

Editors' Note - Has COP21 revived carbon markets?

When French Foreign Affairs Minister Laurent Fabius concluded the Paris Climate Summit (COP21) on 12 December of last year, a new international climate agreement had been reached. The Paris Agreement has been called historical as it is the first time that both developed and developing countries will work on reducing their GHG emissions. Together, countries will work on "holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing to limit the temperature increase to 1.5 °C above pre-industrial levels."¹

Tactics

'Paris' was in several ways different from earlier COPs. The negotiation process turned out to be a study book example of how important

the negotiation process and negotiation tactics are for a successful outcome. Without an effective process and the right tactical manoeuvres at the right time, no agreement is reached. Paris showed the importance of the process with a meeting of world leaders, who gave the negotiations a head start. After that, professional negotiators had two weeks to prepare texts in informal groups and come to an agreement to be sealed by their ministers. In this process, no big steps were required; several small steps in a row turned out to be more effective.

While in Kyoto in 1997, the personalities of US Vice-President Al Gore and negotiation leader Raul Estrada (chair of the Ad Hoc Group on the Berlin Mandate, 1995-1997) were decisive for an agreement on the Kyoto Protocol, this time it was the leadership of COP President Fabius to direct the negotiations towards success. Another tactical move, with a view to future ratification of the agreement, was to annex the Paris Agreement to the COP decision, which enables the US President to approve the agreement without submitting it for ratification to the US Congress.

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¹ COP21 Decision: <http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf>

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New website JIN Climate and Sustainability <http://JIN.ngo>



Climate-led or economy-led?

While 'Paris' has been an indispensable first step forward for international climate policy, an important issue will remain how important climate change will be in national socio-economic planning. From the text of the Paris Agreement the impression is that the 1.5-2 °C target will be leading and that countries will design their nationally determined contributions (NDCs) in economically and socially acceptable ways. However, most of the national climate plans submitted by over 170 countries before COP21 (INDCs) left us with the impression that countries mainly aim at achieving national socio-economic goals with the lowest GHG emissions possible. These two impressions are not the same: in the first one, climate goals are leading, whilst in the second one, national socio-economic goals are leading.

In practice, this could lead to a gap between what countries will achieve via their NDCs and what the Paris Agreement aims at (1.5-2 °C temperature increase limit). A first indication of that was found in the UNEP Emissions Gap assessment of national country plans (INDCs) submitted before COP21. It showed that, should all of these be fully implemented, they would put the world on track to a temperature rise of around 3° C by 2100.²

It is not that the Paris Agreement doesn't contain provisions and instruments to help countries achieve their domestic goals and strongly contribute to GHG emission reduction at the same time. The Technology Framework, for instance, has been established, to support the work of the Technology Mechanism on development and transfer of climate technologies in transition pathways that bring climate and development goals closer together.

Carbon markets: unexpected revival

Further help to close the gap between climate-led and development-led planning in countries could come from an old friend under the Convention, namely carbon markets. In Kyoto, JI and CDM were established as mechanisms to help industrialised countries implement their climate commitments cost-effectively. In fact, this was an early example of bringing climate-led and socio-economic led development closer together.

However, while especially the CDM resulted in an impressive project pipeline, after the end of the first commitment period of the Kyoto protocol in 2012, the role of JI and CDM in international climate

collaboration became very small. After all, the post-2012 international policy context led to strongly reduced carbon credit prices. In fact, due to these low credit prices, many JI and CDM projects which continued to operate, stopped certifying the project emission reductions as carbon credits as verification and certification costs are too high to be covered by credit prices. A NewClimate Institute study based on over 1300 CDM projects has made that clear (see elsewhere in this issue on p.7).

However, with an ambitious overarching climate goal and the obligations by countries to continue working on national climate plans (NDC), which are subject to international review, emission reduction units may well become scarce commodities again in the future. It is perhaps against this background that the Paris Agreement has established a mechanism for countries to engage "in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards nationally determined contributions".³ This mechanism will have several similarities with CDM and JI, including its governance structure in the form of a supervising body.

Ministerial Declaration on Carbon Markets

In a Ministerial Declaration on Carbon Markets⁴ (at the end of the COP), 16 countries (half of them Annex I Parties) welcomed the market mechanism. With the Declaration, they wanted "to send a clear signal to the global carbon market and provide certainty that there is an important role for markets in the post-2020 period." Perhaps it's too early to speak about a revival of carbon markets in international climate policy making, but it is good news that a lot of experience with CDM and JI has already been built up. Here's hoping that the people carrying that experience will be willing to return to the jobs that they left when the CDM collapsed after 2012.

JIQ editors

² <http://uneplive.unep.org/theme/index/13#indcs>

³ Article 6 of the Paris Agreement: <http://unfccc.int/resource/docs/2015/cop21/eng/I09r01.pdf>

⁴ <http://mfe.govt.nz/sites/default/files/media/Ministerial-Declaration-on-Carbon-Markets.pdf>



BIOTEAM Workshop Announcements

On 16 February of this year, in Brussels, Belgium, the EU-funded project BIOTEAM will host two workshops:

1. Jump Start the EU heating / cooling strategy - 16 February 2016, 10:00 – 13:15
2. Removing Barriers for Biogas in Circular Agro-economy - 16 February 2016, 12:45 – 17:00

Venue: Representation of Lower Saxony to the EU, Rue Montoyer 61, 1000 Brussels – Belgium

Workshop 1: Heating/cooling strategy

This event aims at discussing the barriers and the challenges for the promotion and innovation of district heating in a number of EU Member States (*i.e.* Finland, Italy, Lithuania, Poland and The Netherlands).

For further information, please visit

www.sustainable-biomass.eu/final-workshop-DH

To register: <http://bioteamdh2106.eventbrite.com>

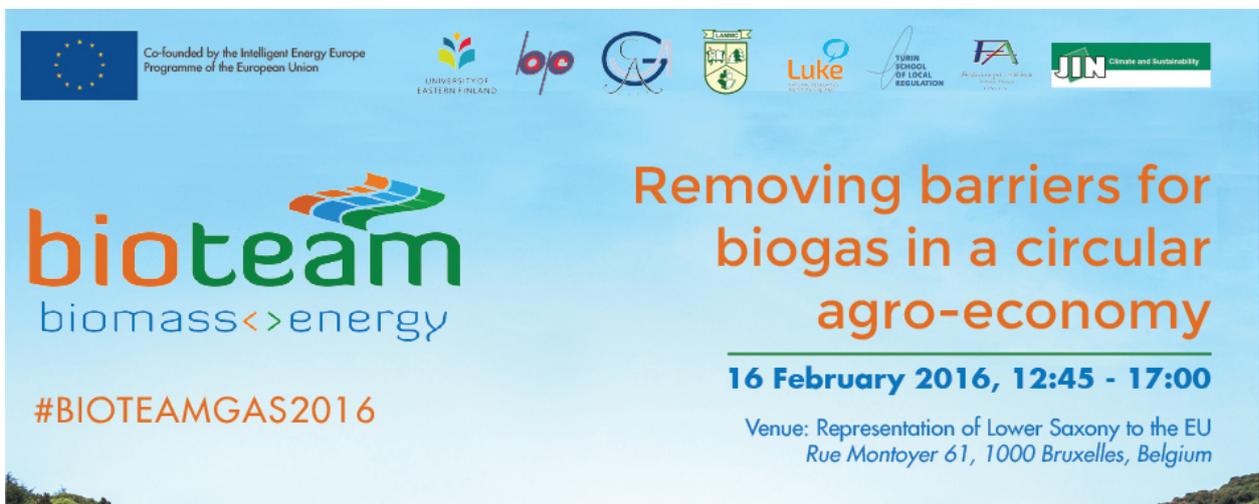
Workshop 2: Biogas in circular agro-economy

The event will discuss the policy reform necessary for an EU-wide adoption of sustainable agricultural practices, with state of art biogas systems seen as integrated elements of a circular-agro economy and not only as renewable energy option.

For further information, please visit:

<http://sustainable-biomass.eu/index.php/events/final-workshop-on-biogas>

To register: <http://www.eventbrite.com/e/removing-barriers-for-biogas-in-a-circular-agro-economy-tickets-20100894316>



How to Enhance Implementation of Results of Technology Needs Assessments?

By Wytze van der Gaast and Phil LaRocco*

The Technology Needs Assessment (TNA) process supports countries in identifying technology options that link development goals with the lowest emission and strongest climate resilience possible. During the past fifteen years, over one hundred TNAs have been completed under the UNFCCC process by developing countries, with support from the Global Environment Facility (GEF), UNDP and UNEP. TNAs support countries in identifying technology options to achieve development goals with lowest emission and strongest climate resilience possible. Analysis carried out within the framework of the Technology Executive Committee (TEC)¹ has concluded though that countries would benefit from more guidance on implementation of these prioritised technologies. Based on a request by COP20, the TEC formulated recommendations on improved guidance on how TNA results, in particular the resulting technology action plans (TAPs), can be developed into projects that can be ultimately implemented. This article summarises the key points of the report.²

Background and status of TNAs under the UNFCCC process

The process of preparing a TNA can be thought of as comprised of three broad steps:

- 1 Identification and Prioritization of Technologies.
- 2 Analysis of Barriers and Establishment of Enabling Framework.
- 3 Identification of Technology Action Plans and Formulation of Project Ideas.

Step 1 involves a set of country-driven, participatory activities leading to the identification, prioritisation and implementation of environmentally sound technologies. These can be mitigation technologies, which aim to reduce GHG emissions, or adaptation technologies that decrease vulnerability to climate change (adaptation). An essential feature of a TNA is its linkage with a country's development priorities. In light of these priorities, technologies are selected

with the highest combined development and climate benefits. This identification and selection comprises the first deliverable of the TNA process.

Step 2 involves identifying barriers to successful implementation of prioritised technologies in the country and assessing how these barriers can be cleared, so that an enabling framework results within the country for technology development and transfer. The barrier analysis and enabling framework report form the second deliverable of a TNA.

In Step 3, measures identified for addressing technology barriers are subsequently described in Technology Action Plans (TAPs), which form the third deliverable of a TNA. Finally, in their TNAs, countries formulate project ideas as concrete actions for the implementation of their prioritised technologies, for instance to demonstrate the first few applications of a technology within the country.

During the second generation of TNAs (between 2009 and 2013), 29 developing countries together developed 328 TAPs, of which 142 were for mitigation and 186 for adaptation. Most of the Parties developed "mitigation TAPs" for the energy industries and transport subsectors (following the energy sector, which was dominant in mitigation sector, TAPs were conducted in each region in transport and agriculture sectors; waste management TAPs were completed right after energy sector in Africa and Latin American regions). Most "adaptation TAPs" were developed for the agriculture and water sectors. 87 per cent of the Parties also developed project ideas in their TNAs.

Based on an assessment of these TNAs, the TNA Good Practice report of 2014,³ building further on interviews held with technology transfer practitioners, identified the following areas for improvement of guidance for

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¹ The TEC operates under the UNFCCC Technology Mechanism. It supports policy making on international development and transfer of technologies for climate change mitigation and adaptation.

² The TEC provided a report on its findings to SB 43 (Paris, 2-4 December 2015): TEC/2015/11/6, Guidance on enhanced implementation of TNA results, http://unfccc.int/ttclear/misc/_StaticFiles/gnwoerk_static/TEC_meetings/8ada1b9bcefd435e97d39c87f9e95a6d/43bd129ceecb4822bd60bd5284db4cbb.pdf. The authors of this article supported the analysis for and writing of the TEC report. This article is a shortened version of the TEC report.

³ TEC/2015/11/8, Draft final paper on good practice of the TNAs, available on the TEC website: http://unfccc.int/ttclear/templates/render_cms_page?TEC_meetings

enhancing implementation of priority technologies within the TNA project, given the time and resources available for TNAs:

a. **Cost information:**

Practitioners recommended more active involvement of financial specialists to help the TNA-TAP-Project idea process with identifying cost items and making cost estimates. Realising that detailed cost estimates can be very data and resource intensive, it has been argued by practitioners to keep cost estimates in a TAP and project idea simple (*e.g.*, limit to identification of cost items and estimations of order of magnitude of cost levels).

b. Closer comparison of benefits of a technology to estimated costs, *e.g.* through **benefit-to cost ratios** of technology-related programmes and/or projects. TNAs prioritise technologies on the basis of economic, social and environmental benefits for a country. These benefits can be compared with the basic estimates of costs of technologies and actions in a TNA. With such information, technology investments can be screened for prioritization and allocation of resources in countries.

c. **Clarity about funding sources:** Identification of potential funders depends on the type of action to be funded: some actions in a TAP are more suitable for private funding sources, while policy or programmatic actions are more likely to be funded by public funding sources (incl. for instance, multilateral funds).

d. **Measure success:** Inclusion of indicators to measure

success after implementation enables measuring the impact of an action or project.

Practitioners interviewed for the TNA Good Practice report specifically emphasised the important role roles that professionals could play in the preparation of actions plans, such as technology owners/developers, sector experts in the countries, finance experts, representatives of bilateral or multilateral organisation, *etc.* It was acknowledged that this requires that the TNA and its results are sufficiently attractive for these professionals.

Improving guidance for TAPs and project ideas in TNAs

The Handbook for Conducting Technology Needs Assessment for Climate Change offers guidance for each step of the TNA process.⁴ In addition to the handbook, a set of other guidance documents have been made available to support: overcoming barriers to technology transfer, assessing international funding sources for priority technologies, and reporting on TNAs, TAPs and project ideas⁵ (see Figure 1):

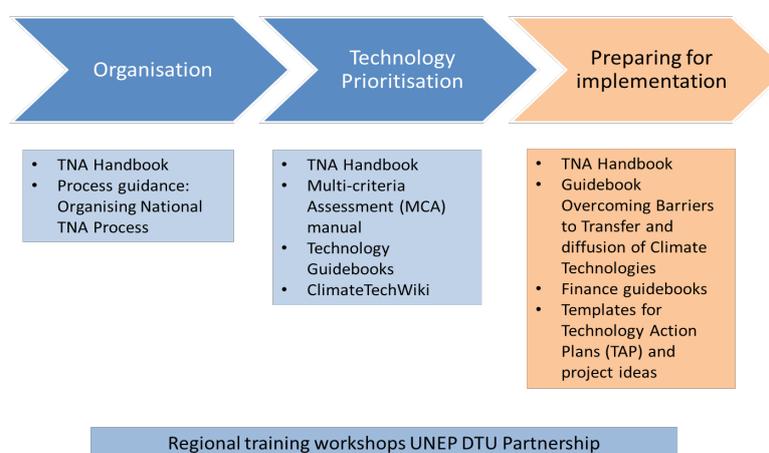


Figure 1. Main TNA stages and guidance available for each stage

From the review of recent TAPs and project ideas by the TEC⁶ as well as existing climate project/programme experience and related guidance, for TAPs and project ideas to become better ‘action-able’ as an output of TNA, it is concluded that:

- Guidance for TAPs (and project ideas) needs to be streamlined to a minimum level of “Here is what you, the user, need to know in order for this guidance to be meaningful”;
- It should not be tried to put all the (easily out-of-date) information on sources of funding and support under one roof;
- The focus should be on basic requirements of multi-purpose ‘good quality’ action proposals and project ideas, instead of on proposals to narrowly targeted financing sources;
- In the absence of detailed cost and performance data, consideration should be given to providing TNA practitioners with ranges of “benchmark data” to allow preliminary estimating and, more important, to describe the next steps envisioned to develop these preliminary estimates further;
- Terminology used in guidance should be neutral, easy to understand, with limited use of jargon and acronyms;

⁴ http://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/TNA_HAB_infobox_1/3a34f12bf10d4b7bae791d0d7ad572eb/c29096556b034760b94273b0124039ac.pdf

⁵ <http://tech-action.org>

⁶ see footnote 2 for reference to report TEC/2015/11/6

- f. The distinction between public sector and private sector ideas should be downplayed;
- g. Complete and balanced mitigation and adaptation proposals share certain qualities, which need to be explained.

Based on these conclusions, the following recommendations for improved guidance on formulation of TAPs and project ideas were made:

- a. Specify the **role of key stakeholders**, which includes identification of actors and specification of their roles (stakeholder mapping), as ‘champions’ or ‘enablers’, in implementing enabling actions for mitigation and adaptation and examining what can be funded by whom;
- b. Develop a **slim guidance document** to identify actions for implementation of priority technologies at a scale for delivering desired social, environmental and economic benefits and formulate a TAP to manage these actions;
- c. Enhance guidance on **how to attract funding** for actions in a TAP by informing TNA teams on: minimum requirements for determining costs of actions in a TAP (so that potential funding providers can assess what are the cost items related to TAP actions, when are costs estimated to be made, and what are the estimated amounts); comparison of costs with benefits (with help of cost-to-benefit ratio techniques); and identification of potential funders for actions in a TAP;
- d. Elaborate on the **potential role of and capacity needs for national designated entities (NDEs)**, as a contact or focal point in a country, and of the Climate Technology Centre and Network (CTCN) for supporting implementation of priority technologies in the countries concerned.

Learning potential

In order to enhance the learning potential from experience with implementing TNA prioritised technologies, the TEC report recommended that the UNFCCC secretariat’s Technology Portal or UNEP DTU Partnership’s (UDP) TNA Project portal⁷ be extended with information on:

- a. The status of implementation of actions in a TAP and project ideas;
- b. Progress with implementation of actions and projects, including the time frame and criteria for checking progress with implementation of actions;
- c. How funding for implementation has become available (and by whom);
- d. How enabling support (e.g. training, capacity building) has been made available (and by whom);

- e. What have been decisive incentives or factors for success.

Next steps of developing guidance for TAPs

In Paris (December of last year), COP21 welcomed the interim report of the TEC on Guidance on Enhanced Implementation of the Results of TNAs, noting that the report should be considered final. Annexed to the interim report was an annotated outline for guidance on the preparation of TAPs. The COP noted that the TEC is to work on the guidance, thereby elaborating on the outline, and make it available early this year to developing countries for use in their TNA processes.

Once finalized, the guidance will be translated into Spanish, French and Russian and field-tested at the regional TNA capacity building workshops, organized by UDP with support of the UNFCCC technology team in February/March this year. After the field-testing, the guidance will be modified and finally a TAP guidance publication is considered to be issued jointly by UDP and UNFCCC, preferably until summer 2016. At the twelfth meeting of the TEC, planned to be held during the first week of April of this year (5-8), it is intended to inform the TEC members on how the guidance was field-tested and lessons learned from using the Guidance with TNA-TAP countries.

The COP moreover invited the CTCN to use the guidance when responding to requests from developing countries regarding the provision of assistance to enable implementation of TNA results.

Box 1. TNA at COP21

COP21 took note of the interim report of the TEC on guidance on enhanced implementation of TNA results (document FCCC/SB/2015/INF.3). The newly-established technology framework (Article 10, para 4 of the Paris Agreement) will facilitate, inter alia:

- a. The undertaking and updating of technology needs assessments, as well as the enhanced implementation of their results, particularly technology action plans and project ideas, through the preparation of bankable projects;
- b. The provision of enhanced financial and technical support for the implementation of the results of the technology needs assessments;
- c. The assessment of technologies that are ready for transfer;
- d. The enhancement of enabling environments for and the addressing of barriers to the development and transfer of socially and environmentally sound technologies.

(Adoption of the Paris Agreement, paras. 66-68; FCCC/CP/2015/L.9/Rev.1; <http://unfccc.int>)

⁷ http://unfccc.int/ttclear/pages/tech_portal.html ; <http://tech-action.org>

NewClimate Study: Non-Issuance of CDM Credits Results in Net Emission Reduction Impact

In a study called “Impact of the Clean Development Mechanism: Quantifying the current and pre-2020 climate change mitigation impact of the CDM”, NewClimate Institute estimates the impact of non-issuance of CDM credits on global GHG emissions under the current market conditions.¹ In case not all emission reductions of ongoing CDM projects are credited, the study concludes that these non-credited emission reductions could amount to approximately 480 Mt CO₂-eq per year.

The study, which builds further on an earlier report called “Analysing the status quo of CDM projects – status and prospects (Warnecke et al. 2015)”,¹ investigated the current situation of the CDM through an extensive survey of 1,310 randomly selected CDM projects. The study analyses the implementation status of registered CDM projects and how this status is affected by current Certified Emission Reduction (CER) market conditions (low CER demand with low prices). A particular question raised by the study was whether and to what extent CDM projects that continue to operate stop with issuing CERs. For instance, terminating a project may not be easy as the investment has already been made and contracts exist to deliver a service (esp. for larger projects).

At the same, with low CER prices, CER issuance costs (including verification and certification) are often too high to proceed with generating credits for the achieved emission reductions. The study argues that “this can lead to an unintended global mitigation impact under the CDM, since some emission reductions are not offset, as they were intended to be”. It is neither interpreted by the study as a positive impact due to the enormous yet incalculable cost incurred in terms of the loss of potential future participation in similar investments from disenfranchised private investors around the world, and the loss of trust and capacity that plays a role to facilitate such investments.

Based on the analysis of CDM projects, the study concludes that over 73% of the theoretical maximum emission reduction capacity in 2014 is estimated to have occurred. By theoretical maximum, the study means the total potential emission reductions as indicated in the project design documents. Projecting this percentage on the total CDM pipeline of registered

projects, this would correspond with an emission reduction in 2014 of around 750 Mt CO₂-eq. This trend is assumed to continue until 2020, although with a slight annual decrease, leading to an estimated emission reduction of currently registered CDM projects in 2020 of approximately 640 Mt CO₂-eq. The study has not assumed registration of new projects from 2015 onwards.

The study then concludes the only 27% of this estimated potential emission reduction may have led to issuance of CERs in 2014 (appr. 270 million CERs). This implies a net emission reduction as the CDM projects continue to operate and reduce emissions below a business-as-usual scenario, while these reductions are not used by others to compensate for their own emissions. This net emission reduction is estimated by the study in the order of 480 Mt CO₂-eq (750 Mt CO₂-eq minus 270 million CERs).

As such, these CDM projects turn from ‘zero-sum’ investments into ‘net emission reduction’ actions. Initially, the CDM was set up as an offsetting mechanism whereby, for instance, a country or company purchased a project’s emission reduction credits to offset its own domestic GHG emissions. This was also the main rationale for including the CDM in the Kyoto Protocol. However, with the current international carbon market conditions, credit demand and supply have strongly decreased, while a significant number of projects, as the NewClimate study shows, continue to operate.

Finally, the study analyses the sensitivity of credit supply to CER price developments. It concludes, for instance, that moving from a price level of EUR 2 to EUR 5 per CERs, the potential annual supply of credits could increase by more than double, to 327 million CERs for the analysed CDM projects (or 545 million CERs for the CDM as a whole). At price levels above EUR 5, projected credit issuance continues to increase significantly, whilst the increase in the projected emission reductions is only very slight.

¹ Carsten Warnecke, Thomas Day, Ritika Tewari, contact: c.warnecke@newclimate.org. The report, ordered by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), can be downloaded from: <http://newclimate.org/2015/11/30/impacts-of-the-clean-development-mechanism/>. The main report (Warnecke et al., 2015) with the overall data presentation can be viewed at <http://newclimate.org/2015/05/16/analysing-the-status-quo-of-cdm-projects> (May 2015).

TRANSrisk Case Study Analysis – Understand Social and Economic Impacts of Measures for Mitigation

During the first stage of the TRANSrisk project, preparations have been made for a wide analysis of fourteen country case studies and one broader regional and global case study. The TRANSrisk project, funded under the EU-programme Horizon 2020, was introduced last year in JIQ's October 2015 newsletter.¹ The project explores low emission transition pathways and analyses associated risks, uncertainties, costs and benefits. A key feature of TRANSrisk is that it brings together quantitative techniques (such as models) and qualitative approaches (such as participatory consultations with stakeholders). This combined approach enables identification of possible low emission transition pathways which are technically and economically feasible, and also acceptable from a social and environmental viewpoint.



TRANSrisk (coordinated by the University of Sussex, UK) has, since its start in September 2015, carried out several tasks to support the project's forthcoming research and communications work. These tasks have included:

- Launching the project website (<http://transrisk-project.eu>).
- Running workshops to train the team of interdisciplinary researchers on the seven models that will be applied in the project.
- Identifying stakeholders in the case study countries.
- Carrying out initial work on integrating qualitative methods and (quantitative) models for low-emission pathways scenario development.
- Preparing a research framework for the case study analysis, which will commence later this year.

Case study preparations

The recent Paris Agreement to limit global average temperature increase due to climate change to 1.5 to 2°C (above pre-industrial levels) will place further pressure on countries to set more ambitious climate policy goals. The agreement also highlights key themes that will need to be explored over the next five years. These include understanding the social and economic impacts (co-benefits and conflicts) of implementing climate change response measures, and also the necessity to develop and implement comprehensive risk management strategies.

The TRANSrisk project aims to address these themes through detailed case study analysis. For the case study countries, researchers will work together with country stakeholders to identify possible futures that realise (sub-national, national, and regional) economic,

social and environmental priorities with the lowest GHG emissions possible. Moreover, the case study analysis will identify social, economic, environmental, policy and technological risks related to these possible futures, given the country contexts.

The case studies in TRANSrisk will apply quantitative models, for scenario development and assessments for costs and opportunities, and also qualitative tools, such as active and regular engagement of stakeholders in the analysis. These tools will be applied in an integrated structure. For example, models can identify preferred low-emission options based on criteria such as costs, economic impacts and job creation, whilst stakeholders can help modify this prioritisation by adding (for example) public acceptance and environmental protection issues.

Research questions and work flow

For the case study analysis, the following research questions have been formulated to address the overall research question of 'what are the costs, benefits and risks at the global, regional and national level associated with a transition to limit climate change to below 2.0 °C?':

1. What are the possible future(s) in the case study country/sector context?
2. What changes are required in the country to get to the desired future(s)?
3. What are policy strategies for realising the transition to the desired future(s) and what are the risks, uncertainties and opportunities of these strategies?
4. How can the country prepare to avoid these risks and take advantage of these opportunities?

Figure 1 shows the workflow and steps for integrating stakeholder consultation, qualitative and modelling tools. In Step 1, the case study context is assessed to understand the past, describe the present and

¹ See <http://jin.ngo/37-jiq-october15>

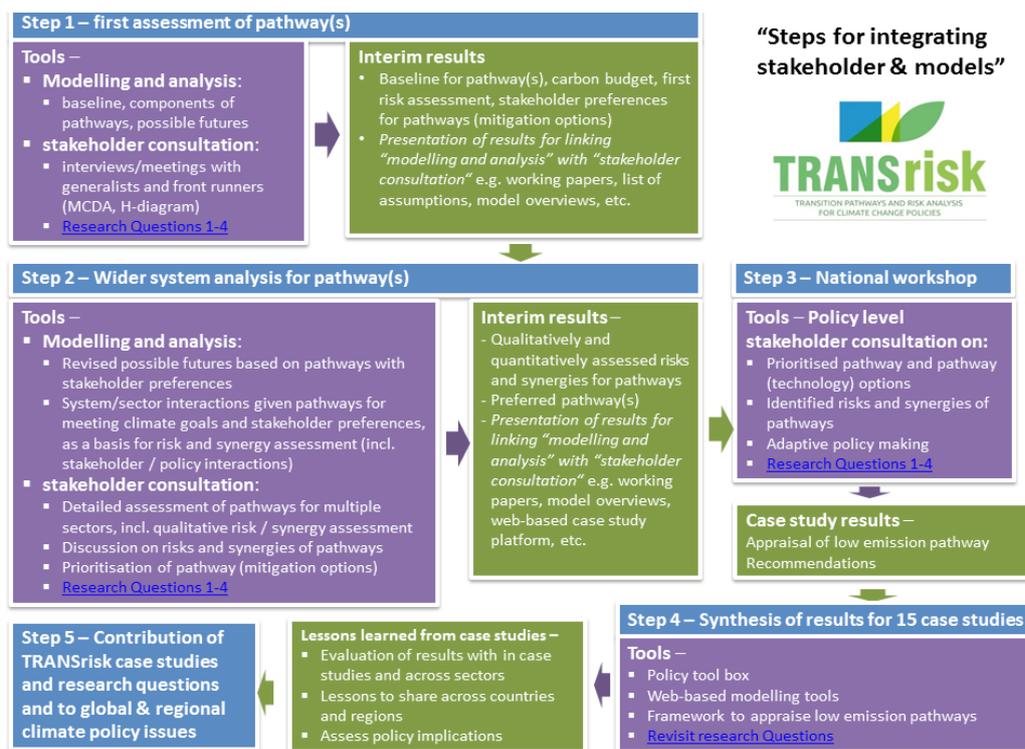


Figure 1. Steps for TRANSrisk case study analysis

formulate a business-as-usual scenario for the country and/or sector into the future. There is a broad focus on all research questions (see above) to provide the initial settings and context for transition pathways to test and develop with stakeholders in later steps. For these later steps, modelling as well as qualitative tools can be used. The context description helps to identify, among others, the social, economic, institutional and technological lock-ins that may, for example, prevent or delay adoption of new low-emission technology options. With a selected group of stakeholders, these past-present-future descriptions are discussed in order to identify preferred routes for the sector/country, answering the question ‘given the desired future(s), what are preferred ways to get there?’. Interim results are presented as working papers and overviews to outline the approach, and initial findings are taken for further development in Step 2.

In Step 2, a wider range of stakeholder will be involved and more detailed analysis will be carried out to develop potential pathways for reaching the desired future(s). At this stage, stakeholder preferences can be included in model-based scenarios so that a shortlist of economically feasible and socially acceptable pathways emerge. For these pathways uncertainties are considered, through both models and by using stakeholder knowledge on which risks and opportunities can be identified and assessed (e.g. acceptable or not). Step 2 relies on a participatory approach: it may involve a number of targeted consultations with stakeholders, depending on the models and other tools being used in the project.

In both Step 1 and Step 2, the results are presented consistently to allow for comparisons across the

case studies in TRANSrisk. In Step 3, the preferred (shortlisted) pathways are presented to a wide group of stakeholders at a national workshop, where the policy implications of the pathways will be discussed. The outcome of the national workshop will be agreement on transition pathways or scenarios, subject to certain revisions.

In Steps 1, 2 and 3, a similar set of research questions is used as a basis. However, depending on the interim results of Step 1 or 2, questions for Step 2 and or 3 may need to be modified, extended, etc. The envisaged end result of Step 3 is an appraised low emission pathway for the case study country/region, at the sector, sub-national, national or regional scale.

All case study results are then synthesised in Step 4 in order to identify commonalities and differences between them, such as, for example, which tools and approaches have worked well or not so well under which circumstances. The aim is to arrive at a framework which applies quantitative and qualitative tools for achieving a desired low-emission future in socially, economically and environmentally acceptable ways, which can be used for addressing multiple global and regional climate policy issues (step 5).

The case study analysis will begin in the first half of 2016.

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Opportunities and Challenges for SMEs in Realising the COP21 Vision

GreenEcoNet 5th Thematic Workshop, Paris-Le Bourget, 9 December 2015

During COP21, the EU-funded project GreenEcoNet hosted a workshop on the role of small and medium-sized enterprises (SMEs) in a low-emission transition. GreenEcoNet is a European networking initiative (<http://greeneconet.org>) to connect SMEs for a greener economy. The focus of the workshop was on opportunities for SMEs when greening their business operations, as well as on challenges that they face when doing so. This article reports on the presentations delivered, discussions held and key findings of the workshop.



Background

Despite the efforts at local level of many countries, and within these countries of many businesses, to reduce the impact of their actions on the environment and climate, there is still a need to put the world on track to reduce global emissions by 2050 through collective commitments.¹

According to the most recent communications by the European Commission,² a global level playing field needs to be set to ensure a wide geographical and economy-wide coverage of all emissions. The combination of economy-wide absolute targets and emission budgets are the most robust type of commitment that parties can aim at.

Achieving a low-carbon, resilient economy requires therefore “all hands on deck” – including strong engagement by the private sector. Europe’s Small and Medium-sized Enterprises (SMEs) face new challenges post-COP21, but also significant opportunities. The EU-funded GreenEcoNet platform (www.greeneconet.eu) is designed to help them navigate through this new landscape.

This workshop brought together voices from business, policy and academia to explore the role of SMEs in the transition to a low-emission, climate-resilient economy, with special attention to the implications of decisions to be made at the COP. It was also discussed how the GreenEcoNet platform can serve as a resource for businesses, to help them achieve their climate targets and to learn from one another’s ideas and experiences. GreenEcoNet could also play an important role in disseminating innovative technologies and business models across Europe and beyond, and thus advance climate action while supporting job creation and sustainable economic growth.

Summary of the discussion

The GreenEcoNet project was introduced by Dr Corrado Topi (GreenEcoNet project director and Senior Research Fellow at the Stockholm Environment Institute - University of York centre, UK). Chris Hopkins (Project officer at the Green Economy Coalition, UK) presented the online component of the GreenEcoNet platform at www.greeneconet.eu and demonstrated its functionalities.

Terri Kafyeke (Researcher at the Ecologic Institute, Germany) provided an update on the COP21 negotiations from a business perspective. She highlighted the leading role of the private sector during the negotiations, through participation during official events such as roundtables. However, she also noticed that private sector participation during the negotiations, as well as pledges made by business, were mainly limited to large companies, with very little attention for the role of SMEs.

Box 1. Key messages from the event

From the workshop the following key messages were taken:

- SMEs have developed and implemented successful solutions that support a low-emission, green economy;
- A collaborative environment needs to be created at national and international levels (networks, fairs, etc.) to facilitate the exchange and propagation on a large scale of solutions developed and adopted by SMEs. The final aim of such ‘green solutions’ is to also result in business growth;
- Despite SMEs having solutions to climate change, there is a large gap between businesses and policy-makers, which hopefully can be filled through platforms such as GreenEcoNet;
- Data for researchers and academics can be generated by green SMEs, while green SME innovation can be supported by the research community. A collaboration between these two types of actors can be supported by GreenEcoNet.

¹ http://ec.europa.eu/priorities/energy-union/docs/paris-annex_en.pdf com(2015)81

² see footnote 1.

Barriers and enablers for SMEs implementing circular economy business models

In order to highlight how SMEs can contribute to low-emission transition processes and a greener economy, the role of SMEs in the post-COP21 socio-economic environment was discussed. To provide a context to the topic, Vasileios Rizos (Centre for European Policy Studies, Belgium) presented the results of a research carried out by the GreenEcoNet consortium about the barriers and enablers that SMEs experience when implementing circular economy business models.

Despite various available policy instruments to support such models, SMEs face several barriers, such as the lack of support from their supply/demand networks. SMEs usually operate as small actors in wider value (market) chains and thus depend on how 'green' other actors in the chain are or want to be. Furthermore, SMEs often do not have the financial capacity to manage the transition to a greener business model; while lack of government support is another key barrier encountered by SMEs.

Important enabling factors for implementation of circular economy business models by SMEs, as identified by the research, are:

- existence of a 'green' company culture;
- existence of a local or regional network with other SMEs and supporting multipliers;
- having a green image; and
- being recognised as a green supplier by customers.

This implies that increasing the attractiveness of green SME business operations can take place in a number of ways. For instance, EU and national policies could focus on greening consumer preferences, market value chains and company cultures, as well as support the recognition of an SME's green business model. Dedicated communities of practice, such as GreenEcoNet, could support this by demonstrating green SME success stories, enabling exchange of experience and feeding policy makers with concrete policy recommendation.

A Spanish and French networks perspective about green businesses

Jesus Iglesias Saugar (Director of International Cooperation at the GreenBiz.es network, Spain) and Frédéric Benhaim (Co-president of the Entreprendre Vert network, France) shared their experience with supporting green enterprises in their national networks in Spain and France.

Mr Benhaim stated that networking of SMEs for a green economy should not be limited to green SMEs. Instead, it is important that all types of SMEs or part of the networks so that they can obtain good practice information from their green colleagues. An important focus for a business network is to provide training to young business leaders and blue-collar workers on operating a green business. Finally, he emphasised the importance of making consumers more aware of the ethical and environmental benefits



of purchasing green products and services. To these points, Mr Saugar added that a national network should not be limited to information exchange but also provide an enabling environment, similar to GreenBiz.es for Spanish businesses, for achieving and improving innovation. Finally, through such a network, concrete input can be provided for development and enforcement of legislation for supporting businesses in greening their operations.

The voice of a green business on the post-COP21 vision

Gregorio Magno Toral (CEO and Founder of Ciclogreen, Spain) shared the challenges that his company may face in the socio-economic environment that will develop after the COP21 agreement. Ciclogreen is an online platform that rewards users for using bicycles in their commute and other trips within cities. As such, companies could contribute to reducing GHG emissions by promoting cycling to work among their employees. According to Ciclogreen's own calculations, in 2014, the company's services resulted in an emission reduction of over 30 Mt CO₂.

An interesting example of how SME experience can be used for policy making could be exchange of information on lack of safe bicycle lanes, as collected through Ciclogreen users, with policy makers. While unsafe bicycle lanes are an important barrier to using cycles for city transport, reporting such lanes through Ciclogreen could help policy makers making improvements where necessary.

Mr Toral highlighted the importance of networks at national and international levels, such as GreenBiz in Spain and GreenEcoNet internationally. Such networks enable companies such as Ciclogreen to connect with other companies and to communicate with policy makers (to develop users-oriented policies, such as incentives for walking and cycling) and learn from researchers about novel knowledge for innovation.

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New website

JIN Climate and Sustainability

<http://JIN.ngo>



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magazine on climate and sustainability

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BIOTEAM, 2015. Options for a new market model to promote lowcarbon district heating in the Netherlands, Policy Brief, October 2015. http://sustainable-biomass.eu/images/deliverables/Policy_briefs/Bioteam%20policy%20brief%201.pdf

In January 2014, the Dutch Heat Act formally entered into force. However, in April 2015 the Minister of Economic Affairs announced in its 'Heat Vision report' that a new Heat Act will be developed in order to establish a more robust arena for actors in the heating and cooling sector. A series of consultations with relevant market stakeholders and some market studies have been foreseen for that. One of the key challenges will be to develop a policy framework that adequately supports a 'new market model.' For that, in August 2015, the Ministry of Economic Affairs commissioned a study on what such a new market model could look like. The main driver for this is that the current structure of finance and support for heating/cooling systems is generally found to be inadequate for all relevant actors in the value chain.

This policy brief contributes to the 'market model' discussion by exploring a number of policy options for improving the finance and support conditions for the heating/cooling in the Netherlands. The policy brief concludes that the perfect option is not readily, due to the several advantages and disadvantages found for each option. Hence, a mix of options may eventually be the most sensible solution for achieving a certain acceptable economic profile of the district heating value chain.

BIOTEAM, 2015. District heating systems: 'Breaking the monopoly?', Policy Brief, October 2015. http://sustainable-biomass.eu/images/deliverables/Policy_briefs/Bioteam%20policy%20brief%202.pdf

With full liberalisation of the Dutch energy market (for electricity and gas) in 2004, the Dutch energy consumers have become familiar with and are now used to being able to choose their own energy supplier. One of the key pillars of electricity and gas liberalisation involves the economic separation of network and production activities. This 'unbundling' has paved the way for (new) electricity and gas supply companies to enter the market and make use of the public transmission and distribution grids under non-discriminatory (regulated third-party access) conditions. In an attempt to abolish the monopoly position of district heating companies in the Netherlands, this policy brief discusses the potential effectiveness of an economic separation of network and production activities of district heating companies and allowing third party access as has happened with the liberalisation of the electricity and gas market.

Fekete, H., M. Hagemann, W. Obergassel, n. Sterk, A. Herold, A. Siemons, 2015. How can the new climate agreement support robust national mitigation targets? Opportunities up to Paris and beyond,

NewClimate Institute, Wuppertal Institute and Öko-Institut (contributions from: N. Höhne, K. Schumacher, V. Duscha, J. Kersting, B. Hare and K. Eisbrenner), on behalf of the German Environment Agency.

This report discusses opportunities for the process to strengthen the robustness of mitigation commitments – inside and outside the UNFCCC negotiation process, such as:

- Allow for self-differentiation in the type of commitment and level of ambition, but provide independent methodological guidance so that countries better understand mitigation options and how their capability and responsibility relates to that of other countries. Self-differentiation should further be limited through the rule of no backsliding.
- Establish a common end-point to guarantee long-term adequacy of the commitments, independently of current country circumstances. Gradual convergence to a common level can also be an element of the accounting framework.
- Create a framework to integrate actions by non-government actors. International Cooperative Initiatives can contribute significantly to mitigation, but should present an effect beyond already ongoing national activities to increase ambition.

The report concludes that a balance is needed between self-differentiation and provision of guidance or prescriptiveness. On the one hand, countries should identify their nationally appropriate and feasible level of mitigation ambition. On the other hand, the goal of holding temperature increase below 2°C above pre-industrial levels needs to be evaluated on a global scale. An assessment of the adequacy of the global effort and of the individual national commitments is thus essential for the environmental integrity of the new climate agreement.

Jalard, M. and E. Alberola, 2015. Free Allocation in the European Emissions Trading System (EU ETS): identifying efficient mechanisms through to 2030, Institute for Climate Economics, Paris, France. <http://www.i4ce.org/wp-core/?wpdmdl=12030>

In a world with asymmetrical climate policies, the conclusions of the European Council of October 2014 agreed on continuing the allocation of free CO₂ emissions allowances beyond 2020 to industrial sectors in the EU ETS. This statement has been confirmed in the European Commission's proposal to revise EU ETS directive for phase IV disclosed in July 2015. The stated objective is to ensure that the most efficient industrial installations do not face undue carbon costs which would lead to carbon leakages. Furthermore, free allocations should not undermine the incentive to cut CO₂ emissions, lead to distortions or windfall profits and reduce the auctioning share of allowances.

From 2013 to 2020, the allocation of free allowances has been defined according to harmonized European rules based on benchmarks (carbon intensity targets) and historical output adjusted to the free allocation cap by applying the Cross-Sectoral Correction Factor (CSCF). In light of that, the report addresses the following questions:

- What would be the impact of pursuing the current mechanism through to 2030?
- Does the EU Commission's proposal of 15th July respond to the Council's requirements?
- Which alternative mechanisms could do so?

Jalard, M., E. Alberola, M. Afriat, M. Vaidyula, L. Dahan, S. Cail, C. Cassisa, K. Keramidis, P. Coussy and P. Portenart, 2015. Exploring the ETS Beyond 2020 - A first assessment of the EU Commission's proposal for Phase IV of the EU ETS (2021-2030), COPEC Research Program: the COordination of EU Policies on Energy and CO2 with the EU ETS by 2030, Institute for Climate Economics, Enerdata and IFPEN, <http://www.i4ce.org/wp-core/?wpdmdl=11830>

With the release of the European Commission's Communication on a 2030 policy framework for climate and energy in January 2014 and the proposal for a revised European Union Emissions Trading Scheme (EU ETS) directive in July 2015, the European Commission has provided a new roadmap for the decarbonisation of European energy and industrial sectors beyond 2020, entitled "Exploring the EU ETS beyond 2020: a first assessment of the EU Commission's proposal for Phase IV of the EU ETS (2021-2030)". This report aims to prepare economic policy-makers for the debate surrounding the design of the 2030 framework for Climate and Energy policies and the revision of the EU ETS directive.

The report concludes that as the amount of EU ETS auction revenues is expected to increase by 2030, steps could be taken to ensure that auction revenues continue to effectively finance actions aligned with the low-carbon, climate resilient transition. Report recommendations are organized into three main areas:

1. addressing the variability of the carbon revenues to programs;
2. improving reporting standards and communication on use of revenues; and
3. leveraging private finance to enhance the potential of this public revenue resource.

Warnecke, C., T. Day and R. Tewari, 2015. Impact of the Clean Development Mechanism Quantifying the current and pre-2020 climate change mitigation impact of the CDM, by order of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB). https://newclimateinstitute.files.wordpress.com/2015/11/newclimate_impacts-of-the-cdm_2015.pdf

This study provides broad evidence that a large share of projected emission reductions in the CDM up to

2020 are generated by projects that do neither at present nor in the future engage in verification and issuance cycles under the current market conditions. The quantitative assessment of annual project data as given in the CDM project design documents combined with the statistically representative survey responses resulted in the following findings:

- Over 73% of the theoretical maximum emission reduction capacity of all registered CDM projects in the year 2014 is estimated to have occurred.
- The total actual projected emission reductions of the CDM, adjusted by performance losses, in 2014 would be in the order of 750 MtCO₂-eq. and a marginal downward trend of emission reductions for currently registered CDM projects is projected up to 2020 under current market conditions.
- With the approach in this focus study the credit supply from CDM emission reductions in 2014 is estimated to be in the order of 270 million CERs
- Combining these results leads to the conclusion that the annual net mitigation impact of the CDM in 2014 is in the order of 480 MtCO₂-eq. and thus might have reduced global emissions by approximately 1% in 2014.

Wei Zhou, Lan Gao, 2015. The Impact of Carbon Trade on the Management of Short-Rotation Forest Plantations, Forest Policy and Economics (2016) 30-35.

The authors extended the Hartman model to examine the optimal rotation of forest plantations, taking into consideration the economic benefits of wood and the dynamics of three carbon pools (aboveground biomass, dead organic matter, and harvested forest products). Chinese fir (*Cunninghamia lanceolata*) stands in Southern China were taken for a numerical example to analyze the effects of carbon price on the optimal management of short-rotation plantations.

The results show that, with the current price of carbon, introducing the effects of harvesting on different carbon pools into the decision model would increase the optimal rotation age on poor and medium sites by one year, while it does not have any impact on the optimal rotation for good sites. Irrespective of site condition, the optimal rotation age is not sensitive to carbon price and interest rate. An increase in interest rate by 1% would reduce the optimal rotation age by one year. In conclusion, forest carbon trade could effectively enhance land owners' income from short-rotation forest plantations. However, it does not lead to any significant increase in forest carbon sink.

The **Joint Implementation Quarterly** is an independent magazine with background information about the Kyoto mechanisms, emissions trading, and other climate policy issues. *JIQ* is of special interest to policy makers, representatives from business, science and NGOs, and staff of international organisations involved in climate policy negotiations and operationalisation of climate policy instruments.

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Abbreviations

AAU	Assigned Amount Unit
ADP	Ad Hoc Working Group on the Durban Platform for Enhanced Action
Annex A	Kyoto Protocol Annex with GHGs and sector/source categories
Annex B	Annex to the Kyoto Protocol listing the quantified emission limitation or reduction commitment per Party
Annex I Parties	Industrialised countries listed in Annex I to the UNFCCC. Countries not included in Annex I are called Non-Annex I Parties
Annex II Parties	OECD countries (listed in Annex II to the UNFCCC)
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction (Article 12 Kyoto Protocol)
COP	Conference of the Parties to the UNFCCC
COP-MOP	COP serving as Meeting of the Kyoto Protocol Parties
DOE	Designated Operational Entity
DNA	Designated National Authority
ERU	Emission Reduction Unit (Article 6 Kyoto Protocol)
EU ETS	European Union Emissions Trading Scheme
EUA	European Union Allowance (under the EU ETS)
GHG	Greenhouse Gas
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
LCDS / LEDS	Low carbon (or emission) development strategy
LULUCF	Land Use, Land-Use Change and Forestry
NAMA	Nationally Appropriate Mitigation Actions
NAP	National Adaptation Programmes
PDD	Project Design Document
REDD	Reducing emissions from deforestation and forest degradation in developing countries
SBSTA	Subsidiary Body for Scientific and Technological Advice
SBI	Subsidiary Body for Implementation
TNA	Technology Needs Assessment
UNFCCC	UN Framework Convention on Climate Change

JIQ Meeting Planner

16 February 2016, Brussels, Belgium

Two workshops organised by BIOTEAM project (see p. 3 in this issue)
 Venue: Representation of Lower Saxony to the EU, Rue Montoyer 61, 1000 Brussels - Belgium

Contact: www.sustainable-biomass.eu; Mr. Daniele Russolillo (daniele.russolillo@fondazioneambiente.org) or Mr. Eise Spijker (eise@jin.ngo)

2 March 2016, Copenhagen, Denmark

One-day seminar on outsourcing and offshoring of R&D activities to emerging economies - Insights from the biofuel and bioenergy industry; organised as part of CARISMA project. Venue: UN City, Marmorvej 51, Copenhagen, Denmark

Contact: Ulrich Elmer Hansen, uleh@dtu.dk; <http://carisma-project.eu/>

16-26 May 2016, Bonn, Germany

44th sessions of the SBI and SBSTA

Contact: http://unfccc.int/meetings/upcoming_sessions/items/6239.php

23-27 May 2016, Nairobi, Kenya

The Sustainable Innovation Expo at the United Nations Environment Assembly (UNEA).

Contact: <http://www.sustainableinnovationexpo.org>