It is About Change, a Green Change

Report from Green Solutions, Clean Tech and Development

Sida Partnership Forum, May 18–20 2010

Sida

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It is about change, a green change

Environmental sustainability is at the very core of development while the poor and marginalized are the ones who find it the most challenging to adapt and change. Sida believes that innovations are crucial in solving many of these difficulties and invests in research cooperation as well as in the link between research and innovation in Sida's partner countries. To assist with public private partnerships, Sida has launched a new program named Business for Development (B4D). For a win-win situation, networks need to be established between developed and developing countries. It is ultimately about change, a green change, for better living conditions for us all.

Sida's conference "Green Solutions, CleanTech and Development" was held on the 18–19 May 2010 in Härnösand, Sweden, and attracted participants from around the world. 125 participants representing 23 countries and the civil, public and private sectors gathered to exchange thoughts regarding the environmental challenges this new era faces. The idea was to present needs in developing countries and to inspire by showing local examples. CleanTech Region Jämtland/Västernorrland was awarded by "The New Economy" as the most innovative region in the world 2010 in relation to CleanTech, which made Härnösand an appropriate destination for a conference of this kind.

In order to create green solutions that will have an impact across borders, people from different parts of the world need to meet. This gives an opportunity to gain knowledge about the various local needs, information that must reach the innovators of today. Arenas are needed where such information is shared and where innovators give insight into their work and the opportunities ahead.

This conference brings hope of exchanging good and inventive ideas on how to cope with the challenges of tomorrow, said County Counsellor of Västernorrland Bo Källstrand while welcoming all participants to a region that a century ago was one of the richest in Sweden. Västernorrland had many saw mills fed by the vast forests while hydro power from the large rivers provided energy for the running of many processing mills. As a consequence, the city of Sundsvall took on the position as one of the most polluted cities in the country. The region soon realised that the environment, and later climate change, does matter and green solutions have been a major focus in the area ever since, Bo Källstrand continued in his official opening speech.

A Sense of Urgency

The common denominator among the participants during these two days was a sense of urgency for further development of green solutions and CleanTech across the globe. There is a great concern on a global scale as to what effects the human lifestyle has on planet Earth and many representatives from developing countries highlighted the issues of sewerage, clean water, waste management and lack of energy. Some local challenges and potential solutions from a few different parts of the world were presented by the following guest speakers:

INDIA

R. Narayan Moorthy, Secretary General and R. C. Mall, Head of CleanTech and Environment at the Indian Paper Manufacturers Association (IPMA) say that the Indian paper manufacturer industry needs to grow, but greener and cleaner. The world paper and board demand has been declining but is now on the rise again. The International Monetary Fund (IMF) predicts that India will have a higher growth rate than other countries and in terms of the paper industry; the predictions say that the output in 2020 will almost be double that of today. With 707 mills and linkages to employment in rural areas, this industry plays an important part in India's development. However, the need for raw materials, energy and water to keep this industry running is of great environmental concern and there are technological challenges with a low output and efficiency rate compared to the world average. A bottle neck problem is fibre deficiency; all sorts of materials are used to make paper. Agro residues, commonly used materials for paper, demand a lot of power and only 20 % of India's paper supply is recovered for recycling. The CO_2 emissions per ton of paper produced in India are very high and the water usage is excessive. Most countries are now driven by environmental concerns and India is no exception, but there are gaps to be filled. Attempts are being made to bring down the water and energy usage, but it is a challenge. There is a need for large scale implementation of small and large innovations to make it possible for this industry to grow while being greener and cleaner.

SOUTH AFRICA

Chris Wise, an environmental engineer from the consultancy company Jeffares & Green, highlights the problems of waste generation and poor waste land practises in South Africa. It is further a water scarce country with expectations of high stress in relation to water by 2020, with extreme stress in the Northern parts. The region is varied and what works in South Africa might need a totally different solution in for

example Namibia. There are also varied conditions for change where Namibia has a government very keen on green change whereas South Africa's driving forces for green solutions come from retails groups, private developers and international demand on climate smart products while the government is only recently waking up to the need for action. The approval process in very slow in South Africa and a new idea might need two years for the permit to move forward whereby funding opportunities may be missed etc. The economic gap between people also pose a threat to the green movement as being green is seen as a luxury only to be afforded by the rich. There's also a lack of understanding of the holistic approach to being green where one intervention such as a solar panel on the roof might be seen as being green enough. However, the nation has woken up to the need to think green with energy savings as a primary driver.

In South Africa, the words green and economy have for the first time been put in the same sentence and for the first time four countries in the region are coming together to a green summit hosted by South Africa in Johannesburg, said Alan Brent, professor at the Stellenbosch University, Centre for Renewable and Sustainable Energy Studies. Unfortunately, the private sector has been excluded from this meeting but there is hope now that at least the region sees a need to come together. Renewable energy can play a part in South Africa with the sun being a major asset. Currently 20 feasibility studies are being made for the mining sector, in areas offering much sun and space. Further, desalination is soon to be needed, perhaps with solar technology. Although it is difficult, there are municipalities trying to be more independent from the national and combinations of biogas from sewerage plants with solar can be a solution. There are projects in CSR going ahead but a link that has repeatedly lead to failure is when the communities receiving support are not educated on how to live with the new technology. However, if using the right methods to teach communities how to use this new technology, a lot can be achieved. What is technology? Well, often it is simply the transfer of knowledge and information on how to do things, said Alan Brent.

ZAMBIA

Ms Anne Luzongo Mtamboh, Ambassador of Zambia, spoke of her concerns regarding Zambia and climate change consequences for her country such as extreme drought and excess floods. The government of Zambia is very concerned about the commitment from the developed world to tackle the climate change issue. In Zambia, 68 % of the population live in poverty where clean water and sanitation is a main issue. Many companies, certainly within the mining sector, dispose effluent and solid waste into the rivers.

In Zambia, animal waste could be transformed into bio gas and fertiliser which would have a great positive effect on the environment, said the honourable Ambassador of Zambia. In regards to the mining sector, she highlights that a CleanTech solution from Sweden, a clean smelter, is already in place at one of the mines. Another area is the renewable energy where Zambia is looking into micro power generation plants. A poor man came up with this solution where generation of light could have a very positive effect on people's lives. There are

ALEX MUIGAI FROM SIDA WITH MS ANNE LUZONGO MTAMBOH, AMBASSADOR OF ZAMBIA.

grand projects out there, but the local, small scale solutions understandable for people with no education are of equal importance. The solutions that will make the lives of grass root people easier and environmentally sustainable. She also emphasises the important of lowering today's high cost of technology transfer, a change that would immensely benefit a country like Zambia.

SWEDEN

A Swedish challenge is emphasized by Olle Lundgren from the County of Jämtland. Innovation is a matter of survival in his part of the world due to the opposite problem; a lack of people willing to live in this scarcely populated area. People as well as government have to come up with new ideas and networks to encourage people to stay. There is also a need to make business more convenient and the transfer of business/innovations/technology an easier process. The encouraging news is that an area is not dismissed by definition by being remote and small, but the fact that vast areas are available with only 2 people/m^2 can be used as an advantage. However, there is still a need to attract knowledge and for an arena where the government, researchers and the private sector among other actors work together.

Will it happen?

If we are to tackle the climate and other environmental challenges as the world's population reaches nine billion in 2050, technology transfers and information exchanges must sky rocket and we need to conduct business in a fundamentally different way. But this will not be enough; the required solutions probably do not exist as of today. Hence we must enable innovation and entrepreneurship all over the world.

Lloyd Timberlake, Vision 2050, sees the motivation rather than the CleanTech as the difficulty. The climate change debate corrupts us into thinking we really care, but in practise people do not do anywhere near enough to make a change. Surveys show that people will pay more for environmentally friendly products, but practise proves these surveys wrong. It is not easy to relate to people in other places or of future generations. In the US, climate change is a minority sport and the Chamber of commerce has been campaigning against CleanTech while international agreements on climate change are not coming together as easily as has been promised.

In the report Vision 2050, issues such as incorporating the cost of externalities, such as CO_2, and the need for ecosystem services, water and halting deforestation as well as increasing yields from planted forests are stressed. But there will also be vast opportunities and a radical new landscape for business. "Look for GMO-innovations within the areas that really matter, for example on how to grow vegetables in salt water or in the desert', Lloyd Timberlake said.

Per Dahlén, CleanTech Region Singapore and an investor gave an example of how to measure development. In 1947, the tractor was born by Ferguson. When a country's GDP reaches approximately $4500/capita, the usage of tractors tend to explode and thereby the agricultural development. In developing green solutions we need to identify those thresholds. With more tractors; fewer farmers and less land produces much more food. People move from rural to urban and new or extended cities are needed. This change has positive attributes but industrialisation and urbanisation do pose a threat for the environment.

Patterson W. Brown, USAid, said that when development has been reached in a country, it has been a matter of all actors coming to the table. Host country leadership and engagement is needed as well as private sector investments, technology and know-how while donors can assist in getting the business environment in place to make investments happen. He argues that in terms of the investments needed to achieve the types of solutions discussed at this conference, it is paramount to not just make assistance or public funding available but to engage other sectors.

Tony Clark, from the Swedish Embassy Center for Environmental Technology (CENTEC) in China, spoke of the many things yet to consider. We have to learn where Sweden is heading as well as where the

needs of the developing countries lay today. Challenges in China are enormous with millions of people leaving rural areas for a life in the city each year. The representatives of IPMA showed the example of how Indian paper and pulp consumption will explode. Already, the usage of coal is enormous and paper recycling is very low in India. Can problems of this scale in large countries like China and India be solved within the short time frame we are given?

GOVERNMENT INTERVENTION

In India, the government has committed to a 25 % reduction in CO_2 emissions without the knowledge on how to achieve such results, said Arati Davis of the Swedish Embassy in New Delhi. This commitment will continue to test the democratic society, water management, land issues and waste management, which will make changes difficult for the government. A new type of governance is needed to honour this commitment in a country of 7 cities with more than 4 million people and 73 cities with more than 1 million people.

In some cases, stronger regulation is needed. Lloyd Timberlake pointed out that regulation agencies are not keeping up with the technological development. We must demand that companies are ready to handle unintended environmental consequences of their work while putting more effort into predicting them. In other cases adequate regulation is in place, but stronger enforcement agencies are required. Pressure needs to be enforced, not as a "please", but as a "must".

Mikael Olshammar, Sida Team Vietnam, speaks of the vulnerability of the people of Vietnam living along the coastal area where the rains and hence the floods are increasing. During the years of rapid development, from 1995 to 2005, green house emissions increased by 78 %. The Vietnamese government has implemented a policy for combating this development but lacks the resources to reinforce it. Much of Vietnam's industry uses technology imported from time of the Soviet Union, which needs to be replaced by modern technology.

Niclas Hällström, Swedish Society for Nature Conservation, says that the UN Global Marshall Plan is underway with huge discussions as to how much money will be made available to assist the developing countries in reducing their green house emissions and through what channels it will be distributed. The developing world legitimately puts pressure on the developed countries to honour their commitment to reduce their own emissions while assisting the developing countries reduce their emissions. We are globally faced with a serious problem that needs quick action and a transformation of the whole society. Climate and development is a double challenge, Niclas Hällström continues. We need to see that we will benefit and that it is not a cost. Energy consumption is a large pillar of the problem where the USA consumes a lot more energy than Sweden without having a happier population. There has to be a way to make society more energy efficient as well as making more energy available by sustainable means. A concern is energy poverty in China where coal is the only affordable source.

Niclas Hällström suggests feeding tariffs as a way forward. If an investment is made in renewable energy, the difference between the cost of cheaper non renewable energy and the more costly renewable energy could be subsidised. Demand then puts pressure on increasing

the output of the renewable energy, reducing its cost, which then lowers the government cost of the subsidy. If this is done on a global scale, there would be tremendous pressure to lower the costs and eventually the subsidy would finish, the share of renewable energy would be greatly increased and perhaps sold for a higher profit straight to the customer without government intervention. This creates business opportunities and jobs globally, makes more fossil free energy available, tackles climate change and also the developed world get cheaper energy down the line.

Sunita Narain, director of CSE- Centre for Science and Environment in New Delhi discusses the difficulty in making the rich world use less. To tell businesses to do this means cutting the very branch they are sitting on. It is hard making the car manufacturer agree to make fewer cars; the only option is to encourage the making of more buses or electric cars, but that is not enough. The importance of national leaders leading the way cannot be underestimated. The Indian prime minister has played an important role in making Indian industries start their transformation towards more sustainable business. On a global scale, the collaboration in these issues is crucial, but Lloyd Timberlake points out that among the challenges is that the treaty promising to raise foreign aid to combat climate change issues has not been honoured.

Lloyd Timberlake claims that subsidies, standards and government regulations are needed. In the report "Vision 2050', environmental companies worked together and understood that the business of today will destroy society and hence destroy their future business. On the other hand, there are vast business opportunities up for grabs where the right conditions are created for the ultimate combination of CleanTech, regulation etc. Sunita Narain comments that global, not national, laws are needed where a country is committed to the green change, not purely because it chooses to act altruistically but because it is the law of the world.

Government regulation and incentives are a large force on the environmental arena of today. Hazardous waste attracts a lot of attention of governments and international treaties put pressures on governments to act and control the pollutants in their respective country. In Sweden, law enforcements have played a big part in putting this country at the forefront of green solutions and CleanTech.

Arena Environmental Focus finished an afternoon workshop by asking the participants what green governance meant to them. Among the suggestions made were local solutions, public private partnerships, the use of existing networks, motivation, trust, education and a supportive institutional framework.

SUNITA NARAIN SPEAKS AT THE OPENING OF THE EXHIBITION KRETSHOPP.

Motivation for Green Change

What's in it for me? was repeated in a mantra-like way during the conference. The Swedish Chamber Academy brought representatives from the Embassies of many of Sida's partner countries to bring to their attention what local solutions are available in regards to green solutions in Västernorrland and Sweden but also as an inspiration for each and every one to look at the needs in their home countries. To the Chamber Academy, the year of 2010 has been dedicated to Green solutions and CleanTech to mark the start of their work in connecting Swedish green solutions with the needs for green solutions elsewhere. Business and policies need to bridge and there has been a change in attitude where the political sector has never felt as welcome as now, Charlotte Nyberg of the Chamber Academy said among her final words.

It is about innovation cooperation, not about one-way knowledge transfer. In the short run the developed countries have an important role in spreading green solutions and CleanTech but in the long run, they have just as much to learn from the development on emerging markets. With climate change and population growth, several parts of the world will face enormous challenges. While tackling and solving these challenges, creative innovations will emerge and with today's endless means of communication, these innovations will spread around the world. As R.C. Mall, IPMA puts it: "Get the global idea, but implement it locally".

To create a huge impact, small improvements in existing techniques are required. The focus for billions of poor people around the world is better housing, cooking, water and healthcare. Green solutions within these areas cannot be more expensive than existing ones just because they are green. They must be green in order to help our planet, but also cheaper or better for the consumer in order to be competitive. If we want green solutions to spread around the world they must be embedded in ordinary products and most importantly add tangible value, Alan Brent pointed out.

We need to build a fairer world and a just world, Sunita Narain said. The question is how to make society change when the scale of the transformation needed is so large that we have not grasped it. There are according to Sunita Narain three opportunities at hand; firstly, if our democracies remain vibrant, media is free, governments chose to listen to the people and the judiciary remains strong, there is an enormous opportunity in the way society can respond to crises and make this change happen. Secondly, talking to paper mills in India, there is proof that not only green mad environmental people talk about the green revolution, but also people in suits want to change. Thirdly, the neighbouring communities of paper mills or other polluters can and will now take businesses to court for polluting their waters or the air, which is another reason for business to take their responsibility. New inventive

approaches will sprung from the poor and we need to look for these solutions that meet the needs of large numbers of people and make them available to the masses. Sunita Narain asks for products that do not go bad or obsolete and that make us live more with less. We need to remain a world that demands change. She also points to the need of a better solution for dealing with human excreta with each time a toilet is flushed as a common global activity being a major waste of water and energy. She also points to the everyday activity of cooking a meal in countries where women collect scarce firewood to cook in very energy inefficient ways while being exposed to the poison of the poor quality cooking arrangement. Maybe a whole generation of cooking stoves is needed to fit the needs of feeding people all over the world?

Emma Lindberg, Lisa Wärmegård and Sofia Edlund, students at KTH Royal Institute of Technology were on their way to Namibia to look at solar cell barbeques and asked Sunita Narain for advice for a successful project. They were asked to find out how people currently cook and what kinds of stoves are used. When we speak of solar cell cooking, we need to know if the cooking is done during the hours of sunlight. An excellent stove was invented a while back but as the people it was made for only cooked on large scale for many people, this stove proved to be too small and hence that particular project failed, Sunita Narain continued. Many alternatives must be developed to fit the various needs of cooking as it relates to one of most common activities in a household.

The public and private sectors need to work together with the local chambers of commerce and consultants with expertise in how to do business in a certain cultural setting. Chris Wise spoke of these issues where he highlights that we have to be careful when telling another country or people how to do things. There are a phenomenal amount of things that can be learned from Sweden in relation to issues in South Africa and the last 1½ days have been very valuable, Chris Wise said. We just have to make sure that we use the right channels for the initiation to the local companies on how to transfer the technology as South Africans are very sensitive to being told by Europeans what to do. The sky is the limit; we are only limited by how the cooperation is set up, the soft issues. When it comes to legislation, we have to remember that poverty elimination and growth are the main priorities for the South African government. Until green and growth works together, legislation will not happen. The opportunity lies in possibilities like what the Swedish Agency for Economic and Regional Growth has informed us about during this conference; the possibility to show and prove demonstration projects in the local arena.

Another motivation for a green change is the local area of the polluter. It is, according to IPMA, a main priority for the paper mills in India to become cleaner for the benefit of the staff working in the plants and for the goodwill of its neighbouring population, ensure their clean air and water supply. Sunita Narain gives an example where the inmates of a jail, neighbouring a paper mill in India, sued the mill for polluting the air with bad odour. When the inmates won their case, the paper mill had to insert odour control in their operations and a local solution was found.

Lars Ling from CleanTech region Jämtland/Västernorrland is motivated by the need to educate each and every one. IT was everything but today he is a firm believer that CleanTech is everything – from the

food we consume today to our visions for the future. This is where the new jobs will be created. Lars Ling has got visions: a social vision – people to meet; an ecological vision – people to change their habits; a technical vision – from short term profit thinking to long term life cycle thinking; an economic vision – there are business opportunities in CleanTech; and a cultural vision – we should be free moving across borders. To reach this new stage we need to go from the old economy to the new economy, leave fears and old habits. With the same old habits there will be the same old results. We need to dare doing the things we have not done before, and it is great to grow, says Lars Ling. Per Dahlén, CleanTech region Singapore speaks of the opportunity that urbanisation creates with a need for new cities and new solutions.

THE GREEN BUSINESS OPPORTUNITY

The climate issue also presents us with an opportunity. While increasing scarcity of minerals and fuels calls for action; there are business opportunities and the early adapters will be the winners of tomorrow.

Gunter Pauli means that a gloomy picture of what is to come will not help. It is a tactic that has been used for a long time but that has failed to deliver change. The opportunity lies in talking to young people, inspiring them to dream and encourage them to go for those dreams. There is no need to wait for the large companies. It is time to change how we perceive business; green solutions and CleanTech innovations respond to the needs of all and there are numerous examples of small business displaying brilliant solutions.

- Water can be cleaned through the simple setup of swirling its way through a pipe system needing no filter or pressure, currently used in Spain.
- In France, wind mills are combined with power plants to use the already existing infrastructure.
- In Bhutan, the more prayer flags that are raised, the more energy is created through a simple energy generation set-up.
- In Sweden, GreenZone walls heat and cool buildings according to the temperature. In Colombia, without the help of subsidies creative minds have started to tap trees for fuel. In turn, more trees are planted, the land value increases and more CO_2 is taken care of.
- In Zimbabwe, a 24 year old woman named Chido has despite her lack of education been able to start exporting coffee. By using the waste from the coffee as fertiliser for mushrooms, she now exports mushrooms to 8 countries. For her workers, there are multiple positive spin-off effects where for example empowered women face less risk of abuse, aids and sex work.

Ola Hildingsson, CEO, Domsjö Bio Refinery brings a message of hope and a practical example of climate smart solutions in business. This paper mill, built in 1903, started out in 1990ths with the slogan "we make more from the tree, use resources better than before". The primary drivers behind the factory today are the forecast of peak oil prices and an unsustainable cotton industry. Anything that is made out of oil can be made out of wood, and the challenge is to make more out of the

tree. Viscose is the main product produced at Domsjö, but one of the latest bi products is lignin which was developed one year ago and has since been exported to 35 countries. This one product will change the use of concrete as by adding it to the mix, a lot less of the concrete is needed, which leads to huge CO_2 and energy savings worldwide. Innovations has played a major part in keeping this mill a successful business and some eight people are employed to solely focus on research on new and improved products. Ola Hildingsson ends by admitting that they are a small player in relation to the overall Swedish paper industry, but adds that there is no correlation between profitability and size.

Tobias Bunne, WSP Environmental AB, talked about the commercialisation of businesses and claims there is potential for added value for businesses, from single entrepreneurs to plants. It is important to communicate the drivers for business and show why it is beneficial for the environment and the region. The business needs to map out and reach its target groups, a difficult but crucial task. A demonstration needs to be tailored to its audience. For a small business this might be through video demonstrations, good paper material etc. while when building a plant, preparations should be made to receive thousands of visitors per year and a demonstration showroom should be incorporated in the business concept. Demonstrations can in themselves be taken advantage of as a business opportunity.

We need the community to know the benefit of a business or plant, Tobias Bunne continued. A larger business has more subsidies to turn to, but it difficult for the small enterprise to market and develop its product. Subsidies are beneficial at an early stage although tend to stagnate development and hinder innovation. To enable marketing and development of innovations, there is a need for a sustainable arena where public, private and academics can work together. For those who cannot afford consultancy, manuals on how to create good management would be helpful and in relation to exports, the public sector has a very important role to play as a facilitator.

Christer Dyrwoold from Scoreline Management AB and Jonny Nordin from Green Global spoke of situations where companies were failing to export, not due to wrong pricing or products but with little understanding of cultural needs and how negotiations are done in a different business environment. Their business and focus today is to connect Swedish business with other countries and vice versa, but ensuring that the appropriate channels for communication and negotiations are used. An example of their work is organising for the Algerian government to visit the Enköping water park in Sweden after they had identified a need for treatment of gray water. Another example is from the Ivory Coast where a need for 10 000 houses was met by sourcing houses made of paralit. These houses do not absorb water, do not burn, nor do they expand or need concrete. The houses are vertical with chicken pens downstairs, garden on the second floor and solar panels on the top floor which was ideal for this area. This concept works by ensuring that both the buyer and the seller receive the outcome they look for, creating a win-win situation. The concept includes a reversible business model where not only Swedish technology is marketed but there is openness towards business opportunities where Sweden is the importer. For example, oranges and tomatoes from Algeria are soon to be found at the Swedish food chains ICA and Coop.

According to Swentec, the share of Swedish CleanTech companies is increasing, despite some of them having merged over the past few years. This change has come about thanks to various types of policy and instruments such as fees. From a local development and employment point of view, a country who imports CleanTech from Sweden can still use local diggers, permits etc and hence gain further benefits locally. An example of a field where Sweden has valuable experiences is waste management. Sweden has strict waste regulation since a long time ago which has given us the knowledge of the whole chain needed for change; formalisation of national targets, how to do procurement, set tender etc as well as experience of the logistics, the recycling centres and materials.

PARTNERSHIPS

Tony Clark, CENTEC, spoke of a Chinese city where 170 ton out of 500 ton restaurant waste per day has been taken care of by CENTEC through implementing Swedish technology and there are plans to extend this project. Another example of CENTEC's work in China is the Caofeidian eco-city project aimed at searching a new model of land saving, renewable energy utilisation and enhancement of the infrastructure construction among other areas of environmental improvement. For a planning and development project of this large scale to work, partnerships are needed on many levels; government, municipality, project, joint venture, academic, NGO and reaching out (e.g. media). There is a huge need of trust, genuine interest in the cooperation process and support in understanding. The various levels of partnerships help build trust and avoid misunderstandings. The Caofeidan Eco-city project has inspired many Ecocity projects in other areas of China.

Håkan Nordin, Miljökompassen, asks why we are doing environmental work? Predictions say that half the Earth may be fried by the year 2300 and perhaps CleanTech is our only hope to counteract this development. In order to avoid this scenario we need to look at our small and medium enterprises (SMEs) and export their ideas and knowledge. After Copenhagen 2009 everyone agrees that we need public-private partnerships (PPP). 1–2 % of businesses may currently be or aspire to be of CleanTech character and the remainder is the market for future CleanTech. SMEs take more unknown risks as they don't have all the stake holders to answer to, but they also miss more opportunities. If these SMEs are aware of the risks/opportunities they can at least make an informed choice as to take them or not and might be our heroes for change.

In the municipality of Sundsvall a lot of work is being done to increase the awareness of SMEs. 150 out of 790 identified companies were rated in the category of greater risk and were offered coaching to identify their green needs. Many SMEs are not used to consultants so to gain trust, validated consultants were important. The representatives of companies must be met in a coaching way, not with the attitude of an expert, and their needs must be discussed from his/her point of view. Give credit and nominations for work well done, suggest their work for articles in the paper, and ensure that they get invited to conferences for further learning etc. 68 companies have been coached with

RC MALL AND R NARAYAN MOORTY MEET TONY CLARK FROM CENTEC CHINA.

expectations of 90 by the end of this project. More than 50 % of the 68 have taken action for climate change and for 2–3 of them; Miljökompassen identified CleanTech solutions that the company had created for the running of their own business that can be marketed as a business in itself. Håkan Nordin encourages the running of such projects globally. There is win-win-win through a better business, businesses that take less risk but more opportunity and are more proud of its work, and a better municipality.

Patterson W. Brown said that USAid's experiences in public private partnerships, with almost one thousand projects over a decade, have been positive with very good impacts, 4 % of these relating to energy and 13 % relating to environmental questions. Global Development Alliances (GDA) are a market-based approach to partnerships between the public and private sectors that address jointly defined business and development objectives. They are also co-funded and managed to ensure that risks, responsibilities and awards are equally shared. It is important for USAid to work with business, not only to try to spark investments but to get the right kinds of investments and then to work alongside those business partners to ensure a sustainable impact. However, the success is based on good business practises. In 2005, the total US resource flow to the developing world reached US$ 164 billion. 83,2 % were private flows which indicates the strong connections that are already established.

Patterson W. Brown said that USAid have set up GDAs with a variety of partners over the past decade including universities, investors, NGOs, diaspora, multinational corporations, think tanks, donors, implementers, local and regional business, local and national governments, religious institutions as well as foundation. Within the environmental field, he highlighted the field of water and identified five broad categories of green alliances that have surfaced: learning and innovation; promoting market expansion for products, technologies or services (challenging as resources might not always match the need on the ground); improving water management; alleviating poverty at "the base of the pyramid" and leveraging partner resources for service provision; and assisting humanitarian relief efforts. An interesting fact is that 40 % of the initial US relief efforts after the recent Haiti earth quake was supplied by the private sector.

Richard Holm from Innventia shared his experience from South Africa where the research-focused company Innventia was faced with a problem of a new dimension with different conditions. He explains it as a win-win situation where they managed to find a solution that helped the local mining company improve their business, energy efficiency and environmental foot print while Innventia gained a great learning in the process. Richard Holm states that we have come to a new stage of partnerships where the rich countries are not simply helping the developing world but where the businesses from the rich world have an opportunity to learn and advance their technology by being faced with new problems.

INNOVATIONS BY SCALE AND SCOPE

Existing businesses in the developed world must understand the logics of doing business with low-income groups. It is business of scale, quality and durability. It is about innovation in the business logic, not only in the product.

To tackle global environmental and climate challenges we will need innovations by scale and scope. Massive small-scale innovation could be possible with support from the public sector. We could only imagine the results if the entrepreneurial spirit among large groups of young people was encouraged. But we also need large-scale innovation driven by multinational corporations. They have the global logistics and their impact is huge.

There is a lot of praise for many small scale solutions, but there is an argument saying that in order to save the planet we need to make these small innovations grow to scale and reach the masses for a positive effect. Another argument is that a shift away from economics of scale is needed with a focus on economics of scope with many units, creating more jobs in local areas. We also need to do more with less and let go of frustrations that an invention will not make it as big as that of the mobile phone. We need to break old cycles and remember that there is a great scope of innovations that can be done within the field of CleanTech. It is not only products but also processes, Berit Gullbransson from Swentec pointed out.

The solutions will be found in innovation cooperation. Where poverty is in decline, new markets develop. It is not about one-way knowledge transfer. In the short run the developed world have an important role in spreading green technology. In the long run they have just as much to learn from the development on emerging markets. With climate change and population growth, several parts of the world will face enormous challenges. While tackling and solving these challenges great innovations will emerge. With the communication possibilities of today, these innovations will spread around the world. As R.C Mall put it: “Get the global idea, but implement it locally.”

Sourcing and Financing Green Solutions

There are a number of tools available from various Swedish agencies to assist in setting up partnerships and technology transfers between regions.

B4D

Johan Åkerblom spoke of Sida's recently launched Business for Development or B4D. The main aim is to stimulate partners to the create relations that will last long after the development cooperation with a country is phased out. Through B4D, Sida is now able to create meeting places and small grants for exploring business opportunities between Sweden and partner countries. There are also schemes for loans and guarantees available; including environmental loans and guarantees to deal with environmental problems. As with all other loans and guarantees, they are completely untied. However, while Swedish companies are in the forefront in the field of CleanTech, there are opportunities for Swedish companies to benefit from the relations made through B4D. In the near future, a challenge fund will be launched which will be aimed at stimulate researchers. If a company in a partner county would like to participate in the B4D program, the first step would be to contact the Swedish embassy in the country or the country team at Sida.

DEMO ENVIRONMENT

Stefan Berry represents DemoEnvironment, an initiative financed by Sida but run by Swedish Agency for Economic and Regional Growth. Applications can be made for pilot studies where a small company in Sweden or elsewhere has a desirable environmental product would like to take this product to a developing country to find a business partner. SMEs from Sweden or elsewhere can apply and approximately 70 applications are processed each year and 10 % are successful in receiving the grand that pays for the trip and the costs to find market/business partner. If a partnership is established and the partner company would like equipment sent for local demonstration/adjustments to a local environmental problem, then DEMO environment can support this financially; a market is created and a environmental solution is sought, win win. The precondition is that it should be new technology for the developing country but sold and tested elsewhere and the buyer takes responsibility for the application project at the stage of demonstration project.

USAID

Companies in the US can contact USAid asking for opportunities to be involved in development work as well as companies abroad can contact USAid with the need for a certain service.

SWENTEC – SWEDFUND

Swentec is commissioned by the Swedish government to create a road map with 82 different measures to find solutions for today's environmental challenges that create jobs and increase export. A new industry must transpire in innovation and particularly eco innovations that go beyond just products to include business modems, processes, marketing, institutions and organisations. We must work on improved government regulations and a new structure where perhaps regions and cross boarder agreements must be reached.

Sweden has a good environmental reputation and is known for the abundance of water and forests. Sweden did early on start with regulations and industry had to adapt, which might be part of the reason of Sweden being in the fore front of environmental technology in the 21st century. Anyone looking for Swedish CleanTech can search the website among the today approximately 1300 companies listed with contact details and also links to their suppliers. Swentec also organises technical visits. The internationalisation process can be done by investment support through Swedfund.

THE SWEDISH ENERGY AGENCY

Michael Rantil, the Swedish Energy Agency, informed about CTI-PFAN. This is a network where the idea is to make people with projects to implement talk to people with funds. He explains how they act as a broker between the money and the project and help present the project to the funders. There are no limits what types of projects can be funded, as long as it will reduce green house gas emissions. There is hope that this will continue past 2012.

CENTEC CHINA

During the last decade Sweden and China have increased their cooperation in the environmental technology field. With strong support from the Swedish International Development Agency (Sida), the Swedish Ministry for Foreign Affairs and the Chinese Ministry of Environmental Protection, the Swedish Embassy Center for Environmental Technology (CENTEC) was set up at the Embassy of Sweden in Beijing in 2007.

Today, CENTEC has become a platform for policy dialogue, capacity building and development of commercial projects in the environmental area between Sweden and China. CENTEC has focused on areas where Sweden possess unique competence and China is looking for solutions, i.e. urban planning, renewable energy, energy efficiency, urban transportation, water supply and treatment, waste handling and disposal, and pollution control and monitoring. CENTEC is today actively facilitating the Swedish involvement in some of the most ambi-

CENTEC, CHINA MEETS SWENTEC, SWEDEN.

tious and innovative environmental technology projects in China and is hoping for a dialogue with the Chinese government on green issues.

CENTEC HANOI

In countries like China, India, Vietnam and South Africa, Sweden has a good reputation. This creates a great opportunity for Swedish businesses to establish connections with these countries which can be assisted by the presence of Swedish government bodies such as the Swedish Embassies. Support is provided in the fields of environment and climate issues under the Sida framework of Partner Driven Cooperation (PDC). Initiatives such as a green solutions conference in 2009 are supported by PDC, where Vietnamese companies showed great interest in connections with Swedish business. CENTEC Hanoi is also supported by PDC and a facilitating arena for the business contacts between Vietnam and Sweden. 10–15 companies in Vietnam have already received assistance with business plans and match making with Swedish companies.

SWEDISH CHAMBERS

Charlotte Nyberg explains the Chamber Academy as a meeting place for developing countries to discuss market access, trade promotion and economic growth. In relation to green issues, they provide a forum to discuss what in the area of CleanTech is important to them? The Swedish market and perhaps also the European market is made up of mall and medium sized business and which have CleanTech solutions that are difficult to get access. The goal for the Chamber Academy is to create a meeting point where issues of CleanTech, development and local solutions are up for discussion.

CLEANTECH REGION

Lars Ling works with CleanTech region Midsweden, originally initiated by the Jämtland County Council together with the Chamber of Midsweden and has since won the award of best CleanTech regional

in competition with 40 other regions in the world. Two magazines with a third on its way is published and distributed globally with the purpose of sharing ideas and contacts. Through CleanTech Singapore and other CleanTech regions in the world, CleanTech can be transferred from one part of the world to another. Between them, Lars Ling and Per Dahlén are convinced and encouraged by the vision of the CleanTech region network growing to include increasing numbers of countries in the world and hence create a huge network that will continue to grow in its mission to facilitate the transfer of green solutions and CleanTech from one end of the world to another.

CONTACTS

Swentec
www.swentec.se/find_cleantech

Swedfund
http://www.swedfund.se/en/

Swedish Agency for Economic and Regional Growth
www.tillvaxtverket.se/demoenvironment

USAid
http://www.usaid.gov/missions/

Sida Partnership Forum / B4D
www.sida.se

Swedish Chambers
http://www.cci.se/en/start/

CleanTech Region Jämtland/Västernorrland
http://www.cleantechregion.com

Swedish Energy Agency: CTI-PHAN
http://www.cti-pfan.net/

Where to From Here?

In a country where champagne is made out of Birch sap, anything is possible, is the end comment from one of the participants during the final session of the conference. Charlotte Nyberg from the Chamber Academy stated in her speech that it is not just about transferring technology that works in local areas of Sweden, it is about finding out what local solutions are needed in various parts of the world. There is hope; with the technology of today most challenges can be solved. The opportunity to improve the situation for the poor of the world as well as to reduce the risk of a climate change related crises lies in creating a dialogue between the actors who have got the green solutions/innovations, the researchers and the local areas in the world where the needs are to be identified. We need to solve the large scale problems such as sewerage, energy and water issues as well as waste management with small scale solutions that work on an individual level. We also need the multinational companies to work towards sustainable solutions in regards to pollution from industry and the modern luxuries such as cars while our governments must put cross national regulations in place to make the green change a reality.

There is a consensus that today's climate scare displays a huge opportunity for the environment, the innovator and the business man/woman. A whole new way of thinking is on the rise with the need for completely new products and solutions, hence a new market with new business opportunities. We also have to remember to look at the full chain of events that take place when we invent a new product or implement a new process. According to Gunter Pauli, for the least ecological foot print we must base our inventions on the law of physics for it to be zero. When basing the inventions on the laws of biology it is hard to predict accurate results and if basing them on the laws of chemistry the inventions will most definitely be associated with an environmental impact. There needs to be a thorough evaluation both existing products and processes and the effects of new inventions.

We have to ensure that what makes a green solution in our local neighbourhood does not have bad effects elsewhere in the world, before or after a product is in our hands. We need to improve how we look at the full life cycle and effects of all products and services regardless of where in the world we are based. Green solutions and CleanTech or the lack thereof affects us on a global level. Considering the amount of emissions that for a long time have come from the now developed world, there is no doubt that the richer countries need to be at the forefront of this new way of thinking and its burning issues.

Lars Ling, CleanTech Region asks us: "what is it that you really, really want? This is the most important question in the world, and it starts with you". When leaving this conference we are encouraged to take small steps towards long term profitable sustainable business. As our moderator Harry McNeil stated during these two days; the

scene is set. We need to work together to investigate green solutions and the discussions need to take place in our minds as well as between each other as individuals, businesses, researchers and government bodies.

At the end of the conference, each participant was given 20 seconds to state what action they will take when leaving this venue. Sophia from the Chamber Academy looks forward to hearing the partner countries" needs for green solutions and will create a meeting opportunity this autumn where Swedish companies will be invited and matched with the needs that the Embassies have highlighted. Per Dahlén from Clean-Tech Singapore celebrates the birth of CleanTech Kenya and Botswana along with bringing the first Swedish company to Singapore through CleanTech region. R. Narayan Moorthy from India finishes with the words; "we are borrowing this earth from our children and it is our great responsibility to leave it in a condition they can use".

Niclas Hällström, Swedish Society for Nature Conservation, compliments on the fact that the private sector is now involved in events organised by Sida Partnership Forum. Throughout this conference, the need for arenas where all different actors can meet to solve problems, exchange ideas and get inspiration has been emphasised. Hopefully this conference has created one of these opportunities.

A PRACTICAL EXAMPLE OF IDEAS FOR COOPERATION AFTER THE CONFERENCE

Chris Wise, Jeffares & Green, South Africa
Eskom (the South African energy utility) has just put out a proposal call for consultants to advise them on how to use wood in their coal power stations. I have already made contact with Swentec who have put me in contact with someone to partner with.
We are currently working on a project to treat landfill leachate at a large hazardous landfill site. The process needs a carbon source, such as ethanol or glycerol. Currently we are planning to buy glycerol commercially. However, the site also receives a lot of garden refuse and we would very much like to find a way to digest the garden refuse to make ethanol. This is something I think the Sweden has lots of experience in.
There are a number of wastewater treatment works around South Africa that have old anaerobic digesters that are not being used. These should be able to be used for power generation using waste sludge. There is a project in particular in KwaZulu Natal that we have put in an expression of interest to do exactly that and I would like set up a partnership with the client should we get that project.

SUGGESTION FOR IMPROVEMENT

Chris Wise comments that the tools presented during this conference are phenomenal and an understanding of what is out there creates a whole new host of possibilities. What is lacking is perhaps something with more clarity as to who to contact in a more cohesive and understandable format.

PROGRAM

Monday May 17

17.00 Inauguration of Sida Partnership Forum
Magnus Lindell, Assistant Director General, Sida

Tuesday May 18

Venue: Härnösand's Theater, Storgatan 9, 871 29 Härnösand
Moderator: Harry McNeil

09:00–17:00 Green Solutions Expo
Information from the private, public and civil sectors

09:00 Registration

10.00–11.30 Official opening and welcome
Bo Källstrand, County Governor of the County of Västernorrland

Sustainable Solutions & Sustainable Development

Magnus Lindell, Assistant Director General, Sida

Perspectives on Green Solutions and CleanTech

Charlotte Nyberg, Head of International Department, Swedish Chambers of Commerce, R. C. Mall, Chairman, Tech & Environment Sub-Committee and R. Narayan Moorthy, Secretary General, Indian Paper Manufacturers' Association (IPMA), India, Chris Wise, Jeffares & Green (Pty) Ltd. Consulting Engineers, South Africa
Ola Hildingsson, Director General, Domsjö Fabriker AB

11.30–12.00 Opening Ceremony: Exhibition "Kretshopp"
Guest Speaker: Sunita Narain, Centre for Science and Environment (CSE)
By: Technichus – Exhibition open for viewing until 18:00

12.00–13.00 Lunch

13.00–14.00 The market for innovations
Harry McNeil, The Swedish Institute of International Affairs (SIIA), Berit Gullbransson, Director General, Swentec, Gunter Pauli, ZERI Foundation – 100 Innovations, Sunita Narain, Centre for Science and Environment (CSE), Lloyd Timberlake, World Business Council for Sustainable Development (WBCSD) – Vision 2050

14.30–16.00 Four parallel sessions

- Business for Development and CleanTech
  Meet Sida and Swentec – Venue: Sida B4D display in the lobby
- Vision 2050
  Meet Lloyd Timberlake, Sunita Narain and Niclas Hällström – Venue: The large theater stage
- The Blue Economy
  Meet Gunter Pauli ZERI Foundation – Venue: Lobby
- Seminar about Green Governance – new leadership for new solutions
  Arena Environmental Focus, County of Västernorrland – Venue: The small theater stage

14:30–14:40 Introduction
Lidia Suokko/Elin Mattsson Tano, Environmental Focus in Västernorrland

14:40–15:00 The European Perspective on Cleantech Technologies and Regional Development
Olle Lundgren, County Administrative Board of Jämtland

15:00–15:20 Can We Commercialise CleanTech Technologies in Cleantech Plants
Tobias Bunne, WSP Environmental AB

15:20–15:40 Regional Green Action for Small and Medium Size Enterprises (SME)
Håkan Nordin, Senior Consultant Miljökompassen AB

15:40–16:00 Workshop: How can we develop our Green Governance?
Lidia Suokko/Elin Mattsson Tano, Environmental Focus in Västernorrland

16:00–17:15 CleanTech Experiences
Tony Clark, Head of the Swedish Embassy Center for Environmental Technology (CENTEC), Beijing
Arati Davis, Swedish Embassy, India, Mikael Olshammar, Sida Team Vietnam, Christer Dyrwoold, Scoreline Management AB

19.00 Evening seminar incl. climate smart dinner
You are invited to a joyful seminar close to nature where locals meet guests from far afield.
This experience aims to highlight that a life in balance with nature is the path to sustainable living.
We welcome you to join us in an evening enriching all senses. A few hours of celebration beyond the norm will have you enjoying the nectar of birch, opera, local produce, traditional dancing, spoon orchestra, the sounds of cheep and much more.
Venue: St. Petri Logen, Brunnshusgatan 1, 871 31 Härnösand

By: Grythytte Academy; St. Petrilogen; Härnösand's High School; Kapellberg's School of Music;
Härnösand's College; Tomas Gönczi

Wednesday May 19

Venue: Härnösand's Theater, Storgatan 9, 871 29 Härnösand
Moderator: Harry McNeil

08:30–16:00 **Green Solutions Expo**

Information from the private, public and civil sectors

08:30–18:00 **Exhibition "Kretshopp"**

By: Technichus

09.00–10.40 **Sourcing and Financing Green Solutions**

Berit Gullbransson/ David Björneloo, Swentec
Patterson W. Brown, USAID Humanitarian Assistance and Food Security Advisor, U. S. Mission to the European Union
Stefan Berry, Swedish Agency for Economic and Regional Growth
Johan Åkerblom, Sida Business for Development (B4D)
Lars Ling/ Per Dahlén, CleanTech Region MidSweden/Singapore

11.00–12.30 Global **Partner Perspectives**

Prof. Alan Brent, Centre for Renewable and Sustainable Energy Studies, Stellenbosch University, South Africa
R. C. Mall, Chairman, Tech & Environment Sub-Committee and R. Narayan Moorthy, Secretary General, Indian Paper Manufacturers' Association (IPMA), India
Chris Wise, Jeffares & Green (Pty) Ltd. Consulting Engineers, South Africa
Michael Rantil, Senior Advisor, Technology Department, Swedish Energy Agency
Richard Holm, Innventia AB

12.30–13.15 **Lunch buffet**

13.15–14.15 **What Next? A Green Energy Revolution for climate and development?**

Niclas Hällström, What Next Exchange/ Swedish Society for Nature Conservation
Next step towards matchmaking for "Green Solutions, Clean Tech and Development' Chamber Academy

14.15 **End of conference**

15.00 **Optional visit to CleanTech Demonstration Showroom**

Council of Västernorrland, Härnösand

Thursday May 20

09:00–16:00 **Optional CleanTech company visit and bus tour of Västernorrland, incl. lunch (Free of charge for conference participant)**

Arena Environmental Focus, County of Västernorrland

8:30 Departure from Sida´s main entrance; Södra vägen 3 D, 871 40 Härnösand. Guide: Mats Henriksson, the County Administrative Board of Västernorrland.

10:00 – 12:00 Visit to the Domsjö Development Area in Örnsköldsvik where advanced biorefiner activities are taking place.

12:00 – 13:00 Lunch at the Restaurant Bruket.

13:00 – 16:00 Return trip from Örnsköldsvik to Härnösand including a stop at Naturum Höga Kusten – a visitor centre at the foot of Skuleberget. At the visitor centre we will be provided information on post- glacial rebound, geology, life in Höga kusten and Solar Technology. Since 2000 Höga Kusten has been listed as a UNESCO World Heritage.

16:00 Estimated end of tour and arrival time in Härnösand.

Study visits

- The last point on the conference agenda was a study visit to the hospital grounds where Joakim Byström från Absolicon showed us their solar panels displayed on the roof of Härnösand's hospital, generating energy as well as heating. Further information about CleanTech from this region was also given by Joakim Byström.
- The day after the conference, Arena Environmental Focus arranged a study trip to Domsjö Fabriker in Örnsköldsvik where representatives for the various companies from the cluster that makes the products from this industrial area welcomed us in the green room for information. After this session, a study tour on foot was offered. This is an important way of receiving information that can be highly recommended if it is geographically feasible to visit a plant. Mats Henriksson from the County Administrative Board of Västernorrland was our tour guide and gave very valuable information about the area we travelled through to get to and from Önsköldsvik. On the

ABSOLICON, CEO JOACHIM BYSTRÖM WITH INTERESTED PARTICIPANTS.

return journey to Härnösand we were treated to a visit at Naturum, a place where the unique geology of the High Coast is explained in a beautiful setting.

Green solutions expo

CleanTech companies from the region alongside other agencies had the opportunity to expose their green solutions at the venue of the conference as another means of spreading information. We thank Absolicon Solar Concentrator AB, Air Star AB, CENTEC, CleanTech region, Sida/B4D, Solljus AB, Solvatten AB and WSP Environmental AB for their contribution.

Kretshopp

This conference was organized alongside Technichus inauguration of the exposition "Kretshopp". Sunita Narain, CSE, officially opened "Kretshopp" at 11:30 on Tuesday the 18 of May 2010. An outdoor and sunny setting with music, local food and traditional costumes made this a memorable occasion.

Following the inauguration, Technichus arranged a dinner for all senses to which all conference participants were invited. An evening out of the ordinary gave us all a feel of what this region has to offer and also gave a convincing example of how we can enjoy and live of what our local surroundings have to offer.

Dinner menu
*
Salmon tartar
Grythyttan Sparkling Björk, 2008 – Per Fritzell, Grythyttan vin, Sweden
*
Classic toast with bleak roe – sour cream and onion
Smoked heart of reindeer – flatbread and horseradish
Pickled herring – chives and dark rye bread
Fresh radish in malt soil
Alter Hedens birch juice – Alter Hedens Rabarberi, Sweden
*
Fish stew with char from Nils Nyholm, mussels and vegetables,
Dill emulsion and sourdough bread
Zeunerts Merke 2.25 % – Kopparbergs bryggeri, Sweden
*
Selection of cheeses with crisp bread and rhubarb marmalade
Camembert cheese, Rotsjö gård, Sweden
Kivik dry apple cider – Kiviks musteri, Sweden
*
Rhubarb compote with vanilla custard and crunchy pieces of pastry
Homemade rhubarb and elderflower consommé spiced with
Cinnamon and vanilla

Participants

Aldabbagh Adel	Tillväxt Irak Gruppen
Avenas AnneLi	Sida
Bartal David	journalist
Belhadj Ahmed	Embassy of Morocco
Benedictsson Carolina	Sida
Bengtsson Kerstin	Sida
Berry Stefan	Swedish Agency for Economic and Regional Growth
Bhatti Javed Akbar	Embassy of Pakistan
Björneloo David	Swentec
Björs Peter	Air Star AB
Blomstrand Lena	Sida
Bonta Maja	Sida
Borromeo Hedfors Mary	Embassy of the Philippines
Brent Alan	Stellenbosch University, Centre for Renewable and Sustainable Energy Studies
Brown Patterson	USAID
Bunne Tobias	WSP Environmental
Byström Joakim	Absolicon Solar Concentrator AB
Bång Åsa	Sida
Böhlin Bertil	Municipality of Kramfors
Chiremba Tongayi	Embassy of the Republic of Zimbabwe
Chorell Olle County	Administrative Board of Västernorrland
Clark Tony	Embassy of Sweden Beijing
Dahlén Per	CleanTech Region Singapore
Davis Arati	Embassy of Sweden New Dehli
De Vera Sydney	Embassy of the Philippines
dos Santos José Leitao	Embassy of the Republic of Angola
Dyrwoold Christer	Scoreline Management AB
Edblad Pia	ALMI Företagspartner Mitt AB
Edlund Sofia	KTH Royal Institute of Technology
Embren Kaj	Partner Respect
Eriksson Anja	Sida
Eriksson Benny	County Council of Västernorrland
Eriksson Thomas	Innventia AB
Faxgård Erik	ICLD – International Center for Local Democracy
Gilmark Lillian	Technichus
Goës Ewa	Swedish Green Party
Gullbransson Berit	Swentec

Gürler Emre	Africa's Potential
Hagman Micael	Ministry for Foreign Affairs
Hedar Catarina	Swentec
Henriksson Berth	Municipality of Timrå
Henriksson Mats	County Administrative Board of Västernorrland
Hildingsson Ola	Domsjö Fabriker AB
Holm Richard	Innventia AB
Hurtig Sara	Sida
Hällström Niclas	What Next Exchange/Swedish Society for Nature Conservation
Iftikhar Farroq	Lahore Chamber of Commerce
Jacobson Carolina	Sida
Jansson Dick	Mid Sweden Chamber of Commerce
Jonzon Dag	Sida Aktörsteamet
Klein Patricia	Embassy of Colombia
Korolczuk Ewa	journalist
Krook Malin	Sida
Källstrand Bo	County of Västernorrland
Lahti Torbjörn	Sustainable Sweden
Lampinen Jan-Olov	Municipality of Sundsvall
Lindberg Emma	KTH Royal Institute of Technology
Lindell Magnus	Sida
Lindner Norberg Britt	Embassy of Sweden Beijing
Ling Lars	CleanTech Region Solutions
Longueville Anna	Association of Local Authorities Västernorrland County
Lundgren Olle	County Administrative Board of Jämtland
Lundvall Fredrik	County Council of Västernorrland
Lööf Henny	Embassy of Indonesia
Mall Rameshchandra	IPMA
Mall Shashikala	IPMA
Mall Surabhi	IPMA
Martinez Claudia Maria	Embassy of Honduras
Mattsson Tano Elin	Arena Environmental Focus Västernorrland
McNeil Harry Swedish	Institute of International Affairs
Mengesha Mekbib	Embassy of Ethiopia
Mitu Mihai	Embassy of Moldovia
Moorthy R Narayan	IPMA
Moorthy Shyamala	IPMA
Morales Jai	Embassy of Guatemala
Mtamboh Anne L	Embassy of Zambia
Muigai Alex	Sida
Mumtaz Ijaz Ahmed	Lahore Chamber of Commerce
Munodawafa Bebra Gerald	Embassy of the Republic of Zimbabwe
Möller Rut	Sida
Narain Sunita	CSE

Nilsmo Ola	Sida
Nilsson Leif	Municipality of Sundsvall
Nordin Håkan	Miljökompassen
Nordin Jonny	Green Global
Nyberg Charlotte	Stockholm Chamber of Commerce
Nygård Sophia	Stockholm Chamber of Commerce
Nyquist Anders	Anders Nyquist Arkitektkontor AB
Nyquist Ingrid	Anders Nyquist Arkitektkontor AB
Olshammar Mikael	Sida
Ottosson Sverker	Municipality of Sundsvall
Pacurucu Saúl	Embassy of Ecuador
Pagou Alain Roger	Embassy of Cameroon
Pauli Gunter	ZERI Foundation
Pauli Mrs	ZERI Foundation
Persson Birgitta	Energisamverkan Norr
Persson Pelle	Sida
Rantil Michael	Swedish Energy Agency
Rapp Erik	Municipality of Ånge
Rönnbäck Patrik	SWEDESD
Sandgren Carina	Municipality of Sundsvall
Sichizuwe Musokotwane	Embassy of Zambia
Sjöblom Roland	GRS.con
Sjölund Peter	Argentum Environment AB
Sjöström Jan	ALMI Företagspartner Mitt AB
Stenbeck Sten	Botswana Innovation Hub, Ministry of Communications
Strindlund Peter	Sida
Strinnholm Anders	Miljökompassen
Suokko Lidia	County Administrative Board of Västernorrland
Thanh Hai Pham	Embassy of Vietnam
Thorsell Johan	Swentec
Timberlake Lloyd	WBCSD
Ulander Nina	Sida
Wadman Sven	Jegrelius
Wadström David	Solvatten AB
Wennerklev Sten	Solljus AB single room/enkelrum Sida
Widerberg Birgitta	Municipality of Kramfors
Wikander Sofie	Stockholm Chamber of Commerce
Wikström Dennis	ALMI Företagspartner Mitt AB
Wise Chris	Jeffares & Green Ltd
Wärmegård Ewa	Sida
Wärmegård Lisa	KTH Royal Institute of Technology
Yu Ping	Embassy of Sweden Beijing
Åberg AnnLis	Sida
Åkerblom Johan	Sida


Swedish Chambers


Investing in your future
EUROPEAN UNION
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Development Fund


TECHNICHUS


COUNTY ADMINISTRATIVE BOARD
OF VÄSTERNORRLAND


CleanTech
Region


ARENA
ENVIRONMENTAL FOCUS
VÄSTERNORRLAND


SWENTEC
Sveriges miljöteknikråd

Sida works according to directives of the Swedish Parliament and Government to reduce poverty in the world, a task that requires cooperation and persistence. Through development cooperation, Sweden assists countries in Africa, Asia, Europe and Latin America. Each country is responsible for its own development. Sida provides resources and develops knowledge, skills and expertise.
This increases the world's prosperity.

It is About Change, a Green Change.

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Sida