

## The Baltic Sea Region Testing Ground Facility

A review of a pioneering climate finance instrument

By Ash Sharma<sup>1</sup>

The Baltic Sea Region Testing Ground Facility (TGF) was a pioneering financial instrument established to provide proof of concept to the fledgling Joint Implementation (JI) mechanism. The fund, essentially a procurement vehicle for the products of the JI mechanism, was active between 2004-13. During this time, the fund was managed by the Nordic Environment Finance Corporation (NEFCO), an international financial institution based in Helsinki, Finland. The TGF was first showcased in JIQ (3/2005, p.6).

### Origins

The TGF had its origins in the multilateral energy cooperation in the Baltic Sea Region (BASREC), involving the European Commission and countries of the region, several of which became EU members in 2004, and the Russian Federation. Hence, the first participants in the fund were the governments of the five Nordic countries and the Federal Republic of Germany. The focus of the instrument was the energy sector in line with the BASREC priorities.

The TGF converted itself into a Public Private Partnership in 2006, by welcoming nine private sector participants ("investors"). These were drawn primarily from energy companies from Denmark, Finland and Germany, which were seeking compliance units to meet their obligations under the EU ETS. It was ultimately capitalised at EUR 35 million, and was the first multi-donor carbon fund outside the World Bank Group.

### A pioneering fund

The pioneering nature of the fund should also be seen through

the lens of the broader carbon market development. It was established in 2003, before the Kyoto Protocol and EU ETS came into force. The former was a result of the ratification by the Russian Federation in 2005, intended as the principal beneficiary of the TGF due to the country's enormous technical potential for energy efficiency and associated emission reductions. The fund was ahead of the game, as the carbon market developed and matured during the middle of the decade, attracting increasing private sector attention and funds (its private sector capital raising occurred during 2005-06). Just as the public sector had blazed a trail for early JI through government procurement (including programmes from Denmark, Finland and Sweden), the TGF was innovative in attracting private sector funds to the JI market, which lagged its sister instrument the Clean Development Mechanism at the time.

These early years of TGF were also a time of intense regulatory development. The international rules for JI were further operationalised through the launch of the CDM-like Track-2 in 2006 and the mobilisation of the JI Supervisory Committee. In the TGF countries of JI project operation, the Baltic countries, Poland, Ukraine and Russia, there was a flurry of institutional activity. JI procedures for approval were adopted in most countries during 2005-2008, but there were institutional and administrative delays in Poland and the Russian Federation. In the latter country, the fund activity including portfolio development was hampered since the first ERUs were only issued in 2012 (unlike CDM, the JI mechanism required a very close collaboration with the national authorities as the ERUs are issued directly by the Host Governments). In Poland, there were also delays due to the impact of EU accession on installations which participated in the EU ETS rather than the JI mechanism.

### Portfolio development and other successes

During its lifetime, the TGF has progressed through several phases. The first phase (2004-2006) was establishment, preparation of documents, development of procedures, initial pipeline building and capital raising. The active procurement phase, the identification, assessment and contracting of the projects themselves, took place between 2005 and 2009. Approximately 200 project ideas were originated and screened during this phase, and

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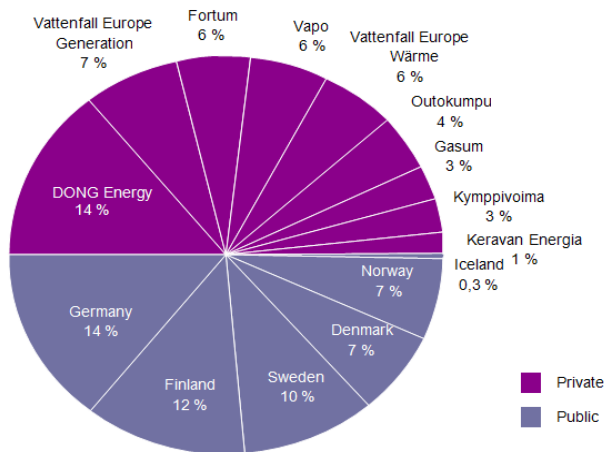


Figure 1. Baltic Sea region TGF investors

almost 100 presented to the Investors' Committee. The final portfolio of 11 approved projects (of which 9 followed JI Track 2) was diverse in terms of geography and technology, with a focus on renewable energy and energy efficiency. The TGF adopted a learning-by-doing approach, whereby capacity was built by implementing "early mover" JI projects which were likely to meet the relevant criteria and generate ERUs (and some pre-2008 AAUs from early mover projects). Those could be used by sovereign investors to comply with their national greenhouse gas emission limitation targets under the Kyoto Protocol, and private sector participants with their EU ETS obligations.

The first project signed was the Saaremaa animal waste treatment project in 2006 and the portfolio was developed further during the next few years. From 2010, the fund was mainly in project administration mode, ensuring the final determinations (*i.e.*, registrations, monitoring and management of the projects within the portfolio to optimise credit delivery for the investors). During this phase, some of the early JI projects had to be modified as these projects had been developed under TGF before official JI regulations under the JISC had become available. Furthermore, during this phase there was some consolidation of the portfolio and limited additions, in response to the price collapse of carbon credits. The Facility's procurement strategy was also partially revised in order to take into account individual investor's procurement preferences.

The final Investor Committee meeting took place in December 2012, with final deliveries made during 2013 and the fund continued in winding up mode in 2014. Notwithstanding the market conditions, the portfolio ultimately delivered 2.63 million ERUs from Estonia, Lithuania, Russia and Ukraine to international investors. The final portfolio shows a strong emphasis on renewable energy and energy efficiency projects. The projects are distributed between wind, biomass/biogas technologies and cleaner production projects.

In addition to the quantitative successes, the TGF has met and exceeded its original objectives as set out in its founding instruments. One of these has been to build capacity and competence to use the Kyoto mechanisms and promote understanding of the concepts, rules and guidelines. As an early actor in many of the countries of operation, the fund was active in enhanced capacity building through "learning by doing plus", a commercial activity which generated cash flow to renewable energy and energy efficiency projects and compliance units for investors. This also established a wide range of stakeholders and partnerships in the region, increasing acceptance of market based instruments.

### Impact of Market Collapse

Confidence in the project based mechanisms has suffered a major setback through the decline and subsequent collapse of the carbon credit market since the end of 2011, reflecting the oversupply situation of both ERUs and CERs, mostly as a result of high supply of credits due to success of JI and CDM combined with modest demand under the Kyoto Protocol.

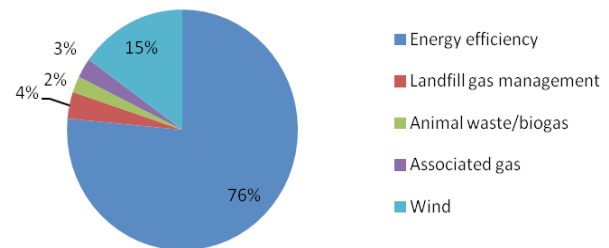


Figure 2. TGF credits per project type

Ultimately, the TGF procured its credits at a gross weighted average of EUR 6.67 per ERU. For most of the duration of the fund, this was significantly below the market price offering a good return for the investors in exchange for the risk of developing primary contracts. However, following the market price slide starting end of 2011 and subsequent collapse, the projects were no longer "in the money". During 2013 and 2014, the market price for issued ERUs was near zero. The fund portfolio was accordingly consolidated, and little further procurement took place in the final years.

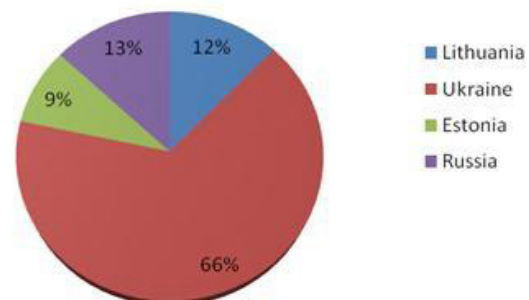


Figure 3. TGF credits per project country

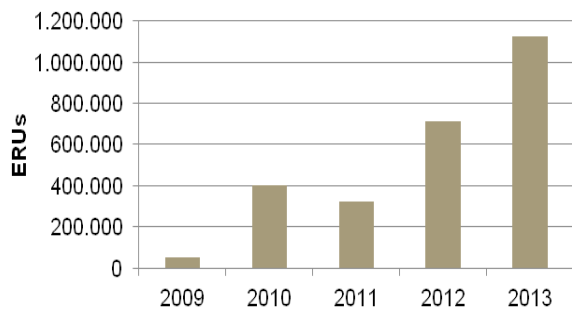


Figure 4. TGF deliveries to investors

### Conclusions and lessons learnt

The TGF has been able to demonstrate, at a practical and regional level, the utility of JI, and of project related market based instruments in general, as a tool for mobilising significant financing for energy related investment. Some key conclusions can be drawn from its 10 years of operation:

- The TGF has played a role in the building of JI capacity in its countries of operation, in both public and private sectors, by promoting high quality energy related projects generating emission reductions which can ultimately be used for compliance purposes. This was a key objective of the Testing Ground Agreement under BASREC. TGF projects have been taken through the entire project cycle, resulting in AAUs and ERUs being generated, issued and distributed to Investors.
- If successfully implemented and of course, under reasonable pricing scenarios, JI credits can cover a significant share of total investment costs, especially in case of energy efficiency and methane avoidance and utilisation (*i.e.*, biogas, landfill gas and associated petroleum gas capture and energy use), typically at least 20% of capital invested in nominal terms. The TGF has demonstrated that there is a potential for leveraging carbon finance to promote energy related investments by over 10:1.
- Upfront payments and technical assistance can be used to share project development risks and to facilitate the implementation of the project,

especially in case of wind power projects with high upfront investment and relatively low operating costs. However, the security issues for these prepayments need to be addressed since carbon procurement vehicles such as the TGF have typically been unable or unwilling to take significant credit risks. Herein lies a potential role for a public financing mechanism which offers guarantees based on the emission reduction purchase agreement (ERPA) contract as a security instrument, achieving a high leveraging ratio.

- However, the main benefit of carbon finance through JI, is that it provides a revenue stream that can support energy projects over a longer period of time. Payment on delivery is a form of results-based financing which can create incentives for prudent financing, good operational management and appropriate monitoring, placing a large share of the risks on the project owner's shoulders. However, underlying projects must be well developed, with good business plans demonstrating financial viability. TGF has shown that JI is not alchemy, but that it can improve the financial viability of good projects.

The original philosophy of the TGF was to test projects within the JI mechanism and gain experience in what was, at the time, an emerging carbon market. However, by the time the Facility started operating in 2004 and with the subsequent addition of private sector Investors in 2006, implementation of investment projects was more relevant than "testing" the JI concept (although the name remained). The objectives of the original public financing mechanism have been fulfilled, with lessons learnt and returns generated for Investors.

More generally, the TGF offers a good example of a climate finance instrument that can achieve public policy goals in a post 2015 capped emissions environment. JI as a baseline and credit system has provided several lessons for a future Paris agreement: the power to incentivise innovation and ultimately capital investment to reach emission reduction goals, with due process, transparently and cost effectively.



The Alchevsk Coke Plant was the site of a TGF waste heat recovery project. Photo credit: Kari Hämekoski



# Crossing the River by Feeling the Stones: The Case of Carbon Trading in China<sup>1</sup>

By ZhongXiang Zhang<sup>2</sup>

In late October 2011, the Government of China<sup>3</sup> approved seven pilot carbon trading schemes in the capital Beijing, the business hub of Shanghai, the sprawling industrial municipalities of Tianjin and Chongqing, the manufacturing center of Guangdong province on the southeast coast, Hubei province, home of Wuhan Iron and Steel, Shenzhen, the Chinese Special Economic Zone and across the border from Hong Kong (see Figure 1). This article explains how China moved from opposition to emissions trading to an active experiment. It briefly describes the pilots and discusses main lessons.

## China's changing stance on emissions trading: from strong opposition to active experiment

Even though economic studies<sup>4</sup> had shown how China could significantly benefit from a global emissions trading regime, the country has long opposed participating in emissions trading schemes. However, some changes in domestic and international contexts have prodded China to embrace market-based instruments at least in the domestic context.

For achieving its 20% energy-saving goal for 2010, China relied mostly on administrative means,<sup>5</sup> which have been effective but inefficient. The country cannot continue to rely on costly administrative measures to honor its carbon intensity pledge in 2020 and to drive its future energy use and carbon emissions below the projected baseline levels to the extent possible. It is becoming increasingly crucial for China to harness market forces to reduce its energy consumption and cut carbon and other conventional pollutants and genuinely transit into a low-carbon economy. The Chinese leadership is well aware of this need, which is reflected by the key decision of the Third Plenum of the 18th Central Committee of Communist Party



Prof. ZhongXiang Zhang

of China in November 2013 to assign the market a decisive role in allocating resources. This will serve as the overarching guidance on mapping out the 13th five-year (2016-20) plan, and calls for increasing use of market-based instruments to complement currently dominated use of administrative measures.

## China's pilot carbon emissions trading schemes

Launching the pilot carbon trading has been one of key tasks to control China's GHG emissions in the 12<sup>th</sup> five-year plan period. The approved pilot carbon trading schemes in the seven regions have been given considerable leeway to design their own schemes.

These pilot trading schemes all run from 2013 to 2015 and cover only CO<sub>2</sub> emissions. The pilots cover emission sources at enterprise levels, which is different from the EU and Californian emissions trading schemes which cover emissions of installations or facilities. Moreover, unlike the EU ETS, indirect emissions from both electricity generation within the pilot region and generated from the amount of imported electricity from outside pilot regions are covered in all the pilot schemes. During the pilot phase, banking is allowed, but allowances cannot be carried forward beyond 2015, which is the ending date of the pilot period. Borrowing is not authorized to improve the liquidity of the carbon market. As shown in Table 1, all pilots allow to a different degree the use of the China Certified Emission Reductions (CCERs), ranging from 5% of their CO<sub>2</sub> compliance obligation in Beijing and Shanghai to 10% in Guangdong, Shenzhen and Tianjin.

<sup>1</sup> This article highlights a few points of the following lengthy article: Zhang ZX (2015) Crossing the river by feeling the stones: the case of carbon trading in China. *Environmental Economics and Policy Studies* 17(2): 263-297.

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<sup>3</sup> National Development and Reform Commission (2011) A circular on launching pilot carbon emissions trading. 29 October. [http://www.ndrc.gov.cn/zcfb/zcfbtz/2011tz/t20120113\\_456506.htm](http://www.ndrc.gov.cn/zcfb/zcfbtz/2011tz/t20120113_456506.htm)

<sup>4</sup> Zhang ZX (2000) Estimating the size of the potential market for the Kyoto flexibility mechanisms. *Weltwirtschaftliches Archiv - Review of World Economics* 136(3): 491-521; Zhang ZX (2004) Meeting the Kyoto targets: the importance of developing country participation. *Journal of Policy Modeling* 26(1): 3-19; Weyant JP (ed., 1999) The Cost of the Kyoto Protocol: a multi-model evaluation. *Energy Journal* 20(Special Issue on the Cost of the Kyoto Protocol): 1-398

<sup>5</sup> Zhang ZX (2010a) Is it fair to treat China a Christmas tree to hang everybody's complaints? putting its own energy-saving into perspective. *Energy Economics* 32: S47-S56; Zhang ZX (2010b) China in the transition to a low-carbon economy. *Energy Policy* 38: 6638-6653; Zhang ZX (2011a) Assessing China's carbon intensity pledge for 2020: stringency and credibility issues and their implications. *Environmental Economics and Policy Studies* 13(3): 219-235; Zhang ZX (2011b), Energy and environmental policy in China: towards a low-carbon economy. *New Horizons in Environmental Economics Series*, Edward Elgar, Cheltenham, UK and Northampton, USA.

**Table 1.** The allowable use of CCERs in the seven carbon trading pilots

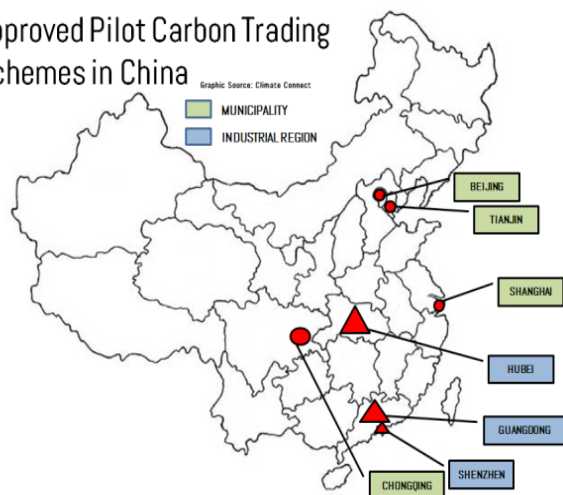
	Maximum allowable use (% of the caps)	Local origin requirements
Beijing	5	50%
Chongqing	8	No
Guangdong	10	70%
Hubei	10	100%
Shanghai	5	No
Shenzhen	10	No
Tianjin	10	No

CCERs have to meet the requirements of China's national monitoring, reporting and verification regulation

The seven pilot regions have considerable leeway to design their own schemes. The schemes have different coverage of sectors, ranging from four sectors in Guangdong to 26 sectors in Shenzhen. The threshold to determine whether an emissions source is covered differs across pilots, ranging from 5,000 tCO<sub>2</sub> equivalent per year in Shenzhen from 2013-15 to 60,000 ton oil equivalent in Hubei. Due to a combination of the two factors the number of covered entities differ significantly, from 114 in Tianjin to 635 in Shenzhen. Consequently, the share of covered emissions in the total emissions in each pilot region varies significantly: 36% in Hubei, 38% in Shenzhen and 57% in Shanghai. Regimes differ regarding the origin of CCERs. Shenzhen specifies that all CCERs have to be generated inside China but outside the city. Hubei requires that all have to come from inside the province (see Table 1).

Ways of allocating allowances differ across pilots. While all pilots allocate all or the majority of allowances for free, such allocations are based on grandfathering, benchmarking or in both. Even if allowances are grandfathered on a historical basis, Chongqing is based on the highest emissions in any of the years from 2008 to 2012 to reduce the effect of whipping the fast ox to the extent possible, while other pilots are based on the average emissions levels over the period 2009-12. In one given pilot, for some sectors grandfathering is based on their historical emissions, while for other sectors it is based on their historical emission intensities.

### Approved Pilot Carbon Trading Schemes in China



**Figure 1.** The 7 pilot carbon trading schemes in China

Pilots also differ when coming to compliance. While Beijing opts out the auction to provide the last opportunity for those enterprises of shortfall allowances to meet their compliance obligations, some pilots like Shanghai and Shenzhen auction additional allowances for enterprises of shortfall allowances at the end of that trading day to comply their obligations for 2013. Even if Shanghai and Shenzhen opt for the last auction for enterprises of shortfall allowances, they reason and accordingly set their reserve price differently. While all pilots impose a fine on non-complying entities, compliance rules vary across pilots, ranging from deducting a certain amount of shortfall allowances from the amount to be allocated to non-complying enterprises in the following year to charging the non-complying entities at 3-5 times the prevailing average market prices for each shortfall allowance. Non-complying entities in the Hubei pilot face both fines and deduction of shortfall allowances. They are charged at 1-3 times the yearly average market prices for each shortfall allowance, with the amount of penalty imposed on them capped at Yuan 150,000, and two times the amount of their shortfall allowances are deducted from the amount to be allocated in the following year.

Since Shenzhen launched its first trading through China (Shenzhen) Emission Exchange on 18 June 2013, Shanghai, Beijing, Guangdong, and Tianjin, in turn, launched their first trading prior to the end of 2013. These five pilots have to comply with their emissions obligations for the year 2013 before the first compliance deadlines, which are set in the end of the first half of 2014. As shown in Table 2, the first-year performance of the five pilots examined is generally good. Their good start and performance in the first compliance year provide encouraging sign for the compliance of all the seven pilot schemes in the next year and beyond.

### Going forward

Going forward, the pilot regions need to take the lessons learned in the first compliance year. We could already see some modification made to improve the operation of some schemes. For example, while the Guangdong pilot initially organized mandatory purchasing of allowances at predetermined prices, in the second compliance year allowances were allocated through auctioning. Moreover, the pilot regions need

**Table 2.** Five carbon trading pilots' compliance rate in the first compliance year

	Measured against enterprises (%)	Measured against allowances (%)
Beijing	97.1	Not available
Guangdong	98.9	99.97
Shanghai	100	100
Shenzhen	99.4	99.7
Tianjin	96.5	Not available

to educate the covered entities to actively participate in emissions trading, rather than wait until the last minute. Experience in the pilot regions like Beijing, Shanghai and Shenzhen shows that many enterprises rush trading in the last minute to fulfill their emissions obligations, thus missing the earlier opportunities to engage in emissions trading to their advantages. In this respect, the pilots could also learn from each other. Another lesson that other pilots and the to-be-established national scheme could learn is Shanghai's practice to seek the support of financial institutions to increase the rate of compliance. The Shanghai pilot scheme includes non-compliance in the credit record of non-complying enterprises and makes it public to financial institutions and the general public. While the penalty for non-complying entities in the Shanghai pilot is not strictest compared to peers, Shanghai achieved the 100% of compliance.

Moreover, as pilots gain experience, they need to consider the option of forward trading of carbon allowances. At this stage, all pilot carbon trading takes place on government-approved exchanges, and only spot trading is allowed. Given that forward trading is necessary to determine the proper value of the carbon credits that are traded, and that companies need forward disclosure to make future investment decisions, however, such a scheme, without forward price disclosure, cannot be effective to timely trace market price trend and take risk prevention measures to maintain the stability of the carbon market.

Regarding the future development of carbon trading in China, there are two prevailing views on the development of national carbon market along a regional pathway:

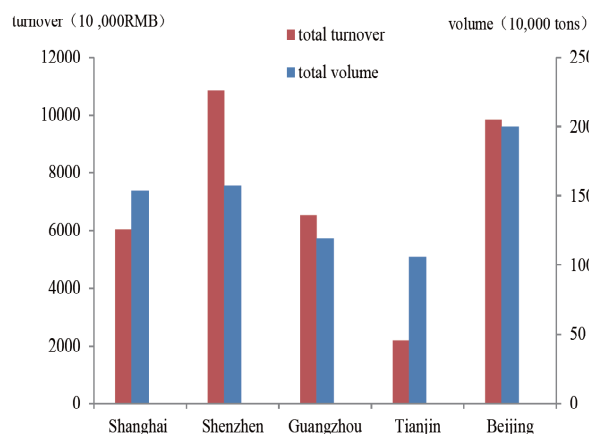
1. Continue to expand existing carbon pilots in terms of geographical coverage and sectoral scope.
  2. Authorize the constructions of new pilots.
- These two options mean that China will continue to act in regional carbon markets, but with expanding geographical coverage and sectoral scope.

An alternative route for China is to establish a national carbon market. There are two ways to move in this direction. One is to establish a nationwide ETS by linking those existing pilot carbon trading schemes that meet all the qualification conditions to be integrated into a national linked system. Another way is that, based on experience and lessons learned in the pilots, China establishes a national ETS. In that

case, until a fully-fledged national ETS is operational, regional schemes continue to function in parallel and gradually integrated into the national scheme with integration starting with those entities covered in the existing regional carbon trading pilots if they meet the threshold set by a nationwide regime.

No matter which option is adopted in the end, it is important to ensure that all the emissions data are properly measured, reported and verified in an aim to make each unit of emission reduction reliable and comparable across regions. To that end, a national ETS legislation needs to be established to authorize emission trading at the national level, providing united guidelines and methodologies on ETS design and operation and enforcement of MRV and penalties for non-compliance at the minimum, ascribing allowances as financial assets and defining their valid duration in an aim to generate economically valuable and environmentally-credible reductions and to provide a solid basis for building a sound national ETS.

China's recently released interim measures for carbon emissions trading moves in the right direction, but that is not enough. Not only more specific details of such interim measures need to be worked out, but more importantly the provisions governing emissions trading across regions in the form of interim measures are needed to be elevated to a level of the legal effect because dispute could become more intensive and frequent as the carbon market expands beyond the institutional jurisdiction of administrative regions.



**Figure 2.** The five carbon trading pilots' total accumulated volume and turnover of traded allowances in the first compliance year

Source: Climate Bridge; Beijing's data as of 25 July 2014.

# “Does Time Pressure Reduce the Potential of INDCs?”

The European Union is funding the project “Clima East: Support to Climate Change Mitigation and Adaptation in ENP East countries and Russia” (ClimaEast).<sup>1</sup> The project is aimed at assisting EU Eastern Neighbourhood Partnership Countries<sup>2</sup> in approaches to climate change mitigation and adaptation with a budget of EUR 18 million over 4 years. JIQ spoke with Mr Zsolt Lengyel, who is ClimaEast’s Team Leader and of its Key Expert.<sup>3</sup>



Zsolt Lengyel

The project ClimaEast has two main components. The policy component (EUR 7 million) seeks to foster improved climate change mitigation and adaptation policies, strategies and market mechanisms in the Partner Countries. For that, regional cooperation as well as improvement of information access to EU climate change policies, laws and expertise is supported. In the case of Georgia, Moldova and Ukraine these activities are closely linked with the Association Agreement elements with the EU.

The second component (EUR 11 million budget) contains pilot projects on ecosystem-based approaches to climate change, which are implemented by UNDP. The aim of the pilots is to demonstrate the feasibility of such approaches by showing that intact ecosystems, such as peatland, permafrost landscapes, boreal forests and pasture land, can have a strong and cost-effective impact, both on climate change mitigation and adaptation.

*JIQ: We assume that CLIMA East is probably not the only programme which focuses on these countries. Which are other main programmes focussing on climate policy making in the region?*

**Zsolt Lengyel:** A large number of projects with direct climate change (mitigation/adaptation) focus and an even larger number of sectoral projects with climate relevance are implemented both at the regional and country level. These projects are funded and implemented by the usual suspects: the EU, UNDP/UNEP and various national agencies on a bi-or multilateral basis. In order to better harmonise our activities with other donors, our project created a publicly available list of climate relevant projects.

To our surprise, we realised that neither the donors nor the beneficiary ministries were fully aware of the historic, ongoing and planned projects. On many occasions even the most evident linkages and interconnections between various donor activities were not realised, such as linking Low Emission Development Strategies with activities supporting Technology Needs Assessments and Intended Nationally Determined Contributions.

*JIQ: With several of these programmes active in the countries, do you think that there could be a risk of ‘institutional congestion’ with resources, including experts, being asked for multiple, still sometimes similar, processes?*

**Zsolt Lengyel:** Institutional congestions is only one of a handful of observed problems. There is also classical “crowding out” by donor activities leading to an unhealthy reliance on donors. I have also spotted perverse incentives to sustain unsustainable government structures where the initially temporary, supportive, satellite climate offices/organisations de facto perform government functions in a rather opaque setup.

Whilst the “state capture” concept emerged for the private-public relationship, to some extent it also applies to the relationship between donor established quasi-government organisations and partner country governments. Intriguingly, in quickly changing, democratic political environments, these solid, long-standing satellite institutions provide for institutional memory.

<sup>1</sup> The project (EuropeAid/132127/C/SER/Multi) is managed by DG NEAR in close cooperation with DG Clima; its website: [www.climaeast.eu](http://www.climaeast.eu)

<sup>2</sup> [http://eeas.europa.eu/enp/index\\_en.htm](http://eeas.europa.eu/enp/index_en.htm). Partner countries in the project are: Armenia, Azerbaijan, Belarus, Georgia, Moldova, and Ukraine.

<sup>3</sup> Zsolt Lengyel was interviewed in his personal capacity and therefore the views expressed in this interview do not reflect the views of the European Commission and/or the project implementing Consortium.



*JIQ: This sounds like a call for enhanced coordination between external assistance institutes.*

**Zsolt Lengyel:** In my view, a far more effective coordination mechanism for external assistance is needed on the donor side and a better public administration with strengthened performance, professionalism and meritocracy on the recipient side. This would improve synergies and avoid overlaps. On cross-cutting issues such as climate change, this is certainly a challenging task, but more effort is needed on both sides. It would also make sense to go beyond coordination and implement climate mainstreaming, ensuring that more climate relevant projects, policies and measures are developed and implemented. I have high hopes for the positive impact of the European Neighbourhood Instrument (ENI)<sup>4</sup> which should make 20% of its 15 billion euro investments climate relevant.

*JIQ: Given the increasingly important role of Intended Nationally Determined Contributions (INDCs) in international climate negotiations, could you explain how the EU CLIMA East programme could support formulation of INDCs in partnership countries?*

**Zsolt Lengyel:** Since the Warsaw and Lima Decisions on INDCs (see Box 1, eds.) our partner countries, as Parties to the Convention, are expected to develop and deliver their INDC, supported by a Cabinet of Ministers or Parliament INDC decision, by 1 October of this year. Our project counterparts and beneficiaries are the ministries of environments who should lead and coordinate the INDC formulation process under usually existing mandates for the UNFCCC implementation.

The biggest apparent challenge given this institutional setup, lies in the very nature of INDCs as compared to earlier and existing UNFCCC reporting obligations. Unlike NCs (national communications, eds.), BURs (Biennial Update Reports, eds.), inventories, where it is more or less prescribed what to do and the subsequent deliverables are documents/reports not requiring higher ministerial/government decisions, an INDC is a top level governmental decision on 2030 GHG mitigation aspirations and hence require a completely different approach. This “reporting versus decision” nature coupled with the extremely short period available for the preparation of and government decision about INDCs creates an unusual challenge.

### Box 1. INDC Decisions ‘Warsaw’ and ‘Lima’

Intended Nationally Determined Contributions (INDC) emerged as a global climate policy concept since the Decision on further advancing the Durban Platform at COP-19 in Warsaw (Poland, 2013, Decision 1/CP.19, 2b). At COP-20 in Lima (Peru, 2014, Decision 1/CP.20, “Lima call for climate action”), a draft text of the future climate agreement was considered, which will be used as a basis for further negotiations in 2015 (COP-21, Paris, France) on a post-2020 climate agreement. The Lima call for climate action (in paragraphs 9-14) contains the agreed scope of information on INDCs, which are the future contributions (climate actions), which countries will put forward before Paris. As a preparation for the Paris COP, the UNFCCC secretariat will prepare a synthesis report (by 1 November 2015) on the aggregate GHG mitigation effects of INDCs, which will be communicated by Parties by 1 October 2015.

Therefore, the resulting time pressures result in a fire-fighting mode that in turn does not allow for fully benefitting from the otherwise potentially available exposure of climate issues to broader and higher level of government. The globally observed late awakening of the Warsaw COP obligation to formulate INDCs largely reduces the benefits of this otherwise historic step of bottom-up initiatives within the UNFCCC.

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<sup>4</sup> <http://www.enpi-info.eu/ENI>



# CARISMA - Innovation for Climate Change Mitigation

On 18-19 March of this year, the CARISMA project held its inception meeting in Nijmegen, the Netherlands. CARISMA focuses on research and innovation in support of actions for climate change mitigation. The 42-month project is funded by the European Commission under the Horizon 2020 programme and is carried out by a consortium, coordinated by Radboud University in Nijmegen, the Netherlands.



To reach climate targets, mitigation technologies and practices need to be further developed and in particular implemented in a wide variety of contexts. Often, the technology exists and the practice is known, but options do not make it into the mainstream. Much research has been done to investigate why that is the case and what can be done about it. Yet decision-makers in the public and the private sector often still follow traditional methods. Through extensive engagement with the business and policy-making worlds, CARISMA aims to disclose the most important lessons and eventually help mitigation speed up.

## Research and innovation for mitigation options

The main focus of CARISMA is on options for climate change mitigation and how their development, deployment and diffusion can be supported in multiple country contexts. For that, the project first prepares an inventory of options for mitigation (technologies and practices) and identifies which public and private agents are active in the development and realisation of these options. Then, a prioritisation is recommended for research and innovation on mitigation options based on their expected contribution to achieving greenhouse gas (GHG) emission reduction goals, in

## Box 1. CARISMA consortium

- 1 Radboud University (RU), the Netherlands (coordinator)
- 2 University of Piraeus Research Centre (UPRC), Greece
- 3 JIN Climate and Sustainability (JIN), the Netherlands
- 4 CDC Climat (CDC), France
- 5 University of Graz, Austria
- 6 Stockholm Environment Institute (SEI), Sweden, and Oxford, UK
- 7 ZEW Centre for European Economic Research (ZEW), Germany
- 8 Centre for European Policy Studies (CEPS), Belgium
- 9 ENVIROS Energy and Environmental Consultancy (ENVIROS), Czech Republic
- 10 Technical University of Denmark (DTU), UNEP-DTU Partnership, Denmark

the EU and beyond. In this prioritisation, CARISMA also considers market readiness of options and international markets for new technology and knowledge, including how firm behaviour affects market potential.

Second, the prioritisation of research and innovation for mitigation options in terms of their GHG emission reduction potential is complemented by an assessment of their costs and socio-economic and environmental impacts in different country contexts. This will be based on both model-based analyses in multiple countries and participatory stakeholder consultation.

However, producing GHG emission reductions and net benefits within the country context does not guarantee successful implementation of a mitigation option. Therefore, CARISMA also pays due attention to typical deployment and diffusion enablers and barriers, such as societal controversies (e.g., resistance to wind energy or carbon capture and storage) and political co-benefits (such as export of technology), and how these can be taken into account. These aspects will also be part of CARISMA's recommendations on research and innovation.



Figure 1. Radboud University made bikes available for low-emission commuting by the inception meeting participants

## Policy and governance

Third, in addition to assessing options for climate change mitigation against cost and benefit criteria and considering from a broader, multi-stakeholder perspective, CARISMA turns its attention to policy making. Similar to the identification of mitigation options, the project starts this part of the work with an inventory of existing and planned national and international climate change mitigation policies, resulting in a database. As a next step, these policies and their instruments are evaluated in terms of their effectiveness to reach intended effects, but also whether and how (positive or negative) unintended effects can be observed. A specific aspect of this climate policy evaluation is the interaction of climate policies with other climate and environmental policies, which could have both positive or negative impacts on reaching a climate policy goal.

Finally, CARISMA considers governance issues related to successful implementation of promising mitigation options. As this aspect is extremely context-dependent and therefore difficult to capture in widely applicable models, the project reviews narratives based on case studies in various EU countries. Using these, the project identifies contextual factors which can have an impact on the success of mitigation policies, such as economic circumstances in a country, political stability, technology infrastructure or environmental awareness. CARISMA also identifies knowledge that is necessary for dealing with these factors and recommends ways to address such needs within different country contexts (e.g., EU Member State, developed countries, or developing countries).

## Stakeholder engagement

One of CARISMA's main aims is to engage different

### Box 2. CARISMA: Building further on existing and planned projects

At the inception workshop, a 'mini conference' was held with representatives of projects, mostly funded by the European Commission under FP7 or Horizon 2020, with a specific focus on exploring scope for collaboration with CARISMA:

- **POLIMP** – Identifies climate knowledge needs among multiple stakeholders and establishes a climate knowledge hub: <http://climatepolicyinfohub.eu> (EU 7<sup>th</sup> Framework Programme – coordination JIN Climate and Sustainability)
- **CECILIA2050** - Combining Policy Instruments to Achieve Europe's 2050 Climate Targets: <http://cecilia2050.eu/> (EU 7<sup>th</sup> Framework Programme – coordination Ecologic Institute)
- **APRAISE** – Evaluation of environmental policies, including impact of contextual factors, governance and policy interactions on policy effectiveness: <http://aprprise.org> (EU 7<sup>th</sup> Framework Programme – coordination JIN Climate and Sustainability)
- **ENTRACTE** – Assessment of EU's climate policy portfolio, including a focus on climate policy interactions and impacts on policy results: <http://entracte-project.eu> (EU 7<sup>th</sup> Framework Programme – coordination ZEW Centre for European Economic Research)
- **GreenEcoNet** – Connecting small and medium-sized enterprises for a green economy, with a specific focus on identifying and categorising low emission and green options as success stories: <http://greeneconet.eu> (EU 7<sup>th</sup> Framework Programme – coordination Stockholm Environment Institute-University of York)
- **FLAGSHIP** – Developing a forward looking analysis of grand societal challenges and innovative policies by assessing state-of-the-art forward looking analysis and develop innovative forward looking tools: <http://flagship-project.eu> (EU 7<sup>th</sup> Framework Programme – coordination ISIS – Innovation for Sustainability)
- **AMPERE** – Exploring climate change mitigation pathways and associated costs under technology and policy limitations, while considering uncertainty aspects, technology availability, international climate policy fragmentation and already formulated decarbonisation scenarios in Europe: <http://ampere-project.eu> (EU 7<sup>th</sup> Framework Programme – coordination Potsdam Institute)
- **POCACITO** – Conducting foresight analysis for sustainable pathways towards liveable, affordable and prospering cities: <http://pocacito.eu> (EU 7<sup>th</sup> Framework Programme – coordination Ecologic Institute)
- **LIMITS** – Generating original insight into how 2°C compatible targets can be really made implementable by considering technological challenges, climate finance issues, local versus global policy instruments, policy interactions, and potential role of negative emissions technologies in climate policies: <http://www.feem-project.net/limits/index.html> (EU 7<sup>th</sup> Framework Programme – coordination Fondazione Eni Enrico Mattei)
- **PATHWAYS** - Providing policy-makers and other key stakeholders with better insight in on-going and necessary transition pathways for key domains relevant for EU policy, by applying multiple analytical approaches, such as Integrated assessment, socio-technical transition studies and participatory action research: <http://www.pathways-project.eu/project-team> (EU 7<sup>th</sup> Framework Programme - coordination PBL Netherlands Environmental Assessment Agency)

stakeholders in its activities. If you are a policymaker in the field of research and innovation, you may be contacted with a request for data or an interview, and you may benefit from the overviews and policy briefs that CARISMA will publish. If you work in the private sector, you may find CARISMA's market and technology assessments helpful, or you may be contacted for an interview. If you are a climate policymaker, on the national or subnational level, you may be interested in our technology, policy and governance assessments.

If you have an interest in becoming involved in CARISMA's Policy or Business Advisory Boards, attending its events, supplying data or information, or if you have ideas for interesting case studies of climate mitigation technologies and practices in various countries, please contact Heleen de Coninck (project coordinator, see below) or Wytze van der Gaast

(stakeholder engagement coordinator; e-mail: [jin@jiqweb.org](mailto:jin@jiqweb.org)).

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A project website is being developed at: <http://carisma-project.eu>.  
Please check future JIQ issues for further updates.

## From Feed-in Schemes to Quota Obligations for Renewable Energy

### A post-2020 institutional framework for biomethane production

The current patchwork of national policy frameworks for renewable energy in the EU, including for biomethane, is at odds with the general principles of a competitive EU energy market, where a level playing field is needed. The ambition for a more efficient internal market for renewable energies, and the desire to make renewable energy policies more cost-effective, can be supported by a robust planning and strategy on policy harmonisation across Europe. In the previous issue of JIQ (December 2014), the impacts of a full policy convergence were presented.

That analysis was based on the existing institutional regimes for biomethane in the Netherlands and Germany, which are dominated by distinct feed-in support schemes (SDE+ and EEG), and are subject to different gas grid connection rules. In addition to identifying potential negative side-effects of policy harmonisation, we also found that there are limitations related to the use of feed-in support schemes for renewables if a more open and competitive market environment for renewable energies is desired. This article discusses a number of limitations of national feed-in support schemes in an EU internal energy market with a collective renewable energy target.

#### Limitations of harmonisation with feed-in schemes

Support for biomethane production through national feed-in support schemes raises certain barriers for

cross-border trade and thus limits the functioning of the internal market. Most feed-in schemes require production to take place domestically, which means that potential lower cost options in other EU Member States are excluded.

The popularity of feed-in schemes is partly determined by the high degree of control governments can exert on the functioning of the instrument. A higher level of control on an instrument is seen as an advantage by national governments that have committed themselves to meeting binding national renewable energy targets by 2020. However, the constellation of 'national targets – national instruments' hampers the potential cost-effectiveness gains that international trade and competition could bring.

A possibility to increase the cost-effectiveness of the EU's renewable energy ambitions could be to merge all national feed-in schemes into an EU-wide tendering programme.<sup>1</sup> However, considering that this would result in national public funds to be redistributed throughout Europe, it is expected that such a solution will be difficult to establish from the political perspective. So, if Member States remain reliant on feed-in support schemes as the cornerstone support instrument, it is likely that the EU market for renewables will remain fragmented and not as cost-effective as it could be.

<sup>1</sup> <http://heardineurope.blogactiv.eu/2015/02/16/eu-renewables-shortfall-to-be-put-out-to-tender/>

## Box 1. Project background and final report.

The research project 'A level playing field for the European biogas and biomethane markets' focused on the possibilities for cross-border trading of biomethane and associated certificates. The national differences between biomethane pathways in the Netherlands and Germany have been examined as case studies, along with their impacts on competition.

The project consortium consisted of JIN Climate and Sustainability, Jacobs University Bremen and the University of Oldenburg. The project is part of the 'Groen Gas - Grünes Gas' programme, in which 63 governments, research institutes and businesses work together on 18 research projects that aim to solve bottlenecks in the value chain of biogas and biomethane in the Netherlands and Germany. The programme is co-funded within the framework of the INTERREG IV A programme Deutschland-Nederland.

The final report of the project has been published in March 2015. The report gives an in-depth overview of the policy environment for biogas and biomethane production and trading in the Netherlands and Germany, highlights the key differences between the countries, and analyses the possibility for harmonisation. The report is available on [www.jiqweb.org](http://www.jiqweb.org).



## From feed-in schemes to quota obligations

The EU's 2030 framework for climate and energy policies establishes a 27% renewable energy target, which will be only binding at the EU-level. A common target requires a coordinated policy approach. However, if purely domestic instruments will remain in use, it will be challenging to ensure for the EU as a whole to meet its 2030 target. In order to avoid the political hurdle of redistributing national public funds, it is explored if, and to what extent, quota obligation and certificate-based trading schemes, such as 'cap-and-trade' emissions trading, could function as an alternative support scheme.

Figure 1 shows on the left-hand side the current status in the German and Dutch renewable energy markets, where national targets and national budgets result in a fragmented market with low levels of cross-border competition and trade. The right-hand side indicates a situation where Germany and the Netherlands share a common responsibility to achieve a common target with the help of harmonised support schemes. Under such circumstances, market operators will invest in renewable energy production at the optimal location.

For many renewable energy technologies it would be hard to imagine a viable project without receiving feed-in support. And yet, for the period after 2020 the EU is calling for a phase-out of such subsidies,<sup>2</sup>

especially for the more standardised technology options. The EU's 2030 framework for climate and energy policies is a clear signal to the renewable energy sector that public support for renewables could deviate strongly from today's support structures. Nevertheless, considering that the cost-price for biomethane production (but also other renewable energy sources) is expected to remain higher relative to fossil energies, some form of additional support for the 'green value' of biomethane will however still be needed. Alternative market-based instruments could provide a possible solution here.

There are a few existing policy instruments that could serve as an alternative to feed-in support schemes. Notably, quota obligations linked with tradable renewable energy titles (e.g., emission allowances or certificates) are considered to be good candidates. Quota obligation schemes typically focus on support at the supply- or demand-side, rather than at the production-side as feed-in support schemes do.

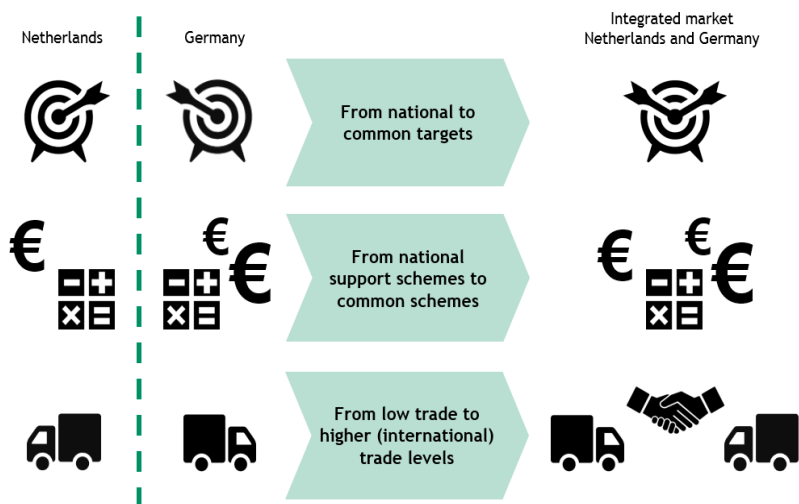
## Maturity of quota obligation schemes

A few examples of currently existing quota obligation / certificate schemes are provided below:

- Guarantee of Origin (GoO) certificates, used to provide proof of the renewable character of biomethane. Currently only in the Netherlands GoO certificates for biomethane can be traded

<sup>2</sup> From 'Guidelines on State Aid for environmental protection and energy' (July 2014 – section 3.3, p. 28): "These Guidelines apply to the period up to 2020. However, they should prepare the ground for achieving the objectives set in the 2030 Framework. Notably, it is expected that in the period between 2020 and 2030 established renewable energy sources will become grid-competitive, implying that subsidies and exemptions from balancing responsibilities should be phased out in a degressive way. These Guidelines are consistent with that objective and will ensure the transition to a cost-effective delivery through market-based mechanisms." See also press release: [http://europa.eu/rapid/press-release\\_IP-14-400\\_en.htm](http://europa.eu/rapid/press-release_IP-14-400_en.htm).





**Figure 1.** Implications of national targets and national institutional regimes on cross-border trade and competition.

- separately from the commodity itself;
- EU Emissions Allowances under the emissions trading scheme (EU ETS); and
- Renewable fuels quota obligation in the transport sector, which allows for 'biotickets' (or renewable fuel units) to be traded.

An important problem with most of the current title trading instruments is that these schemes are generally not robust enough, *i.e.*, either a firm quota obligation is lacking, or the price of the tradable titles is not high and stable enough to serve as a reliable alternative incentive to that of the current feed-in tariff regimes. The table below shows the estimated values of the 'green premiums' for the above-mentioned alternative quota-based trading schemes (based upon currently observed market prices<sup>3</sup>). The green premium excludes the revenues from sales of the energy (biomethane) itself. The third column shows how much the price should increase to match the current premium from the feed-in schemes.

As the table shows, the estimated market prices for GoO certificates and allowances from the EU ETS are far too low to be a credible alternative

for feed-in schemes. The prices for 'biotickets' under the renewable fuels quota schemes are more substantial. However, the key disadvantage of tradable biotickets is that there is no long-term income certainty, in contrast to the 12-year (Netherlands) or 20-year (Germany) certainty that is provided by feed-in schemes.

In order to overcome the inability of alternative schemes to 'outcompete' the feed-in schemes, three changes are suggested: sufficiently high quota targets need to be set, spot and futures title exchanges need to be in place to increase market transparency and to allow for hedging against certificate price volatility, and the various tradable title and certificate schemes for biomethane, biofuels, renewable electricity, and perhaps also heat need to be aligned and interchangeable (*e.g.*, trade in final energy might require some conversion). This amongst others requires a more comprehensive linking of the various certificate transaction registries, as well as a decoupling of the trading in the underlying energy commodity and the 'green value' (or green certificate) of the renewable energy.

**Table 1.** The estimated 'green value' of biomethane in alternative quota-based trading schemes. Substantiations and more information are available in the final project report, page 67.

Support instrument	'Green premium' value per m <sup>3</sup> of biomethane	Increase factor needed to match feed-in premium
German EEG feed-in (reference)	€ 0.42	
Dutch SDE+ feed-in (reference)	€ 0.40	
Guarantee of Origin	€ 0.06	× 7
EU Emissions Allowance	€ 0.012	× 33
Renewable fuels quota in the Netherlands	€ 0.16	× 2.5
... with double-counting biomass	€ 0.32	× 1.3
Renewable fuels quota in Germany	€ 0.26	× 1.7
... with double-counting biomass	€ 0.79	× 0.9

<sup>3</sup> Most of the mentioned titles / certificates are traded in bilateral or over the counter markets, and price levels had to be estimated based upon imperfect information. The relatively low degree of transparency in such certificate markets (*i.e.*, there are no open spot and futures trading platforms for those titles / certificates), is also perceived as a barrier by renewable energy producers, since they cannot predict future income flows with sufficient certainty.

# “Implementation Main Challenge for Ambitious Climate Measures”

On 28 January of this year, Wytze van der Gaast (JIN Climate and Sustainability) defended his PhD thesis “International Climate Negotiation Conditions - Past and Future” at the University of Groningen, the Netherlands. The thesis contains a discussion of over 20 years of climate negotiations with a focus on five negotiation files (Kyoto Protocol, Joint Implementation, Flexibility Mechanisms, Standardisation of baselines and Technology development and transfer). The thesis concludes that a successful negotiation outcome not only depends on content, but also on the flexibility of the negotiation process and on tactics, such as personalities of negotiators and timely scientific studies.

*JIQ: Climate negotiations have been going on for over 25 years now and results are often criticised as insufficiently ambitious. Why is it so difficult to reach agreement on such an important environmental problem?*

**Wytze van der Gaast:** There are several reasons why reaching an agreement on climate change is difficult. First of all, climate change is a global problem which requires a global solution, as the impact of greenhouse gas emissions does not halt at country borders. According to game theory, countries have little incentive to undertake GHG emission reduction measures unilaterally. After all, a country that considers undertaking climate measures but which realises that other countries will not do so may conclude that its unilateral actions will have limited effect. At the same time, a country may decide to free ride and benefit from efforts by other countries. In both cases, individual countries may have an incentive not to act.

International cooperation can solve this ‘prisoners’ dilemma’, but international coalition building has its own complexities. Since countries are sovereign states, their participation in international coalitions is voluntary, which requires that coalitions need to be self-enforcing. Basically, one could say that countries have an interest to join and stay within an international

## Box 1. Assessment Committee

### Promotor:

Prof. Dr Catrinus J. Jepma (University of Groningen, NL)

### Assessment Committee:

Prof. Dr Steven Brakman (University of Groningen, NL)

Prof. Dr Andre Faaij (University of Groningen, NL)

Prof. Dr ZhongXiang Zhang (Fudan University, China)

climate coalition when the benefits of this are higher than the costs. The issue of determining benefits and costs for individual countries within an international agreement brings us to the heart of negotiations.

In practice, we know that countries are highly diverse, with different priorities and therefore different cost-benefit assessments. In addition, countries may play ‘games’ and wait for other countries to act first or blame each other for lack of actions. Generally, we could see in past negotiations that efforts to keep countries on board of an international climate policy coalition often result in less strict negotiation outcomes.

*JIQ: So, it’s all a big game?*

**Wytze van der Gaast:** Climate negotiations are certainly an interesting case study for game theory researchers, but it is not the whole story. Negotiations had to take place against gradually increasing scientific knowledge of climate change and its impacts on the Earth’s ecosystems. As a consequence, although negotiations during the 1990s could make use of the first IPCC assessment reports and insights on the interaction between atmospheric GHG concentrations and temperature change, these scientific findings were still surrounded by large uncertainties. Therefore, negotiators often had insufficient scientific guidance for formulating climate policy targets during negotiations. Instead, climate targets became topic of negotiations themselves.

With a view to that I’m becoming increasingly optimistic about ongoing and future negotiations. Current negotiators have much more convincing scientific information available than their colleagues 25 or even 15 years ago and the scientifically derived target of 2°C has become a political target, which guides negotiations. In my view, this enhances the chances that it is in the self-interest of an increasing number of countries to tackle the climate change issue, as they have a much better insight into causes and damage of climate change to their own domestic contexts.

*JIQ: The thesis is critical about the effectiveness of the Kyoto Protocol in terms of achieved GHG emission reductions. Have all these years been for nothing?*

**Wytze van der Gaast:** When looking at the GHG emissions data presented by the UNFCCC secretariat, the impression can be obtained that industrialised



Photo:  
Feiko van der Veen  
@focuspaddepoel

countries' GHG emissions have not been very sensitive to UNFCCC and Kyoto Protocol negotiation outcomes. At the same time, domestic and international context developments, such as the disintegration of centrally planned economic systems in Central and Eastern Europe and the financial and economic crisis since 2009, seem to have had much stronger impacts on GHG emissions. Of course, the US withdrawal in 2001 and the eventual refusal by some other countries, such as Canada, to comply with their commitments did not support the effectiveness of the Kyoto Protocol.

In my view, an inherent weakness of the Kyoto Protocol structure with quantified commitments has been that these were determined for a target year which was almost 15 years into the future. Therefore, at the time of negotiations, in 1997, no one knew precisely what would be the (economic) implications of the commitments during the commitment period 2008-2012. The Kyoto Protocol with its negotiated national targets therefore has had too little connection with the underlying socio-economic preferences of countries. Instead, I prefer more bottom-up determined targets whereby measures for mitigation and adaptation are selected in accordance with countries' medium to longer term socio-economic and environmental priorities.

Having said that, the Kyoto Protocol has of course been very important for global climate policy making. It has generated much knowledge of, for instance, GHG accounting issues and contributed to the creation of institutions for supervising actions for mitigation and adaptation, etc. It has inspired creation of climate change knowledge centres and it has created a global pipeline with thousands of JI and CDM projects in both developed and developing countries. Those are benefits we cannot ignore and the sad thing is that since 2012, when the first commitment period of the Kyoto Protocol, much expertise on, for instance, carbon markets has gone lost.

*JIQ: The thesis distinguishes three basic factors for negotiation success*

**Wytze van der Gaast:** In my opinion, for successful climate negotiations, three basic conditions need to be fulfilled at least. First, the design and structure of the overall policy regime must acknowledge that international cooperation can lead to more effective outcomes than individual country actions combined, but also that states are sovereign and that their national self-interests need to be reflected by the policy agreement.



Second, the process of negotiations needs to reflect that reaching a global climate deal takes time, and that taking several small steps at a time can be more productive than trying to achieve one big step forward. Moreover, the process of negotiations may benefit from relatively general agreements first with detailed modalities and procedures to be worked out at later sessions.

Third, tactical and facilitating aspects of negotiations, such as who is the President of the COP, what is the input from science to negotiations, the support from the UNFCCC secretariat in terms of background papers, synthesis reports and draft negotiation texts, etc., as well as availability of general information sources such as newsletters, policy briefs, blogs and project report dissemination, can all help negotiations move forward. The IPCC conclusion in 1995 that human actions may cause climate change was important to start negotiations under the Berlin Mandate. The personality and skills of negotiation leader Mr Estrada during the Kyoto protocol negotiations were important factors for success. Other examples of such factors are Al Gore's 'Inconvenient Truth' and the Nobel Prize in 2007 for Gore and IPCC.

*JIQ: You argue that the climate negotiation processes should be flexible and that speedy action may be counterproductive. But isn't that precisely why negotiations on climate change often take so long?*

**Wytze van der Gaast:** Of course, I also prefer quick negotiation results, but we have to realise that climate negotiations are about bringing over 190 countries together, respecting multiple preferences and trying to mitigate costs. This cannot be done with seven league boots. Each negotiation step will result in winners and countries that lose a bit. In order to restore the balance and keep the process rolling, the losing states in one year need to win the next year. In the end, all delegations should go back to their capitals feeling comfortable with the negotiation result.

My point on flexibility is that it can, for instance, remove pressure from negotiations if a topic has become too hot. For example, in the 1990s, negotiations on Joint Implementation became problematic when developing countries began to resist the mechanism while some leading industrialised countries wanted to use it for their compliance with UNFCCC stabilisation targets (by 2000 at 1990 levels, as agreed in 1992, eds.).

At COP1 in Berlin in 1995, the question arose whether JI should be included in a new climate protocol, which for instance the USA wanted, or be left out for the time being, which the G-77 & China wanted. The EU then proposed a phased approach starting with a pilot phase without carbon crediting. In fact, the negotiation

process demonstrated the flexibility to temporarily take the 'hot potato' JI out of the protocol negotiations and move it to more technical negotiation processes. As a result of that, almost three years later, JI had generated enough momentum to play a decisive role in the final negotiation stages of Kyoto, resulting among others in JI among Annex I Parties and CDM with developing countries.

*JIQ: Your main recommendation for future climate policy making is to focus on embedding climate measures in countries' development plans. How would that lead to more ambitious climate policy actions?*

**Wytze van der Gaast:** As explained before, I don't really believe in quantitative targets which have to be achieved far away into the future and which have no clear link with national policies. I have followed closely, as part of several assignments, the TNAs (technology needs assessments, eds.) which developing countries have conducted since 2002, and I assisted the Government of Montenegro in assessing the country's technology needs for climate and sustainable development. My conclusion from these experiences is that developing countries do not oppose climate change mitigation measures if these are in line with their short and longer term development priorities. This should, in my view, also form the basis for determining INDCs (intended nationally determined contributions, eds.).

The main challenge that remains to be addressed towards ambitious climate measures is implementation. The TNAs conducted in developing countries with support from GEF and UNEP Risoe Centre (now UNEP DTU Partnership, eds.) have resulted in good, informative country reports with prioritised climate policy options, including identification of barriers and possible solutions. However, formulating action plans which can be assessed for funding by public or private financial institutes remains rather difficult. In my view, it is important that international climate policy making focusses on supporting developing countries in making sound plans for climate policy options.

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**Calster, G. van, W. Vandenberghe and L. Reins (eds.), 2015. Handbook on Climate Change Mitigation Law, Cheltenham, Edward Elgar**

Governments around the world have been trying to find ways to reduce greenhouse gas emissions for decades. This Handbook considers the spectrum of legal and market-based instruments, as well as strategies and policies adopted around the world, and suggests more effective, comprehensive and responsive ways of managing climate change mitigation.

**ClimasCOPE, 2015. Exploring the Challenges Behind the Paris Agreement #COP21, A newsletter by CDC Climat Research in partnership with ADEME, no. 1, April 2015 <[http://www.cdcclimat.com/IMG//pdf/15-03-30\\_climascope\\_en-2.pdf](http://www.cdcclimat.com/IMG//pdf/15-03-30_climascope_en-2.pdf)>**

Heading towards the 21st Conference of the Parties (COP21) to the UNFCCC to be held in Paris from 30 November to 11 December 2015, CDC Climate Research, in partnership with ADEME, the French Environment and Energy Management Agency, attempts to shed some light on the challenges surrounding this Paris Climate Conference 2015. The team will explore what can be expected from the post-2020 climate agreement in Paris. They will also discuss some key success indicators of such an agreement. Over the course of six issues, ClimasCOPE will provide analysis related to carbon pricing, climate finance, accounting of GHG emissions, the role of subnational actors, adaptation to climate change and the compatibility of government commitments with the scenario where in global mean temperatures would rise by no more than 2°C.

**Climate Investment Funds, 2015. 2014 Annual Report – Delivering at Scale – Empowering Transformation, Climate Investment Funds Administrative Unit, The World Bank Group, USA.**

The USD 8.1 billion CIF was designed to trigger investments at scale to empower climate-smart growth and transformation in developing and middle income countries. The objective is to accelerate, scale up, and influence the design of a wide range of climate-related investments in participating countries. As of 31 December 2014, USD 4.4 billion in CIF funding (54 percent of total pledged resources) has been approved by the multilateral development banks (MDBs). An additional USD 34 billion in co-financing is expected from other sources to implement 127 projects (of 291 in the pipeline) in 44 of 63 pilot countries. The CIF is achieving an overall co-finance ratio of 1:7.7, meaning that for every CIF dollar, USD 7.70 is being invested by others.

**Coussy, P., P. Portenart, M. Afriat and E. Alberola, 2015. GHG Emissions in the Road Transport Sector: Moving Towards Inclusion in the European Union Emissions Trading Scheme?, IFPEN and CDC Climat Research <[\*\*pdf/2015\\_panorama\\_ifpen-ghg\\_road\\_transport\\_and\\_ets.pdf>\*\*](http://www.cdcclimat.com/IMG//</a></b></p>
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In the year 2000, out of 41.8 Gt of global GHG emissions, almost 10% came from the transport sector. In Europe, this share of transports GHG emissions rises to 21% and emissions are forecast to rise. Against this background, this report raises the question whether the road transport sector should be included in the EU ETS and thereby contribute to national GHG emission reduction targets?

The paper concludes that few emissions trading schemes in the world have included or are planning to include road transport in their scope: New Zealand since 2008, California from 2015 and under consideration in the pilot system in Shenzhen, China. In Europe, without the possibility of compliance by purchasing offset credits, the inclusion of transport in the EU ETS will have a double economic consequence: a sharp rise in the price of CO<sub>2</sub> allowances and a direct increase in the price of fuel via the inclusion of price allocation in retail prices.

**Gaast, W.P. van der, 2015. International Climate Negotiation Conditions - Past and Future, Ph.D thesis defended at University of Groningen, the Netherlands on 26 January 2015, e-mail: [jin@jiquweb.org](mailto:jin@jiquweb.org) <[https://www.rug.nl/research/portal/files/15657046/Complete\\_dissertation.pdf](https://www.rug.nl/research/portal/files/15657046/Complete_dissertation.pdf)>**

In this Ph.D thesis, it is analysed to what extent climate policy negotiation outcomes are influenced by policy design aspects, the (flexibility of the) negotiation processes and several tactical aspects, such as personalities of negotiators or timely scientific reports. The book concludes, on the basis of five negotiation files between 1990 and present, that these three factors are necessary conditions for successful negotiation outcomes. The analysed negotiation files are: the Kyoto Protocol negotiations (1995-1997), the inclusion of JI in the UNFCCC and Kyoto protocol (1992-1997), designing the Kyoto flexibility mechanisms (1998-2001), standardising JI and CDM project baselines (2001-2012), technology development and transfer in combination with low emission and climate resilient development (2009 - present).

**Gilbert, A., L. Lam, C. Sachweh, M. Smith, L. Taschini and S. Kollenberg, 2015. Assessing Design Options for a Market Stability Reserve in the EU ETS, Ecofys**  
The EU ETS is currently significantly oversupplied. Several factors have led to an imbalance between supply and demand for allowances over recent years, with the current surplus in the market growing to over 2.1 billion EU emission allowances (EUAs) in 2013, more than a full year's emissions. A supply flexibility mechanism has the potential to address the current imbalance, and prevent a similar imbalance from persisting in the future.

More specifically, the European Commission proposed the introduction of a Market Stability Reserve (MSR) in January 2014. Information on the impacts of a supply flexibility mechanism is scarce, and there are many uncertainties. This report builds on the theoretical literature and discussions with stakeholders to inform the design of a supply flexibility reserve. Modelling has been used to test how different triggers and threshold levels impact the performance of such a reserve against a range of criteria. The report finds that the choice of trigger levels is less significant than theory may indicate and concludes that the EU's proposed MSR is a good starting point, but careful review will be necessary.

**ICAP, 2015. Emissions Trading Worldwide - International Carbon Action Partnership Status Report 2015.**

This report showcases the great diversity of economic and political contexts in which ETS has been applied. Such systems currently operate in smaller jurisdictions, such as Québec and Vermont, in sub-national entities such as Tokyo and California with economies larger than some countries, and in large regions like the EU. ETS have been adapted for economies that rely on heavy industry, advanced service sectors, or large agriculture and forestry sectors. They exist in countries with a high level of renewable energy, as well as those which predominantly rely on coal. Experience shows that in designing and implementing an ETS, there is no one-size-fits all approach, and flexibility is certainly one reason why emissions trading has become such an appealing tool for policymakers.

The aim of the ICAP Status Report 2015 is to take stock and make sense of this diversity. It combines up-to-date factsheets on existing and planned ETS worldwide with contributions from policy-makers and carbon market experts. These contributions outline the latest ETS developments in their jurisdictions, and the role of ETS in their climate policy mix. A compact visual summary of key trends in ETS worldwide is also included.

**Mandal, K. and R. Rangarajan, 2015. Financing Instruments for Addressing Climate Change and Pollution: Lessons learned from Maharashtra, Centre for Development Finance <<http://ifmrlead.org/>>**

This policy brief analyses three fiscal instruments implemented by the State of Maharashtra, India, to address air pollution and climate change related issues. In the process, the State has also generated significant revenues that were supposed to be utilized towards vehicular pollution management, and promotion of renewable energy and energy efficiency measures.

**Sharma, A. And K. Hamekoski, 2015. The Baltic Sea Region Testing Ground Facility – A pioneering climate finance instrument, Nordic Environment Finance Corporation.**

This report highlights the operation and experiences of the Baltic Sea Region Testing Ground Facility (TGF). It observes, via the foreword by Erik Nieminen (outgoing Chair TGF Investment Committee), several contextual changes. First, there is now a broader acceptance of market pricing instruments and many economies in the developing and developed world are planning, trialling or implementing domestic mitigation actions based on carbon pricing in some form, be they emissions trading or carbon taxes. Second, there has also been a growing recognition that the low carbon transition can be better achieved through public-private partnership.

The report explains how TGF was a pioneering initiative. As a multi-donor fund with a regional focus, the fund was targeted at the energy sector in economies-in-transition. The report concludes that there were multiple learning outcomes for the participants, and significant benefits for stakeholders including the project owners, their suppliers, local communities and society, including notable environmental co-benefits in many cases.

**Zhang, Z.X., 2015. "Crossing the River by Feeling the Stones: the Case of Carbon Trading in China", Environmental Economics and Policy Studies, Vol. 17, No. 2, ISSN 1432-847X**

Putting a price on carbon is considered a crucial step for China's endeavour of harnessing the market forces to reduce its energy consumption and carbon emissions. Indeed, aligned with China's grand experiment with low-carbon provinces and low-carbon cities in six provinces and thirty-six cities, the Chinese central government has approved seven pilot carbon trading schemes.

These pilots have features in common, but vary considerably in their approach to issues such as the coverage of sectors, allocation of allowances, price uncertainty and market stabilisation, potential market power of dominated players, use of offsets, and enforcement and compliance.

This article explains why China turns to market forces and opts for emissions trading, rather than carbon or environmental taxes at least initially. It also discusses the five pilot trading schemes that have to comply with their emissions obligations by June 2014. It then examines a wide range of design, implementation, enforcement and compliance issues related to China's carbon trading pilots and their first-year performance. The article ends with drawing some lessons learned and discussing the options to evolve regional pilot carbon trading schemes into a nationwide carbon trading scheme.

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

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## Abbreviations

AAU	Assigned Amount Unit
ADP	Ad Hoc Working Group on the Durban Platform for Enhanced Action
Annex A	Kyoto Protocol Annex with GHGs and sector/source categories
Annex B	Annex to the Kyoto Protocol listing the quantified emission limitation or reduction commitment per Party
Annex I Parties	Industrialised countries listed in Annex I to the UNFCCC. Countries not included in Annex I are called Non-Annex I Parties
Annex II Parties	OECD countries (listed in Annex II to the UNFCCC)
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction (Article 12 Kyoto Protocol)
COP	Conference of the Parties to the UNFCCC
COP-MOP	COP serving as Meeting of the Kyoto Protocol Parties
DOE	Designated Operational Entity
DNA	Designated National Authority
ERU	Emission Reduction Unit (Article 6 Kyoto Protocol)
EU ETS	European Union Emissions Trading Scheme
EUA	European Union Allowance (under the EU ETS)
GHG	Greenhouse Gas
INDC	Intended Nationally Determined Contribution
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

**13-15 April 2015, Marrakech, Morocco**

Seventh Africa Carbon Forum / Marrakesh  
Contact: <http://climate-iiisd.org/events/seventh-africa-carbon-forum/>

**22 May 2015, UNESCO Headquarters, Paris, France**

International Climate Finance Day - On the road to COP21  
Contact: [http://www.cdclimat.com/IMG/pdf/climat\\_savethedatev9.pdf](http://www.cdclimat.com/IMG/pdf/climat_savethedatev9.pdf)

**27-28 April 2015, Bogor, Indonesia**

Workshop on adaptation to climate change in major river basins of Asia  
Contact: Ancha Srinivasan, e-mail: [asrinivasan2009@gmail.com](mailto:asrinivasan2009@gmail.com)

**28-30 April 2015, Los Angeles, USA**

Navigating the American Carbon World conference – NACW 2015  
Contact: Rhey Lee, e-mail: [rhey@climateactionreserve.org](mailto:rhey@climateactionreserve.org)

**27-28 May 2015, Brussels, Belgium**

GreenEcoNet: Annual Conference and Thematic workshop  
Contact: Vasileios Rizos, CEPS, tel.: +32 (0)2 229 39 74,  
e-mail: [vasileios.rizos@ceps.eu](mailto:vasileios.rizos@ceps.eu), internet: <http://greeneconet.eu>

**1 - 11 June 2015, Bonn, Germany**

Bonn Climate Change Conference June 2015  
Contact: <http://unfccc.int>