Achieving sustainable development
Showcasing best practices in the public and business sectors in Finland
Respecting planetary boundaries
During the last 30 years, the world economy has quadrupled, benefiting hundreds of millions of people all over the world. Many countries have managed to lift themselves out of extreme poverty and raise their level of human development. This is good news. However, many countries have attained high human wellbeing at the expense of the world’s natural resource base and the quality of their environment, and through high greenhouse gas emissions.

How can we thus build up our economies and policies in a way to boost the economic progress, employment and human wellbeing, and at the same time reduce environmental risks and the use of natural resources? In the modern world with highly sophisticated technologies and systems, a global market economy and educated people, this dilemma cannot remain unsolved.

For the last 60 years in Finland, economic growth has enabled us to build a welfare society according to the globally unique Nordic welfare model. This model, based on a high employment rate, competitive economy, equal services and care for all, has proven to be the best social system. It combines social cohesion with competitiveness.

What is noteworthy to our mind is that the Nordic welfare model is also economically efficient: the recent Global Competitiveness Report (2011–2012) ranks Finland 4th in the group of 142 national economies. Another distinction that makes us proud is the complimentary results of the OECD’s PISA study, which has constantly ranked the Finnish educational system on the top.

Finland has long strived for increasing gender equality. Finland was in fact the second country in the world to give women the right to vote — not to forget that women are the cornerstone of our labour market. Equality and cohesion between generations is also an important goal for Finland with an aging population. The environment will be left in better condition for future generations. Finland will be developed with the aim of taking the lead in efforts to protect biodiversity and to mitigate climate change. The Government’s goal is to make the future Finland a carbon-neutral society, to propel Finland to a leading position in environmental technology, and to develop the nation into the most environmentally conscious society in the world. These are ambitious goals, but we don’t see any other options if we want to develop our society, increase our competitiveness and act as a responsible member of the global community.

Our vision is that the United Nations Conference on Sustainable Development — the Rio+20 — in June in Rio de Janeiro can provide feasible solutions and intelligent practices to all countries to reaffirm and showcase that economic progress, human development and environmental sustainability can be mutually supportive. Greening the economies is most topical and should be mainstreamed in the policies of all countries. It is important to understand that the environment is an integral part of the economic system. A natural resource base enables economic prosperity and human welfare. And therefore we have to invest not only in man-made capital but also in natural capital, and we have to save its products and services responsibly and protect it for the benefit of future generations.

We, the politicians, are in a key position to make a change, but we need a forward-thinking business sector, civil society, and local communities. For instance in Finland, we have mayors committed to establishing carbon neutral municipalities and business people inspired to develop and sell green solutions.

In this brochure, a closer look is taken at some of the best practices and innovations from Finland to inspire everyone to take action in greening our economies.

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 CLEAN TECHNOLOGIES FOR A BETTER TOMORROW

For small cleantech companies networking and joining together in a cluster gives more emphasis and visibility. In Finland there are two different cleantech networks and they have successfully created hundreds of new green businesses and jobs.

Today’s environmental and development challenges require the application of all remedies, including clean technological innovations and improving green infrastructure. The development of clean technologies (cleantech) is experiencing major breakthroughs in all parts of the world. Extensive investments in research and development have served as a major driver for the clean technology revolution.

Growth in Finnish cleantech is guided by a national cleantech programme that aims to expand the sector into a cornerstone industry. Tekes, the Finnish Funding agency for Technology and Innovation, serves as a catalyst for clean technological innovation and business development. Since 2007, funding provided for companies and research institutes for clean technology development has grown every year and today it has reached an annual level of 240 million euros. This represents almost 4% of the total annual investments of Tekes. In addition, Tekes supports four Strategic Centres for Science, Technology and Innovation, which are company-driven research institutes.

The development of the cleantech sector has been rapid and at the moment there are over 2,000 cleantech businesses. In 2010, the cleantech market in Finland grew by 5.6% and the trend is still upwards. Two different networks have been formed to join companies and research institutes more closely together: the Finnish Cleantech Cluster and Cleantech Finland, which are partly publicly funded.

The Finnish Cleantech Cluster is a network of cleantech companies and local businesses, academia. The cluster covers over 60% of Finnish green technology businesses and 80% of the research; over 300 companies are included. At the beginning of 2010 the prestigious Cleantech Group (USA) ranked the Finnish Cleantech Cluster third best in the world in its field. Since it was established, it has helped to create over 65 new companies and over 500 new green jobs.

The cluster provides many services for the companies that are involved. One service is helping companies go global by finding local partners and financing. The cluster also provides assistance to small companies in turning ideas into reality by helping them prepare financing applications and project plans. In the last couple of years, the cluster has put into effect projects amounting to some 65 million euros. Especially the programmes in China, Russia and India have earned praise.

The other network, Cleantech Finland, brings together top cleantech experts. It gathers clients, partners, investors and other stakeholders all over the world easy access to the best cleantech expertise because Cleantech Finland has offices in 40 countries around the world through the Finpro network.

www.cleantechcluster.fi
www.cleantechfinland.com
www.solved.fi

At the beginning of 2012, Cleantech Finland launched its SOLVED expert service that connects cleantech companies, customers and media, as well as problems and solutions, through a dynamic and interactive website. The service is used to channel experiences, and it also provides information for buyers, suppliers and investors.
LAHTI CITY – LEADING THE WAY TO SUSTAINABILITY AND CLEAN TECHNOLOGY DEVELOPMENT

Even a single municipality can make a difference and enhance both the state of the environment and the quality of life of its citizens. From the beginning of the 1990s, the municipality of Lahti has been a pioneer in incorporating environmental considerations into urban planning on many levels. Following the Rio Earth Summit in 1992, a local Agenda 21 was started a year later and the work is ongoing. In 2011, a Green City programme was launched to put even stronger emphasis on creating an energy efficient and environmentally friendly city, where the citizen’s voice is truly heard and incorporated into planning.

The municipality of Lahti is one of the four special green technology areas in the Cleantech Cluster and it aims to increase the number of green technology businesses in the area. In spring 2010, a new modern center for renewable energy and energy-efficiency research was opened in Lahti. The Renewable Energy Research Centre Energon was set up to develop liquid, gaseous and solid biofuels, equipment suitable for utilisation of solar energy, as well as ground source and air-to-water heat pump solutions and hybrid solutions.

Lahti has been a leader in the development and use of new technologies intended for the re-use of waste. In the Lahti area over 90% of municipal waste is re-used, which is one of the highest percentages in Finland. Lahti will exceed the national requirements years ahead of other municipalities. Already since 1998 the city has used waste for energy production. The city aims to optimise material and energy flows in the whole surrounding region and develop businesses in waste handling and re-use.

As part of the Green City programme, Lahti also seeks to halve greenhouse gas emissions between 1990 and 2025, by promoting ecological building, in general, as well as by creating new pilot areas that are ecologically designed and constructed. The city is also taking measures to enhance the energy efficiency of the existing building stock. Additionally, the city will take actions to reduce emissions from transport and include more routes for pedestrians and bicyclists.
ENCOURAGING VOLUNTARY CONSERVATION MEASURES

Forestry is very important to the Finnish economy and few forest areas are outside commercial use, especially in southern Finland where the majority of forests are privately owned. The METSO programme was launched in 2005 to give an incentive to private forest owners in southern Finland to participate in conservation efforts.

Globally, forestry is responsible for 17% of all greenhouse gases, mainly due to deforestation. Forests also account for roughly half of the world's biodiversity. Therefore, conservation and sustainable management of forests is critical for halting climate change and safeguarding the Earth's biological diversity.

The forest biodiversity programme for Southern Finland (METSO 2008–2020) aims to halt the decline in forest species and biotopes in order to create favourable trends in forest biodiversity and ecology services by 2020. The programme offers a payment scheme for ecosystem services. METSO stands out compared to previous top-down efforts, since conservation measures under the programme are completely based on forest owners’ voluntary tendering. Private owners can get compensation for conserving valuable forests permanently or temporarily for 10 to 20 years. Additionally, natural resource management and ecological restoration of habitats is supported. The state compensates forest owners, depending on the measures used, for the loss of income and the market price of the land. If a forest owner signs a permanent conservation agreement, the compensation is tax free.

The METSO programme is funded by the Finnish government at the amount of 40 million euros per year. This yields approximately 5,000 hectares yearly of permanently protected areas. In addition, temporary agreements are signed that protect 6,000 hectares per year. Biodiversity values of key biotopes in commercially managed forests are enhanced by ecological restoration of approximately 1,500 hectares per year. The site selection done by authorities is based on ecological criteria. Another important selection criterion is the proximity of potential sites to the current network of protected areas. Impacts on sustainable economic activities, recreation, tourism and cultural values may also be considered.

The voluntary approach of METSO is highly valued by forest owners who appreciate the bottom-up approach and the chance to retain their property rights. METSO has succeeded because, in addition to forest owners and authorities, a comprehensive group of forestry stakeholders have accepted it and supports its implementation in practice. This collaborative effort between different stakeholders, including nature conservation organisations, companies and the Forest Owner’s Union, also provides political credibility and social sustainability for the programme.

www.metsopolku.fi/en
Public procurement in Finland is worth 27 billion euros or 15% of the GDP, which gives a lot of scope for greening the economy. The Finnish government passed a resolution in 2009 to enhance green public procurement; the objective is that by 2015 all procurements in the ministries and 50% in the municipalities will benefit the environment. The Finnish government expects measures to be taken by those responsible for public procurement, particularly regarding procurement of energy supply, construction, transport, food service, energy-using equipment and other services. Green public procurement means that:

- the electricity used in central government is increasingly bought from renewable sources
- new buildings need to fulfil low-energy standards and after 2015 new buildings are required to be passive buildings, when renovating the existing building stock, energy efficiency needs to be taken into consideration
- the amount of travel is to be cut down and more environmentally beneficial practices need to be taken into use for business travelling
- the standards used for public procurement of energy or services must be the same as those applied to products with environmental labels
- more attention is paid to the origin and environmental impacts of the food served in government buildings and at meetings

To facilitate the change, a help desk for green procurement is being tested. The help desk coordinates procurements and together with private companies and the public sector develops new models and solutions for energy and materials efficiency. Tekes, the Finnish Funding Agency for Technology and Innovation, has launched a funding model to lower the challenge of using innovative environmental technology for the programme.

Applying financial incentives for promoting environmentally beneficial practices

WELL-DESIGNED PUBLIC PROCUREMENT PRACTICES CAN SAVE MONEY AND BENEFIT NATURE
The Carbon Neutral Municipalities project promotes the reduction of greenhouse gas emissions and the creation of green jobs at the local level by bringing together municipalities, businesses and researchers. It is an example of a public-private partnership that has resulted in both environmental and economic benefits and that is showing other cities the way forward to a green transformation.

Five Finnish municipalities involved in the Carbon Neutral Municipalities project (i.e. HINKU project) have committed to reducing their greenhouse gas emissions by 80% from the level of 2007 by 2030. These municipalities are Kuhmoinen, Mynämäki, Padasjoki, Parikkala and Uusikaupunki. Reductions in emissions are achieved by promoting energy efficiency in buildings, the use of renewable energies, green public procurement, alternatives for transport, eco-efficient production processes, and sustainable life styles.

The municipalities work together with businesses and research institutes to develop and implement ideas and practices. The municipalities also set an example for citizens and local businesses and facilitate their actions. The project is aimed at increasing the viability of the municipalities by achieving energy and cost savings, increasing the use of local energy sources, building new partnerships, and providing employment in green businesses, among other actions. Companies operating climate-friendly technologies and services have participated in the project and the municipalities have given them references.

Since the project started in 2008, over 70 reported emission reduction actions have been carried out. Results have been achieved especially in both the production and consumption of energy by municipal properties. A district heating plant using wood-based fuels and a district heating network have been built in several municipalities. Energy audits have been carried out in municipal properties that have resulted in adjustments and investments in heating systems, ventilation, energy metering, LED lighting, and other actions. There are also many examples of companies reducing their carbon footprint, the most notable of them being the chemical company Yara, which operates in Uusikaupunki. Yara reduced its nitrous oxide emissions by 90 per cent, which simultaneously reduced all of Finland’s emissions by around one per cent.

The city of Uusikaupunki, in particular, has achieved significant emissions reductions in a short time by working in close cooperation with businesses. Over four hundred new jobs have been created in the green technology sector, mainly in the production of electric vehicles. Six new municipalities joined the Carbon Neutral project as partner municipalities in 2011, which shows that municipalities see the multiple benefits of local energy and climate projects.
National urban parks provide a green oasis in the middle of the city

With continuing urbanisation it is important to protect both biodiversity and the cultural heritage, as well as ensure green spaces for city dwellers. In Finland this has been achieved by creating National Urban Parks. Green urban areas provide many benefits for city dwellers, including the possibility for outdoor activities and spending time in nature without having to leave the city. In addition, green areas provide many beneficial ecosystem services, such as noise reduction and purification of the air. People living close to green urban areas have even reported being less prone to allergies than people who do not have access to urban parks.

There is a global trend to build more compact towns and cities, thus leaving less room for green urban areas. In Finland, too, infill building in sparsely built parts of many urban areas has increased dramatically from the 1990s until now. This process of building more compact urban settlements has raised a common concern in Finland about the need to preserve biodiversity and the cultural heritage both inside and in proximity to urban settlements.

The Finnish national urban park concept in the Land Use and Building Act has proven to be a successful tool for solving this problem. A national urban park should:

- include natural areas that are important for the preservation of urban biodiversity;
- include cultural milieus – for example, buildings important for understanding Finland’s national history or the history of the city itself, and parks and green areas of architectural or aesthetic significance;
- be extensive and continuous enough;
- facilitate an ecological corridor that will contribute to species movement and interaction and create direct links with natural areas outside the city and in the surrounding countryside;
- be part of the urban structure;
- begin in the core of the city or its immediate vicinity.

At the moment parks in five cities – Hämeenlinna, Heinola, Pori, Hanko and Porvoo – form the network of Finnish national urban parks. These cities are very different from each other in their cultural heritage and urban biodiversity. A sixth one, which includes the northernmost oak forests in the world, will be added in this year of the Rio+20 Conference.

www.ymparisto.fi
> Land use and building
> Living environment and urban structure
> National urban parks
Hämeenlinna National Urban Park

was established in 2011 and has the privilege of being the first one of the five national urban parks in Finland. The park area begins right at the heart of the city and the historical city blocks and parks combine with lakes, forests and eskers to form an integrated urban space. The urban park also includes the Aulanko forest park and nature reserve, renowned for its natural beauty. The national urban park stands out as a model for urban development, since it incorporates nature into the built environment and, thus, helps to create a more livable, pure, green and diverse city.
DESIGNING SYSTEMIC SOLUTIONS FOR DEVELOPING NEW URBAN AREAS

In the coming years, more and more people globally will be living in cities. Therefore, it is essential to develop new ideas for future urban areas that are environmentally sustainable. The challenge is even greater in developing countries where vast numbers of people are moving to urban areas but where, for now, city planning cannot keep up with the rapid changes.

A Finnish company, DigiEcoCity Ltd, is planning and building areas or whole cities where digital technology innovations are combined with sustainable development. The cities are being built using ecological principles and innovations in digital technology to provide necessary urban functions. The company brings together Nordic expertise in city planning, construction, environmental issues, information and communication technology, and financial and legal questions.

A DigiEcoCity project in China, with around 400 million people expected to move from the countryside to cities in the next 20 years, is building two cities in Gongqingcheng (Jiangxi Province) and Danyang (Jiangsu Province). Both cities have an expected population of close to 100,000 people, and they are planned to be model cities for China’s urbanisation.

Urbanisation is taking place at a rapid pace in China, where approximately 400 million people are expected to move from the countryside to cities in the next 20 years. DigiEcoCity Ltd is building two cities in China – Gongqingcheng (Jiangxi Province) and Danyang (Jiangsu Province). Both cities have an expected population of close to 100,000 people, and they are planned to be model cities for China’s urbanisation.

Through better city planning, a DigiEcoCity combines living and working spaces, services, culture and leisure within walking distance. Digital technology and virtual services embedded into city life bring better services for the citizens. Energy production in the cities is mostly from renewable sources and the cities are intended to have close to zero emissions.

The buildings are planned to maximise daylight usage, which not only improves the quality of life but also saves energy, as does the planned natural ventilation. Buildings are also designed to be flexible for re-use and they are built from materials that have a sustainable life cycle. Combining all the aspects together makes a livable, vibrant city for the citizens living in DigiEcoCities.
GENDER EQUALITY ENHANCES CLIMATE CHANGE WORK

The effects of climate change and other environmental problems are not the same for everyone, but women and the poorest suffer the most. Including a gender perspective will strengthen the work to combat the effects of climate change by providing new solutions and insights.

The foundations for a more equal society in Finland were laid down in 1906, when women were given the right to vote in parliamentary elections. Since then significant steps have been taken to reach a truly equal society. Although much still needs to be done, today in Finland, women occupy the highest share of ministerial positions in the world and the child birth mortality rate is one of the lowest globally.

Gender equality is not a privilege only to the Finnish people, but is common to the Nordic countries. In 2001, the World Economic Forum in its Global Gender review of 135 nations, ranked Iceland, Norway, Finland and Sweden within the top 5 countries.

As climate change intensifies it is expected to have the greatest impact on the world’s poorest people, of which a majority are women. Finland has worked to increase women’s participation in developing country delegations in the climate change negotiations. This is important as women are disproportionately more severely affected by climate change compared to men, especially in the South where many of the effects are occurring, because their daily tasks often differ. For example, more frequent droughts and spreading desertification will cause women to spend more time on collecting water and wood for fuel, thus decreasing the amount of time that they can spend on education, paid work and other activities. It is also important to include women’s views in international environmental negotiations to broaden and enhance the possibilities for achieving sustainability.

Climate change also affects people in the Nordic countries. To provide information, a new Nordic electronic knowledge portal “Equal Climate – Gender and Climate Change from a Nordic Perspective” has been launched. The portal highlights the relationship between gender and climate change from a Nordic perspective. The aim of the portal is to show how climate change and sustainable development work can be enhanced by including a gender perspective.
Since the late 1980s, Finland has strived to enhance the role of sustainable development in mainstream politics. The Finnish National Commission on Sustainable Development (FNCSD) was established already in 1993 — in the aftermath of the Rio Conference on Environment and Development — and it was one of the first such commissions in the world. In Finland, sustainable development is considered a learning process for the entire society, with everyone taking ownership of and committing to building a good quality of life in a sustainable society.

Our approach is referred to as the ‘Finnish model’, in which broad-based, multi-stakeholder participation is combined with high-level political leadership. In our model, the Government, civil society and business life are engaged in an open dialogue on the sustainable development policy. The leadership of the Prime Minister has also characterised our commitment to sustainable development.

The Government set a new period for the current Finnish National Commission on Sustainable Development in February 2008. The term of the Commission is five years and it is staggered with the four-year Parliamentary election terms. This ensures that the Commission can take a long-term approach to important sustainable development issues.

The current Commission is chaired by the Prime Minister, Mr. Jyrki Katainen, and the vice-chair is the Minister of the Environment, Mr. Ville Niinistö. It has 44 members, including six other ministers, and representatives from Parliament, public administration, business and industry, municipalities and regions, trade unions, the educational sector, NGOs, science and research, the arts, and the churches.

The most important objective of the National Commission is to make sustainable development a central part of national policies and administrative practices. Over the past 19 years, it has initiated national debate on several important themes, helped to build mutual political understanding on controversial Parliamentary election terms. This ensures that the Commission can take a long-term approach to important sustainable development issues.

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One of the key objectives of the National Commission is to contribute to the Rio+20 Conference in 2012. At the same time, it has a critical role in coordinating and promoting the implementation of the commitments and decisions made in Rio de Janeiro. National implementation of sustainable development commitments, green economy strategies and climate change policies should be carried out in a mutually supportive and integrated fashion. The National Commission has proved to be a feasible instrument in facilitating this important task.
INTERNATIONAL COOPERATION IS THE KEY TO A MORE EQUAL WORLD

Finland is supporting five Energy and Environment Partnership Programmes (EEP) around the world to fulfil our commitment to provide short-term climate financing. The first partnership programme was launched in 2002 at the World Summit on Sustainable Development in Johannesburg by Finland and seven Central American countries. Later, the partnerships have expanded to eastern and southern Africa, the Mekong area, Indonesia, the Andean region; in total, the partnerships are carried out in 26 countries.

The partnerships strive to simultaneously combat climate change by increasing the use of renewable energy and energy efficiency and decreasing poverty by ensuring access to energy services for the most unprivileged groups in rural areas.

The nexus between energy, environment, water, agriculture and forestry is also considered important in project development and implementation. To date, the programmes have helped launch hundreds of projects, many of which have already ended as the goals were fulfilled. Emphasis is given to projects aimed at improving sustainable energy services by enhancing business development. This is important, since it will help to build capacity and create new green jobs, and ultimately achieve inclusive and green growth that is sustainable in the long run.

The energy and environment partnership concept is based on the conviction that the scale of the climate challenge requires all relevant stakeholders to join forces if we want to achieve meaningful results. Therefore, the projects include partners from government agencies, private companies, research institutes, universities and NGOs. That work in cooperation to provide state-of-the-art solutions for sustainable energy development.

The partnerships also promote cooperation in the energy sector within the regions they operate, which enables effective information exchange and the sharing of best practices.

Between 2010 and 2012, Finland has given 50 million euros to fund the programmes, but the level of funding is expected to grow. Recently, also other partners, the United Kingdom, Austria, the Nordic Development Bank and the European Commission, have joined in the financing of the projects. Both large-scale and local projects are supported, as these can lead to economically viable reductions in emissions. The intention for the financing of projects is that it also affects private-sector funding, which is needed to have a real impact on developing the energy sector.