

#### **From Climate Challenge to Energy Action**

limate change is increasingly at the heart of energy policy and technology development. It is therefore presenting an unprecedented challenge, but also an opportunity for Baltic Sea region in terms of its capacity and interest to innovations and low carbon technology deployment.

The most urgent task is to decouple economic growth from further consumption of energy resources and greenhouse gas emissions in a way that fosters the development of a low carbon economy and diversifies the energy

development of new technologies and scaling up of implementation.

resources. The core attention must be given to the

**New technologies** require new approaches tailored to local environmental circumstances.

Those are distributed power and heat generation from renewable energy sources coupled with energy efficiency at a demand-side. We need more pilot projects which test new approaches in practice and when it is proved, scaling up of technology use is important to ensure sustainability of the economy with regard to rising fossil economy risks.

We know that housing sector has the biggest energy use saving potential in the Baltic Sea Region particularly in the countries with heritage of Soviet time housing stock. The Ministry of Environment of Republic of Latvia in cooperation with local municipality have implemented pilot project to integrate most effective energy efficiency measures into renovation. This

approach proved to be successful within the context of the 2003-2005 housing renovation project "Initiative for Energy Efficiency in the Housing Sector" (implemented in co-operation with Federal Ministry for the Environment, Nature Protection and Nuclear Safety of Germany). The project proved that the best climate premium can be returned by complex approach to renovation, despite existing stereotypes to work with fewer measures and pick up only "low hanging fruits". Just in short time period it turned out that those houses are winners in the race against rising energy prices.

In terms of scaling up there is a need to facilitate new partnerships in public - private domain and applied research and business. In addition designs of new financial instruments are of utmost importance. Currently, Latvia is working to elaborate a new law on public private partnership and to introduce a new financial instrument – Climate change financial instrument to implement a Green investment scheme concept under the Kyoto protocol. The aim of the instrument is to scale up climate change mitigation related projects using earmarked revenues from assigned amount unit sales.

All above mentioned projects and ideas couldn't be effectively implemented without active involvement of local municipalities and society. Thus, to be successful and in particularly as regards sustainable future at Baltic Sea region and at the global level we need to make common cause with the same aim and understanding. I see our jointly agreed regional and international instruments as a good basis for an effective cooperation and focused work together.

Climate change brings many new challenges, but I am confident that we have ability to use our human resources and partnerships to work out sustainable solutions for our region.

Raimonds Vējonis
Minister for Environment of Latvia

#### **UBC** member cities (as of October 2008)

#### **ENVIRONMENT 2/2008**



#### 2 From Climate Challenge to Energy Action

Editorial by Raimonds Vejonis Minister for Environment, Latvia

- 4 Potential and opportunities
- -balance for innovation
- **10** Involve your stakeholder for sustainable development Go beyond the usual!
- **16** More signatories for Aalborg Commitments

#### **EnvCom today**



**15** Antonio Kaulard and Maria Berrini tell about the sustainable development work done in Italy.



- **6** Turning industrial bio sludge and organic waste into vehicle gas in Sundsvall
- **6** Sparks of innovation in Italy
- **7** Focus on sustainable transport in Linköping
- 8 Composting schools in Mwanza
- **9** Energy efficiency and environment protection Innovative Building Exhibition in Kiel
- 9 Naestved builds today for tomorrow
- **11** Modern culture and environmental issues together in a soap-opera in Halmstad
- **12** Actions for a cleaner Baltic Sea John Nurminen Foundation
- **13** Trelleborg Concept turns reed belts and submerged vegetation into biogas
- **14** Teachers bring sustainable development topics into classroom in Nyköping
- **14** Have you been challenegd? Baltic Sea Challenge welcomes new actors aboard
- **16** Sustainable energy systems in advanced cities



#### **18** CHAMP project starts with a focus on Climate Change adaption and mitigation

Work on HIV/AIDS and youth in Russia continues

UBC EnvCom offers training on sustainable planning and management

UBC EnvCom part of the Baltic Sea House

Would you like to work at the UBC EnvCom?

If you need assistance with project applications, contact EnvCom

Earth Over Shoot Day has been reached for the year

- **19** Back cover (inside): UBC Environment and Sustainable Development Secretariat
- **20** Back cover: Sakeholder Involvement Campaign

Best Environmental Practice in Baltic Cities Award 2009

#### **Short News**



#### **UBC Energy Commission**

17 Thank goodness for our diversity! Thoughts on how to use all the potential there is around the Baltic Sea for the benefit of the whole region.





#### **Editorial information**

## Potential and opportunities - ba

Text: Björn Grönholm Photo: Jens Gebhardt

hen working in a city network like Union of the Baltic Cities, where projects and project applications are crucial tools, the word innovation is a central element. New models, solutions, actions and activities are being requested. There is a positive glamour around the word innovation and the expectations connected to it. Challenging? Yes, definitely, but also a force that makes us all focuses on continuing improvements. While thinking again on the challenges mentioned above there is a clear logic behind the continuing focus and strive for innovations.

#### Forerunners in innovation

The Baltic Sea region has been a forerunner region for a long time in many different fields. The Nordic countries have been forerunners (innovators) in for example, environmental politics and legislation, in introducing Ministries of the Environment and building up broad national, regional and local environmental administrations. Further on, in taking the first steps in moving from an environmental focus to a focus on sustainable development the Nordic countries and municipalities have once again been forerunners, but the Baltic States and Poland are now also very active. Today innovations are born throughout the whole Baltic Sea region.

The process of building and implementing sustainable development has been a global challenging process with a broad number of stakeholders and sectors involved. It has had a varying success and impact but small steps have been taken all the time. Sustainable development is in its complexity a challenge in its own. Different steps, depending on the needs and opportunities, have been taken in different societies for it. Common to all of them is the need to understand the demand for finding new solutions for solving problems, for involvement and cooperation, for planning and decision making. In the heart of the action are people that are able to take some risks in order to create new solutions and opportunities.

While discussing innovations it is important to realize that an innovation is not necessary dependent of having huge resources, being economically strong or experienced. More important is the strong will to find improvements for different problems, small or big, in administration or technological processes or similar. As important is to be able to produce and present the innovation developed for broad use.

#### Towards intensive exchange

The global Sustainability process has increased in importance and new green or clean technologies are increasing and becoming stronger, more used and also better known. As an example, in the new European Union funding programs 2007 – 2014 there are more funding and focus on renewable technologies than ever before. The focus is not only on technologies but also on finding better administrative and cooperation models for good practices in our work. The reasons for this allocation of resources can be found in the huge problems and challenges mentioned and in the need for finding solutions to solve these. Anyway there is still a struggle between the clean and green innovations and traditional solutions. This is why this number of the Baltic Cities Environmental Bulletin focuses on Innovations through sustainable development.

During 2008 – 2009 on ongoing and important discussion including a broad public hearing is taking place for formulation of the Baltic Sea Strategy of the European Union. This document should formulate and shape the future of our Baltic Sea Region within the EU. The EU Baltic Sea Strategy is mostly discussed on the national level but we recommend all our member cities to study and follow the process as there are a lot of issues that directly or indirectly influence the everyday lives in our cities. At UBC Commission on Environment meeting in October 30 – 31 in Tallinn one of the focuses is therefore on the EU Baltic Sea Strategy. Several other opportunities are also available. See more information; http://ec.europa.eu/regional\_policy/cooperation/baltic/index\_en.htm

As mentioned above the Baltic Sea Region is full of potentiality, the sustainability process needs and accumulates a lot of innovations in our member cities every day. The task of the UBC EnvCom is to support these innovations and bring them to a broad public. In this bulletin cases of innovative processes and practices can be found - variety of innovations from sustainable schools and building technology to traffic systems and cooperation models between societies in the Baltic Sea region and Lake Victoria region. These are some of the good examples of the broad knowledge and innovative work we do in our region and our cities. These are few examples - much more needs to be presented in the future.

In UBC Commission on Environment, this is seen as a start of even stronger and more intensive actions towards innovations and innovative culture in our UBC member cities. To enable a better platform for communication and exchange, the UBC EnvCom is proud to finally, present our new website for public! Please, visit www.ubc-environment.net and have a look at it yourself. Also you may notice that the Baltic Cities Environmental Bulletin in your hands looks new.

During the next year you will be introduced to more tools for exchange, meanwhile, it is hoped that the cities seize the existing opportunities!

We have the potential and opportunity! Let us therefore continuously together build strong sustainable and innovation societies!



## Turning industrial bio sludge and organic waste into vehicle gas

Text: Bertil Carlsson

What was previously regarded as a problem is now seen as a raw material from which it is possible to produce a number of products that can be attractive on the market. The material is bio sludge.

> n Sundsvall, the project Integrated Biogas Plant, phase 1, aims to identify a long-term sustainable solution for handling industrial bio sludge and organic waste while at the same time using it as the raw material for the production of foremost vehicle gas. The project answer the question of how such a plant can achieve the desired effects, says the project coordinator Bertil

> The project indicates the requirements for building a major plant for large-scale composting: it is expected that a plant can go into operation in 2012. During the project period a smaller plant has already been established.

> The Municipality of Sundsvall is leading the EU Objective 2 project called Integrated Biogas Plant, phase 1 running from 1 January 2008 till 30 June 2009.

#### **Environmental Benefits**

Large-scale, joint processing of the sludge and organic waste in the region with a large, comprehensive and systematic approach will generate environmental benefits. A number of stakeholders in the region will directly benefit from such a facility. Stakeholders such as:

- -MittSverige Vatten AB (MSVAB) wastewater treatment plants annually produce 2,500 tonnes of sewage sludge and MSVAB needs to resolve this issue for the future.
- -The SCA Ortviken paper mill currently produces approximately 9,000 tonnes of biosludge annually. This sludge is dried and incinerated using fuel oil. At present, the ash is used as filler on the mill grounds.
- The municipal waste management company, REKO, has in an initial phase the possibility to sort and process approximately 540 tonnes of organic waste from household refuse and large-scale kitchens that is currently being incinerated.

A joint, large-scale composting facility will deliver sustainable handling of sludge and organic waste and, at the same time, produce significant quantities of biogas that can be upgraded into vehicle gas. The residuals after composting can be dried and granulated for use as forest fertiliser. In doing so the sludge is returned to the eco-cycle. The possibility for other interested parties and small municipalities to deliver organic waste can be realised.

Drying and granulating the residuals, after the gas has been harnessed, requires heat. The Korsta Combined power and heating plant (Korstaverket) shifts to increased electricity production during warmer periods and part of the surplus heat is cooled off. It would be possible to utilise a portion of this surplus heat in a large-scale facility where there is a need for heat for drying sludge and the granulation process.

#### More information:

Bertil Carlsson, Project coordinator bertil.carlsson@sundsvall.se

any cities in the North of Italy have been able to organize efficient sorting models for the collection of waste, says Maria Berrini from Ambente Italia. She gives an example from Verbania, Asti and Novara where over 60% of the waste is sorted on the spot.

- New local regulations were created in other areas in order to orientate the building trade towards high standards of energy efficiency, examples this time from Bolzano and Rome. Many cities were able to protect and qualify their historical urban centers by closing those areas to the traffic or by regulating the stops. In Milan, a pollution charge is being tried out and in Florence and Turin, areas only for pedestrians have been created, she continues.

Antonio Kaulard from Italian Local Agenda 21 considers as one of the most innovative new initiatives the so called Window of Sustainability (Vetrina delle sostenibilita) which is promoted by the Region of Emilia Romagna in North of Italy.

- The Window of Sustainability was born as a project of communication, with the aim of getting to know good practices of sustainability realized by companies, schools and local authorities. It is turning out to be more and more a "community of practices", a

Text: Denis Aldighieri Photo: city of Ancona

## Sparks of Innovation

a Window

When looking at th side of Europe for solutions used for and municipalities good examples co from Italy. Introduc a few attempts that made to solve or p environmental cor



## Focus on sustainable transport

new local development framework and a traffic strategy have been prepared to ensure that Linköping will be a sustainable and attractive city with a sustainable transport system, says Lars Hågbrandt, Head of Urban environment planning and management. Through these plans the future Linköping will be a denser and more compact city compared to the one todav.

Future development areas will be located within or very close to the existing urban conglomeration, from where it is possible and easy to reach different destinations in the city on foot, by bicycle or by using public transport. Car journeys passing through central areas will be restricted. One measure to reach this is to rebuild four-lane roads into narrower two-lane roads, which are more adapted to the calm city centre environment. Within the outer city ring road a speed limit of 40 km/h will be applied. Public transport, pedestrians and cyclists will be given priority at traffic lights. Another priority is the continued building of pedestrian and cycle tracks.

Another way of reducing car traffic in the city is to increase the number of parking places for bikes and reduce the places for cars. An introduction of car sharing in both existing housing and busiThe city of Linköping estimates an increase in population from 100 000 to 120 000, even up to 140 000, which would increase also human transportation, especially car journeys.

ness areas of the city and in future development areas will also help to reduce parking requirements for cars.

"LinkLink" which will be developed within the city, will enable people to travel fast through the city. In the initial stages, the routes will be operated by buses running in special bus lanes. Later on the system could be adapted for trams, trolley buses or other non-polluting vehicles.

#### More information:

Christer Nilsson, traffic planner christer.nilsson@linkoping.se www.linkoping.se



cities

ced are

revent

cerns.

at are

place where the interaction among people and issues involving sustainability innovations is created. It is an exhibition place on the physical and virtual level and at the same time a laboratory for new projects and initiatives, Mr Kaulard says.

- I believe that the innovative intuitions are more easily created in a place where people can communicate with each other in a stimulating way, "shaking" each others' minds and ideas and thus creating positive and fruitful relations that lead towards good solutions.

The idea itself of partnerships among Territories from the North and those of the South of Europe, different in formation and problems but speaking the same language of Sustainability, is therefore very welcome, Kaulard concludes.

Both Mr. Kauòard and Mrs. Berrini in their interviews emphasized how regardless structural deficit of political attention, in Italy there are still areas where the work of "good-willing" people produces "small" Sparks of innovative value, which can be seen and can maybe inspire even long distance observers.

More information, also in English: www.ermesambiente.it/vetrinasostenibilita

## Small scale waste management Composting in schools in Mwanza

Text: Eeva-Liisa Viskari, Vilhelmiina Harju, Anna-Lotta Huuhka, Mari Laukka and Henna Niemelä Photos: Mari Laukka and Vilhelmiina Hariu

Tampere-Mwanza Local Governance Cooperation project, coordinated by the city of Tampere, includes an environmental component. In 2008, a new step was taken when after two years of preparations and background surveys, school composting project was started in Mwanza in May 2008.

ccording to the previous surveys in Mwanza, in Tanzania, solid waste management was found to be one of the hot spots where rationalisation was needed. The wastes in the environment are causing inconvenience, odour problems and a health risk. Domestic waste is mostly organic bio-waste which in the tropical climate would be ideal for composting. Therefore a small scale composting project was started in five local primary schools. The aim of this project was to teach the benefits of composting first to schoolchildren, who would then act as ambassadors spreading the information to the neighbourhood.

The five project schools in Mwanza were Isenga, Kirumba, Kahama, Igoma and Sahwa Primary Schools. The pupils of the school

environmental clubs together with their teachers participated in the project. Student trainees from TAMK University of Applied Sciences spent in

each school initially one week at a time to get the project started. First the pupils were taught basics in waste generation, separation and composting. Later on the trainees visited frequently in the schools to see, how the project was proceeding.

The pupils brought bio-waste from their homes to the school compost. Composts, which eventually were proven to be the most practical and efficient, were small pits where bio-waste, garden waste (leaves, grass) and soil was placed as thin layers and eventually covered with soil. Termites and soil micro-organisms efficiently decompose the material in 2-3 months.

#### Successfull idea

The initial phase of the composting process was successful. Several small pit composts were prepared in every school. Before leaving back home, the students were able to witness the product of the composts - nutrient rich black compost that was ready to be used in the school gardens. By the time writing this article all schools had also started planting trees to the compost pits.

It was important that also local people who had experience in manure and garden waste

composting got involved in this work. This gave confidence and support both to the trainees and pupils involved.

The learning went both ways. Pit compost, as it was used in Mwanza, was a new technique to us. In those climatic conditions, however, it was easy to use and obviously the most practical and convenient way of small scale composting. Above all, it was also easily accepted by the locals.

The project was an initiative of the health authorities of Mwanza city and it would not have been successful without the commitment and support from them. The next phase in Tampere-Mwanza environmental cooperation might be spreading the idea to new schools and also to the neighbourhood in the surroundings of these schools, without forgetting the follow-up in the schools now involved.

#### More information:

Riikka Juuma, Project co-ordinator, City of Tampere, riikka.juuma@tampere.fi Dr. Eeva-Liisa Viskari TAMK University of Applied Sciences, Environmental Engineering

eeva-liisa.viskari@tamk.fi



## Energy efficiency and environment protection in Kiel

Text: Gabriela Husman Photo: Jens Gebhardt

Innovative Building Exhibition (InBA)® Kiel 2008 presented 20 projects with model implementation of energy efficiency and usage of renewable energies. How the energy saving and resource saving concepts can be planned and implemented in city districts were also

shown.



case study of an modern building with 19 common hold apartments was one of the stands of the exhibition. What made this case so interesting was that the building shell fulfills KfW energy-saving house -40 standard, heating is supplied by district heating through underfloor heating, and hot water supply comes through thermal solar systems.

Another outstanding project of InBA is the new construction of super-market

in Wik, a city quarter of Kiel. The convenience store in concrete steel frame construction obtains high insulation standard and is to be heated only if temperature fall below zero. The energy supply concept includes usage of waste heat from refrigerator for floor space heating, energy efficient illumination, usage the geothermal power as well as ventilation system with highly efficient waste heat recovery. Photovoltaic unit with an output of about 100 kWP is to be installed on the roof. Considering all this, the project can fulfill model function for similar industrial buildings Europe wide.

The sports hall in Schilksee was constructed up to KfW-40 standard. Thermal heating and hot water preparation is done by wood pellet heating. Usage of thermal solar system should be considered after measurements of hot water consumption during the first operating years. Ventilation system with waste heat recovery provides for humidity removal in rooms not lived in like a hall, which then leads to thermal heat saving of 80 per cent.

The development process of the InBA has given many important impetus for Kiel. On the one hand, it is notable, that during the course of the exhibition many of the projects are more energetically optimized than it was originally planned – among these are, for example, two energy efficient refurbishment projects sponsored by the Federal Government. On the other hand, a few property developers experienced that energy efficient buildings can be well merchandized and it is insofar worth it to transfer the "exhibition-model" on further construction projects.

The InBA took place 5-28 September within the framework of the EU-project REBECEE.

#### More information:

Dr. Gabriela Husman , the EU-Regiestelle Kiel eu-regiestelle@kiel.de www.inba-kiel.de



## Naestved builds today for tomorrow

Text & photo: Maria Santana

he purpose of the Green Building Exhibition 2009 is to feature different technological and building solutions which can inspire the future way of building. In other words: homes that are affordable, efficient, healthy and environmentally responsible.

It takes place in a very attractive development site located just a few kilometres north of the city centre that goes by the name of "The Green Heights of Naestved". The hilly ground gives the entrepreneurs not only a challenge to build lasting structures, it also gives them the opportunity to build non-traditional.

#### **Green Building Criteria**

The Naestved Municipality provides the entrepreneurs with financing tools and technical assistance so that the houses to be exhibit meet the green building criteria. The criteria are among others:

energy: The energy consumption of the houses has to be on a level corresponding to a classification as "low-energy house class 1" - or even better: "low-energy house class 0". It corresponds to an energy consumption of only 50% (class 1) and 25% (class 0) of the average energy consumption of today.

water: The houses are to have some kind of storm water retention ponds (drain) in order to decrease the risk of overloading the sewers and basement flooding.

Naestved is seeking a place in the vanguard of the battle against global warming. A Green Building Exhibition in September 2009 is an example of such an incentive.

*lighting:* Low-energy lights are a must in the houses making them greener and more affordable to run.

environment: "Eco-labeling" the houses, e.g. the Nordic Swan

- We will show that it is possible to build amazing and beautiful houses with a good indoor climate, even energy-efficient and affordable. I am sure that people from near and far away will come to the exhibition to get inspiration and ideas relating to green architecture, says Mayor of Naestved Mr **Henning Jensen**.

#### More information:

Ms Maria Santana, International Consultant masan@naestved.dk

# Involve your stakeholder for sustainable development!

**Text: Esther Kreutz** 



In the MATRUSCHKA project eight cities, four from Russia, three from Sweden and one from Finland are introducing an integrated management system in their city administration with the help of increased stakeholder involvement.

he cities have chosen a theme they are planning to work on during the project, at the same time they are paired with another city to exchange experiences and views through city visits to the respective other city. The topics worked on vary from city planning, sustainable transport, to implementation of the Aalborg Commitments.

Improved communication which is a focus of the project is crucial to guarantee a smooth information flow in the cities/municipalities between stakeholders. The project helps cities/municipalities to address all dimensions of sustainable development by

STAKEHOLDER

NVOLVEMENT

CAMPAIGN

integrating participatory approach into planning processes. This is done through various stakeholder involvement methods.

In a common training seminar the participants learned about how to plan and organise an stakeholder involvement process and what methods could be used for what purpose. In Local Forums those methods are directly used in practise.

The project contributes to the development of a solid foundation within local authorities upon which long term planning decisions can be made to support sustainable development. Both Russian and EU cities/municipalities in the project will either initiate or further elaborate their Integrated Management Systems around a chosen theme.

#### Two extensive outcomes

The project will provide a Stakeholder Involvement Toolkit and a Knowledge Management Database Toolkit for all cities/municipalities to use.

The Knowledge Management Database will help local authorities in regards to sustainable development through gathering good practices and tools for their further use. It offers a unique platform for benchmarking in the Baltic Sea Region.

The Stakeholder Involvement Toolkit will be a comprehensive guide for the local authorities on how to include different stakeholders in the decision making process. Using the toolkit, published in English and Russian, the cities/municipalities are able to increase the stability of their work for sustainable development.

Are you interested? Want to be part of the creation of the Knowledge Management Database and let others know about good practices from your city? Take part in our Stakeholder Involvement Campaign!

#### More information:

Stella Aaltonen, project coordinator Environment and Sustainable Development Secretariat stella.aaltonen@ubc.net

Read more on Stakeholder Involvement Campaign on backpage!

#### Go beyond the usual- involve your stakeholders in innovative ways!

The vice mayor Mr Bogdanov, Pavel Uranov, a citizen and Valentina Shishkina, an environmental activist, all from Zelenoburg are eagerly discussing the pro's and con's for a waste incinerator plant in the city.

This scene happened in May 2008 in Malmö when the MATRUSCH-KA partners slipped into the roles of citizens, politicians and activists from the fictive city of Zelenoburg, Russia in the MATRUSCH-KA Stakeholder Involvement training seminar.

Through the fictive case of Zelenoburg they learned about how to organise a Stakeholder Involvement process, in a mixture of pres-

entations and small tasks the participants were setting smart targets that create the basis for any involvement. The role game let the partners test the method of open space in practice and tried to imitate the situation that every local authority experiences.

#### Practical tools needed

As an outcome of the project a "Stakeholder Involvement Toolkit" will be published at the Final conference of the project in March 2009. The toolkit will serve as an inspirational handbook, containing tips and hints how to plan the process as well as innovative and creative methods to be used when involving stakeholders.

## Soap-opera sweeps the floor

Text: Text Media Photo: Patrik Leonardsson

ou are worth all the gold in the world for your initiative with the Sopoperan.

The 'thank you' e-mail to **Per Ålund**, marketing manager at HEM, Halmstads Energi och Miljö AB, (Halmstad's Energy and Environment AB) was just one of the reactions that he received

when the 'waste opera' (Sopoperan) was performed in Halmstad during ten days in September 2008. The idea that modern culture and global environmental issues belong together in local involvement had been proved right.

The decline that befalls deserted brickworks where the ovens have long since cooled, and jackdaws and small boys have been the only visitors for the last 20 years, was the venue for the Sopoperan. In the twilight of an autumn evening, the music from 17 singers, dancers and musicians sounded out over an evocative stage in an opera house like nothing else. A professional performance with newly composed music and libretto where sponsor support from the municipality's waste collection and energy company and two of Sweden's largest recycling companies provided the economic foundations.

With the opera as the brilliant central feature, seminars and a trade fair with 100 exhibitors were also arranged, whilst Halmstad's schools displayed their pupils' work on future visions- all with a focus on environmental and climate issues.

"You are worth all the gold in the world for your initiative with the Sopoperan."



A cultural manifestation for local environmental involvement. The newly composed opera 'Sopoperan' placed the earth's climate and resource issues centre stage when the closed brick works in Halmstad was transformed in to an opera house.

#### Can the concept be reused?

- Of course. For us it was a one-off achievement that we couldn't have done any better. It was a intensive effort that that will have effects far into the future, says Per Ålund, who came up with the idea for the production two years ago.

The opera received a lot of attention from the media. Almost 5 000 of the 7 000 opera tickets found buyers. And that was in a city where local opera had never previously been put on and where Roxette, with international, ear-friendly pop as their trademark, are the pride of the city.

The environmentally committed, culture loving audience was there and they came, like Åke Hassbjer:

- With its important message the Sopoperan was a great experience. So vitally important that the whole world should see it, he said in thanks.

#### More information:

Per Ålund, Halmstad Energi och Miljö AB Tel: +46 35 190 194, per.alund@hem.se Karin Larsson, Environmental Planning Officer, Halmstad Tel: +46 35 137 339, karin.larsson@halmstad.se

Text: Esther Kreutz Photo: Stella Aaltonen

MATRUSCHKA aims at encouraging and inspiring the partners to go beyond the usual and to use innovative methods to involve stakeholders and also to make their work more visible and attractive for stakeholders to participate. Challenges that face all of our local authorities.

The toolkit will be supported by a database filled with good practices and stakeholder methods from cities in the Baltic Sea Region in different topics.



# Taking action for a cleaner Baltic Sea

Text: Miina Mäki Photo: Jukka Nurminen, Abyss Art Oy

The Clean Baltic Sea project of the John Nurminen Foundation of Finland aims at visible improvements in the conditions of the Baltic Sea. Concrete action and cooperation between the countries around the Baltic Sea are required in order to solve the problems of the Baltic Sea. The project focuses on the prevention of eutrophication through the reduction of phosphorus emissions.

ith the best ways possible, the Clean Baltic Sea project aims to combine the expertise and resources of the private and the public sectors to the benefit of the sea environment. In accordance with its ideology, loaned from business life, the rule of thumb of the Clean Baltic Sea project is to allocate the activities to where the best results can be achieved with the lowest cost, in other words, obtain the highest positive environmental effect.

The cooperation locations of the project are selected with the assistance of different fields' experts, on the basis of the largest possible emission reduction, cost-effectiveness and the measurable environmental effects. The goal of the project is to reduce the eutrophication of the Baltic Sea in a quick and visible way.

#### Aiming at an emission reduction of 3,000 tonnes of phosphorus

The Clean Baltic Sea project focuses on intensifying phosphorus removal from the wastewaters of cities located in the catchment of the Baltic Sea. The project is implemented in close cooperation with the partner cities. In phosphorus removal, the Foundation's goal is to achieve the level of 0.5mg of phosphorus/ litre of purified wastewater, which is also the recommendation by the Baltic Marine Environment Protection Commission HELCOM.

The project was started in St. Petersburg in 2005 with the aim of reducing the annual phosphorus load from St. Petersburg's

wastewater into the Gulf of Finland by 1,000 tonnes. A major milestone was reached when the chemical treatment process was launched at the biggest Central wastewater treatment plant in October 2007. In St. Petersburg, the work continues at two other large-scale wastewater treatment plants where the target level for phosphorus removal will be achieved during 2009.

In the summer of 2008, a letter of intent was signed with the City of Warsaw aiming at making phosphorus removal more effective at the wastewater treatment plants in Warsaw. The Swedish Baltic Sea 2020 Foundation is the partner of John Nurminen Foundation in the project in Poland. In the future, the Foundations wish to have several partner cities into the project from Poland. Aim of the project in Poland would then be to reduce a total of 1,000 tonnes of phosphorus annually.

Another 1,000 tonnes reduction of phosphorous emissions still remains as a future goal of the Clean Baltic Sea project in the countries around the Baltic Sea. Examples of possible forthcoming locations for the project include Kaliningrad, the Baltic Countries and Belarus.

#### More information:

www.johnnurminenfoundation.com www.cleanbalticsea.com www.balticsea2020.org

#### John Nurminen Foundation

The John Nurminen Foundation's operational policy is to act as a catalyst between the different sectors of society and the countries around the Baltic Sea, and to hasten the actions which are critical with respect to the condition of the Baltic Sea.

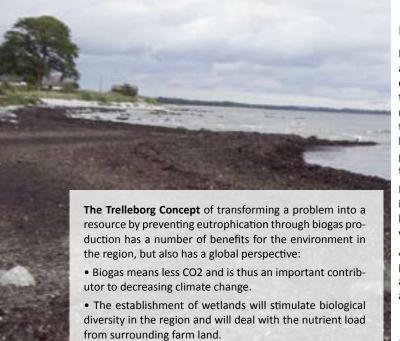
## The Trelleborg Concept -

## sustainable development for the **Baltic Sea Region**

Text: Fredrik Gröndahl and Mattias Müller Photo: Annika Hansson

he nutrients reaching the coastal waters of the southern Baltic Sea from variety other sources, e.g. farming, traffic or sewage treatment, and from other geographical areas will be removed with new technology for collecting macro algae from the sea. The biomass collected will be used for biogas production. The digestor residues from the biogas plant can contain heavy metals but there are existing techniques to remove these metals from the residues, which can then be used as fertiliser on arable land, resulting in nitrogen and phosphorus recycling.

During summers with extensive blooms of Cyanobacteria, surface accumulations of Nodularia spumigena will be harvested and used for biogas production. However, the residues will not be suitable as an agricultural fertiliser since they may contain toxic The municipality of Trelleborg together with local farmers and landowners, will establish largescale biogas production based on new wetlands established along the coastal zone of southern Sweden. Growth and harvesting of reed belts and submerged vegetation will take place within these wetlands. Trelleborg municipality will use the biogas for transportation fuel, heating of domestic houses in urban areas and local production of electric power.



· Harvesting of the reed belt will remove the nutrients

· Harvesting of macro algae will remove nutrients and heavy metals from the Baltic Sea and improve local beach-

• The removal of Cyanobacteria will remove nutrients from the Baltic Sea, but perhaps the most important contribution is that it will improve recreational value in the region. When the shallow coastal waters are cleansed from oxygen-depleting, decaying accumulated macro algae, large areas will again become available to sustain the growth of

from the wetland area.

es for recreation purposes.

juvenile fish.

#### New means to remove nutrients

In addition to the establishment of wetlands in the coastal area and harvesting of algae, aquaculture of the blue mussel Mytilus edulis may be a way to indirectly remove nutrients from the Baltic Sea. Mytilus edulis is very efficient at filtering and removing micro algae from the water column. Several successful trials of this method have been conducted on the west coast of Sweden, but may also be useful in the Baltic Sea. Although the mussels produced in the Baltic Sea will be too small for human consumption, it may be possible to produce biogas from them.

In extending the concept of using these successful bio-engineering techniques, the possibility of intentionally growing algae for harvest within metal frames in selected remote coastal waters with low leisure and ecological values is being investigated.

All these new means to remove nutrients from the highly eutrophied Baltic Sea in a low-intensity but steady process could bring about a much needed reversal in nutrient flow if they were to achieve widespread use among the member cities of the UBC.

#### More information:

www.trelleborg.se/balticmaster

## Strategy for a Sustainable School

Text: Mathias Demetriades and Cecilia Karlström

n Nyköping, two teachers have been recruited to work as coordinators for Education for Sustainable Development (henceforth esd). Training teachers and giving them arguments to make them get their message across in the classroom has been a strategy from the very start. Defining the concept of esd has also been very important.

However, before reaching the teachers it was an absolute necessity to get support from the local politicians and from the schools' principals. Consequently, a conference with various challenging themes was arranged to "kick off" the whole project. Seminars during this day brought up the possibility to certify their schools with "Green Flag" or "The Sustainable School Award". Three phrases were used throughout the day: Reflect – Rethink – Reform. Reflect represents a phase where people start considering the concept of esd whereas the rethink- phase stands for a new way of thinking and paves the way for the final reform of a school organization.

#### Sharing innovations in schools

After having visited some thirty schools, introducing especially "The Sustainable School Award", and documenting various good examples on the field, a report was published, named Making a difference – Education for Sustainable in the Municipality of Nyköping. (Vi gör skillnad - Lärande för hållbar utveckling i Nyköpings kommun) The notion of showing good school examples is very important for the whole process. In that way those schools that have quality can share that with other schools and at the same time get positive attention for their work.

This report highlights three different aspects of esd from Preschool to Upper Secondary School. Firstly; "outdoor education"

In the city of Nyköping, the municipality has made an effort to achieve Education for Sustainable Development (esd). The ambition is to create a structure from Pre-school to Upper Secondary School where teachers can address topics from an ecologic, economic and social point of view. Moreover, this emphasizes the school's unique platform where teachers can make a difference, no matter on what level or what subject they teach.

was found, where teachers used the surrounding nature on a regular basis. Secondly an admirable democracy work was noticed with examples of student councils, small children in Pre-School making their voice heard etc. Thirdly, international solidarity initiatives are conveyed, where schools for instance travel with their students to former concentration camps to prevent intolerance and racism.

To sum up, Nyköping has initiated a long term project where the young ones are in focus. Children of today will be those who are in charge in the future. They can make the real difference!

#### More information:

Mathias Demetriades: mathias.demetriades@edu.nykoping.se Cecilia Karlström: cecilia.karlstrom@edu.nykoping.se

## Have you been challenged?

Text: Salla-Maria Alanen and Lotta Ruokanen Photo: city of Helsinki Environment Centre



he Baltic Sea Challenge is a new way to tackle water protection issues. It is a completely voluntary co-operation programme encouraging diverse actors to analyse their own work from the perspective of saving the sea. The idea is to think of actions that go beyond the bare minimum – beyond actions required by the law. In most cases this requires only positive attitude to think over one's actions and how to make them Baltic Sea friendly!

By making the commitment and publishing their own action plans in the summer of 2007, the cities of Turku and Helsinki wanted to show other actors that protecting the Baltic Sea is not something that "someone else" should do, but something that should be part of everyone's daily life.

Examples of concrete actions by the two cities are various. Both Helsinki and Turku are respectively e.g. implementing their sewerage and water supply development plans and establishing common disposal areas for contaminated sediments. New septic

tanks have been installed in visitor's marinas in Helsinki, and in Turku the waste water receiving facilities in the ports have been enhanced. The establishment of two donated professorships and a common Baltic Sea programme is on the way in Helsinki. Turku, on the other hand, has taken part in founding the Protection Fund for the Archipelago Sea.

The Challenge is being planned, monitored and carried out by a steering group and two co-ordinators. Approximately 600 actors in the Finnish public sector have been challenged so far. These include municipalities, universities and organisations. By September 2008 app. 120 of challenged actors have accepted the Challenge, and 55 have already written and sent their action plans.

#### Welcome aboard!

The expansion of the Challenge widely e.g. to the private sector, schools and civic organisations in Finland is currently being planned. Simultaneously the next step to spread the word inter-

#### **Italian actors**

What is Italian Local Agenda 21 association and what does it do?

The association was established to spread Local Agenda 21 and the principles of sustainable development in Italy. Currently it is a network of 240 cities and territories. The network is financially and politically independent. Italian Local Agenda 21 gathers, monitors, spreads and evaluates studies, researches, good practices and in general positive experiences of sustainable development that take place at the local and territorial level. We also promote and facilitate the participation of the Italian Local Agenda 21 and its members to projects and international and national initiatives. In addition, we cooperate actively with the European Union, the Italian Government and the European Campaign for Sustainable Cities and the other national and international networks.

#### What are the challenges to sustainable development in Italy?

Climate change and therefore energy saving as well as use of renewable energy sources. The search for policies and instruments to oppose and mitigate the effects of climate change has implied a new way of seeing things and reacting to them, such as to face problems like mobility, production of waste, and construction. Important issues are also security and public order, which are topics of immigration and social integration. In Italy, we are still far from understanding that environmental sustainability and social equity are the two sides of the same coin.

What are the activities and tasks of Ambiente Italia? Where are the challenges coming from for the Sustainable Development in Italy?

Ambiente Italia is a consultancy Society which offers researches and assistance in the environmental field.

Answers provided by Antonio Kaulard from Italian Local Agenda 21 and Maria Berrini from Ambiente Italia.

Text: Denis Aldighieri

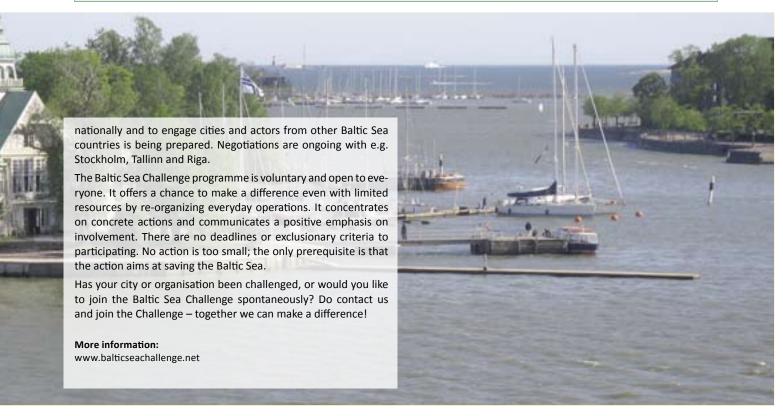


The areas of activity vary from territorial management and project evaluation, recycling of waste and energy within the promotion of "good technologies" and practices of resources management, to care of water system and promotion of sustainable tourism or the diffusion of environmentally sensible management systems, just to mention a few. In Italy, it is challenging to accelerate environmental policies both on private and on public administrations.

There are obviously fields in which Italy is clearly late in comparison with other European Countries and others where we can actually talk about excellence. The most critical aspects are those regarding mobility; the use of vehicles for commercial transportation and the results of this in a form traffic congestion, noise, pollution, and danger for pedestrians and hikers

Italy has not invested seriously in the promotion of renewable energies , and now sees its position worsening also in comparison with similar countries like Spain. Furthermore, Italy is densely populated country, with a huge patrimony consisting of architectural heritage and quality of landscape. Therefore each and every transformation of the territory must be planned carefully and the recovery of the already existing must be the priority. This is not unfortunately the attitude of all the regions. European Newspapers have dealt with the waste crisis in Napoli, which was a result of a general deprivation of responsibility on the national and local level of policy making plus a system of interests which made the waste management an illegal business.

In this Questions & Answers' Corner we bring interesting issues into discussion.



## Sustainable Energy Communities

Text: Kinga Kovacs

SESAC (Sustainable Energy Systems in Advanced Cities) is part of the broader CONCERTO initiative, aiming to show how the local economy can thrive while less CO2 is being emitted and that sustainable energy systems can be achieved by a combination of good governance, innovative cooperation and concrete measures.

elft (NL), Växjö (SE) and Grenoble (FR) are all carrying out demonstration projects while Kaunas (LT), Miskolc (HU) and Vastseliina (EE) are observer communities. After several years of preparation, the SESAC project is coming true in the 3 SESAC partner cities.

Many projects are ongoing in Växjö like a cost-effective polygeneration system for optimized energy utilisation of available biological waste material. This will be done by rebuilding and extending an existing anaerobic digestion plant. Furthermore, the amount of feed stock for digestion will be increased by introducing a system for collection, pre-treatment and storage of food waste in local tanks at large scale kitchens.

Thereafter, food waste and sludge from sewer water purification processes will be co-digested and the gas will be used for **polygeneration of electricity**, **heat and vehicle fuel**. The otherwise energy consuming plant shall be self-sufficient in heating and produce more than 60% of its own electricity demand.

Sustainable districts, eco-buildings and low temperature district heating form a part of "sustainable" actions in Delft. A citywide

heat transport system will be realised and it will connect an industrial area with residual heat to several building locations.

Adedicated Heat Transport Company (HTC) will be responsible for the realisation of the new energy infrastructure. The project will therefore also include a demonstration of tendering and contracting a HTC. The main challenge is to make the project technically and financially feasible: construct and establish a low temperature heat transportation infrastructure connecting the individual building locations and their heating systems to the heat sources of the industrial sites.

Within the SESAC project, in Grenoble a new ambitious sustainable district is currently under construction: De Bonne. The neighbourhood is built on 8,5 hectares of land and is meant to provide 850 apartments out of which 35%-40 % represent social housing.

This well-planned area includes highly efficient dwellings (bio climatic construction materials and methods, integrated solar panels and optimised building envelope). Furthermore, global electricity needs and half of the heating needs will be ensured by 8 mini natural gas co-generation plants; buildings will be equipped with thermal solar panels to ensure about 45% of the boiling water requirements.

The aim is to reach 30-40% less energy consumption than the applicable building standards. Furthermore, a 1600m² tertiary building will be constructed as a positive energy building (producing more energy than it consumes).

More information:

www.concerto-sesac.eu

## More signatories for

Text & photo: Stella Aaltonen

Over 350 participants witnessed when Mariagerfjord, Middelfart and Odense from Denmark signed the commitments in the "One Small Step" Nordic Sustainability Conference 15-17.9.2008 in Odense, Denmark. Recently, also Lycksele from Sweden has signed the Aalborg Commitments. Slowly, the Commitments have been noticed and taken seriously in the Nordic and Baltic cities.

o find more about the reasons behind signing the commitments, a short interview was carried out with **Hannu Tuittu**, Vice-Mayor of the city of Kotka, Finland. City of Kotka recently sent their signatory for registration and has now

strongly committed itself for work towards sustainable development.

The new Local strategy of Kotka for 2008 – 2016 was approved in April 2008 by the City Council of Kotka. The clean and safe environment is one of the five main aims in it.

nordic baltic aalborg network commitments

- Kotka wants to be one of the first pioneers to prevent climate change. The decision-makers are committed to ensure sustainable development in Kotka for the new council period, Aalborg Commitments assists in this process, says Hannu Tuittu.

 The will of Kotka city is strong and the work with stakeholders is continuing by the baseline review. This creates sustainable basis to set environmental goals. The Aalborg baseline review will be ready and approved in spring 2009. The next steps will be then

presented and approved by decision-makers, says Tuittu.

Hannu Tuittu states that the main challenge in Kotka at the moment is to carry out their own strategy and its goals. The work for sustainable development in itself is a big challenge locally. - We feel that the cooperation with experts, stakeholders, and networks in large scale is very important for solving problems and we are

interested to face new challenges together with partners, concludes Hannu Tuittu and challenges other cities to follow.

More information: www.kotka.fi, www.aalborgplus10.dk

Kotka planning for the AC proces.

# JBC Energy Commission

# Thank goodness for our diversity!



of diversity:

We live in a diverse region, an astounding region with challenges, advantages and exiting opportunities. If we embrace our diversities we can become more innovative. We can stimulate cooperation and innovation through our diversity. In order to create innovation knowledge from different domains must be combined in new ways.

The combination results in something new and something valuable, for example a product, process or service. Diversity is therefore needed in order for innovation to arise. Our region comprises enormous potential!

#### Diversity and innovation

Text: Eva Hjälmered

Generally when talking about diversity we mean gender, age, religion, culture, ethnicity, sexuality etc. Diversity is often seen as a problem in need of surmounting, a barrier to cooperation. This is a very narrow point of view with negative impact on the outcome. Diversity can instead be seen as a possibility. Through diversity a broad access to knowledge and competences can be reached. It can be a great potential the Baltic Sea Region can need to leverage and use for innovation. We should not be naïve and disregard possible barriers and differences, but instead realize that it can also be an opening. A new approach towards diversity is needed. The Baltic Sea Region is full of potential, important actors with a unique set of perspectives and skills/abilities. These sets of perspective can, if used properly, stimulate innovation. Recognizing our own and others' diverse perspectives we can learn and innovate. We should learn from each other and we should use the knowledge from others and teach how they can utilize our knowledge. It is a give-and-take-situation, and it is a win-win-situation!

#### Energy

This can be used in for example the energy sector. We posses different set of perspective and skills/abilities in the Baltic Sea Region. In some ways we are variants from each other and in some ways we have similar prerequisites. We are all surrounded by the Baltic Sea, we are all interested in a more efficient use of our energy consumption and we all have belief in the future. Our gathered knowledge is an amazing databank of human capital and driving force to reduce our carbon footprint.

The UBC Energy Commission look at the energy system issue rather than individual sources, and introduce this to the municipalities. Focus has for example been on sewage treatment, lightning and energy efficiency in industries. The Baltic Sea Region comprises energy solutions, availabilities and challenges. A challenge is that research and innovation

benefits from size. Around the Baltic Sea we find small countries, many small universities and numerous small and medium sized businesses. We tend to look more to the outside rather than towards each other. A lot of times we focus on stimulating clusters of similarity instead of hubs of diversity, as if an increasing homogeneity is the highway forward. We do have the solutions within the region and these needs to be more available.

#### Advantages and opportunities for the Baltic Sea Region

We need to recognize our advantages. There is an enormous diversity of knowledge domains available in the Baltic Sea Region, for example cultures, disciplines, professions and demographics. The region comprises small, but strong local knowledge domains that can be combined in new ways, ways to create scale on innovation.

It is time to look forward and simulate cooperation and innovation in the Baltic Sea Region. We need to focus more on leveraging existing knowledge domains for innovation, than on attracting new best talent to the region. We need to increase interregional awareness of the many locally available domains in BSR. If we want to be a truly innovative region, we need to find OUR UNIQUE way of leveraging AND managing Baltic diversity for innovation.

The UBC Energy Commission encourages everyone to contact the commission, to present new ideas and to join our activities.

Let us look forward.

#### More information:

Ms Eva Hjälmered eva.hjalmered@ubcenergy.org Tel: +46 491 76 42 92 www.ubcenergy.org

The UBC Energy Commission is part of the Union of Baltic Cities, for more information please visit www.ubc.net.





#### **CHAMP** project starts

UBC EnvCom continues the work of its previous successful projects MUE-25 and SUSTAINMENT by coordinating a new LIFE+ part-funded "Climate Change Response through Managing Urban Europe- 27 Platform" (CHAMP) project 2009-2011.

CHAMP will focus on Climate Change adaptation and mitigation by creating up-to-date content and methods for capacity building for local and regional governments. The training and support of Integrated Management Systems as a response to Climate Change will be done through establishment of national training hubs in four demonstration countries Italy, Germany, Finland and Hungary.



#### Work on HIV/AIDS and youth in Russia

"We Choose a Life – Youth against HIV/AIDS" - project, lead by the WHO Healthy Cities network, is in good speed. The project concentrates on reducing risky

healthy behavior among young people in Russia by raising their awareness of healthy lifestyle and sexual health.

The part of UBC EnvCom in the project is to act as a trainer with the focus on strategic planning, leadership and stakeholder involvement. Currently, a trained group in each of the four project partner cities coordinates HIV/AIDS prevention work. This work includes for example training of volunteers to work actively on

HIV prevention among the young people in the cities. The main outputs of the project include city-based campaigns and strategic action plans on the HIV/AIDS prevention.

More information: www.marebalticum.org/ sexualhealthrussia



In the training event in Dimitrovgrad in September, participants learned about integrated management system and how to involve stakeholders. Photo: Eija Eloranta.

### Trainings on sustainable planning and management

The UBC Commission on Environment offers to its members trainings that are envisioned to empower local government units, local stakeholders and people in the community on the concepts, principles, applications and models for sustainable development and especially on integrated management. These tailor-made trainings on Sustainable Urban Transport Planning and URBANWORKS — Sustainability Management Centre training, can serve as a venue for sharing experiences and developing new cooperation.

#### More information:

UBC Environment and Sustainable Development Secretariat environment@ubc.net

#### **UBC EnvCom moves to Baltic Sea House** in Turku

UBC Commission on Environment (UBC EnvCom) is one of the four actors under the same roof working towards more sustainable Baltic Sea Region. The UBC EnvCom together with Baltic Region Healthy Cities Association, VALONIA (Service center on sustainable development and energy for Southwest Finland) and Centrum Balticum form the so called Baltic Sea House that was opened in 19 August 2008 by the Mayor of Turku **Mikko Pukkinen**.

- The Baltic Sea House in Turku is built on a perfect surrounding involving several organisations dealing with the Baltic Sea, sustainable development, political and cross cultural understanding. For UBC Commission on Environment it gives us good possibilities to further strengthen our work with 107 UBC member cities. The Baltic Sea is also a clear message from our host city,

City of Turku of their strong dedication to the common cooperation in the Baltic Sea region, says **Björn Grönholm**, Head of UBC Environment and Sustainable Development Secretariat.

Altogether around 40 people work in the Baltic Sea House. The House is located in historically and culturally valuable setting of the Old Great Market in the Hjelt Manor.

#### More information:

Björn Grönholm, Head of Environment and Sustainable Development Secretariat firstname.surname@ubc.net www.ubc-environment.net



The Mayor of Turku, Mr Mikko Pukkinen opening the Baltic Sea House together with the actors. Photo: Maria Bres.

## Want to work in the UBC EnvCom Secretariat?

UBC EnvCom Secretariat is looking for project workers and trainees from the Baltic Sea Region countries. We have several positions open, please, visit our website www.ubc-environment. net for latest information on the positions, or send us directly your cv to environment@ubc.net.

#### **Project Applications**

Are you facing a challenge that you would like to solve together in a project?

UBC EnvCom is ready to assist you, please, contact us at:

environment@ubc.net

#### **Earth Over Shoot Day**

On September 23rd 2008 humanity had consumed all the new resources our planet will produce this year. The rest of the year we will be borrowing from the future. The Global Footprint Network concluded that humans now require the resourced of 1,4 planets. This shows clearly that consequent action is needed on all levels and sustainability aspects need to be included in all actions taken. It's everybody's responsibility.

To check out how your country is doing go to: http://www.footprintnetwork.org/



# UBC Environment and Sustainable Development Secretariat

Union of the Baltic Cities (UBC) is a network of 107 cities from all ten Baltic Sea countries, with an overriding goal of contributing to the democratic, social, cultural and environmentally sustainable development in the Baltic Sea Region. UBC Commission on Environment (UBC EnvCom) is one of the 13 commissions of the UBC.

Practical work of the Commission is carried out by UBC Environment and Sustainable Development Secretariat. Its services for the cities include for example organising meetings and policy work, preparing documents and publications, initiating and running projects, and consulting and training. The Secretariat carries out Baltic Cities Sustainable Development Surveys biannually and publishes Baltic Cities Environmental bulletin.

The current staff of Environment and Sustainable Development Secretariat consists of 10 professionals working fulltime for the UBC.



Baltio Sea

**Projects** 

Our aims



MATRUSCHKA - SUSTAINMENT - BUSTRIP - Managing Urban Europe-25 - NewHansa ... just to mention a few.

Contact us

> Our address is: UBC Environment and Sustainable Development Secretariat Vanha Suurtori 7 FIN -20500 Turku, Finland

environment@ubc.net Tel: +358 2 262 3179 Fax: 358 2 262 3425

www.ubc-environment.net

