

Editorial:

Full legal compliance with The Kyoto Protocol's first commitment period – some lessons

Once, it would have been treated as a momentous achievement. Some considered it almost impossible. Now, many may be surprised and puzzled, because compliance with the Kyoto Protocol runs so counter to assumptions born of nurtured scepticism and/or misunderstandings. Still others may see it as irrelevant, as the world moved on at COP21 in Paris, or assume that somehow Parties cheated. But the analysis presented in this issue by Shishlov and his colleagues, documenting 100% compliance with the Kyoto Protocol's first period commitments,¹ is in reality none of the above. If not momentous, it is certainly not irrelevant, and it carries important lessons.

Kyoto compliance: form and numbers

Of course, 100% compliance needs to be qualified by the non-participation of the US and the formal withdrawal of Canada (defended largely with reference to the refusal of its dominant neighbour to ratify), along with the fact that developing countries did not have quantified commitments.

The collective task of the remaining 36 countries with quantified commitments – the 'Annex-B 2012' countries - was very lop-sided, with potential shortfalls in many of the OECD countries alongside vast surplus in the post-Soviet era 'countries with Economies in Transition' (EiTs), led by Russia and Ukraine. The 1990 base year emissions of the 36 countries, totalling 12 GtCO₂/yr, divided almost equally between EiTs and the rest. EiT emissions collapsed by 38% to the commitment period, but the others also slightly reduced their emissions in aggregate.

The various Kyoto flexibility mechanisms (along with land-use rules), complicate assessment; nine countries relied on imported emission credits to secure compliance. However, Shishlov *et al* (2016) demonstrate not only individual and collective compliance, but that it did not hinge on what came to be termed the EiTs 'hot air' surplus.² Compliance *did* rely on project credits: about 300 MtCO₂ annually during the period was secured from certified emission reduction projects in developing countries through the Clean Development Mechanism (CDM), and about half as much again came from similar project-based credits generated within the Annex-B-2012 countries ('Joint Implementation'). Smaller volumes of national allowances were transferred directly, many (but probably not all) linked to 'Green investment schemes' to assuage concerns about the environmental legitimacy of such trades.

It is impossible to disentangle precisely the contribution of overt domestic emission reduction (and land use policy changes) to realised net emissions, but it is clear that the participating countries, especially those in the OECD, did make substantial policy efforts with material impact (Fankhauser *et al* 2016).

Implications of compliance

The first significant conclusion is that *international law matters*. This will come as no surprise to international lawyers (who often offer the observation that international law is complied with almost as much as domestic law). But in the wider debate, one common assertion was that because there is no central authority with enforcement powers, the legal nature of Kyoto's commitments

¹ Aside from the technicality of Ukrainian reporting being incomplete by the deadline, as indicated in Shishlov *et al* (2016), see <http://unfccc.int/resource/docs/2016/tpr/ukr.pdf>.

² Total emissions of the Annex-B countries were 2.4GtCO₂ below their Kyoto allowance, whereas Shishlov *et al* estimate 'hot air' as about 2.2GtCO₂ (annual averages over the five-year commitment period).

were of little relevance. Some economists argued that the Protocol's compliance mechanism was self-defeating, because the penalties include automatic deductions from subsequent period commitments (in effect, "borrowing") which they argued would simply deter future participation (or be offset by the tabling of very generous targets).

The fact that Canada utilised the Protocol's formal procedures for withdrawal – just weeks before the final deadline for meaningfully doing so³ – can of course be read in various ways. But it certainly showed that even the climate- and UN-sceptical government of Stephen Harper, having eschewed any pretence of trying to get Canada's emissions under control, preferred strongly to avoid non-compliance; and sought to justify the legally legitimate route of withdrawal in part on the grounds that US non-participation left Canada unreasonably exposed compared to its original expectations.

Whichever way ones looks at it, 100% compliance demonstrates the extent to which advanced countries take international law seriously, despite the popular scepticism thrown at the concept. Quite *how* various forms of international law interact with domestic policy is a complex topic, touched on below.

Impact

Of course, compliance does not itself equate to impact. A significant body of literature claims that countries only sign up to commitments that require them to do very little.

At the time it certainly did not look like that to many analysts. Widely-promoted results from the Stanford Energy Modeling Forum across 11 different models projected that without action, west-European CO₂ emissions would by 2010 grow by 12-55%, and Japanese by 20-33%, relative to the 1990 baseline. Relative to this, signing up to Kyoto looked like a huge commitment (Weyant and Hill, 1999). The former (EU-15 countries) ended up about 10% below; Japan, about 6% above.

The models predicted that delivering the west-European target of -8% domestically would require a carbon price-equivalent well over \$40/tCO₂ and cost \$35-170bn annually. Most models suggested the relative effort required for Japan to be even greater, a qualitative insight which could help explain Japan's much greater reliance on international credits.

At minimum, the outcome – indeed, the huge degree of over-compliance – illustrates at a national level a remarkably consistent pattern in most quantity-based environmental legislation on industry: targets which at the outset are viewed as onerous, challenging and costly have usually proven to be far easier to meet than expected (Grubb and Ferrario, 2006). The final costs of Kyoto to the participating countries have been a tiny fraction of those projected in the EMF Kyoto studies, and this cannot be attributed primarily to the non-participation of North America.⁴

But nor have the costs or efforts been negligible. Obviously the global recession from 2008 curtailed emissions – and may do much to explain the degree of *over*compliance. But the efforts of the EU to ensure compliance were substantial; Japan's expenditure through the international flexibility mechanisms even more so, and the same is true of many of the other OECD countries in the Kyoto

³ Canada formally announced its withdrawal on 12th December 2011, saying the costs of meeting the targets would be unacceptable, referring to US non-participation and blaming the previous Liberal government for agreeing to targets without clear implementation. Parties have to give one year's formal notification of withdrawal so this meant Canada was no longer a Party to the Protocol by the end of the commitment period, against which compliance has to be formally assessed.

⁴ It is of course impossible to analyse precisely a hypothetical case of North American participation; its impact on the rest would be have been negligible had the US and Canada complied through domestic actions or purchase of the Russian and Ukrainian surplus, but more significant had they competed for CDM credits.

system. The fact that Japan managed to comply despite the total closure of its nuclear stations after the Fukushima disaster, just under two-thirds of the way through the commitment period, remains testament to its large compliance effort before that. It is all the more striking from a country which in the 2001 negotiations on the Kyoto Protocol's 'rulebook' (the Marrakech Accords) had made plain its unease at participating without the US, and earned a reputation of being deeply hostile to the notion of any significant compliance mechanism (though, much later, it was admitted that this was in part a negotiating ploy to gain other concessions).

Relative to the early and widely promoted estimates, compliance indeed appears to be a tremendous achievement; viewed with hindsight, much can be attributed to other factors (like the global recession). In reality it is hard to disentangle the many influences on emissions, and even harder to attribute actions and outcomes to a single motivation such as 'need for compliance', though recent quantitative research does suggest positive causality.⁵ Serious *ex-post* study to disentangle these factors would be far more valuable than a disingenuous 'oh well that was always going to be easy' from those sceptical about international law – particularly from those who fifteen years earlier said compliance would be almost impossible.

Narrative and symbolism

A third insight concerns the 'stories told' about Kyoto.

It has come to symbolise many things, including a contest between a "Kyoto top-down" and "Paris bottom-up" image, to which recent narratives would tend to add "top-down = bad" and "bottom-up = good" respectively. The real distinction is, however, at best very fuzzy. No-one imposed the Kyoto Protocol targets from the 'top down'; the major countries arrived in Kyoto with emission target proposals that had been prepared domestically and announced internationally throughout the previous year, much like the Paris INDCs. Apart from the legally binding context, the distinction was that the big players sought a collective agreement with minimal differentiation – the same reduction from 1990 levels - and the final numbers were hammered out chiefly as a compromise between the US and EU positions: bottom-up, but with a degree of top-down pressure. The result had an element of collective effort-sharing for the big OECD countries; others (like Russia, Ukraine and Australia) simply retained their national offers). It was a million miles from a top-down goal distributed by a centralised formula.

The post-Kyoto lobbying, and the narrative that it sought to establish in the popular mind spearheaded by the Bush administration, was however striking in its intensity and ultimate impact. The formal central focus of the attack, namely that only the industrialised countries had emission targets, did not in fact stem from Kyoto, but was an extension of the framework established in the UNFCCC itself (ratified under Bush senior) that required industrialised countries to take the lead in curbing emissions.

⁵ One initial attempt is indeed the article by Fankhauser et al (2016). In their formal test they looked at the incidence of domestic climate legislation in the four years after Kyoto was *adopted* in 1997, which saw a small positive correlation in Annex I country legislation but negative in non-Annex I. In fact those four years correspond with the international negotiation of the *implementing rules*, and most countries said they would not ratify the Protocol until those negotiations were completed (with the Marrakech Accords in December 2001). A more relevant question, therefore, would be to study the adoption of climate laws either after national ratification (2002-5), or after entry into force (2005 onwards). Overall they find '... for Annex I countries, the Protocol has led to the expected increase in legislative activity ... we find statistically higher legislative activity after 2001 .. the difference persists until 2009'.

The irony is that the survival of the Kyoto Protocol itself was a crucial factor enabling the world to move beyond that divide. Kyoto was the embodiment of the industrialised countries' obligation to lead, as agreed under the UNFCCC. The fact that it came into force, followed by the negotiation of second period commitments under the Copenhagen Accord's acceptance of 'twin track' negotiations, was vital in enabling the world to move forward with global negotiations on universal contributions. The fact of 100% compliance now becomes a symbol of industrialised country leadership, albeit without North America's formal participation. Conversely for the US in particular, its non-participation symbolises its insistence on 'level playing field' in particular with China, and the need for global effort on a global problem, as well as its unease about binding international commitments.

Of course the Protocol did help to stimulate global engagement, not least through the CDM. Related complaints about the treaty's 'obsession' with mitigation overlooked the fact that it was Kyoto which introduced the Adaptation fund – the first international fund dedicated to adaptation - with an automatic revenue stream generated from a share of proceeds on CDM investments. Perhaps the struggle over symbolism now will be between views of Kyoto as costly mistake, or as an essential and valuable step towards the global (but differentiated) structure embodied at Paris.

The myth of universality

Fourth, the Kyoto experience raises questions about whether any single legal form can really be usefully universally applicable. 'What you see depends on where you sit', and even academic debates reflect regional conditions and experiences. David Victor and I had a well-publicised disagreement on Kyoto, reflecting our respective books on the Protocol (Victor (2001); Grubb (1999, 2001)). David Victor argued that countries would never accept quantified commitments that were both legally binding and significant in their requirements. In turn, I argued that legally binding commitments implemented with Kyoto-like flexibility mechanisms were important in solving the problem.

In the US, "Kyoto" became a demonised punchbag that probably set back any sensible approach for years. In Europe, it became the legal centrepiece of binding controls on almost half of Europe's CO₂ emissions, generating the world's dominant effort at carbon pricing – and the first period Kyoto targets were instrumental in preventing even greater inflation of the system than would otherwise have occurred. EU emissions declined substantially even as the ETS itself was eclipsed by recession, huge efforts on renewable energy – and international credits. Japan took a different route, but both regions proved willing to invest substantial amounts in developing country emission reduction projects, which – albeit initially a US proposal - remained far more controversial in North America.

The subsequent developments have been similarly telling. Freed from the spectre of binding UN-based commitments against which to rail, US policy has arguably been making more headway. Without that clarity and legal coherence to empower the European Commission, the EU's domestic policy is in danger of falling apart. At the time it seemed like David Victor and I were in fundamental disagreement; with hindsight one might argue that we were both right, but reflecting different contexts. Reviewers of this editorial have suggested that maybe Japan and the EU (along with Norway, New Zealand and Switzerland) are exceptional in their willingness to adhere to international law. US scholars argue that the US is no less committed to international law, which is why it refused to ratify in the first place an agreement that did not match its domestic political realities.

Characteristics, benefits and risks of international flexibilities

Finally, the nature of Kyoto's compliance sheds important light on the role – the benefits, the risks, and the realities - of international emissions trading, and flexibility mechanisms more generally. The flexibility mechanisms overall have proved pivotal to enabling compliance – without them, Japan and several others would have had to follow the Canadian route.

Yet the outcome is unexpected in form. On the surface, emissions trading between countries with targets is simpler, cheaper and more effective than the cumbersome requirement for project-based crediting through the CDM. Kyoto's provisions for 'Joint Implementation', of project-based credits between countries with targets which thereby involved far lighter governance than the CDM, offered a middle way. It might have been expected that countries needing to use the mechanisms would draw on them in the corresponding order – ET, JI and CDM.

The reality turned out precisely opposite. Because of its collective governance and as a way of engaging developing countries in the global effort, the CDM was perceived as politically preferable. Aided also by early start provisions, and delays including tortuous complexities around the relationship of JI and EU ETS in many of the eastern European nations who were the natural hosts for JI projects, the CDM took off at unexpected scale. Despite concerns and substantial academic critique and debate (eg. see exchange between Michaelowa, 2011 and Bohm and Dhabbi, 2011), it is also credited with having contributed enormously to the building of capacity and launch of renewable energy industries especially in Asia – which is a major global contribution to the effort which now has a strong life of its own.

Along the way, the post-Soviet surplus generated huge and acrimonious debate. From the Russian perspective, those excess emission credits may not have been due to climate policy, but they were certainly not 'free' – they reflected an incredibly painful economic collapse, which as a by-product generated global environmental benefits and for which they viewed some compensation through Kyoto as appropriate, and promised. The rest of the world did not see it that way. The CDM was preferred, JI became a poor cousin, and intergovernmental emissions trading was marginalised except where, in a few cases, it was backed by the commitment of recipients to use the revenues for emission reduction programmes (the 'Green Investment Schemes'). Law and economics are not the only determinants of outcomes.

The initial targets and emission outcomes also shed light on the psychology, beliefs and realities that underlay projections and associated negotiations. This includes the paradox that whilst logically one might expect the most carbon intensive economies have most scope to reduce emissions, the political positions were almost exactly the opposite. The outcome is mixed and its prediction, even if possible, would anyway have been ignored.⁶

The facts of huge surplus (particularly from macroeconomic transition), poor forecasting and complex roles for flexible mechanisms have implications both for the understanding of the Paris INDCs, and the risks and benefits of international emissions trading. It seems apparent already that the Chinese INDC may be easily and hugely surpassed as its economy undergoes radical

⁶ At Kyoto, Russia in particular was fixated with the idea that its emissions, having collapsed in the economic transition, needed to grow again to 1990 levels as part of recovery. President Putin's then economic advisor, Andrei Illarionov, led a concerted campaign on this basis and dismissed the view that inefficient and carbon intensive production was part of Russia's economic problem, not its solution, but that latter view has proved closer to reality. The mindset was however unshakable. The Australian insistence on a big growth target (8% above 1990 levels) and of course the US industry lobbying has some parallels. The real insight is that intensive dependence on fossil fuels tends to fuel perspectives, politics and investments which support continuation of those patterns and interests, and transitions away from this are politically and often economically painful.

macroeconomic transition, and established programmes on efficiency and renewables rise further in scale. Consider then the parallel universe promoted by many economic theorists (and once, many OECD governments), in which an OECD carbon market in 2015 would lead on to a globally linked market in 2020, presumably embodying targets based on something like the quantitative INDCs that were offered in the run-up to Paris. Such a hypothetical system might rapidly be swamped by a growing Chinese surplus, on a scale which could during the 2020s come to dwarf even the Russian surplus under Kyoto's first period.

The world is uncertain and assumptions can change more slowly than economic trends. If one fixes quantified commitments, handle with care. With global participation of countries at all stages of development, the emphasis on review and ratcheting embodied in the Paris agreement thereby has much to commend it.

Compare and contrast: Kyoto and the Paris Agreement

Thus finally, Kyoto's outcome puts a spotlight on the differences, similarities and omissions between the Kyoto Protocol and the Paris Agreement. From a standpoint of mitigation content, the most glaring differences are of course the global participation embodied in the Nationally Determined Contributions (NDCs, dropping the "intended") and the emphasis of legal commitments on the national processes rather than outcomes, along with global goals. There is real and legitimate concern about whether many developing countries have adequate governance to implement their INDCs, and the lack of binding obligation is unlikely to help in this. There will be no moment like the present one, when countries can be declared in or out of compliance. Correspondingly there is no binding driver of overseas investment as part of a compliance strategy – though comparisons are already being drawn between JI/CDM and the Paris Agreement's Article 6, hinged on the assumption that industrialised countries are domestically committed to delivering their INDCs including international offsets under, at minimum, the watchful eye of the UNFCCC.

A big omission is the lack of common metrics and accounting system underpinning the NDCs. Comparability, and even meaning, of the INDCs will be contested and more difficult than the numerical clarity of Kyoto. Yet, the Paris text is replete with commitment to avoid double counting, and its emphasis on transparency already goes some way towards enabling common approaches. Indeed, negotiations on the Paris Agreement's reporting rules might naturally draw on the rigorous accounting system developed under the Kyoto Protocol.

For the similarities are also profound. The mushy academic flirtation of the anti-Kyoto literature with 'policy-based' negotiations never took hold; it had proved impossible amongst 38 countries in the Kyoto negotiations and was inconceivable with almost 200 for the Paris Agreement. Countries can offer or negotiate goals, not domestic implementation policies, so just like Kyoto, that is where we ended up at Paris. The goals, moreover, are to be reviewed every five years, just as under the Kyoto Protocol. The Paris Agreements' commitment to facilitate delivery of INDCs echoes the facilitative branch of the Kyoto compliance mechanism. All this says something very fundamental about what constitutes a feasible international architecture for tackling climate change. And the collective Aims set out in the Paris headline, along with specific goals (early peaking on the way to a 'balance of sources and sinks') with regular stocktaking, take the global framework much further than Kyoto.

In many ways, the relationship between the two agreements can and doubtless will be cast in many diverse lights. The Paris Agreement's wholehearted embrace of differentiation can be seen an emphatic rejection of Kyoto's efforts to forge a common basis relative to 1990 levels. At the same time, critics of this came to acknowledge that increasing differentiation over time has always

featured in the evolution of international regimes: start simple, and get more nuanced. In one sense, Paris delivered this inevitable evolution in one big bound, albeit perhaps at a price.

Arguably, Paris offers a framework also for differentiation in legal form, for example if groups of countries now choose to collaborate in giving more legal clarity to either their quantified goals or elements of policies to deliver them. Indeed crucial to the effort (and research) will be developing a more sophisticated understanding of how international law in different areas may interact with different aspects of policy formation, within countries that have very diverse political and legal cultures.

Within the international regime we now have the odd situation in which the Kyoto system still exists alongside the Paris Agreement. Only a small clutch of countries have ratified their Kyoto second period commitments, which extend to 2020 (the Polish veto means the EU is unlikely to do so, though that is largely symbolic since Poland is already legally bound under the EU's domestic legislation). The US and Canada are not Parties to it, and Japan and Russia refused to adopt any targets. The meaning of a Kyoto Protocol in legal existence but with only a small handful of targets is unclear.

Back in 2011, with the world still reeling from the collapse of the Copenhagen summit, I suggested that any plausible evolution of a Kyoto-like system would have to grapple with at least two fundamental challenges (Grubb 2011). One was globalisation – the challenge on which Paris focused, and delivered. The other is incentives, and in particular the adverse incentives to avoid any meaningful controls on industrial emissions for fear of 'carbon leakage' and the associated rhetoric of 'competitiveness'. In the warm glow of Paris, the challenge of incentives for *effective* participation and implementation remains, and to this is added the challenges of governance and national accountability without common accounting, but with collectively agreed Aims and goals.

Whether any fusion can be devised, to start combining some of the best structural elements of both agreements – and to fill in the gaps - remains a question for the future. But achieving 100% compliance with the first set of binding commitments under the climate change regime, whilst learning the many lessons, along with a world reunited at Paris, is not such a bad place to be – even if it took us quarter of a Century and many political traumas to get here.

References

- Bohm and Dhabbi (2011), 'Commentary: fault lines in climate policy: what role for carbon markets?', *Climate Policy* 11:6 pp.1389-1392
- Grubb M. (1999), *The Kyoto Protocol: a Guide and Assessment*, Earthscan: London and New York.
- Grubb M. & Ferrario F. (2006) '[False confidences: forecasting errors and emission caps in CO₂ trading systems.](#)' *Climate Policy* 6:4, pp. 495-501
- Grubb (2011), 'Durban: the darkest hour?', *Climate Policy* 11:6 pp.1269-1271
- Michaelowa, A. (2011). 'Failures of global carbon markets and CDM?'. *Climate Policy*, 11: 839–841
- Shishlov et al (2016), [this issue / \[T&F – indicate appropriate reference\]](#)

Victor, David (2001), *The Collapse of the Kyoto Protocol and the Struggle to Slow Global Warming* Council on Foreign Relations/Princeton University Press; and review in Grubb (2001), 'A constructive scheme unravelled?', *Nature* 410: 750-751

Weyant, John and Hill J. (1999), 'The costs of the Kyoto Protocol: a multi-model evaluation,' *The Energy Journal*, International Association for Energy Economics (Introduction and Overview pp.vii-xliv).