after discharging it in the toilet at home goes to? This finally reaches the Baltic sea! 2. Pictures, cartoons with the nature what can happen if HS occurs in the environment, for example, plants can fade, fish can die and people cannot consume them anymore.
Youth	<p>Water is life! It contains invisible substances that can be dangerous to your health.</p> <ol style="list-style-type: none"> 1. General knowledge of the Baltic Sea and water, why we need clean water (for living in general - drinking, bathing etc.); 2. Effects of hazardous substances on fauna, flora; 3. Information about materials and substances that cloths and cosmetics are made of. Some of these substances can harm your health and nature. How to be fashionable without harming nature; 4. Impact of hazardous substances on health; 5. Chemicals in everyday products. Product labelling - ecolabels. Hazardous chemicals in consumer products, cosmetics (actual for teenagers) - "greener" world around you; 6. Where hazardous substances come from and how you can come into contact with them. 	<ol style="list-style-type: none"> 1. People are exposed to phthalates - hazardous substances through everyday contact with these in products as well as through contact with indoor air and dust. These chemicals have been linked to premature birth, reproductive defects, and early onset puberty. 2. Phthalates, musk compounds are contained in personal care products, cosmetics and fragrances (deodorants, creams), which usually are quite popular between youth. These substances are meant to soften the cream (phthalates) or give the scent (musk compounds), but they are also washed out to the rivers and can cause negative effects to human health. Based on studies with rodents, phthalates contribute to decline in fertility, increased incidence of testicular cancer and falling sperm counts in men 3. Brominated compounds in mobile phones, computers. These technological gadgets are broadly used among the youth; therefore it could be important to let them know about the hazards of these compounds. Before buying electronics get acquainted with companies' policy - many brands have refused PBDEs in their products, e.g. NOKIA and SONY ERICSSON mobile phones, SAMSUNG MP3 players, APPLE laptops, etc. Negative effects of brominated flame retardants are higher cancer possibility, development problems for descendants, etc. 4. Cheap jewellery can contain nickel above allowed concentrations and causes allergy, dermatitis/ skin irritation. 5. Hazardous substances can be found in clothing, textile and other products. Choose clothes with ecolabels - EU Flower or Öko-Tex 1000 (they have forbidden the use of several hazardous substances)- 6. Water as the most essential good for well-being. Water cycle and inherent ecosystems as the life support of the planet. How pollution from towns and cities, industry and agriculture directly affect water supplies for people and freshwater ecosystems - e.g. freshwater species are disappearing, consequent biodiversity loss etc. It has been estimated that one person needs in between 20 to 50 litres of water per day that is free from harmful contaminants http://www.panda.org/about_our_earth/about_freshwater/importance_value/. How clean is our water and which content of HS in it (findings from monitoring)?

	Information/Messages	Facts
Adults	<p>Water is you! By save water from hazardous substances you will protect yourself and your family!</p> <ol style="list-style-type: none"> 1. General information of the Baltic Sea problems concerning hazardous substances; 2. Impact of hazardous substances on health; 3. Chemicals in everyday household: <ol style="list-style-type: none"> a. Product labelling; b. How to use household items that contain hazardous substances; 4. Possible impact to the child health through parents habitats there can be explained HS occurrence in different articles. 	<ol style="list-style-type: none"> 1. Hazardous substances in toys, clothes, etc. Chemicals affect babies through mothers eating habits (Mercury in fish, mercury in childhood vaccines – the concentration limit) One of the hazardous substances group is phthalates, which is used in plastic finishing, toys. Concentrations of these substances in blood (breast milk) of parents and children. Phthalates are a family of chemicals used in many children’s plastic products to improve flexibility and in personal care products to bind fragrance. Adults and children are exposed to phthalates through everyday contact with these products as well as through contact with indoor air and dust. These chemicals have been linked to premature birth, reproductive defects, and early onset puberty. Another group is brominated flame retardants used in pyjamas, mattresses. Toxic flame retardants are a set of chemicals used to slow the spread of fire in a wide set of consumer products. Levels of these chemicals found in the breast milk of American women and in foetuses are approaching levels shown to impair learning and cause behaviour problems in lab mice. 2. Mankind’s increased demand for water. Results of human activities – e.g. rivers are running dry, lake and groundwater levels are dropping, freshwater species are becoming endangered; and Pollution of water: groundwater, surface water, etc. – HS occurrence in water and related risks. Why we need the quality standards for water? Risk of immediate or long term harm. 3. Information about natural products (for example, info materials for young mothers about products for babies, children, better choice, products free from chemicals). Some research facts about chemicals, tests. From my point of view good campaign was implemented by WWF – Detox campaign http://assets.panda.org/downloads/detox__campaigning_for_safer_chemicals.pdf 4. There are many pesticides in water. People are to be informed that there is evidence that chocolate, tea, fruits can contain pesticides. And, apart from that they enter our bodies, they also damage the soil and water environment. If we choose ecological products, we can ourselves help to solve this problem. 5. Bisphenol A is used to make plastic milk bottles for kids. This substance is causing health damage. It is not forbidden to use. 6. Effect of polluted marine water affect children’s health. Substances can be taken by skin, can cause allergies or accumulate in body. 7. Hyperactivity disorder may be influenced by the toxic environment, also hazardous substances.
Elderly people	<p>Water is you! By save water from hazardous substances you will protect yourself and your family!</p> <ol style="list-style-type: none"> 1. General information of the Baltic Sea problems concerning hazardous substances; 2. Impact of hazardous substances on health; 3. Chemicals in everyday household: <ol style="list-style-type: none"> a. Product labelling; b. How to use household items that contain hazardous substances. 4. The importance of clean drinking water and access to it. Quality of our drinking water and content of chemicals in it. Contaminated ground- and surface water. 	<ol style="list-style-type: none"> 1. It is dangerous to buy goods that are not tested and the origin of them is not known; 2. Phthalates are a family of chemicals used in many plastic products to improve flexibility and in personal care products to bind fragrance; 3. Adults and children are exposed to phthalates through everyday contact with different products as well as through contact with indoor dust and air. These hazardous substances can cause premature birth. There are many pesticides in water. People are to be informed that there is evidence that chocolate, tea and fruits can contain pesticides. From there they enter our bodies, they also damage the soil and water environment. If we choose ecological products, we can help to solve this problem.

Tools for raising public awareness

The role of media in raising public awareness of hazardous substances in the Baltic Sea

The topics covered in media regarding the Baltic Sea and its pollution is quite similar in all Baltic States. This is probably due to the similar historical background of Estonia, Latvia and Lithuania. A lot of information is available on the status of the Baltic Sea and the problematic issues concerning pollution from agriculture and Soviet times, oil spillages, ecological status.

Media certainly plays crucial role in raising public awareness of all target audiences. Putting the message of Baltic Sea protection in media's agenda and regularly publishing information in daily, weekly and monthly print and web media would help to inform target audiences about the situation and also in longer perspective – to change their behaviour. At the moment media uses the topic of hazardous chemicals in connection with more everyday consumer products and household chemicals. There is not enough information regarding industrial pollution – how and which hazardous substances are released into wastewater during the production phase.

Systematic information delivery approach is a crucial step to raise public awareness on the topic about hazardous substances in the water.

In the Baltic States additionally to the Latvian, Estonian and Lithuanian media also Russian media should be addressed regarding the topic of hazardous substances, as the Russian speaking population form a big audience in Baltic States.

Spokespersons: teachers, medical personnel, green pioneers

Kids as an audience can be reached through spokespersons: teachers, parents, grandparents and medical personnel.

The environmentally friendly attitude from the adult side can create similar attitude towards nature, Baltic Sea and water from children's side. Games about nature protection, cartoons, children media and books about heroes that love and protect environment can help to raise public awareness.

Youth as an audience can be reached through media, special programs in TV and web sites. They can also be reached by spokespersons, by adults like teachers, parents and medical personnel. Youth can be reached by creation of special educational programs at school (in chemistry lessons) or in universities (environmental education, medicine, social studies). As youth are fashion lovers and followers their fashionable sites and media owners can take the social responsibility to educate and explain from which materials the fashionable clothes, food etc are made of.

Adults as an audience can also be reached through media – the news programs as well as special marketing programs by the doctors about the healthy food and healthy environment.

Elderly people as an audience can also be reached through media – news programs as well as special marketing programs by the doctors about the healthy food and healthy environment. In news their attention is attracted by disasters, health and consumption.

Action proposals for target groups how to reach their target audiences

This chapter suggests for specific target groups (like state authorities, PR experts, teachers, doctors etc.) possible actions for communication for reaching different target audiences. It is the task of target group to identify its target audience and choose the most appropriate action.

	Action description
Kids	<ol style="list-style-type: none"> 1. Posters in kindergartens with pictures of the sea, sea habitants and information about hazardous substances 2. Cartoon in TV about the Baltic Sea and hazardous substances in the Baltic Sea 3. Discussion rounds for kids in kindergartens on general facts of the Baltic Sea Colouring books and colourful comics
Youth	<ol style="list-style-type: none"> 1. Including hazardous substances topic in the school curriculum (Chemistry, Biology, Health and safety lessons) 2. Posters in schools with pictures of the sea, sea habitants and information about hazardous substances 3. Campaign about hazardous substances on most popular web sites for young people 4. Web games about the Baltic Sea and the ways, how to protect it 5. Short films about hazardous substances and impact to the human health and environment to be shown in school lessons
Adults	<ol style="list-style-type: none"> 1. Seminars in regional libraries and culture clubs informing about the hazardous substances and the actions taken to prevent their reaching the sea 2. Creating digital guide in internet for hazardous substances in home environment (carpeting, wallpapers/computers/other home appliances). This guide would create a personal link to possible contact to hazardous substances. 3. TV program or TV broadcasts about hazardous substances surrounding us. 4. Courses/trainings on sustainable consumption and healthy ways of living. 5. Posters on streets to invite to keep water clean. 6. Regular articles in print media.
Elderly people	<ol style="list-style-type: none"> 1. TV or radio shows with participation of doctors' or scientists, doctor's opinion on hazardous substances – they are persons respected and trusted by elderly people. 2. Booklets regarding hazardous substances in products, their impacts on health and possibilities for using some other products instead. To be distributed at doctors cabinets and hospitals, drugstores, etc. 3. Seminars in regional libraries and culture clubs informing about the hazardous substances and the actions taken to prevent their reaching the sea. 4. Articles in newspapers and journals on the dangers of hazardous substances.
Media	<ol style="list-style-type: none"> 1. Press releases about the actions taken to inform the society about the hazardous substances 2. Press conferences informing about the hazardous substances and the actions taken to prevent hazardous substances reaching the sea 3. Media events

Tools & indicators for measuring suggested actions

The actions described in previous chapter can be measured by one of the following tools. To compare the success of actions it is suggested to measure the actions twice – right after the action and after some time has passed from the implementation.

Suggested tools:

- 1) Questionnaire on web pages of local authorities, industries or the most popular web pages and portals used by society asking how well they are informed about the hazardous substances and the ways to prevent the use of them
- 2) Interviews with certain number of the members of the particular target audience
- 3) Tests and exams at schools or universities about the hazardous substances topic

- 4) Increased number of the visitors in the web page or section about hazardous substances
- 5) Increased number of publications and articles in media about hazardous substances
- 6) Increased number of people shopping for the ecological food and cosmetics
- 7) Number of viewers increased for TV or radio program about hazardous substances

Suggestions for target groups when dealing with confidential and sensitive information

Confidential and sensitive information is the information that is not being communicated and is being either hidden from some target audiences because of political, economic or legal reasons or it is considered as special information that needs to be controlled or explained in details for the educational reasons before dissemination to the public.

As hazardous substances are sensitive information, it needs to be explained in understandable way, not using hazardous substances chemical terms, but explaining, what impact the particular substances can leave.

It is always worth considering, what kind of information is needed for which target audience and if it is the right moment to disseminate the information. Some of the information, which is not yet approved, for example, results of the screenings from the different projects of hazardous substances might be a question of approval by project management or appropriate authority before spreading the information to the wider society.

However the public needs and rights in the information society is to receive the information on time from trustable sources. So the target groups, such as ministries, state institutions, industries and NGO's has very important role of the decision making as to when and to whom and what to communicate.

Media is on the one hand good channel to distribute the information, but on the other hand this channel needs to be taken special care as to the systematic provision of information from target groups, not to give unapproved information or disseminate the information that is of no value or being late with the provision of information.

Industries have the information about their products, which they themselves communicate to their own buyers and clients. However sometimes due to the insufficient awareness from industry side about the hazardousness of products and its impacts, the information remains undistributed and remains confidential to some audiences, who need to receive it.

Background information

Public Awareness Raising Strategy on reduction of Hazardous Substances in the Baltic Sea is developed in the frame of the project “Baltic Actions for Reduction of Pollution of the Baltic Sea from Priority Hazardous Substances (BaltActHaz)”.

General information about the project

Title of the project: “Baltic Actions for Reduction of Pollution of the Baltic Sea from Priority Hazardous Substances (BaltActHaz)”

The goal

The overall goal of the project is to support Baltic States in implementing the EU Water Framework Directive, the IPPC Directive and the Marine Directive as well as the new HELCOM Baltic Sea Action Plan with regard to reduction of hazardous substances and the reduction of priority hazardous substances discharged from industrial and municipal point sources in Baltic States.

Project Objectives

- To investigate on the occurrence of selected WFD (and HELCOM) priority substances and some pollutants of national importance in wastewater, sewage sludge and the receiving environment (surface water and sediments) and propose relevant monitoring measures for future;
- To improve the current permit (IPPC and non-IPPC) quality and emerging permits with regard to measures for reduction of hazardous substances at enterprises and to use the permits as a tool for efficient enforcement of the legislation;
- To enhance better chemicals management at pilot enterprises: detection, use and substitution programmes for certain substances as well as elaboration of investment strategies, potential applications for investment support;

- To build up capacity at stakeholders in order to make best use of the REACH mechanism by systematically generating and disseminating information related to environmental hazardousness of substances (in products) and conditions of safe use;
- To enhance the dialogue among authorities, industry, scientists and NGOs/society representatives on the cooperation needs for improving hazardous substances management at different levels of their occurrence in their life-cycle (production, industrial processes, waste water, environment, human being);
- To facilitate the network of Baltic stakeholders with international experts on new legislative developments regarding hazardous substances control and reduction in Baltic States as well as transboundary cooperation needs;
- To develop a concept for raising awareness of the general public on hazardous substances aiming at creating more demand for hazardous substance reduction measures.

For additional information about the Project, please, visit **the web site:** <http://www.baltacthaz.bef.ee/>

Links for further reading

Books

- Howard, M. M. 2003. The weakness of civil society in post-Communist Europe, Cambridge University Press, Cambridge and New York, NY.
- McCormick, J. 2001. Environmental policy in the European Union, Palgrave, Basingstoke.
- Ministry of Environment of Japan 2002. Minamata disease: The History and Measures.
- Bill Statham “The Chemical Maze Shopping Companion”

Brochures

- Project brochure “Baltic Actions for Reduction of Pollution of the Baltic Sea from Priority Hazardous Substances (BaltActHaz)
- Marjut Partanen-Hertell, Pekka Harju-Autti, Katarzyna Kreft-Burman, David Pemberton, 1999. Raising Environmental Awareness in the Baltic Sea Area. Finnish Environment Institute. Web site: www.vyh.fi
- Helsinki Commission. Baltic Marine Environment Protection Commission. 2010. Baltic Sea Environment Proceedings No.120A. Hazardous Substances in the Baltic Sea. An integrated thematic assessment of hazardous substances in the Baltic Sea.

Web sites

- Aarhus Convention: <http://www.unece.org/env/pp/>
- BaltActHaz Project web site: www.baltacthaz.bef.ee
- Web site: www.helcom.fi
- Web site: http://www.panda.org/about_our_earth/about_freshwater/importance_value/
- Web sites of similar projects where investigations on hazardous substances are performed:
 - http://www.cohiba-project.net/home/en_GB/home/
 - <http://www.socopse.se/>
 - Web site: <http://arcims.lvgma.gov.lv:8082/prtr/>
 - Web site: <http://eper.ec.europa.eu/eper/Default.asp>
 - Web site: <http://www.npi.gov.au/> (Substances Fact Sheets)
- Water Framework Directive <http://www.euwfd.com>

Annex I

Hazardous substances relevant in different frameworks

Substance	CAS (EC no)	REACH candidate list	WFD priority substance	WFD priority haz. substance	WFD subject to review	HELCOM rec. 19/5	BSAP
(4-(1,1',3,3'-tetramethylbutyl)-phenol)	140-66-9		X				
(Tributyltin-cation)	36643-28-4			X			
1,2-Dibromoethane	106-93-4					X	
1,2-dichloroethane	107-06-2		X				
2,4,5-T	93-76-5					X	
4,4' - Diaminodiphenylmethane (MDA)	101-77-9	X					
5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	X			X	X	
Acrylonitrile	107-13-1					X	
Alachlor	15972-60-8		X				
Aldrin	309-00-2					X	
AMPA	1066-51-9				X		
Anthracene	120-12-7	X		X			
Aramite	140-57-8					X	
Atrazine	1912-24-9		X				
Bentazon	25057-89-0				X		
Benzene	71-43-2		X				
Benzyl butyl phthalate (BBP)	85-68-7	X					
beta-HCH	319-85-7					X	
Bis(2-ethylhexyl)phthalate (DEHP)	117-81-7	X	X			X	
Bis(tributyltin)oxide (TBTO)	56-35-9	X					
Bisphenol-A	80-05-7				X		
Brominated diphenylether	n.a		X				
Cadmium	7440-43-9			X		X	X
Chlordane	57-74-9					X	
Chlordecone (Kepone)	143-50-0					X	
Chlordimeform	6164-98-3					X	
Chlorfenvinphos	470-90-6		X				
Chlorinated paraffins, short chained	85535-84-8	X		X		X	X
Chlorinated paraffins, medium-chain	85535-85-9						X
Chloroform	67-66-3		X			X	
Chlorpyrifos (Chlorpyrifos-ethyl)	2921-88-2		X				
Cobalt dichloride	7646-79-9	X					
DDT	50-29-3					X	
Decabromodiphenyl ether	1163-19-5						
Diarsenic pentaoxide	1303-28-2	X					X
Diarsenic trioxide	1327-53-3	X					

Substance	CAS (EC no)	REACH candidate list	WFD priority substance	WFD priority haz. substance	WFD subject to review	HELCOM rec. 19/5	BSAP
Dibutyl phthalate (DBP)	84-74-2	X				X	
Dichloromethane	75-09-2		X				
Dicofol	115-32-2				X		
Dieldrin	60-57-1					X	
Dioxins	n.a				X		
Diuron	330-54-1		X				
Drins	n.a.					X	
EDTA	60-00-4				X		
Endosulfan	115-29-7			X			X
Endrin	72-20-8					X	
Fluoranthene	206-44-0		X				
Fluoroacetic acid and derivatives	7664-39-3					X	
Free cyanide	57-12-5				X		
Glyphosate	1071-83-6				X		
HCH	608-73-1			X		X	
Heptachlor	76-44-8					X	
Hexabromobiphenyl	36355-01-8					X	
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified:	25637-99-4						
Alpha-hexabromocyclododecane	3194-55-6						
Beta-hexabromocyclododecane	134237-50-6	X					X
Gamma-hexabromocyclododecane	134237-51-7						
	134237-52-8						
Hexachlorobenzene	118-74-1					X	
Hexachlorobutadiene	87-68-3					X	
Isobenzane	297-78-9					X	
Isodrin	465-73-6					X	
Isoproturon	34123-59-6		X				
Kelevan	4234-79-1					X	
Lead	7439-92-1		X			X	
Lead hydrogen arsenate	7784-40-9	X					
Lindane	58-89-9					X	
Mecoprop (MCPP)	7085-19-0				X		
Mercury	7439-97-6			X		X	X
Mirex	2385-85-5					X	
Morfamquat	4636-83-3					X	
Naphthalene	91-20-3				X		
Nickel and its compounds	7440-02-0		X				

Substance	CAS (EC no)	REACH candidate list	WFD priority substance	WFD priority haz. substance	WFD subject to review	HELCOM rec. 19/5	BSAP
Nitrophen	1836-75-5					X	
Nonylphenol	25154-52-3			X			X
Nonylphenol, 4-	104-40-5			X			
Nonylphenoxyethoxy and the degradation/transformation products	9016-45-9					X	X
Octabromodiphenyl ether	32536-52-0						X
Octylphenol	1806-26-4		X				X
Octylphenol ethoxylates	9036-19-5						X
Organotin Compounds	n.a.					X	
PAH							
(Benzo(a)pyrene)	50-32-8						
(Benzo(b)fluoranthene)	205-99-2			X		X	
(Benzo(g,h,i)perylene)	191-24-2						
(Benzo(k)fluoranthene)	207-08-9						
(Indeno(1,2,3-cd)pyrene)	193-39-5						
PCB	1336-36-3				X	X	
PCT (mixtures)	617883-38-8					X	
Pentabromodiphenylether	32534-81-9			X			X
Pentachlorobenzene	608-93-5			X			
Pentachlorophenol	87-86-5		X			X	
Perfluorooctane sulphonic acid (PFOS)	1763-23-1				X		X
Perfluorooctanoic acid (PFOA)	335-67-1						X
Quinoxifen (5,7-dichloro-4-(p-fluorophenoxy)quinoline)	124495-18-7				X		
Quintozene	82-68-8					X	
Selenium	7782-49-2					X	
Simazine	122-34-9			X			
Sodium dichromate	7789-12-0	X					
	10588-01-9						
TCDD, PCDD, PCDF	1746-01-6					X	
Toxaphene	8001-35-2					X	
Tributyltin compounds	n.a.			X			
Trichlorobenzenes	12002-48-1		X				
Triethyl arsenate	(427-700-2)	X					
Trifluralin	1582-09-8			X			

Available for download
www.baltacthaz.bef.ee

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