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# BSDS 2015 – Brussels Sustainable Development Summit

## The last stop before Paris

**How can we contribute to sustainable development goals and boost economic growth at the same time? At the Second Brussels Sustainable Development Summit (BSDS) opinion leaders, policy makers and professionals from academia and industry all over the world exchanged insights and formulated strategies and actions on how to put sustainable economic growth into practice. Dirk Fransaer, managing director of the Flemish Institute for Technological Research (VITO): "We must stop talking about sustainability in terms of obligations. Let's start seeing it as a great opportunity."**

All too often, people have the perception that reaching the climate goals is inevitably linked with economic downturn. Nothing could be further from the truth. VITO (Flemish Institute for Technological Research, Belgium) and TERI (The Energy and Resources Institute, India) want to stimulate investors, policy makers, universities and knowledge institutions, SMEs and large companies to put innovation and sustainable development high on the agenda. By organizing an international summit about sustainable development every two years, they want to emphasize and spread this strong ambition.

Over the course of an intensive two-day program, thought leaders, policy makers and internationally renowned delegates of academia and industry gave a critical but a positive view on what a sustainable future should look like, which challenges we are facing and how we should attack them. The key subjects of the summit were sustainable development through innovation and investment, and how to turn the climate problem into economic opportunities.

In five parallel sessions, the attendees had in-depth discussions on issues such as innovative value chains, local climate action plans, carbon capture and utilisation, smart cities and business opportunities in the cleantech industry. The congress was the last in a series of sustainable conferences that have been organised since the Rio+20 Conference in June 2012 and could be considered as 'the last stop' before COP21 in Paris in December 2015.

**The time is now**

In six weeks, all eyes will be on the Climate Conference in Paris. Will the Heads of State come to a deal ambitious enough to avoid the global warming from exceeding the critical 2°C? Will the final contributions be sufficient to start to really tackle climate change? For **Rajendra K. Pachauri,** director general of The Energy and Resources Institute (TERI), things are very clear: "The next five to ten years are crucial. By postponing actions, we really make the things difficult for ourselves, for our children and for the next generations. But we should look further than merely limiting climate change, there is a whole range of co-benefits we have to take into account, like energy security, lower levels of local pollution and the resultant positive health effects."

That we have to tackle climate change and that it has to happen now is also the strong belief of **Graciela Chichilnisky**, founder and CEO of Global Thermostat, the company that created the 'Carbon Negative Technology'™. "Taking $CO_2$ out of the air is the only way to close the carbon cycle and counter climate change", she said. "When you can do it at a meaningful scale, in a profitable way and utilize the $CO_2$ as a renewable resource for commercial purposes, you have a solid business model. And that is exactly what Carbon Negative Technology is about." Clean energy is even more important for developing nations, said Chichilnisky. "We can't ask them to reduce the energy they need to conquer poverty. What they need is clean energy, carbon negative energy."

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**High ambitions**

**Maroš Šefcovic**, European Commission Vice-President for the Energy Union looked ahead to COP 21, the Climate Conference in Paris. He presented the ambitions of the EU at the eve of this milestone and reflected on the expectations he has from it. "This is the start of a new era. It is not about winners and losers anymore; this time all of us will win or all of us will lose. It's not only about saving the planet, it's about saving our children and all future generations. As a result we have to act very decisively now. The EU is committed to reach a deal and in order to succeed in countering the climate change, we have to keep mobilizing the global community so that all final contributions are sufficient. We need operational long-term goals and an agreement which is measurable, applicable to all, and comprises actions that are a spring board to businesses, cities and civil societies." Šefcovic also shared with the public the four things that he considers as crucial for the success of the necessary transition in Europe and in the world: energy efficiency, circular economy, social change and a profound transformation of the electricity market.

How exactly do we transform the world into a greener one? **Paul Anastas** is professor and director of the Teresa and H. John Heinz III Foundation and inventor of the term 'green chemistry'. "What we need is a shift in thinking about what is possible and impossible, what is knowable and unknowable and what is our role in the universe. Green chemistry is a new perspective and is about looking at challenges from a system perspective: energy, water, agriculture, …. Big data, integrated sensors, 3D printing, artificial intelligence, synthetic biology: we have to couple all these domains to realize the huge transformational change we need."

**Financial innovation**

In the transition towards sustainable development, financial innovation is key too. **Christian Häuselmann**, co-founder of Swisscleantech and co-founder of the Global Cleantech Cluster Association (GCCA) explained the importance of MARF, the Multi-Asset Renewal Fund. "This financial mechanism identifies, assesses and bundles companies along value chains, emerging new industries and clusters. Instead of allocating the budget to one company, this mechanism provides money for 40-50 companies at a time, deploying their technologies in a much more efficient way and providing the returns that pension fund needs. The model has proved its worth in Finland and we are now exploring other horizons, including Flanders."

**Economy & entrepreneurship**

**Howard Gutman**, managing director of The Gutman Group and former United States Ambassador to Belgium, says that profitability is essential to reaching climate goals: "Any technological advancement only has a chance if it can reap huge profits; creating a greener world is just a bi-product. As long as good climate policy is synonymous with bad economic policy or as long as good climate conduct is linked with economic self-sacrifice, we will not solve the climate issue. We radically need to change the dichotomy between environment and climate on the one hand and economy and prosperity on the other. The international discussion must therefore be focused on fostering the entrepreneurship and the technology."

**Sustainable energy in developing countries**

According to **Venkatesh Valluri**, chairman and president of Valluri Technology Accelerators, developing countries face completely different challenges compared to the Western world with regards to energy. For instance a large part of the Indian population lacks basic needs and the country's infrastructure has become dilapidated. The country is tackling this issue by designing smart solutions and technologies that are adapted to the needs of its citizens. That means solutions need to be adapted to a large population and have a fairly low price point. "This way of thinking will become more prevalent in the future, also in Europe. New technology will be based on market demands."

But not all developing countries embrace innovation the way India does. **Kevin Conrad**, director for the Coalition of Rainforest Nations explains: “Poor countries like Papua New Guinea are still struggling with the world of technology. Instead of pretending that local people threaten the rainforests, we need to develop sustainable business models that enable local communities to live harmoniously in the forests and apply that technology that will significantly improve their lives.” Although he thinks the Paris agreement will be flawed, Conrad is still hopeful. He believes the private sector can play a key role. “Business through technological innovation is responsible for climate change. The challenge is now to use technology as a leverage to solve the crisis.”

Yet today 80 percent of our energy sources are still carbon-based. **Dirk Fransaer**, managing director of VITO, confronted the public with a paradox in the sustainability debate and the goals we set. “In a non-subsidised market in Western-Europe, wind energy and solar panels can still not compete with fossil fuels. European countries can profit from governmental subsidies, but this is not the case in developing countries. Goal 7 of the sustainable development goals – ensure access to affordable, reliable, sustainable and modern energy for all – therefore seems difficult to reach without a recourse to carbonbased energy. Developing countries need cheap energy sources to spur economic growth, but to save the planet we need to rely on sustainable but still more expensive energy. One of our priorities should be to reconcile these goals. This cannot be achieved by making carbonbased energy more expensive but by lowering the cost for renewable energy.”

**Modelling the world**

**Bert de Vries**, co-founder and member of the Institute for Energy and Environment (IVEM) is an expert in global change integrated assessment models and has contributed to modelling and scenario construction for the Intergovernmental Panel on Climate Change (IPCC). De Vries made a case for local, bottom-up initiatives. “In the past, we developed huge models and top-down initiatives, and we saw a lot of local commitment. And yet, these sophisticated models and idealistic people ran into roadblocks such as system inertia. To really make them work, we should apply our sophisticated models in local situations and show local results, in order to empower people towards creating sustainable development. Further, we should use technology and government initiatives to strengthen this local dynamism, and evaluate if collectively, we are heading in the right direction. I’ve noticed that in many places, bottom-up initiatives fuelled by committed people are really making a change.”

**Sas van Rouveroij**, head of cabinet, of Annemie Turtelboom, Vice minister-president and Flemish minister of Finances, Budget and Energy agrees that mere governmental efforts will not change the attitudes on climate change. “This is a matter we have to address as a civil society as a whole.” Flanders will strive to carry out fundamental changes in its energy system and aim to implement renewable energy and smart policies that focus on innovation and cost reduction, says van Rouveroij. “We have developed a fast lane for wind energy along with our colleague, minister of Environment Joke Schauvliege. Together we have mapped out the technical and socially acceptable potential for wind turbines in Flanders. By 2016, the Flemish Energy Agency will draft a script to connect initiators and local communities. In this way, we can make sure that projects will be supported by every member of our society. We want to boost the solar energy sector by creating a charter for group purchases of solar panels. We intend to further lower investment costs, provide good services and support local employment. By the end of 2015 we will produce a heat map, powered by VITO. This map shows the heat points and heat supply in Flanders; it forms the basis for an general cost benefit analysis.”

**Conclusion of the discussions held in the five tracks**

**Track 1 - Innovative value chains for sustainable process industries**

Europe's process industries face a crucial challenge to rejuvenate in order to become more competitive and sustainable at the same time, leading to European growth and jobs. How to achieve this is not only a major topic of debate in EU, national and Flemish platforms, it also was the focal point of discussion in the **track on innovative value chains.**

One of the key discussions in this track was about the status of new **technologies of $CO_2$ utilisation**. What is the 'ideal' molecule produced as a result of the $CO_2$ conversion? Several demonstration projects were presented. As an example, a breakthrough in carbon usage could be found in **methanol**, with only a cost gap of 1/3 between current oil prices and those products obtained by $CO_2$ valorisation – a price gap that seems bridgeable with technological progress, appropriate $CO_2$ taxation and available energy at low cost. It is expected that within five years, there will be sufficient low or no cost renewable energy available to make such processes viable.

Although currently applied by early industrial adopters, the biochemistry is clearly on the move. Examples of biobased polymers in the packaging industry could lead to significant $CO_2$ reduction impacts. In the debates on biobased economy, **communication** and **trust** at customer level were highlighted as important issues. The perception of the customer of the added value of the biobased product is crucial. At the same time it was stated that both bio- and fossil-based solutions have their benefits.

**Track 2 - Regional sustainable development**

In the **regional sustainable development track**, the question was raised whether and how systems dynamics models can be used more effectively in practical planning and decision-making for sustainable regional development.

In order to pinpoint the systemic changes needed for a transition towards a more sustainable Flanders, EU and world, direct cause and effect relations give too limited an insight. Rather, a deep understanding of the **intricate interlinked nature of the key processes** is required. Systems dynamics models can represent the natural-socio-economic-technological system in an integrated manner. Thus they are tools for making complexity more tangible.

However, quantitative models remain technical instruments with limitations hampering their application in practical planning and policy-making. The **gap between academic and societal knowledge** is one such limitation. Successful deployment of systems dynamics models thus should involve stakeholder participation and consider the cultural identity of the societal groups involved. Linked to this and also discussed in the track is the **difference in timescale** between technological change and organizational change and the way in which this creates tensions in change processes.

In Track 2 the '**Systems Dynamics Model Flanders**' was used for the first time. The model features a series of sustainability indictors to show the sustainability of Flanders. In this interactive session, participants were able to experiment with various parameters representing policy drivers as well as technological innovation, adjusting them in order to increase Flanders' sustainability.

**Track 3 - Carbon capture and utilisation (CCU)**

Carbon dioxide ($CO_2$) has great potential as a sustainable carbon resource. Therefore, $CO_2$ utilization has recently evolved from an academic interest to an economically-viable technology. The **carbon capture and utilization (CCU) track** brought together researchers from academia and industry to discuss the state-of-the-art in $CO_2$ capture and utilization.

CCU offers many possibilities of improving or even **closing carbon cycles.** However, it is dependent upon the **availability of large quantities of renewable energy.** The peaks of excess energy can then be stored in added value chemicals and liquid fuels. The potential benefits these technologies can generate are huge. Attendees agreed that CCU must be developed in a global context.

During the sessions, the importance of **good communication** came up. The public should understand the principles of CCU in the correct way. Even though research institutes are making rapid progress and the first commercial plants are already up-and-running, there are still **many challenges and barriers to overcome**, such as the unfavourable thermodynamics and kinetics of some of the processes, supply chain logistics and economics, public acceptance and socio-political issues. The barriers are not insurmountable but nevertheless need to be actively addressed.

**Track 4 - Smart cities India and Europe**

Cities of tomorrow are being formed today. Tapping into the innovation potential of cities has become a central challenge in developing local and global sustainability. This also was the central theme of the **smart cities track.** Europe and India were chosen as focal points in the discussion, both embracing different challenges.

Even in a situation where Europe and India have a longstanding familiarity with each other, the **competition** for the 100 smart city **contracts** in India is now global, and Europe should not rely on its traditional, preferential position in this respect. Still India is looking to Europe for particular assets and experiences to share. These can be in fields such as citizen participation and the establishment of effective **public-private partnership (PPP) processes**, in setting up calls, tenders etc.

There is a clear need for networking, mutual learning and upscaling in a smart way. The 20 cities that kick off now are not standalones and there should be a maximum take up from their experiences. India is working on these networks, e.g. at the level of the states, but it can learn from Europe, which has unique experiences to share here (e.g. the Covenant of Mayors).

Through its smart city program India lives up to its democratic traditions, and hence there is a need to focus on **citizen participation** on the one hand, and on improved living conditions for all on the other hand. Here as well, Europe can come in and assist as a partner with expertise in participation, co-creation and socially sensitive urban planning. From the financial point of view, the session looked at how **big budgets can be trickled down into human-scale budgets** at the community level and at the scale of human needs and demands. Other topics of discussion included the **interdisciplinary working** and the need for **smartness and IT as a vital support layer**.

**Track 5 - Cleantech industry – investability – business opportunities**

For SMEs that develop and commercialize innovative clean technologies, survival or growth most often requires the right balance, rhythm and timing between finding strategic business partners and finding investors. On top of that, strategies for crossing borders, entering emerging markets, and so on are often key to a sound business case. The **track on Cleantech industry and its investability,** organized by the Flanders Cleantech Association (FCA), consisted of two parts: on day 1, the investability of cleantech SMEs was measured; on day 2, possible partners were brought together to discuss business opportunities.

*How investable are innovative Cleantech SMEs?*

The session started with Peter Adriaens, professor of Engineering and Entrepreneurship at the University of Michigan, who presented his **validated mathematical model**, which can be used to objectively predict whether an SME is investable or not and what type of money is most suitable.

In the special format of a Pitch & Debate Lounge set, cleantech SMEs pitched their businesses to potential investors, corporates, banks and the audience. Corporates such as Umicore, Afga Graphics, Bekaert, Janssen Pharmaceutica and GDF Suez (Engie) were present to **judge whether the participating SMEs were investable and attractive**. Regional

development agencies, regional cluster managers, SMEs from other parts of Europe and venture capitalists also took part in the discussions with the presenting SMEs.

Even though super instruments can forecast the investability of an SME and what type of finance suits a business, SMEs are stimulated to look further than the micro level, i.e. just running their own business. If they don't want to miss any opportunity, they should go to the **macro and even the global level**. Not only in terms of value chain-driven thinking, but also geographically, by crossing the border, and by introducing multi-asset thinking. Only then, will new opportunities come up and get de-risked.

*Business Opportunities Shopping Mall*

Prior to the congress, participants were invited to sign up for a partner match session where they could meet with potential partners. During the **business opportunities session**, these possible future partners were brought together to discuss business.

**Poster award**

Out of 36 posters on sustainable development, **Monish Ahuja's** was selected as the winner of the poster award. Mr. Ahuja works for **Punjab Renewable Energy Systems Private Limited (PRESPL)**. This company focuses on agri-residue biomass aggregation for biomass-based power plants.

His poster explained a case study in rural India, where, by means of supply-chain management, the supply of agricultural waste to a biomass power plant lead to extra income for the farmers.