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Evolution of the Swedish Programme for International Climate Change Mitigation - Looking Back and Forward

By Hanna-Mari Ahonen and Ola Hansén*

Sweden's support for climate change mitigation through international flexibility mechanisms spans more than 15 years, and continues into the future. Motivated by development of the mechanisms rather than compliance, Swedish support has evolved over time in response to changing circumstances. Road-testing CDM and JI developments in different, often challenging, contexts has been the programme's key contribution to their evolution. With future contexts for mitigation action more diverse than ever, the Swedish programme is now targeting mitigation activities that can help to make international mechanisms fit for the future and complementary to host country policies and priorities.

Getting started

In 2002, when Sweden launched its programme for promoting international mitigation through the Kyoto Protocol's Clean Development Mechanism (CDM) and Joint Implementation (JI), these ground-breaking mechanisms held great promise for promoting flexibility and cost-effectiveness of emerging climate change mitigation efforts by extending emission reduction incentives to the private sector and developing countries. The utilisation of market-based approaches in global environmental policy was largely uncharted terrain so public pioneers were needed to develop environmentally robust mechanisms capable of attracting private sector engagement of the scale commensurate to the climate change challenge.

Sweden had been testing international flexibility mechanisms through Activities Implemented Jointly (AIJ) already since 1997 and through the World Bank's Prototype Carbon Fund (PCF) since 2000. In 2001, agreement on the Marrakesh Accords finally set into motion the operationalisation of the Kyoto mechanisms.

Durable objectives

Since its inception, the Swedish Programme for International Climate Change Mitigation has aimed at contributing to the development of international flexibility mechanisms and the carbon market as means for international cooperation that contributes to sustainable development in the host countries and achievement of cost-effective emission reductions. The Swedish programme is split equally between direct participation through a bilateral project portfolio and collaborative participation through nine multilateral initiatives, with the aim to share and utilise lessons across all activities. The programme is managed by the Swedish Energy Agency (SEA). Box 1 summarises key figures of the Swedish programme.

An important objective has been to use the Swedish experience as direct input for the international climate change negotiations, so that international mechanisms can evolve as robust and efficient tools that attract wide participation. Motivated by learning-by-doing rather than compliance, Sweden has provided stable result-based support for emission reductions that enhance mitigation beyond existing international targets and beyond periods of regulatory certainty.

Box 1. Swedish programme: Key figures (as of December 31, 2014)

- Bilateral portfolio of 98 CDM and JI projects in 28 different countries:
  - Renewable energy
  - Energy efficiency
  - Methane avoidance
- Participation in 9 multilateral climate funds and initiatives, adding another 140 projects and 26 countries

* Contact: Hanna-Mari Ahonen, Market Development Department, Swedish Energy Agency, tel. +46 16 5420612, e-mail: hanna-mari.ahonen@swedishenergyagency.se, http://www.swedishenergyagency.se. The authors wish to thank their colleagues for invaluable input.

In this issue

The overarching objective to contribute to the development of international flexibility mechanisms has proven to be durable and relevant throughout the programme's existence, also into the future. The activities it drives, however, have varied over time, reflecting the changing circumstances and contexts, as well as uncertainties relating to the climate policy framework and rules for international mechanisms.

Breaking the ground

In the early years, when the Kyoto Protocol's entry into force was still uncertain and CDM and JI lacked elaborated rules and established institutions, the Swedish programme supported pioneering projects bilaterally and through the multilateral Prototype Carbon Fund and Testing Ground Facility (TGF, see JIQ Vol. 21 - No. 1 • April 2015). The Swedish programme contributed to creating early demand for high-quality emission reductions, thereby giving incentives for project development and spurring methodological developments.

One example is the calculation of the combined margin for an electricity grid, a tool that is now applied by the overwhelming majority of the over 7,600 CDM projects registered to date. The programme also provided support to first-mover projects who were struggling to understand the CDM requirements as the CDM Executive Board and third party auditors debated their often conflicting interpretations. In 2007 and 2008, SEA had a staff member serving on the CDM Executive Board and chairing its Small-Scale Working Group. This Working Group develops simplified tools to facilitate small projects.

Extending frontiers

After 2005, key political risks faded, a comprehensive albeit unconsolidated body of CDM methodologies accumulated, and the EU Emissions Trading Scheme (ETS) emerged as a source of significant new demand for CERs. The private sector embraced the CDM market with unforeseen enthusiasm, rapidly expanding the CDM pipeline.

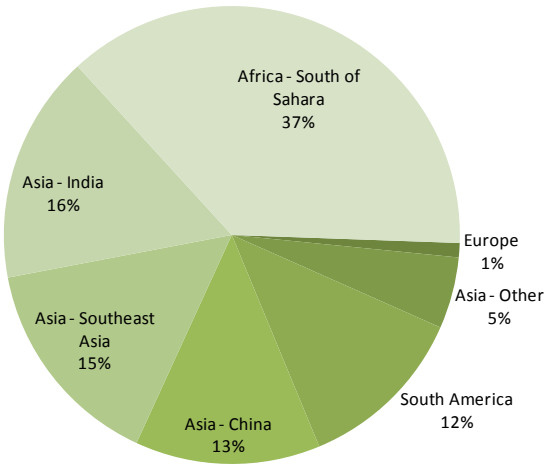

Figure 1. Regions in Swedish programme (bilateral portfolio, emission reduction volume)

Meanwhile, the Swedish programme shifted focus from mature CDM host countries no longer in the same need of public engagement to more challenging contexts, including Least Developed Countries and Sub-Saharan Africa, late-comers to CDM due to their limited CDM capacity, relatively low mitigation potential and often challenging investment environment. In terms of activities, the programme focused on supporting early-stage and small-scale projects, such as small hydro and biogas in Southeast Asia and Africa, and new methodologies, such as water purification and improved cook stoves in Africa.

In 2008, Sweden's announcement to participate in the Future Carbon Fund (FCF) provided an important signal for extending the carbon market beyond 2012.

From projects to programmes

A key development of the CDM is the Programme of Activities (PoA) which aims to facilitate the scaling up and replication of mitigation activities, including small and dispersed ones, under an umbrella programme while keeping transaction costs and risks manageable. When the first PoA standards were approved in 2011, the Swedish programme contracted PoAs on efficient lighting in India and on improved cook stoves in Nigeria. Since then, the Swedish bilateral PoA portfolio has grown to include 14 programmes, mainly in Africa but also in Asia and Latin America. The programme has gained PoA experience also through its participation in the World Bank's Carbon Partnership Facility (CPF) and the Carbon Initiative for Development (Ci-Dev).

The Swedish experience has highlighted the need for making PoA rules streamlined, so as to avoid prohibitive transaction costs, and flexible enough, so as to allow for customisation of programme design, as well as learning and improvement over time.

Price discovery and sustainable business models

The CDM market plummeted in mid-2011 as the global recession began to undercut the demand for, and consequently the secondary price of, CDM credits. The disappearance of a meaningful market reference price prompted the Swedish programme to develop alternative approaches to setting a fair price that would help early-stage projects and programmes to reach the viability thresholds without over-subsidising the activity. In 2012, a targeted effort was made to source improved cook stove PoAs with business models where carbon revenue would be used to promote mitigation activities aiming to ultimately become self-sustaining and lead to lasting mitigation impacts. The World Bank's Carbon Initiative for Development (Ci-

Dev), in which Sweden also participates, used a similar approach to support projects in Least Developed Countries and Sub-Saharan Africa.

By the end of 2012, secondary market prices were approaching zero, prompting the majority of private sector actors to abandon the CDM market or their stranded CDM projects, or both. The CDM market became once more, as in its early days, dominated by governmental entities supporting new activities without a meaningful market price to use as reference. In 2014, the programme organised a call for proposals to identify active CDM projects and programmes and to facilitate price discovery. Focus for the call was on activities in early development stages or ongoing activities at risk of discontinuation. Successful candidates were selected on a competitive and cost-effective basis, thereby making the most of scarce public resources. Key figures from the call are presented in Box 2 below.

Extracting lessons through follow-up

Systematic follow-up of project implementation and results is central to the development of mechanisms and climate change mitigation interventions, as well as the collection and sharing of lessons. The SEA tracks the progress of its bilateral portfolio through a combination of regular communication, status reports, questionnaires, and site visits.

Sustainable development impacts have always been a key consideration when selecting projects for the Swedish bilateral portfolio. Projects that generate multiple benefits can also have a higher likelihood of successful implementation and replication. The SEA has advocated the value of highlighting CDM co-benefits and helped to develop and test related tools. For internal use, the SEA has developed a tool to follow up anticipated sustainable development impacts, including no-harm considerations, over time through systematic collection and analysis of information.

Piloting lasting mitigation impacts

For over 15 years, the Swedish programme has provided stable incentives for emission reductions abroad through multiple periods of uncertainty regarding regulatory frameworks and rules for mechanisms. Towards and beyond 2020, the need for incentives to accelerate and scale up mitigation is greater than ever. The Swedish programme continues to offer result-based support for mitigation activities that can generate lasting, scalable and replicable mitigation impacts, with the potential to contribute to transformational change.

The programme continues to utilise CDM as a tool for quantifying, verifying and certifying additional emission reductions, and to contribute to its evolution so that the diverse and changing contexts in host countries are taken into account in a credible and

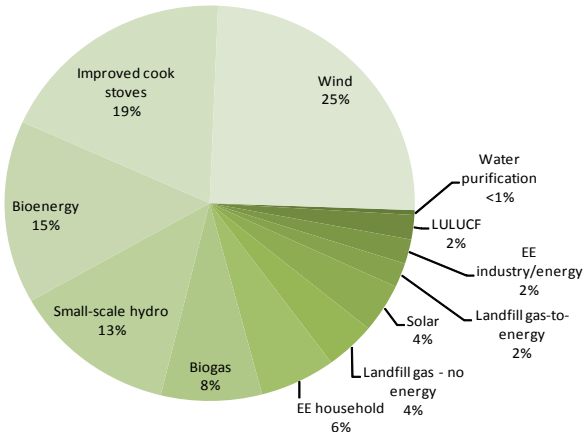

Figure 2. Technologies in Swedish programme (bilateral portfolio, emission reduction volume)

efficient manner. The Swedish programme seeks to support mitigation activities that are consistent with and complementary to the host country's climate policies and priorities, and to explore opportunities to share mitigation benefits with the host country. True to its developmental objective, the programme aims to identify and test models that make effective use of scarce public resources by proactively addressing barriers to private investments in sustainable, scalable and replicable mitigation activities and develop international mechanisms to quantify and verify additional emission reductions in diverse and evolving contexts.

Sweden contributes to the development of international mechanisms beyond 2020 also multilaterally through CPF, Ci-Dev and the recently launched Pilot Auction Facility (PAF). Last but not least, Sweden is one of the 30 countries participating in the Partnership for Market Readiness (PMR), a forum that

Box 2. Swedish CDM Call for Proposals of 2014: Key figures (as of July 1, 2015)

- 350 proposals received: 150 long-listed, 24 short-listed, 10 contracted
- CER potential by 2020: 160 million CERs
- Average price: 4.13 EUR
- Over 60 host countries: 48% of proposals from Asia, 23% from Latin America, 22% from LDCs and Africa
- Popular project types: energy efficient household cook stoves (17%), landfills (16%), wind power (13%)

Swedish Energy Agency

EU ETS Market Stability Reserve Moves Forward in Time

On 8 July of this year, the European Parliament approved a proposal to bring the market stability reserve (MSR) for the EU emissions trading scheme (ETS) forward in time. The MSR is meant to restore balance between supply and demand of ETS allowances. With the approval, it has become more likely that the MSR will start in 2019 and that it can be filled with both backloaded and unallocated allowances from the third phase of ETS.

When the third phase of the ETS started in 2013, the supply of emission allowances on the ETS market was about 2 billion higher than demand for allowances. According to the European Commission, the surplus had been caused by several factors, of which the economic crisis (with reduced demand for allowances) and a large number of carbon credits in the ETS market from Kyoto flexibility mechanisms (JI and CDM) were considered the most important ones.[1]

Backloading

In order to address this market imbalance, the European Commission, European Parliament and European Council of Ministers have worked on temporary and structural measures to reduce the supply of allowances in the market. The recently adopted proposal combines two of these activities: the proposal of 'backloading' and the proposal of creating a market stability reserve (MSR).

'Backloading' means postponement of the auctioning of 900 million allowances (equal to 900 million tonnes CO_2-eq.) in the short run (starting in 2014) and reintroduction of these ('backload') during 2019-2020 (before the end of the third ETS phase, so that the agreed amount of allocated allowances between 2012 and 2020 would not change). The European Parliamentary approved the 'backloading' proposal on 10 December 2013 with 385 votes in favour of it (284 votes against, with 24 abstentions).

Market stability reserve

However, despite the appreciation by several observers of the approval of the 'backloading' proposal in 2013 (JIQ December 2013), it was generally agreed that it would not solve the problem of a structural surplus of allowances during the third ETS phase. In 2012, in a note to the Parliament and the Council, the Commission identified a number of more structural surplus reduction options, among which the MSR.

The foreseen role of the MSR is to soften market fluctuations, so that supply of ETS allowances remains better in line with economic developments. In case there will be "too many" allowances (according to the proposal, when the 'oversupply' is higher than 883 million allowances), then 12% of the oversupply will be transferred to the auction reserve. In case less than 400 million allowance are in circulation in the market, 100 million allowances will be supplied from the reserve into the market. Allowances will also be transferred from MSR to the market in case the allowance market price increases to a level which is three times as high as the running average market price over a period of two years.

Bring forward in time

Initially, the MSR was foreseen to be established for the fourth ETS phase (starting 2021). However, due to the latest developments this year at the level of the European Commission and the European Parliament, the start of the MSR will be brought forward in time to 2019. A major implication of this move is that the MSR can already operate during the current ETS phase and help reduce the current surplus of allowances in the market. In particular, instead of 'backloading' allowances, the auctioning of which has so far been postponed, these allowances will now be placed in the MSR.

On 8 July, the European Parliament supported this proposal by 495 votes in favour (158 against with 49 abstentions at the full Parliament). On 18 September this year, the EU council of ministers of environment will consider endorsing the deal, which seems quite likely as some Member States, which were initially against bringing the MSR forward in time (mainly Central and Eastern European Member States), have been guaranteed that a fund with EU allowances for lower income Member States (the 'solidarity fund') will stay in place until 2025.[2] Moreover, to the satisfaction of several Member States, the European Commission will consider a proposal of putting 50 million of ETS allowances in an 'innovation fund' to help industry.

The MSR deal approved by the European Parliament implies that around 1.5 billion allowances will be taken out of the ETS market and put into reserve. Around 900 million of these allowances will originate from postponed auctioning ('backloading' proposal) as these will not enter the market. Another 600 million of

1 European Commission, Structural Reform of the European Carbon Market: http://ec.europa.eu/clima/policies/ets/reform/index_htm

2 Carbon Pulse, Dialogue: what does the MSR deal mean for the EU ETS and it allowance prices? http://carbon-pulse.com/dialogue-what-does-the-msr-deal-mean-for-the-eu-ets-and-its-allowance-prices/

unallocated allowances during the third ETS phase will also enter the MSR, instead of being allocated to ETS installations somewhere before 2020.

Implications for prices

With reduced supply of allowances, it may be expected that EU ETS market prices will increase. In the short run, immediately after the European Parliament voting, price increases were modest (for contracts up to 2018), as traders seemed to have counted on the decision. After all, on 5 May of this year, EU national governments and the European Parliament had already reached a provisional deal on bringing the MSR forward to 1 January 2019.[3] At the same time, a consultation by Carbon Pulse among European carbon analysts[4] showed that in the longer run prices may increase to over €20 per allowance around 2020, with a further expected increase to €40 by 2030. However, analysts also pointed out that the MSR deal does not mean that oversupply of ETS allowances will be gone and that it may take over 20 years to empty the MSR.

Green growth group

In a joint statement issued on 9 July of this year, nine EU ministers of Environment ('the Green Growth Group') asked the European Commission to develop a proposal for a post-2020 ETS reform, including:

- free allocation of allowances for industry (those at risk of carbon leakage),
- assistance to lower-income member states through a Modernisation Fund,
- support for innovative low emission technologies through the value of allowances in the new entrance reserve, and
- reduction of administrative burdens for ETS installations, especially for small-scale ETS operators.

The Green Growth Group consists of ministers from Estonia, Germany, Italy, the Netherlands, Norway, Portugal, Slovenia, Spain, and the UK.

[3] Business Green, Renewables industry hails EU vote on early carbon market fix http://www.business-green.com/bg/analysis/2407136/renewables-industry-hails-eu-vote-on-early-carbon-market-fix

[4] Carbon Pulse, Dialogue: what does the MSR deal mean for the EU ETS and it allowance prices? http://carbon-pulse.com/dialogue-what-does-the-msr-deal-mean-for-the-eu-ets-and-its-allowance-prices/

Discussion

Avoid Re-inventing the Wheel: How INDCs can Benefit from Work on TNAs and NAMAs

By Erwin Hofman and Wytze van der Gaast*

In preparation of the UN climate conference in Paris in December 2015 (COP21), countries publicly present their intended nationally determined contributions (INDCs) to outline which climate actions they intend to take after 2020. The request for INDCs by all countries was initially made at COP19 in Warsaw (2013, decision 1/CP.19) and reiterated last year as part of the Lima Call for Climate Action (decision 1/CP.20). By mid-July, 18 INDCs had been submitted to the secretariat's website[1], representing 46 Parties (including EU Member States), including seven from non-Annex I Parties: Mexico, Gabon, Morocco, Ethiopia, Republic of Korea, Singapore and Andorra. The UNFCCC Secretariat will prepare a synthesis report on the aggregate effect of the submitted INDCs in October 2015.

From commitments to contributions

Since COP15 in Copenhagen (2009), where Parties failed to reach a climate deal building further on the Kyoto Protocol, there has been a shift to identifying measures for climate change mitigation and adaptation in light of countries' development plans. For instance, according to the 2010 Cancun Agreements, mitigation actions should be 'nationally appropriate' and 'based on low-emission development strategies'. An important benefit of this development is that it can enhance the national acceptability of measures for mitigation and adaptation. Countries can first identify longer term sustainable development goals and then identify measures to achieve these goals with lowest GHG emissions and strongest climate resilience. According to the World Resources Institute, INDCs should show that climate change is being integrated into other national priorities, such as sustainable development and poverty reduction.[2]

* JIN Climate and Sustainability, Groningen, the Netherlands; erwin@jiqweb.org / jin@jiqweb.org; http://jiqweb.org. This article is based on a POLIMP briefing note: "INDCs beyond mitigation: TNAs as testing ground"

[1] http://unfccc.int/focus/indc_portal/items/8766.php

[2] World Resources Institute (2015). "What is an INDC?", http://WRI.org

However, the submitted INDCs, and their reviews, merely focus on their ambition, transparency and equity, with regard to the contribution of the country to the overall ambition to limit global temperature rise to two degrees Celsius above pre-industrial levels. From most INDCs, however, it is unclear how the proposed climate measures relate to domestic development planning. Moreover, a first assessment of submitted INDCs shows that intended contributions often lack action plans towards their implementation.

For example, the USA intends to achieve 26-28% emissions reductions below its 2005 level by 2025. Experts call this pledge "serious and achievable", but "whether it's a fair share of global action is another question".[3] Gabon submitted its INDC with a headline pledge of a 50% emissions reduction by 2025, compared to a business-as-usual scenario. Although Gabon states that its INDC is "in accordance with (…) its strategic development plan",[4] the INDC does not make clear how it is linked to the domestic sustainable development planning process.

TNA and NAMA as testing ground for INDC

Several provisions have been developed under the UNFCCC to enable for a country-specific identification of low-emission and climate-resilient development measures. A particular example of that is the TNA process, which was introduced at COP7 as part of the UNFCCC Technology Framework of 2001. Given the wide range of TNAs, as well as NAMAs or similar processes, conducted over the years, they could be considered useful 'testing grounds' for INDC formulation, especially in developing countries.

During 2009-2013, TNA processes have been carried out in 36 developing (non-Annex I) countries across Latin America and the Caribbean, Africa, Asia and Eastern Europe, with support from the Global Environment Facility (GEF) and the UNEP Risø Centre (currently renamed to UNEP DTU Partnership). Before 2009, 96 developing countries had already conducted a TNA. TNA Phase II was launched in November 2014 and will facilitate the process in 26 countries in the same regions.

TNA experience could support INDCs in the following ways:

- TNAs follow a structured approach from identifying national economic, social and environmental goals towards portfolios with prioritised options for mitigation and adaptation for combined development and climate benefits.
- As the TNA is a country-driven, participatory process, the needs and preferences of national stakeholders are taken into account.
- The TNA process concludes with the design of action plans for implementation, such as technology action plans (TAPs) and project ideas. Feeding these concrete action plans and project ideas in an INDC can increase the likelihood of successful implementation of the countries' INDCs.

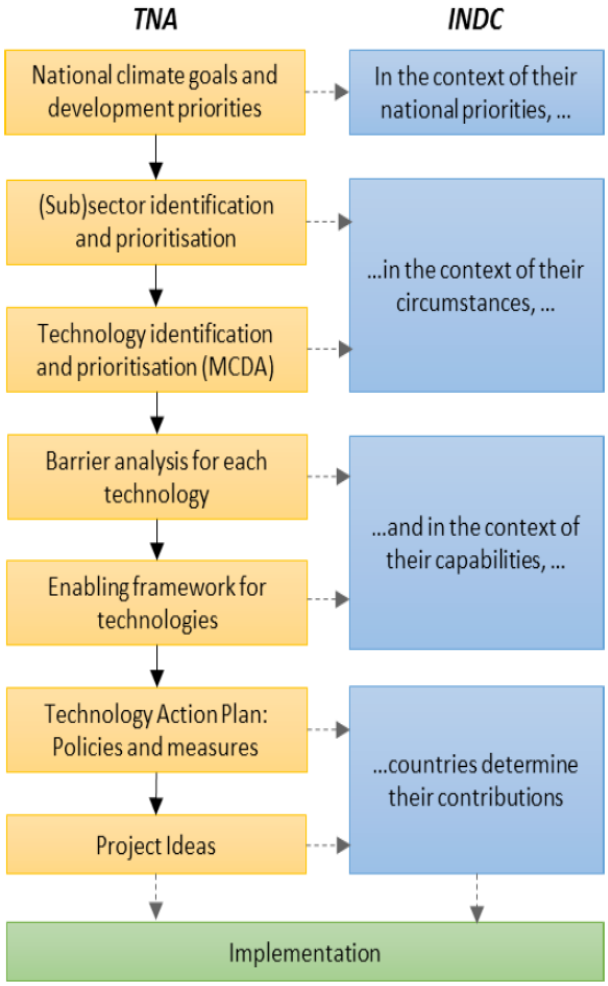

Figure 2. TNA process and aspects of INDCs.

In other words, the TNA process, or a similar country-driven participatory process such as NAMA, or low emission development strategies, could feed into an INDC. This reduces the need for developing countries to do multiple separate exercises and would support that the outputs for mitigation and adaptation strategies and action plans will deliver the sustainable development benefits for countries. In addition, it provides access to advice, networks, finance, and overall capacity building, such as education, supporting economic, legal and technical services,

[3] Evans, S. (2015). "US climate pledge promises to push for maximum ambition", The Carbon Brief, 31 March.

[4] République Gabonaise (2015). Contribution de la République Gabonaise.

and improved enabling environments for adoption of measures for mitigation and adaptation in the timescales and scale required. Targets described in the INDC, as input for the global climate framework, will then be based on actions that are genuinely nationally appropriate.

Good practice for INDC

Morocco is an example of a country that did base its INDC on a well-structured and broad stakeholder consultation process, and a review of existing policies and programmes, while providing clear statements on the needs for financing and capacity building. Morocco's INDC finds its roots in the National Strategy for Sustainable Development, and the implementation of the INDC is "based on several laws, strategies and national action plans that include clear and ambitious sectorial targets".[5]

Although Morocco does not directly refer to its TNA process, which was conducted from December 2010 to September 2012, the mentioned strategies, action plans and targets are similar. A key target underlying both the TNA and the INDC, for example, is to provide 42% of the installed electrical power from renewable sources by 2020.[6] Morocco's INDC also includes a clear overview of its actions and targets for adaptation, which are in line with its TNA.

Similarly, India plans to present a "sustainable development-based INDC" on mitigation, adaptation, finance, technology and capacity building. The comprehensive INDC would also project the requirement of support in terms of finance, technology transfer and training support. " Recognising the important role that non-state actors must play in shaping India's response to climate change, the Government of India is taking steps to make this an inclusive and consultative process and invites the participation of all communities, non-governmental organisations and industry".[7]

5 Morocco (2015). Intended Nationally Determined Contribution (INDC) under the UNFCCC.

6 Ministère de l'Energie, des Mines, de l'Eau et de l'Environment (2012). Maroc - Évaluation des Besoins Technologiques aux fins d'atténuation/adaptation au Changement Climatique.

7 Ministry of Environment, Forests and Climate Change (Government of India) (2014). India's Progress in Combating Climate Change: Briefing Paper for UNFCCC COP 20 Lima, PERU.

EU Stakeholder Perspectives on Implementation of Policies under Article 7 Energy Efficiency Directive

The 2012 Energy Efficiency Directive (EED) establishes a set of binding measures to help the EU reach its 20% energy efficiency target by 2020. Based on the directive, all Member States (MS) must achieve a 1.5% annual energy saving target. The Article 7 of the EED provides that an energy efficiency obligation scheme (EEO) and/or an alternative system will be introduced in every MS in order to reach the target. In particular, MS have to inform the Commission about their plans for Article 7 and also demonstrate national measures for transposing Article 7.

Energy Efficiency Obligation schemes

EED Article 7 and its technical requirements (for instance additionality of savings and calculation methods) have generated a series of debates and arguments among MS. The EU IEE-funded project ENSPOL (see Box 1) facilitates this process through a series of workshops, trainings and observatories, both at the level of the EU and the MS. The initial ENSPOL workshop on EED Article 7 (5 February of this year, Brussels) brought European Commission and Member State policy makers and stakeholders together to discuss the implementation of Energy Efficiency Obligation schemes (EEOs) and Alternative Measures delivering EED Article 7. Box 2 presents an overview of experience of MS with transposition of EED Article 7.

This was complemented, in June of this year, by: the Joint Research Centre (JRC) workshop on 'Applying common methods and principles for calculating the impact of EEOs and other policy measures', the ECEEE workshop on 'Learning/Understanding the dynamics of EEOs', the first EU Observatory on EED Article 7 meeting during the EU Sustainable Energy Week, and regular communication with Member State stakeholders. From this ongoing stakeholder consultation, the following main insights on the EEOs can be highlighted:

- EEOs have to be embedded in an existing policy mix: as MS' national circumstances differ, their EEOs can be designed quite differently.
- EEOs usually start from rather low saving targets

Box 1. ENSPOL

ENSPOL (Energy Saving Policies and Energy Efficiency Obligation Scheme - http://www.enspol.eu) is an EC Intelligent Energy Europe funded project targeting the effective and proper implementation of Article 7 of the EED in all MS and beyond. The project is coordinated by JIN Climate and Sustainability (Dr. Vlasios Oikonomou, vlasis@jiqweb.org).

More information on ENSPOL reports on EED Article can be found at http://www.enspol.eu :

D2.1.1 Report on existing and planned EEOs in the EU - Part I Evaluation of existing schemes

D2.1.1 Report on existing and planned EEOs in the EU - Part II Description of planned schemes

D2.1.2 Report on Context Profiles of EU MS countries - Part III Context analysis of countries with existing/planned EEOs

and a limited number of obligated parties; over time, targets and number of obligated parties grow.

- Existing EEOs are designed in such a way that they remain flexible and open for changes. It is necessary to allow for this learning process in EEOs.
- The rules of the EEOs should be simple and easy to understand.

Some other key points that were addressed by the policy makers in all MS referring to EEOs, is that these schemes address primarily low cost measures (so called low hanging fruits in energy efficiency, such as lighting). For longer term investments, other policies seem to be more suitable that create longer run market signals and longer payback periods. Furthermore, EEOs have assisted in boosting the ESCO and the energy advice market.

In terms of schemes implementation, an important parameter that is often debated is additionality (still with various interpretations from MS). The diversity of additionality implementation in MS limits the comparability of savings reported to the EC by the different schemes. Regardless of different EEO concepts, a target of 100% additionality for each energy efficiency measure is only achievable at a very high cost. In terms of policy additionality, it is recommended to coordinate different policies and Directives in order to avoid contradictory measures (especially with tax rebates, as in many cases, such as in Italy, they dominated in energy savings in the residential sector and EEOs functioned eventually in the industrial sectors). Moreover, the main driver for implementing EEOs is the lack of public funding available for alternative measures and an obligation is a possibility to refund financing.

[1] https://ec.europa.eu/energy/intelligent/projects/sites/iee-projects/files/projects/documents/epee_european_fuel_poverty_and_energy_efficiency_en.pdf

EEOs in combination with tradable certificates market (so called 'White Certificates') are an effective tool to develop an active ESCO market and allow profiting at least partially from the cost-effectiveness of trading. Finally, a right balance between the policy objective of energy savings and social aspects should be aimed at. Thereby, the achievement of the social objectives of EEOs should not hinder the pursuit of the primary objective to achieve energy savings and vice versa the EED should not worsen the problem of fuel poverty.[1]

Alternative measures

Next to the EEOs, MS have the flexibility to opt for alternative measures and combinations, as long as these are additional to energy efficiency measures that would have happened anyway (see Figure 1 for an overview). This has led to a heavy debate on materiality and additionality among MS. Concerning the aspect of materiality, stakeholders expressed that MS are in need of further definitions, while stakeholders interpret additional measures as those which:

- go beyond the expected market performance,
- reduce the number of free riders, and
- ensure that additional investment is triggered by the scheme.

A point often raised in this debate is that under EED Article 7, additionality has a specific meaning, which is that actions must be above EU Minimum Energy Performance Standards and above the minimum mandated energy taxation. Therefore, additionality for most MS is a real issue, not just an accounting issue. Experience from Australia is that EEOs can just focus on near-to-market technologies and therefore not necessarily result in truly additional actions. As a consequence, non-additional energy efficiency measures could result in free riding, whereby measures are counted as an achievement under EED Article 7,

Box 2. Experiences in MS with EED Article 7

The EC DG Energy study evaluating the national policy measures and methodologies to implement EED Article 7 (Ricardo AEA, CE Delft and REKK; February 2015) indicates that EEOs are the most important type of policy measure adopted by MS in terms of energy savings. 40% of the expected cumulative energy savings across all MS are expected to be generated from the implementation of EEOS, far more than any other type of policy measure. Several MS have already implemented EEOs, such as Belgium (Flanders),[1] Denmark, France, Italy, Poland and the UK. The table summarises characteristics of these schemes.

Design EEO	UK (since 1995)	France (since 2006)	Italy (since 2005)	Poland (since 2005)	Flanders (2003-2012)	Denmark (since 1990)
Target setting	Mt CO_2 savings over lifetime Heat cost reduction for vulnerable households	kWh "Cumac" final energy savings over lifetime taking an in-use factor (4%) into account	2005-2013: Mtoe yearly, primary energy savings; Since 2013: mln of white certificates, incl. lifetime	TWh yearly, final energy savings	First-year, primary energy savings	First year, final energy savings
Type of measures	Mainly subsidies	Energy Saving Certificates; incentives to consumers as low interest loans or primes	White Certificates	Energy Efficiency Certificates	Financial support (premiums), information campaigns	Mainly advice and subsidies
Scope sector	Households	All final consumers, but mainly households.	All final consumers, except electricity generation, mainly industry	Households, commercial and industry	All final consumers, but mainly households	All final consumers, but mainly industry and households
Obligated parties	Gas and electricity suppliers	Suppliers of gas, electricity, LPG, heating oil and district heating/ cooling. Also wholesalers of autogas, and gasoline/diesel	Electricity and natural gas distributors	Energy companies selling gas, electricity and heat	Electricity distributors	Grid and distribution companies for electricity, gas, district heating and oil
Administrator	Ofgem, regulatory body electricity and gas market	DGEC (DG for Energy and Climate) and PNCEE (National Authority for Energy Saving Certificates)	GSE operating WhC scheme, GME providing WhC market platform	MoE (Min. Economy): general supervision, ERO (Energy Regulation Office): operational role	VEA (Flemish Energy Agency)	Technical Working Group
Flexibility	Transfer between suppliers or between scheme phases	Fungibility; eligible parties; trading; bankability between periods; transfer between parties	Trading, bankability	Trading, substitution fees	Transfer between years	Transfer between years and between parties
Results EEO	See detailed description per member state					

MS that have declared their plans to adopt an EEO scheme (often linked to alternative measures) are Austria, Bulgaria, Estonia, Hungary, Lithuania, Luxembourg, Malta, Ireland, Spain and Slovenia. In contrast to the EEOs popularity as a policy instrument, the actual design of the EEO scheme is yet limited described in the MS notifications to the EC. Analysis of existing and planned EEO schemes and alternative measures in MS can be found at http://www.enspol.eu).

[1] The Flemish EEO scheme ended in 2012: the energy savings targets for electricity distributors were eliminated and replaced by action obligations.

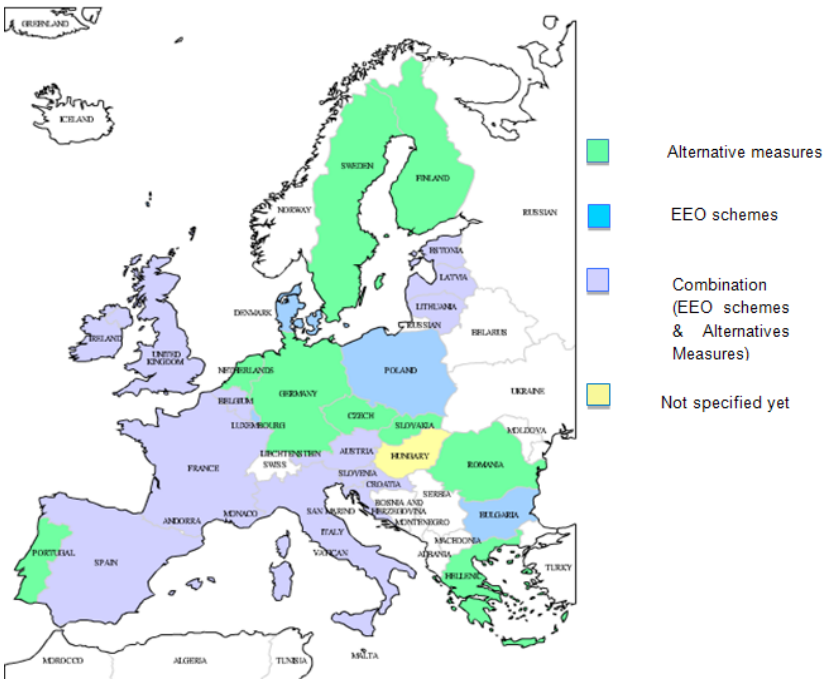

Figure 1. Overall assessment of MS' options to achieve energy savings

while they would have taken place anyway. Several MS commented that designing a scheme with no free riders was impossible, and in fact not desirable as it may become too strict for other measures. Their view was that a scheme could deal with this by adjusting claimed savings figures (in line with the degree to which measures are likely to have been adopted by free riders).[2]

Some MS only have one policy measure for the implementation of EED Article 7 (EEO or one alternative measure), which makes it easier to avoid double counting with policies under EED but outside the Article 7 scope. In case of multiple, overlapping energy efficiency policy measures, a Member State has to ensure that no double counting will occur. The Netherlands, for instance, reports yearly on energy efficiency savings taking a sectoral approach, thus correcting for double counting. Finland also takes a sectoral approach to define energy saving monitoring, and to make sure that no overlaps occur. In general though, EED Article 7 could help resolve double counting as it requires MS to show how they avoid double counting of savings due to their various policies. These matters will be dealt with more in detail in the recast period of the EED next year.

Cost-effectiveness

In order to decide which measures to implement, cost-effectiveness analysis (though not a requirement of Article 7) is used to compare the costs and outcomes (effects) of an action. The costs for achieving the energy saving measures include: (i) the total administrative costs for the regulator of the scheme (set up, design, implementation and running costs), (ii) the programme costs, and (iii) the additional investment costs, which are the costs of investing in a specific energy saving technology related to the costs of the respective standard technology.

For cost-effectiveness determination, different approaches can be applied. For instance, Germany, which opted for alternative energy efficiency measures, has taken into account the cost effectiveness of measures. However, Germany pointed out that comparing these measures is difficult as they depend on too many different parameters. Austria remarks that cost effectiveness should not be solely linked to how many kWh can be saved per euro, but also to other factors, such as CO_2 emission reduction, health issues, and social considerations. Hence, cost optimisation should not be the primary factor for choosing alternative measures.

By contrast, in Greece, the cost effectiveness (EUR/kWh) of the measure was the essential indicator to decide whether an EEO or alternative measures should be implemented. It was decided to implement alternative measures only instead of an EEO since there are high administrative costs involved with the implementation of an EEO and the cost effectiveness is lower with an EEO. Ireland, where achieving energy savings is much more costly for the government than for energy suppliers, does not opt for alternatives only, but rather for a combination with an EEO addressing the energy market. In essence, if more expensive measures are used, there is the problem that the distribution of costs and benefits will be much more 'lumpy' than if many low cost measures are installed. This can be a reason for concern as the costs are borne by energy bill payers. As many of the latter are in fuel poverty, particularly in the UK, they would be vulnerable 'losers'. One option suggested would be to co-fund the more expensive measures through funds from general taxpayers.

No perfect scheme

A general standpoint by most MS authorities is that it is not possible to design the perfect scheme, nor desirable as reality differs across countries. With respect to this, most MS have confirmed that 'history matters'. In order to design a good scheme, attention needs to be paid to the market baseline of energy efficiency goods and services, and this needs to be updated periodically. Furthermore, the design of each EEO scheme

http://www.evaluate-energy-savings.eu/emeees/en/home/recommendations.php

must address preferably specific customer groups (*i.e.*, not all end-use sectors). For instance, in the Flemish EEO, there was an obligation on the grid operator of the high voltage network that the target group were the high voltage energy users (through a careful use of invoices for electricity supply, additionality could be ensured in this case). Another point that provided common ground among stakeholders is that EEOs need to develop over time. There needs to be a longer time horizon than three years to create a supply chain for energy savings or a strong ESCO sector (similar to the Polish experience). Finally, the design choices of EEOs depend on the policy aims. Designing a scheme for achieving maximum savings (in the short run) may be different from a scheme aiming at the long run market transformation or energy market liberalization.

For further information on ENSPOL:
Dr Vlasios Oikonomou (project coordinator)
JIN Climate and Sustainability
e-mail: vlasis@jiqweb.org
tel.: +31 6 45380712

For more info on the events:
http://enspol.eu/events/workshop-article-7-eed
http://enspol.eu/news/enspol-workshop-eu-observatory-article-7-energy-efficiency-directive
For more info on reports:
http://enspol.eu/sites/default/files/results/D3.2%20Report%20Workshop%20on%20Article%207%20of%20the%20Energy.pdf

Improving the Cost-Benefit Ratio of Large-Scale Mono Manure Digestion in the Netherlands

Large-scale mono manure digestion has relatively low cost-effectiveness...

In the Netherlands, there has been an increased focus on biogas production based on 100% manure. Reasons for this are increased prices for co-substrates for co-digestion and a significant energy potential from manure (53 PJ) as suggested by some studies[1]. However, a life-cycle assessment by the BIOTEAM project (Box 1) shows that production costs of large-scale mono manure digestion in the Netherlands are relatively high (0,03 EUR/MJ_{output}), while the energy balance is relatively poor (0,454 MJ_{in}/MJ_{out}) when compared to other bioenergy options (Table 1).

Co-funded by the Intelligent Energy Europe Programme of the European Union

As for most renewable energy production options, some form of public support is needed. In the Netherlands, the SDE+ (a Feed-in Premium scheme, FIP) is the main instrument for providing income security for bioenergy producers for a period of twelve years, provided they have obtained a subsidy grant under the 'competitive bidding' regime.[2] For 2015, it is expected that large-scale mono manure digestion will remain a marginal option in the bidding, since it is not cost-competitive relative to other renewable energy options (*i.e.*, a high subsidy per unit of energy output is needed). The estimated production cost and the relatively poor energy balance (Table 1) illustrate why this is the case.

With ongoing technological improvements and further process optimisations (Box 2), the energy balance (and the economics) of mono manure digestion can be improved, but the relatively low biogas yield per ton of manure simply sets a technical limit on such optimisations. Under the current renewable energy support scheme, with its focus on cost-effectiveness

[1] Biomass Policies IEE project (2015) – 'The energy potential that (theoretically) can be extracted from both liquid and solid animal manure in the Netherlands in 2020 is estimated at about 53 PJ.' This is more than 50% of the current (2013) level of the total renewable energy in gross final energy consumption.

[2] Competitive bidding under the Dutch SDE+ scheme implies that all forms of renewable energy production can participate in an (upward) auction where different producers can bid for a certain compensation in several phases (with Phase 1 starting with the lowest compensation per energy unit, and where the auction ends when available funds are depleted). Such competitive bidding aims to ensure the cost-effectiveness of renewable energy policy, and is acknowledged as good practice by the EC in their guidance on state aid for energy and environmental protection (See: Communication from the Commission – 'Guidelines on State aid for environmental protection and energy 2014-2020' - 2014/C 200/01.)

Box 1. Background for this article and information about BIOTEAM

This article has been developed within the BIOTEAM project and serves as the starting point for a discussion paper on the merits and potential role of large-scale mono manure digestion in manure processing and nutrient management. The discussion paper will be developed in consultation with the Foundation Green Gas NL* and other relevant stakeholders. The paper will be published in the fall/winter period of 2015. Interested readers are advised to follow the BIOTEAM project twitter account (@bioteamproject) or check the project website (www.sustainable-biomass.eu) for new publications.

For more information about this article or the BIOTEAM project please contact:
Joint Implementation Network, Mr. Eise Spijker, eise@jiqweb.org

Legal disclaimer

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About the BIOTEAM project

The EU co-funded Intelligent Energy Europe (IEE) project BIOTEAM started in April 2013 and will run up until March 2016. The BIOTEAM consortium includes seven project partners and focuses on six countries see:
http://sustainable-biomass.eu/index.php/about/who-we-are

* Foundation Green Gas NL ('Stichting Groen Gas Nederland' is a public-private partnership, was founded in 2011, and promotes the production and use of biomethane in the Netherlands. See: www.groengas.nl (in Dutch)

of energy outputs, it will be hard to unlock the energy potential for manure in the Netherlands (53 PJ). Consequently, biogas production from 100% manure should not only be seen as an energy production option. Instead, it should primarily be regarded as a technology option to make conventional manure processing and nutrient recycling more sustainable.[3,4]

Combining biogas production with nutrient recycling technologies could improve the overall economic and environmental performance of integrated initiatives. Knowing that currently, the economic performance of many biogas plants in the Netherlands is under pressure, not only because of high co-substrate costs, but also as a result of the high costs of disposing the digestates,[5,6] there is a need to create more synergies between both activities.

So, how can we improve the cost-benefit ratio?

A key question here is which 'other' benefits can be realised or which environmental costs can be avoided by supporting mono manure digestion. Valuing GHG emission reductions could be one option. Table 1 (row 1) shows that the direct GHG emissions from mono manure digestion are best-in-class, and the net GHG emission reduction performance is amongst the highest of all listed pathways (-93% compared to relatively low carbon fossil reference). However, Table 1 also shows that the net GHG performance is not exceptionally high when compared to other bioenergy pathways. As a result, the cost-effectiveness per

Box 2. Using 'fresh' manure to optimize energy output and economics of mono manure digestion

Biogas potential yields per ton of liquid manure can range from close to 50 m^3 to as low as 5 m^3 of biogas. The achieved yield is largely determined by the time it takes to feed the liquid manure into the digester. Only for a few days the yield potential is about 47 m^3 biogas per ton of liquid manure, while after 120 days this potential is reduced considerably to as low as 7 m^3 (http://www.wageningenur.nl/nl/nieuws/Biogaspotentieel-van-drijfmest-vermindert-met-30-procent-per-maand.htm (in Dutch) and See: http://groengas.nl/report/de-bijdrage-van-mono-mestvergisting-aan-grootschalige-mestverwerking/, in Dutch). For solid fractions of manure, similar patterns yield curves can be observed, with biogas potentials ranging roughly from 100 m^3 (few days old) to >20 m^3 (>50 days old).

3 Rabobank (January 2014) – 'Thema-update: Duurzame Energie (in Dutch)
4 Rabobank (January 2013) – 'Thema-update: Biogas'. (in Dutch)
5 Many co-digestion facilities use their own manure, and either cultivate or purchase co-substrates. The feedstock cost-base therefore is already quite high. As a result of mixing animal manure with co-substrates, the digestates are being labelled as animal manure, which increases the volume of manure available and thus increases the disposal costs (manure is traded at negative prices in the Netherlands due to oversupply situation).
6 Vakblad voor de Bloemisterij 11 (2015) – 'Fosfaatnormen zitten nieuwe vergister in de weg' (in Dutch)

Table 1. GHG LCA emissions, energy balance and production cost of selected bioenergy pathways in the Netherlands

	Wood pellet co-firing	Wood chips for district heating	UCO Biodiesel	Biomethanol from crude glycerin	Biomethane agro-food residues	Biomethane manure mono-digestion	Unit
Direct GHG emissions	20.1	2.2	14	32.6	15.19	4.33	
Fossil reference	198 (Columbian coal)	58.01 (NL natural gas)	89.1 (EU mix diesel)	87.1 (EU mix gasoline)	58.01 (NL natural gas)	58.01 (NL natural gas)	g CO_2 eq./ MJ_{out}
Net GHG emission	-177.90 (-90%)	-55.81 (-96%)	-70.08 (-84%)	-54.50 (-63%)	-42.82 (-74%)	-53.68 (-93%)	
Energy balance	0.837	0.019	0.27	0.47	0.214	0.454	MJ_{in}/MJ_{out}
Production costs	0.027	0.011	0.017	0.02	0.016	0.03	€/MJ_{out}

Source: BIOTEAM (2015) – 'Bioenergy pathway sustainability assessment in the Netherlands' http://sustainable-biomass.eu/images/deliverables/D2.4/D2.4_Pathway%20Sustainability%20Assessment_NL_advanced.pdf

tonne CO_2-eq. emissions avoided will not significantly improve the position of mono manure digestion relative to other bioenergy options (relative to its position in the current FIP regime).

In order to justify any (additional) support for large-scale mono manure digestion, there are other aspects to consider. First of all, the default option of not supporting mono manure digestion and thereby simply continuing with current manure disposal practices and conventional excess manure processing, is quite well possible. However, this does, *e.g.*, not ensure shorter 'on farm' manure storage times (and does not limit CH_4 emissions from manure storage). The animal manure treatment obligation ('mestverwerkingsplicht', introduced in the Netherlands in January 2014) neither ensures lower CH_4 emissions from manure storage sites, as its primary objective is to address excess manure production to prevent overfertilisation and eutrophication (see Box 3). An extra co-benefit of mono manure digestion would be that it can make manure processing / nutrient recycling (*e.g.*, drying, hygienisation) more sustainable by 'prosuming'

Box 3. From environmental problem to market opportunity?

The Netherlands is a country with a large livestock sector relative to domestically available agricultural land. It has one of the highest annual phosphate (P) accumulations in agricultural soils* in the EU and has a tradition of requesting derogation from the EU Nitrate Directive to be able to submit higher levels of nutrients to agricultural soils. Even despite these derogations, particularly the national P excretion levels (172,3 mln. kg in 2014) reach critical political and environmental levels, since the country is very close to surpassing the national P production ceiling of 172.9 mln. kg P that has been agreed with the EU.** This environmental and political issue is one of the main triggers for new manure processing initiatives that aim to recycle (and make better use of) nutrients which are indispensible for food production systems.

In a letter to the Ministry of Environment, the Dutch Nutrient Platform (DNP),*** one of the founders of the European Sustainable Phosphorous Platform (ESPP), recently announced the ambition to put more focus on phosphate extraction from animal manure.**** It is the ambition of the DNP to reduce nutrient recycling costs and to create better regulatory and market conditions for fertilizer products derived from waste resources, like waste water and animal manure.

* The Netherlands has by far the highest annual P accumulation in soils (16.5 kg/ha; France: 5.7 kg; Germany: 4.7 kg; Sweden: 4.1 kg; Switzerland: 3.5 kg; UK: 3.5 kg; Austria: 1.4 kg). Source: Jedelhauser, M., Binder C.R. (2015): Losses and efficiencies of phosphorus on a national level - a comparison of European substance flow analyses. Resources, Conservation and Recycling (submitted).

** The recent increase in P excretion is mainly caused by the dairy sector in the Netherlands which has expanded in recent years anticipating on the abolishment of the EU milk production quota system on the 1st of April 2015.

*** The Dutch Nutrient Platform – founded in 2011 – is a cross-sectoral public-private partnership aiming to create a viable market for recycled nutrients, like phosphorous. See: http://www.nutrientplatform.org/

**** http://www.rijksoverheid.nl/documenten-en-publicaties/brieven/2015/07/02/brief-van-nutrient-platform-nl.html

Table 2. Overview of argument for and against mono manure digestion and nutrient recycling activities

	Manure processing for nutrient recycling
Reasons to promote	Significant theoretical potential to split P from animal manure (172.3 mln. kg P_2O_5 excretion in 2014)
	Enhances global food security and prolongs lifetime of existing P resources
	Even excluding manure P there already is a significant potential to substitute mineral fertilizer 46% (assuming a recycling rate of 50% of P in waste water, including mono-incineration ashes)*
Disadvantages	High energy expenditure for nutrient extraction
	Too low nutrient concentrations for economic recovery
	Recycled nutrient products not cost competitive with basic (un)treated manure and/or fossil fertilizers (animal manure is traded at negative prices)
	No certainty about effective CH_4 reduction from manure storage
Factors influencing economic performance	Potential market size and market potential (Share of secondary P in total P crop inputs (74%))*
	Market price for fossil fertilizers and basic secondary fertilizers
	Security of manure supply at stable prices for processing projects

* Jedelhauser, M., Binder C.R. (2015): Losses and efficiencies of phosphorus on a national level - a comparison of European substance flow analyses. Resources, Conservation and Recycling (submitted).

its own renewable energy for extracting valuable nutrients and producing marketable 'green' fertilizers.

As a stand-alone economic activity, nutrient recycling offers some clear environmental and other long-term strategic benefits, especially when considering the importance of phosphorus (P) in food production systems and the declining global P reserves. However, similar to mono manure digestion, the economics of nutrient recycling projects are not (yet) cost-competitive relative to tailored fossil fertilizers and usage of basic processed manure, composts or digestates (Table 2). This is partly because a robust domestic and international market does not exist for recycled nutrient concentrates, but also due to the substantial energy requirements (and costs) for isolating single nutrients or nutrient concentrates to make marketable fertilizer products.

Several technological and operational synergies between large-scale mono manure digestion and nutrient recycling initiatives appear possible, but in order for such 'integrated initiatives' to be successful, both the policy environment and market conditions for renewable energy and recycled nutrient products need to be just right to 'cash in' these benefits. Currently, there are still several gaps in the national and EU policy support frameworks to enable the development of integrated biogas production and nutrient recycling projects.[7] Despite these challenging conditions, several market parties are already active to develop integrated manure processing projects on a commercial scale.[8]

EU level coordinated action

At the national level, efforts are being undertaken by market stakeholders and policy makers to improve the policy framework, but these efforts can benefit from a more programmatic approach where the 'manure' agenda meets the 'renewable energy' agenda. Even more challenging, however, is establishing timely coordinated action at the EU level to create more favourable conditions for recycled nutrient fertilizer products in the EU's internal market. This will not only require formal recognition of marketable nutrient concentrates as 'green' fertilizers in EU legislation, but also a robust long-term strategic ambition with regard to EU-wide nutrient management and securing future nutrient (phosphate supply) availability.

[7] Within the biobased economy and with more integrated biorefining concepts, also more integrated policy reform processes are needed so as to avoid inefficiencies, perverse incentives or policy conflicts.

[8] See: http://www.agriholland.nl/nieuws/artikel.html?id=171075 (in Dutch)

Afriat, M. and J. Swartz, 2015. China: an emissions trading case study – CDC Climate Research <http://www.cdcclimat.com/CHINA-an-emissions-trading-case.html?lang=en>
In March 2015, CDC Climat Research and IETA (International Emissions Trading Association) releases detailed case study on China's national carbon market. This report's findings are that China has made significant advances on establishing a national emissions trading system, expected to start next year.

Among the aspects discussed are China's activities to move from its seven pilot emissions trading programmes to a national carbon market from next year. The case study takes a close look at the seven pilot programmes and how these are feeding in to the design of the national system, noting that no other country has built an ETS from the bottom up. It also finds that there are three main challenges as the country makes this transition: double counting of emissions, harmonisation of the seven pilots with the national market, and the passing through of costs to consumers.

Bellassen, V. And N. Stephan, 2015 (eds). Accounting for Carbon: Monitoring, Reporting and Verifying Emissions in the Climate Economy, ISBN: 978107098480, Cambridge University Press
The ability to accurately monitor, record, report and verify greenhouse gas emissions is the cornerstone of any effective policy to mitigate climate change. Accounting for Carbon provides the first authoritative overview of the monitoring, reporting and verification (MRV) of emissions from the industrial site, project and company level to the regional and national level.

It describes the MRV procedures in place in more than fifteen of the most important policy frameworks (*e.g.* ,ETS, UNFCCC) and compares them along key criteria such as scope, cost, uncertainty and flexibility. This book draws on the work of engineers and economists to provide a practical guide to help government and non-governmental policy makers and key stakeholders in industry to better understand different MRV requirements, the key trade-offs faced by regulators and the choices made by up-and-running carbon pricing initiatives.

Chaturvedi, V., 2015. The Costs of Climate Change Impacts for India - A Preliminary Analysis, Council on Energy, Environment and Water, New Delhi, India <http://ceew.in/>
India has emphasised inclusion of adaptation as a part of Intended Nationally Determined Contributions (INDC). In a preliminary assessment the report tries to estimate the cost of global climate change impacts for India. The study aims at estimating first order costs for loss in agriculture productivity and impact on higher power generation requirement with increasing temperatures within a long term global integrated assessment modelling framework. The study also attempts to put a value on the health impacts from temperature rise.

In the analysis some important results are highlighted. Climate change will result in significant economic losses for India across sectors. Health impacts should be best measured in terms of deaths due to higher incidence of diseases. If disease-related deaths are valued at life time earnings, then loss of economic output will be USD 2.5 Bn and USD 21 Bn in 2050 and 2100 respectively.

Even with a fairly limited inclusion of sectors, and linear representation of cost of impacts, the study arrives at a range of 0.45% - 1.19% of India's GDP and 0.59% - 1.17% of India's GDP in 2050 and 2100 as the cost of global inaction on mitigating climate change.

Ecofys and World Bank Group, 2015. Carbon Pricing Watch 2015 - An advance brief from the State and Trends of Carbon Pricing 2015 report, to be released late 2015 <http://www.ecofys.com/files/files/world-bank-group-ecofys-carbon-pricing-watch-2015.pdf>
Carbon Pricing Watch describes the steady progress in carbon pricing that has been made over the last ten years, and highlights positive developments since the beginning of 2014. In 2015, about 40 national jurisdictions and over 20 cities, states and regions, representing almost a quarter of global greenhouse gas emissions, are putting a price on carbon. Altogether, the carbon pricing instruments in these jurisdictions cover about half of their emissions, which translates into approximately 7 $GtCO_2$-eq., or about 12% of annual global GHG emissions.

Fujiwara, N., Ch. Karakosta, A. Szpor, A. Tuerk and E. Hofman, 2015. European Stakeholders' Perspectives on the EU ETS, 3rd Policy Brief, POLIMP <http://polimp.eu/publications/policy-brief-series/item/3rd-polimp-policy-brief-on-european-stakeholders-perspectives-on-the-eu-ets>
The EU has set the overall greenhouse gas emissions target for 2030 and the associated targets for the various sectors covered by the EU emissions trading system (ETS). To meet these challenges and to improve its performance, the EU is currently reviewing some design features of the system. Based on a stakeholder consultation process, this POLIMP Policy Brief shows an overview of perceptions held by stakeholders in five member states (Poland, Greece, Austria, Hungary and the Netherlands). It highlights the diversity of their views across sectors and across countries on salient aspects of the ETS: the role of the ETS and the ETS sectors' contribution to the 2030 policy framework, the factors that had a major impact on the EUA price, the ETS reform and stakeholder support for the ETS.

IETA, 2015. Overlapping Policies with the EU ETS <http://www.ieta.org>
In this paper, the EU ETS is considered the instrument of choice of EU regulators and businesses to reduce GHG emissions. To ensure efficient regulation, the authors argue that it is important to avoid policies that conflict with each other's objectives and that the EU ETS should remain the central pillar for reducing GHG emissions cost-effectively. This will require prioritising the most efficient mechanism of the EU ETS over other policy mechanisms impacting EU ETS sectors' GHG emissions directly or indirectly.

The authors acknowledge that policies other than the EU ETS will be needed in order to achieve cost-effectively goals other than GHG emission reductions, such as energy security or reducing local pollutants for instance. Nevertheless, it is a minimum requirement to ensure greater transparency and comparability of such overlapping policies with the EU ETS. Prior to their implementation, and regularly thereafter, these additional policies are to be reviewed to consider to what extent they also achieve the goal of GHG emission reductions and at what cost. Some policies, particularly national policies, are put in place with the sole goal of reducing GHG emissions, directly duplicating the EU ETS and leading to more costly emission reductions.

Some of the possibly overlapping policies with the EU ETS are identified, as well as their estimated impacts in terms of emission reductions and costs. This list of policies will lead to emission savings that are either already in place or being considered by policy-makers at EU or national level.

Sartor, O., I. Bart, I, Cochran and A. Tuerk, 2015. Enhanced Flexibility in the EU's 2030 Effort Sharing Agreement: issues and options, Final report, Climate Strategies <http://www.cdcclimat.com/IMG//pdf/15-04_cs_iddri_cdc_climat_2030_esd_flexibility.pdf>
Reducing emissions from sectors not covered by the European Union Emissions Trading Scheme (EU ETS) will be crucial to achieving Europe's emissions reduction goals for 2030 and beyond. In 2012, these sectors accounted for approximately 60% of EU greenhouse gas emissions. In October 2014, the European Council's conclusions on the 2030 Climate and Energy Framework set a goal of reducing non-ETS emissions by -30% by 2030 compared to 2005 levels. This will form a major part of the EU's broader goal of reducing total GHG emissions by at least a 40% relative to 1990 levels.

For multiple reasons, significantly enhanced flexibility mechanisms are considered important for the success of the 2030 Effort sharing framework. However, the EU's experience with international and EU flexibility mechanisms has been disappointing. Prominent examples of this are the experience of CDM and JI and the failure of flexibility mechanisms under the Renewable Energy Directive. Moreover, while experience with flexibility in the 2020 Effort Sharing Decision is limited to date, there are good reasons to think that the flexibility mechanism in the 2020 Effort sharing framework could easily fail to meet the different demands placed on it by the 2030 framework.

This paper explores options for the design of an enhanced flexibility mechanism for the post-2020 effort sharing framework. An approach based around the idea of a Clearinghouse for strategically valuable projects for low-carbon transformation, while using the experience of knowledge of European private sector companies. It is argued that such an approach could be a useful example of the EU Energy and Climate Policy Union in practice, while only requiring a minimal role for additional European administration.

Schneider, L. and H-M. Ahonen, 2015. Crediting early action: options, opportunities and risks <http://www.energimyndigheten.se/Global/Internationellt/Crediting%20Early%20Action%20final%20report%20Schneider%20Ahonen.pdf>
In the study, key issues and options are identified for crediting early action, *i.e.* mitigation action before 1 January 2020, and assesses implications of different options, contexts and assumptions for the incentives to take early action and for the environmental impacts, drawing upon lessons learned from international crediting mechanisms. The analysis shows that, while crediting early action could encourage deeper early emission reductions, it could also lead to higher cumulative emission paths and delayed action on climate change, depending on how and under which conditions crediting early action is implemented. The impacts of crediting early action on cumulative greenhouse gas emissions depend on the principles, rules and assumptions guiding the crediting, in particular which mitigation actions are eligible for crediting, how reference levels for crediting are established, how emission reductions are quantified, and whether the credits are used for or beyond compliance with international targets.

Turpie, J., B. Warr and J. Carter Ingram, 2015. Benefits of forest ecosystems in Zambia and the role of REDD+ in a green economy transformation, UN-REDD Programme, FAO, UNDP and UNEP <http://www.un-redd.org>
The main objective of the study was to assess the economic value of Zambia's forest ecosystem services. Preparation of the study forms part of a range of activities under the UN-REDD National Programme of Zambia. The REDD+ financial mechanism is designed to reward developing countries for their verified reduction or removal of forest carbon emissions measured against a forest reference (emission) level that complies with the safeguards under the 2010 Cancun Agreements.

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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State Environmental Protection Administration, China

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

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

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

31 August – 4 September 2015, Bonn, Germany
The tenth part of the second session of the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP)
Contact: http://unfccc.int/meetings/session/9056.php

14-16 October 2015, Punta Cana, Dominican Republic
Low Emission Development Strategies Global Partnership Annual Workshop
Contact: Jebi Rahman, e-mail: jebi.rahman@cdkn.org

19 – 23 October 2015, Bonn, Germany
The eleventh part of the second session of the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP)
Contact: http://unfccc.int/meetings/bonn_oct_2015/meeting/8924.php

30 November – 11 December 2015, Paris, France
The twenty-first session of the Conference of the Parties (COP) and the eleventh session of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP)
Contact: http://unfccc.int/meetings/paris_nov_2015/meeting/8926.php