

EU Climate Policy after 'Backloading' Failure

On 16 April of this year, the European Parliament voted against the European Commission's proposal to postpone auctioning of 900 million allowances until 2019-2020 ('backloading'). With the proposal the commission tried to temporarily restore ETS market balance. This failure sends out the message that the ETS will most likely not stimulate meaningful mitigation actions within ETS sectors, nor in non-ETS sectors. This could lead to the paradox that oversupply of ETS allowances jeopardises reaching the EU climate and renewable energy targets.

For the EU this is bad news. Around ten years ago, the EU was in a favourable position. At the level of stakeholders (households, business, etc.), there was a growing awareness that climate change was an important issue (and mitigation actions were further appreciated against the backdrop of rising oil prices). At the global level, the Kyoto Protocol had survived the US withdrawal, largely due to careful EU diplomacy. In this political context, the EU could act progressively on climate change and the ETS was the main token of that.

Nowadays, the situation is opposite. Due to the ongoing economic recession, European stakeholders have a stronger focus on short to medium term economic survival. Climate change is now among the least of their concerns. At the global, UN level, short to medium term climate policy perspectives have also weakened and longer term actions are uncertain. Against this backdrop, it is extremely difficult for the EU to remain ambitious on climate change policies. The European Parliament vote against 'backloading' has been a clear signal of that.

Not only is this bad news for EU's climate policy ambitions, but also

for European sustainability and renewable energy goals. Given that most sustainability policies in the EU are based on voluntary actions, climate policies and in particular the ETS have been an important driver for reaching European sustainability and renewable energy objectives. What can be done to change this picture? Although 'backloading' would probably have been the clearest short term policy signal that the EU could have given, with a view to the longer term it seems most effective for the EU to invest in actions that increase climate awareness of European stakeholders and ambition levels at the COP.

This is not easy and will require time, but it is not hopeless. For instance, EU citizens may currently not give the highest priority to climate change, they are concerned about the sustainability of economic activities in their local environment. They demand lower environmental footprints of products and services they consume and are willing to invest in energy efficient and renewable energy options. Next to local and regional sustainability benefits, such measures will clearly have climate (co) benefits. EU policies could support this by improving market systems for acceleration of measures and technologies that lead to sustainable energy futures with corresponding low emissions.

An example of such improvement is to increase the competitiveness of sustainable biomass to energy processes in Member States. Through targeted actions and dialogues with stakeholders, (locally) optimal sustainable bio-energy pathways could be determined for various Member States (see for an example pp. 5-6 in this issue). The EU could play a significant role in ensuring that an appropriate (policy) package is available to support markets in moving to the desired level of bio-energy sustainability 'footprint' with low GHG emissions. An another example would be the support to municipalities in offsetting GHG emissions through VERs (see pp. 7-8 in this issue).

Through such actions, which are more based on bottom-up action than top-down systems such as the ETS, the EU can increase stakeholder awareness of sustainable actions within their environment, and, as a result, support renewable energy diffusion and climate change mitigation. These actions reflect the challenge that the EU and the COP face: to successfully mainstream climate measures within national and sub-national sustainable development or growth priorities through enhanced stakeholder acceptance.

We can do this, even with low carbon market prices.

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Technology Needs Assessment (TNA): Sudan Experience in Mitigation with Emphasis on Industrial Sector

By Mawahib Eltayeb Ahmed*

The Higher Council for Environment and Natural Resources (HCENR) in Sudan conducted a Technology Needs Assessment (TNA) project to identify technology options for mitigation and adaptation. The project was supported by the Global Environment Facility (GEF) and United Nations Environment Programme (UNEP) under the second round of countries that participated in the TNA Project (see <http://tech-action.org>). Technical support was obtained from the UNEP Risoe Centre and Energie Environnement Développement (ENDA). TNA is a process, established under the Kyoto Protocol, through which developing countries can identify the most applicable technologies for mitigating GHG emissions and adapting to climate change. In this article we focus on the TNA results for the industrial sector in Sudan.

The TNA in Sudan started with the establishment of a national TNA task force, which was divided into one team for mitigation and one for adaptation. The mitigation team representatives are from the Institute of Technological Research, Energy Research Center, Ministry of Energy, Ministry of Electricity, Institute of Environmental Studies and HCENR. The adaptation team was formed by representatives of the Ministry of Agriculture, the Ministry of Water resources, the University of Khartoum and the Institute of Technological Research.

In line with the methodology explained in the TNA handbook,¹ the Sudanese TNA first identified the country's sustainable developmental priorities which was followed by a prioritisation of strategic sectors for climate and development in the country. The selected sectors for mitigation were: Energy, Industry and Agriculture and forestry. Water and Agriculture were selected as important sectors for adaptation. Next, the project teams selected potential technologies within each of these sectors and assessed these for climate



Source: http://www.nationsonline.org/oneworld/map/sudan_map.htm

and development benefits using a multi criteria decision analysis with stakeholder participation.

Two workshops were organized. The first one was an inception meeting and the second workshop focused on technology selection and prioritization. The result of this part of the TNA was a portfolio of most suitable technologies for climate and development in Sudan. After that, for these ranked technologies a barrier analysis was carried out followed by formulation of solutions for identified barriers. These solutions were included in a technology action plan and the proposed project ideas for each prioritised technology.

Industrial sector: technology selection process and technology diffusion action plan

Industry in Sudan is mainly based on agriculture and animal products, focused on sugar, flour milling, confectionary biscuits, textiles, edible oils, ethanol

* Ms. Mawahib Eltayeb Ahmed (Engineer), Researcher, Appropriate Technology Department, Institute of Technological Research, National Centre for Research, P.O. Box 2404, Khartoum- Sudan, tel: +249918078955, tel: +249121788279, e-mail: ahmed.mawahib@gmail.com.

¹ Handbook for Conducting Technology Needs Assessment for Climate Change <http://unfccc.int/ttclear/sunsetcms/storage/contents/stored-file-20130321154847356/TNA_Handbook_Nov2010.pdf>

and leather products, as well as dairy products, animal fodder and packing/canning activities. Future expansion is expected to focus on fertilizers, pesticides and agricultural appliances.

Currently, large-scale industries in Sudan account for 82% of the country's GDP, of which food/beverages produce 48%, oil refining 21%, tobacco 6% and cement production and other large-scale industries 7%. Small-scale industries account for 18% of GDP: food/beverages 15% and wood fabrication, metals, textiles and other small-scale industries 3%. As a result of the above analysis accompanied by the development priorities identified in the TNA, the main industries are the food industries, mineral and non-mineral industries including the cement industry.

As can be seen in Figure 1, approximately 0.1% of Sudan's GHG emissions in 2000 were caused by industrial processes (93 Gg CO₂-eq.). 95% of these emissions were related to cement production activities, followed by lime production (4.5%) and soda ash uses (0.5%). Since the industry sector is continuously growing as a result of population increase, GHG emissions related to industrial production are expected to grow too under business-as-usual scenarios.

GHG emissions in the industrial sector originate from two main sources, namely:

- **Energy-related GHG emissions**, whether for electricity, heat or steam/hot water for the industrial process, especially at off grid/ self-status. In 1994 (according to the 1995 National Communication), the industrial sector utilized 7.6% of the total biomass consumption in Sudan, specifically fuel wood (1,050,174 m³) and charcoal (11,673 m³). In addition, it was estimated that in 2010 14.7% of the electricity consumption in the county took place in the industry sector (which was an increase of 24.4% compared to the previous year). Industrial consumption of fossil fuels, according to statistics, can be estimated at around 30% of total consumption (e.g., 1,276.8 out of 4,077.6 million tons in 2008). This type of emission is a cross-cutting issue for all industries but for the sake of this work, further analysis will only be undertaken for growing industries (source: Ministry of Energy and Sudan Central Bank Reports).
- **Process-based GHG emissions** related to specific production step/processes such as cement formation. Although they are low compared to other sources in Sudan, these types of industries are growing and are anticipated to further grow in the future.

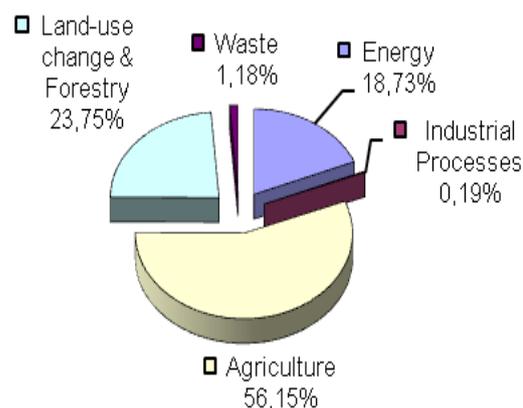


Fig 1. Percentage Contribution by Sector to the Aggregated GHG Emissions in CO₂ equivalent in Sudan in 2000 (Inventory)

Source: First National Communication (2003) and compiled by the National Mitigation Team

Technology selection and ranking

With a view to meeting the development priorities in Sudan, the TNA project prioritised the following industrial sectors: Food, Mineral, Non-mineral and Cement. The technology selection process was carried out by consulting a core group with representatives of the main stakeholder: the Ministry of Industry, the Industrial Centre for Research, Consultancies and the Sudanese Association Chamber.

Four technologies were selected for GHG mitigation in these sectors:

1. Dual burner efficient boilers using LPG as fuel for steam generation for industrial processes (especially in food and textile industries);
2. Energy saving using waste for cement industry;
3. Compressed stabilized earth block to replace traditional brick making; and
4. Pozzalana technologies (for cement production).

Dual burner efficient boilers using LPG as fuel.

Using multi criteria decision analysis, the option of efficient boilers was identified as the most prioritised technology for steam generation for industrial processes, especially in food and textile industries. The majority of boilers in the food industry are old in design and inefficient. Of these, 60% use fuel oil, which leads to pollution and GHG emissions. Efficient dual fuel boilers are already widely used internationally and have the advantage that they use different types of efficient boilers. Their use in combination with lower emission fuels such as liquefied petroleum or natural gas could lead to substantial GHG emission reductions (see Table 1).

Table 1. Relation between Boiler Thermal efficiency and CO₂ emissions for different fuels

| Boiler Thermal efficiency | Emissions preheat output (kg CO ₂ /mm Btu) | | | |
|---------------------------|-------------------------------------------------------|--------------------|-------------------|-------|
| | Natural Gas (NLG) | Distilled fuel oil | Residual fuel oil | coal |
| 80% | 66.3 | 91.4 | 98.5 | 117.5 |
| 85% | 62.4 | 86.1 | 92.7 | 110.6 |
| 90% | 59.6 | 81.3 | 87.6 | 104.4 |
| 94% | 56.4 | 77.8 | 83.8 | 100.0 |

Source: Climate Leaders' Greenhouse Gas Inventory Protocol Offset Project Methodology for Industrial Boiler Efficiency (p.25)
http://www.epa.gov/climateleadership/documents/resources/industrial_boiler_protocol.pdf

The main barriers for the implementation of efficient dual boilers in Sudan are:

- lack of technical know how of the technology;
- lack of awareness among the owners of the industry of the long term economic and environmental benefits of using efficient dual boilers;
- lack of finance for small and medium sized industries with limited financial resources for importing new boilers or modifying existing boilers.

The diffusion of efficient boilers in Sudan has become very important for the continuation of the industries and for the survival of the owners and many families, who depend on this sector, due to the high prices of the imported fuels and other processing raw materials. Some imported finished products are cheaper than that those produced locally, which affects the continuation of local industries.

An action plan is proposed to target the medium and small scale Food, Beverage and Textile industries with the diffusion of 100 efficient boilers with dual fuel efficient dual boilers (furnace, diesel/ LPG) in 10 years time with a rate of 10 boilers per year. This will lead to a reduction of 3,740.5 kg CO₂/mmbtu*10 (see Table 1 for CO₂ equivalent emissions for boiler thermal efficiency for different fuels) per year and a reduction of production cost by 30% due to fuel saving. The practical diffusion of efficient dual boilers in Sudan needs to overcome many barriers such as finance, through establishment of an investment portfolio incentive and credits from banks, and lack of policy support and regulation.

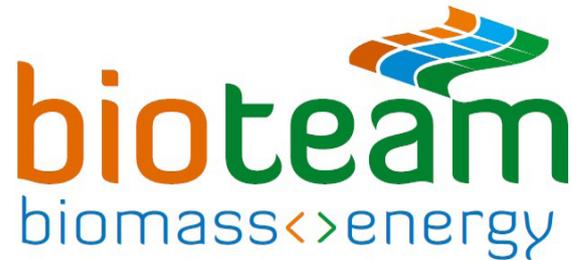
Possible solutions identified for acceleration of efficient dual boilers diffusion in Sudan are:

- fiscal stimuli for environmentally sound technologies;
- encouragement to investment in clean fuel and efficient dual boilers;
- technical support for smooth technology transfer through training and capacity building for the related institutions;
- increase users' awareness of the significant economic and environmental benefits of efficient dual boilers, such as fuel saving; and
- benefits from existing financial opportunities for technology transfer projects such as the CDM.

For further information, please contact:
 Ms. Mawahib Eltayeb Ahmed (Engineer)
 Researcher
 Appropriate Technology Department
 Institute of Technological Research
 National Centre for Research
 PO Box 2404
 Khartoum - Sudan
 tel: +249918078955
 tel: +249121788279
 e-mail: ahmed.mawahib@gmail.com

BIOTEAM – Optimizing Biomass to Energy Systems in Europe

On 1 April of this year, the project “Optimizing Pathways and Market Systems for Enhanced Competitiveness of Sustainable Bio-Energy and Technologies in Europe” (acronym BIOTEAM) started under the EU Intelligent Energy Europe programme. BIOTEAM is carried out by a European consortium coordinated by the JI Network (JIN) in the Netherlands. The aim of BIOTEAM is to help public and private stakeholders gain better insights on how bioenergy markets work and what can be done to enhance the competitiveness and sustainability of bio-energy pathways in different Member States.



Project vision

Generally, the choice or design of biomass-to-energy pathways is determined by the market as a result of:

1. Endowments, such as available biomass resources, production factors, *etc.*;
2. EU, national and sub-national policies and policy instruments which address bio-energy stakeholders; and
3. Possible market system inefficiencies, such as finance limitations, information asymmetries, non-aligned incentives, *etc.*

Based on these factors, some bio-energy pathways will become dominant in the market whereas other pathways will have a less important role.

Since bioenergy is a complex business with many potential resources and final uses, it is usually difficult for policy makers and market actors to fully understand the economic, social and environmental implications of their strategic decisions on bio-energy pathway development. The resulting bio-energy pathways may, therefore, not be those that would be fully desired from a combined environmental, economic and social sustainability perspective. In light of that, BIOTEAM aims to:

1. Examine what would be the most competitive bio-energy pathways (*e.g.* within categories liquids, solids and gases) and how these comply with Member States' sustainability priorities;
2. Identify actions to bridge the gaps between observed and desired bio-energy pathways; and
3. Support public and private stakeholders in including these actions in their decision making.

Through these steps, the impact of BIOTEAM will be that the relevant public and private sector stakeholders in six EU countries (Finland, Germany, Italy, the Netherlands, Lithuania and Poland) are presented options to revise their decisions (*e.g.* bio-energy policy incentives, choice of biomass feedstock and investment size of bio-energy production plants) geared towards maximizing the competitiveness and sustainability of their bio-energy systems and individual pathways.

Workplan

A first step in the BIOTEAM process will be to identify and describe a number of biomass-to-energy pathways in each of the six case study countries and examine these in terms of sustainability performance. For that, the project will prepare its own assessment framework, which builds further upon the several voluntary sustainability certification schemes that are compliant to the EU Renewable Energy Directive.

Next, BIOTEAM will explore and describe for each case study country policies and measures which are relevant for or have a social, environmental or economic impact on the actions and behaviour of the various bio-energy market actors. This combined overview of sustainable and competitive bio-energy pathways, with their market actors, and relevant policies and measures form a bio-energy 'market map' for each of the six case study country. Conducting further analysis of these maps (*e.g.* on sustainability performance, competitiveness and policy impact), in a participatory setting with public and private stakeholders, enables the project to identify market barriers and opportunities.

The bio-energy market maps form the basis for strategic competitiveness assessments whereby stakeholders will determine what would be preferred bio-energy pathways in their country based on competitiveness and sustainability considerations and what strategic actions are needed to create a level



Box 1. BIOTEAM Partners

| | Short name | Country |
|----------------------------------------------------------------------|------------|-----------------|
| Stichting Joint Implementation Network | JIN | The Netherlands |
| MTT Agrifood Research Finland | MTT | Finland |
| Lithuanian Research Centre for Agriculture and Forestry | LRCAF | Lithuania |
| Chair of Production and Logistics, Georg-August-University Göttingen | UGOE | Germany |
| Fondazione per l'Ambiente Teobaldo Fenoglio | FA | Italy |
| Baltic Energy Conservation Agency | BAPE | Poland |
| University of Eastern Finland | UEF | Finland |

playing field for sustainable and competitive bio-energy pathways. These actions will be specified and characterised in terms of amended policy measures by public stakeholders and (re)considered strategic and operational decisions by private sector stakeholders.

Outputs and expected results

The BIOTEAM project aims at achieving the following major outputs:

1. A harmonized framework for assessing bio-energy pathway sustainability across a number of EU Member States;
2. A detailed assessment of the economic, environmental and social sustainability benefits of prioritised biomass-to-energy pathways in the case study countries Finland, Germany, Italy, Lithuania, the Netherlands and Poland;
3. A comprehensive assessment of policy interactions with the bio-energy market, including renewable energy policy but also policies related to, e.g., waste management, water, emissions trading, etc.;
4. National bio-energy 'market system maps' based

5. on existing bio-energy pathways and policy interactions; and
5. A set of strategic recommendations for public and private decision makers on how to shape policy instrument packages and adapt the bioenergy processes to promote the most sustainable bioenergy pathways in such a way that they allow for fair competition between bio-energy pathways within the Member States and the common European market for bio-energy with optimised sustainability contributions in economic, social and environmental terms, thereby allowing bio-energies to contribute to a sustainable low emission, innovative and energy secure Europe

For further information, please contact:

Mr Eise Spijker

JIN

Laan Corpus den Hoorn 300

9728 JT Groningen

the Netherlands

tel.: + 31 50 5248431

e-mail: eise@jijqweb.org

<http://jijqweb.org>



Fondazione per l'Ambiente
Teobaldo Fenoglio
ONLUS



UNIVERSITY OF
EASTERN FINLAND

How can Local Authorities Participate in Kyoto Actions?*

By Fabio Iraldo and Federica Gasbarro**

As GHG emissions from human activities are now recognized as a primary cause of global warming, mitigation policies focus on enhancing reductions in most emitting sectors through a wide range of policies and mechanisms. In the EU, the Energy and Climate Package articulates a set of reduction objectives for Member States. The EU ETS addresses industrial and energy sectors, corresponding to almost 40% of EU emissions. Under the so-called Effort Sharing Decision, Member States have taken on binding annual targets for reducing their GHG emissions in sectors not covered by the EU ETS, such as housing, agriculture, waste and transport (excluding aviation). Therefore, the role of non-ETS quotas and voluntary initiatives in these sectors (corresponding to almost 60% of emissions) is crucial in respecting the assigned national amounts. This article focuses on the possible role of local authorities in meeting non-ETS climate goals within the EU.

Local authorities may play a relevant role in a low emission direction in non-ETS sectors as regulators, planners, promoters and providers in sectors such as transport, urban planning, energy efficiency in the building sector and energy distribution and production. Local authorities have, moreover, particular skills in the scope of mass communication and raising public awareness on aspects of general interest, such as energy saving. In this perspective, the role of major metropolitan areas is particularly important, as activities pursued in urban areas generate close to 80% of global CO₂ emissions (see UNEP, UN-HABITAT). Metropolitan area governments have influence on territories that are even wider than their administrative boundaries, as they attract users from surrounding areas to the high concentration of economic activities and resources.

Nevertheless, a real and effective engagement of local governments in tackling climate change is fundamentally linked to voluntary actions and to first-mover benefits in terms of acknowledgment of visibility and leadership. This could be supported by systems of voluntary certification of emission cuts. Therefore, the challenge is to define, adopt and promote instruments that may effectively activate the initiatives of local governments. In particular, it is important to define a policy asset that may regulate and provide incentives for voluntary

reduction mechanisms. This could be done through an analytical and normative approach that needs to be homogenous in all regions and, in the future, in all Member States. This approach should define rewarding mechanisms also from an economic perspective, in order to support voluntary emission reduction actions.

A voluntary carbon market for local governments

Recently, the voluntary carbon credit market has reached considerable dimensions also in Europe. In this market, those actors can participate who are willing to demonstrate their contribution to emission reductions according to “non-binding” criteria. For the acknowledgment of voluntary credits, a structured process needs to be followed for estimating the emission reductions. This process is subject to third party validation of the project plan and verification of the achieved reductions. With these requirements, the production of reduction certificates or credits is envisioned which are referred as to Verified Emissions Reductions (VERs). The VERs can be traded through dedicated exchange platforms. At present, VERs are exchanged through either auctions, or, more frequently, bilaterally between trading partners, at an average price between € 5 and 8 per tCO₂.

Currently, the voluntary carbon credit market has neither been standardised nor regulated. Market activities are still mainly related to either opportunities of green marketing (*i.e.* offsetting the emissions generated by an organization, a product, an event) or capital attraction (*e.g.* realization of corporate strategies, capacity to be ready for potential normative obligations in the future). According to the available data, at present, 70% of voluntary carbon market demand is US-based, while European demand adds the remaining 30% (estimated at 23,7 MtCO₂ and USD 91 m per year). Nowadays, the market is hampered though by the absence of a clear set of rules (working out also operative problems such as the overlap between credit generating subjects) and official standards and validation instruments. These are needed for gaining trust in the credits put on the market.

For local governments, the voluntary market can be considered a valuable opportunity to be pursued as it could support their low emission policies. In their point of view, VER projects could be derived from both interventions aimed to increase the local capacity to offset locally produced emissions (*i.e.*, interventions

* This article is based on the project “Local Authorities Improving Kyoto Actions (LAIKA)” co-financed by the European Commission under the LIFE+ Environment program (<http://www.life-laika.eu>). The opinions expressed in this article, however, are the authors’ and do not necessarily reflect the views of the European Commission. The full report will be published by the end of September 2013.

** Scuola Superiore Sant’Anna, Institute of Management and Cesisp, e-mail: f.iraldo@ssup.it

of tree planting, forestation or reforestation), and interventions to reduce emissions on their own territory, e.g., increased energy efficiency, adopting cleaner technologies and mobility management to reduce GHG emissions at different industrial compounds.

The opportunities provided by the development of these kinds of markets could support the role of local governments in developing and putting into practice the local policies, particularly related to the objectives of regional and national planning.

The LAIKA Project

Within LAIKA, four Italian municipalities, Milano, Torino, Bologna and Lucca, are implementing a methodological approach previously developed by the Cartesio Network (Regions of Emilia Romagna, Lazio, Liguria, Lombardia, Sardegna and Toscana) to homogenize experiences carried out by local authorities in the field of GHG emission accounting, verification and crediting (which, as explained above, is nowadays differentiated and often not comparable across the EU). Therefore, the approach has been tested at the local level through evaluation and implementation of a common method for GHG baseline determination and by defining objective, targets and planning tools such as a *Climate Commitment Plan*, in order to pursue them. Specific eligibility requirements were fulfilled by some actions and measures defined in each draft Climate Commitment Plan, under the Kyoto regime.

Furthermore, the project contributes to:

- Supporting the European and Italian institutions in activating a scheme to value local contributions to the Kyoto Protocol and European integrated energy and climate change policy targets for 2020, by enabling the verification and crediting of GHG reduction measures through the implementation of a national Register;
- Elaborating and testing the methodology for generating market incentives for voluntary GHG emission reductions such as privileged funding policies or by using market instruments; and
- Implementing and simulating a voluntary market for GHG mitigation credits validated under LAIKA, in order to set up a valid experience that may enrich the existing market expertise on voluntary reduction credits.

To fulfill these objectives, the project partners monitored some of the planned measures for GHG reductions included in their Climate Commitment Plans, assessed and verified the potential release of emission reduction credits. This monitoring activity has been a crucial step since it provided useful feedbacks to the municipalities on the effectiveness of these measures and potential improvements and corrective actions. Hence, the project partners are

setting up a system for attributing economic value and creating monetary incentives to the GHG reduction targets achieved and, in particular, are testing the implementation of an emission credit attribution and trading scheme for the GHG reduction measures carried out by local territorial governments.

These actions were based on the assumption that, in order to make the GHG reduction measures really effective and to promote their adoption by all the interested public and private organizations, there should be incentives and economic advantages for first-movers. For example, those municipal authorities that will lead the way to higher commitments and stronger voluntary GHG reductions should be able to obtain real economic and monetary benefits, not just in terms of reputation and image. This will partially compensate their efforts to pursue Kyoto and EU "20-20-20" objectives. Consequently, LAIKLA proposes practical and useful solutions to provide economic stimuli and incentives to the front-runner public authorities and private organizations that are eager to implement voluntary GHG reductions.

Conclusions

As a demonstrative action, LAIKA is showing that:

- A harmonization of accounting and planning methods adopted by local authorities for projects and plans in the field of GHG emission reductions is possible and necessary, in order to make these methods effective tools to stimulate initiatives at the local level and to promote reporting on target achievements for institutional contexts at the national and EU levels);
- A country-based system for registration and assignment of emission reduction credits, with the potential to be transferred at the communitarian level, is an effective solution to: 1) prevent an uncontrolled development of local registration systems working with non compatible rules; 2) ensure the highest visibility to emission reduction initiatives; and 3) ensure their credibility at national and potentially communitarian scale through certification;
- A country-based voluntary market for emission reduction credits may work most effectively and efficiently if it relies on a national basis and if it engages actively regional actors as promoters of credit registration at a unique platform;
- Linking EU financing policies to emission offsetting requirements is an effective way to develop and encourage voluntary GHG reduction initiative;
- The proposed solutions can be effectively reproduced at the communitarian and international scale.

Berghmans, N., O. Sartor and N. Stephan, 2013. Reforming the EU ETS: give it some work!, Climate Brief n°28, CDC Climat Research <<http://www.cdclimat.com/Climate-Brief-no28-Reforming-the-EU-ETS-give-it-some-work.html?lang=en>>

In response to the European Commission's invitation to stakeholders to respond to six proposals it has laid down for structural reforms of the EU Emissions Trading Scheme (EU ETS), this report identifies three main weaknesses that affect the functioning of the EU ETS: insufficient credibility of long-term scarcity, the consequences of interactions with other energy policies and the lack of regulatory clarity to respond to extraordinary demand conditions. The report concludes that the best option proposed is the early revision of the annual linear factor. It further encourages European authorities to avoid the ETS to become a residual policy. Additionally, greater clarity should be given on the governance of supply in the event of future extraordinary demand shocks.

Bumpus, A., 2013. Fruitful design: the CDM, University of Melbourne <https://cdm.unfccc.int/about/dev_ben/CDM-Benefits-2012.pdf>

This article examines several key areas of the CDM identified in the *Benefits of the CDM 2012* report published by the UNFCCC secretariat. It is argued that the total contribution to sustainable development is still largely unknown and including reporting on this in the CDM may help create a wider and deeper understanding of these benefits. A possible option mentioned in the article is defining a set of international indicators on the CDM.

The article argues that it is essential, as the mechanism develops, to better engage in a dialogue on the potential merits of scaling up processes, the role of the private sector in implementing them, and engaging developed and developing countries in the early stage of designing mechanisms to gain their confidence in the process that follows. There are significant opportunities for building on the success of the CDM, supporting cost efficient developed country emissions reductions and promoting green growth in developing countries. The article concludes that the CDM has given an example of an international project creation and trading mechanism for reducing emissions at scale, catalyzing renewable investment where it previously did not exist, creating technology transfer and contributing to sustainable development.

Ellison, D., H. Petersson, M. Lundblad and P-E. Wikberg, 2013. The Incentive Gap: LULUCF and the Kyoto Mechanisms before and after Durban <<http://onlinelibrary.wiley.com/doi/10.1111/gcbb.12034/full>>

To-date, forest resource-based carbon accounting in land use, land use change and forestry (LULUCF) under the UNFCCC, Kyoto Protocol, EU and national level emission reduction schemes considers only a

fraction of its potential and fails to adequately mobilize the LULUCF sector for the successful stabilization of atmospheric GHG concentrations. The presence of an incentive gap continues to justify reform of the LULUCF carbon accounting framework. This paper incorporates the changes agreed in Durban and encompasses both a wider set of countries and a larger set of omitted carbon pools. For Annex I countries, based on the first 2 years of experience in the first Commitment Period it is estimated that the investment gap in forest management at approximately 88%. Though significantly reduced in the second commitment period of the Kyoto Protocol, the incentive gap remains a problem.

EPRI, 2013. Exploring the Interaction Between California's Greenhouse Gas Cap-and-Trade Program and Complementary Emissions Reduction Policies, Palo Alto, CA: 2013. 3002000298.

California enacted Assembly Bill 32 (AB 32) to address climate change in 2006. The California Air Resources Board (ARB) developed a plan made up of a GHG emissions cap-and-trade program and regulatory measures known as "complementary policies" (CPs) to achieve the 2020 target. The CPs targeted emissions from sectors covered by the GHG cap-and-trade program and those not covered by the program. ARB estimated that the CPs would achieve approximately 80% of the emissions reductions required to achieve the 2020 emissions target.

The report concludes that the performance of CPs in achieving emission reductions will have a significant impact on the level of abatement that covered sources will need to achieve in order to meet the fixed emissions cap in the GHG cap-and-trade program and on expected GHG emission allowance prices. In addition, the potential variance in the performance of CPs and other variables, and recent regulatory decisions that have been made regarding program implementation, will complicate the efforts of electric companies to develop an effective risk management strategy to comply with the program.

Foucherot, C. and V. Bellassen, 2013. More than 800 agricultural and agri-food sites affected by the EU ETS, Climate Report n°39 – March 2013 <http://www.cdclimat.com/IMG/pdf/13-03-14_-_climate_report_39_-_agriculture_in_the_eu_ets.pdf>

This report explains that, taking into consideration the entire agricultural sector, including upstream, as well as downstream emissions, the agricultural and agri-food sector's emissions covered by the ETS are just 1.5% of all ETS emissions. However, as more than 800 industrial sites are covered by agricultural activities, 8% of ETS installations are agriculture sector-related.

The agricultural and agri-food sector have been among the net beneficiaries of the EU ETS in the first two phases (2005-2012), with a surplus of 33 million

allowances over the period 2008-2011. The ETS has therefore been both a source of additional revenues to the agricultural sector and an incentive to implement less polluting practices and technologies.

However, with changed rules under the ETS as of 2013, with allowance allocation being defined according to a benchmark of carbon intensity, rather than historical emissions, and an end to free allocations for sectors with no risk of carbon leakage, some agricultural and agri-food installations will have to pay for part of their emissions. The main solution for emission reductions is the substitution of fossil fuels with biomass, which is considered to be carbon neutral. Other solutions are beginning to be developed, such as high-temperature catalysis among producers of nitrogen fertilizers, heat recovery in dairies and dryeration in dryers, etc.

Han, G., M. Olsson, K. Hallding and D. Lunsford, 2012. China's Carbon Emission Trading - An Overview of Current Development, FORES Study 2012:1; Stockholm Environment Institute (SEI) and Forum for Reforms, Entrepreneurship and Sustainability (FORES) <<http://www.sei-international.org/mediamanager/documents/Publications/china-cluster/SEI-FORES-2012-China-Carbon-Emissions.pdf>>

This report examines China's efforts to develop domestic carbon markets, what is at stake, and key challenges that lie ahead. China has embarked on a pathway to establish a national carbon emission trading system by 2015. As a first step, carbon-trading pilots have been initiated in seven provinces and cities. The success or failure of those experiments will to a large extent determine the future of climate policies in China.

This report evaluates the progress so far and examines the key challenges ahead. While the attempts to develop a domestic carbon trading scheme are sincere and ambitious, there are considerable difficulties. Many of the challenges are not particular to China, but common to any emission trading system. However, there are also more profound worries about how to operate a market-based instrument given the current shortcomings of the Chinese market system in general.

Koakutsu, K., K. Usui, A. Fukui, A. Kuriyama, M.T. Mallare, J. Laurente, T. Sotelo, 2012. The CDM 2.0 - Lessons from the capacity building in Asia, IGES Policy Report 2012-07; IGES CDM Reform Series no. 3 <http://enviroscope.iges.or.jp/modules/envirolib/upload/4295/attach/CDM_reform_No.3_e.pdf>

While the form of new framework including new market mechanisms with participation from all the Parties under the UNFCCC will be further discussed and elaborated in order to be agreed upon by 2015 and implemented by 2020, CDM still has a significant role in terms of the foundation of market-based

mechanisms and supporting tools especially for the least developed countries. This report summarises: 1) the current situation of CDM focusing on supply and demand of certified emission reductions (CERs) to provide quantitative analysis on the market, and 2) past experience on capacity building to identify what has been learnt. The report aims to contribute to the next phase of CDM 2.0 so that the potential of CDM can be fully utilised.

Kollmuss, A. and J. Fuessler, 2013. New Climate Mitigation Market Mechanisms: Stocktaking after Doha, INFRAS, with inputs from: M. Lazarus (Stockholm Environment Institute), M. Herren and L. Schneider <http://www.infras.ch/downloadpdf.php?filename=b2459a_Stocktaking_NMM_FVA_2013-03-04f.pdf>

This paper provides an overview on the status of the regulatory framework for the Framework for Various Approaches and the new market mechanism and summarizes the main issues that were discussed in relation to these new instruments at COP 18 in Doha. The paper aims to set in context the relevant issues that impact baseline/additionality determination in the design of these new instruments.

The paper highlights a number of key issues that need to be clarified within the negotiations and that require further development:

- nature of pledges,
- nature of new market mechanism and framework for various approaches,
- related governance structures, and
- missing demand for new market mechanism and framework for various approaches.

Seppänen, S., H-M Ahonen, J. Ollikainen, S. Viljaranta, J. Hoogzaad, S. Huber, D. Conway, T. Chagas and M. Fernandez, 2013. Demand in a Fragmented Global Carbon Market: Outlook and Policy Options, TemaNord 2013:525 <<http://www.norden.org/en/publications/publikationer/2013-525>>

With a view to recent developments on international carbon markets – oversupply of credits and allowances and identification of carbon markets as option to bridge pre-2020 ambition gaps – the Nordic Working Group for Global Climate Negotiations (NOAK) launched a study to provide policy relevant insights into the future supply and demand in carbon markets and, specifically, to explore political options to tackle the lack of ambition for mitigation action.

The study, among others, concludes that the reason for current low-price carbon market circumstances is not oversupply but demand shortage due to lack of ambition. This report identifies measures and circumstances that could be created to boost ambition and overall demand for international credits.

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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JIQ contact information:

Joint Implementation Network
 Laan Corpus den Hoorn 300
 9728 JI Groningen
 The Netherlands
 tel.: +31 50 5248430
 fax: +31 50 2011326

e-mail: jin@jiqweb.org
 Internet: www.jiqweb.org

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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

26 April 2013, San Pedro Sula, Honduras

Clean Energy Financing Forum for Central America and the Caribbean
 Contact: Fernando.alvarado@flexenergygroup.com
 <http://cti-pfan.net/events_detail.php?eventsid=43>

29 April – 3 May 2013, Bonn, German

Bonn Climate Change Conference with the second session of the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP 2).
 Contact: <http://unfccc.int>

30 April – 1 May 2013, Miami, FI, USA

Renewable Energy Finance Forum - Latin America and the Caribbean
 Contact: Dr. Roland R. Clarke <www.clarkeenergyassociates.com>
 <www.linkedin.com/in/RolandClarke>

1-3 May 2013, Washington, D.C. USA

Seventh Pilot Program for Climate Resilience (PPCR) Meeting
 Contact: CIFAdminUnit@worldbank.org <<https://www.climateinvestmentfunds.org/cif/content/ppcr-pilot-country-meetings>>

29-31 May 2013, Barcelona, Spain

Carbon Expo: Global Carbon Market Fair and Conference
 Contact: Lisa Spafford, IETA tel.: +41-22-737-0502
 e-mail: spafford@ieta.org <<http://www.carbonexpo.com/>>

3-14 June 2013, Bonn, Germany

SBI 38, SBSTA 38, ADP2
 Contact: <http://unfccc.int>