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ARTICLE

Principles of Transparency in Emissions Trading Schemes: The Chinese Experience

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Abstract
Transparency is fundamental to environmental governance. It promotes public trust, goodwill, and credibility in environmental decision making. It also ensures that monitoring and enforcement of emissions reduction targets are efficient and effective. As the impacts of climate change increase, it is urgent that scholars and policy makers develop and test criteria for transparency in both the calculation of emissions reductions and the public reporting of emissions. This article highlights basic principles of transparency that should inform such criteria and that may be applied on a transnational basis. We also examine China's recently implemented pilot emissions trading schemes and find that the approach in China does not yet comply with our suggested principles. Nevertheless, the positive direction of environmental governance in this region is encouraging.

Keywords: Transparency, Transnational climate governance, Access to information, China, Emissions trading schemes

1. INTRODUCTION

Over the last decade, legal responses to climate change have proliferated throughout the world. The recent negotiations in Paris (France) added to the international climate change regime and made substantial changes to existing obligations. Many attempts to achieve greenhouse gas (GHG) reductions rely on emissions trading schemes (ETSs), and much research focuses on how to structure – economically, scientifically, and politically – ETS initiatives. Scholars have devised best practice frameworks and, in doing so, have considered a broad range of issues such as industry

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exemptions, pricing systems, allocation mechanisms, and property rights. While we recognize the importance of these issues, we believe that the issue of transparency is equally important.

Transparency is at the heart of recent debates about climate change governance.[1] The Paris Agreement,[2] negotiated in December 2015, references transparency throughout.[3] Its importance extends also into the area of global administrative law.[4] Transparency is crucial to the success or failure of many environmental regimes because environmental governance in general, and climate governance[5] in particular, are intimately connected with the ideals of deliberative democracy, public participation, and the rule of law. These are the foundations on which environmental law progresses, but none of these ideals can be met without proper implementation of the principles of transparency.

In this article, we explore the concept of transparency in climate governance by developing some general principles or 'elements' for ETS design. We derive these principles from the existing literature and from the experiences of ETS schemes. The principles we suggest are not exhaustive but provide a starting point for normative arguments about how an ETS should be designed and implemented, particularly in a transnational context. To demonstrate the application of these principles, we conduct a case study of China's recent ETS pilot programmes.

China's efforts to mitigate climate change are significant in many respects. In 2007, China became the world's largest emitter of GHGs.[6] As a result, China's mitigation policies have become a focus of international climate change negotiations and the subject of much political debate. The introduction of pilot ETSs and the possibility of a national scheme in China are of enormous interest. The success of these measures is vital given the anticipated global impacts of climate change. We suggest that transparency is essential for this success and, although our conclusions are not uniformly positive, our preliminary analysis has found progress in Chinese climate change governance.

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1 A. Gupta, 'Transparency under Scrutiny: Information Disclosure in Global Environmental Governance' (2008) 8(2) *Global Environmental Politics*, pp. 1–7. Although transparency has not been exhaustively explored in the area of climate change and transnational law, many scholars have considered this criterion in the context of global administrative law: see, e.g., A. Huggins, 'The Desirability of Depoliticization: Compliance in the International Climate Regime' (2015) 4(1) *Transnational Environmental Law*, pp. 101–24, at 105.

2 Annex to the Paris Decision of the Conference of Parties to the United Nations Framework Convention on Climate Change (UNFCCC), Paris (France), 11 Dec. 2015, available at: https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf.

3 See, e.g., Paris Agreement, ibid., Arts 6 and 13.

4 Huggins, n. 1 above.

5 In this article we use the phrase 'climate governance', adopted by Backstrand and Lövbrand, to refer to multilateral negotiations between states and the (formal) UNFCCC framework (n. 10 below) and, to a lesser extent, 'the deregulated governance modes involving sub-state and non-state actors in various partnerships and multi-sectoral networks': K. Backstrand & E. Lövbrand, 'Climate Governance Beyond 2012: Competing Discourses of Ecological Modernization, Green Governmentality and Civic Environmentalism', in M.E. Pettenger (ed.), *The Social Construction of Climate Change: Power, Knowledge, Norms, Discourses* (Ashgate, 2007), pp. 123–48, at 123.

6 PBL Netherlands Environmental Assessment Agency, 'Global CO_2 Emissions: Increase Continued in 2007', 13 June 2008, available at: http://www.pbl.nl/en/publications/2008/GlobalCO2emissionsthrough2007.

2. TRANSPARENCY IN CLIMATE GOVERNANCE

It is widely accepted that environmental governance should entail public access to information, public participation, and access to justice. These are considered the 'three pillars' of good governance and are generally accepted as such under international environmental law.[7] Transparency in environmental law is worth emphasis because of the impacts of environmental damage on human health and the corresponding detriment to collective interests.[8] These arguments are amplified in the context of climate change, for its impacts on collective interests and global health are likely to be colossal. Because it is difficult for the general public to assess whether real action is being taken or whether that action is effective, the importance of transparency in the governance of climate change mitigation cannot be overstated.

The international climate change regime establishes legally binding obligations for nation states to report their GHG emissions. This regime does not impose direct obligations on emitting industrial entities, but requires nation states to report aggregate data obtained through prescribed protocols. We argue that domestic legal frameworks must therefore align with these protocols in order to report robust and verifiable national inventories. Put differently, domestic frameworks must be transparent because there will be external scrutiny of any such frameworks.

The Kyoto Protocol[9] to the United Nations Framework Convention on Climate Change (UNFCCC)[10] – one of the main international frameworks for responding to climate change – encapsulates some important elements of transparency. For instance, Article 3(3) requires certain GHG emissions to be reported in a 'transparent and verifiable manner'. Further, Article 10(e) requires that state parties 'facilitate at the national level public awareness of, and public access to information on, climate change'. Although the concept of transparency was not initially central to the UNFCCC framework,[11] this has changed with the development of the UNFCCC measuring, monitoring, reporting and verification (MMRV) mechanism and accounting rules. Takacs provides a straightforward explanation of each of these terms:

> You can *measure* anything quantifiable (and if it's not inherently quantifiable, you can invent scales and gradients to make it so) … *[t]o monitor* is to assess the changes in carbon or any other variable over time … *[t]o report* is to go public with what you have measured and monitored and thus permit others to see what you are doing and how you

7 S. Kravchenko, T.M.R. Chowdhury & J.H. Bhuiyan, 'Principles of International Environmental Law', in S. Alam et al. (eds), *Routledge Handbook of International Environmental Law* (Routledge, 2013), pp. 43–60, at 58–60.

8 D.B. Hunter, 'The Emerging Norm of Transparency in International Environmental Governance', in P. Ala'i & R.G. Vaughn, *Research Handbook on Transparency* (Edward Elgar, 2014), pp. 343–67, at 344.

9 Kyoto Protocol to the UNFCCC, Kyoto (Japan), 11 Dec. 1997, in force 16 Feb. 2005, available at: http://unfccc.int/kyoto_protocol/items/2830.php.

10 New York, NY (US), 9 May 1992, in force 21 Mar. 1994, available at: http://unfccc.int.

11 W. Hare et al., 'The Architecture of the Global Climate Regime: A Top-down Perspective' (2010) 10(6) *Climate Policy*, pp. 600–14, at 602.

> are doing it … *[t]o verify* is to ascertain independently that the information measured, monitored, and reported is accurate.[12]

MMRV policies were first applied to developing country parties at the 13th Conference of the Parties (COP) in Bali (Indonesia).[13] The Bali Action Plan proposed that developing nations, for the first time, would make '[m]easurable, reportable and verifiable nationally appropriate mitigation commitments or actions within the context of sustainable development, supported and enabled by technology, financing and capacity-building'.[14]

Nationally appropriate mitigation actions (NAMAs) were required for developing country parties at the same time. NAMAs could take various forms, including ETSs and feed-in tariffs, and directly linked MMRV protocols to ETSs.[15] These protocols are particularly relevant when liabilities are created on the basis of measurement, as is the case in emissions trading frameworks.

The international climate change regime provides MMRV protocols with which nation states must comply, but not domestic entities. However, we suggest here that domestic compliance with these protocols promotes consistency in inventory reporting, making those inventories both robust and transparent in their methodologies. We turn now to consider these protocols.

MMRV requirements predominately serve the purpose of overcoming mistrust in the governance of climate change mitigation. Some commentators suggest that the MMRV requirements, which have been central in many climate change negotiations, can overcome the problems of north and south division and promote greater global cooperation.[16] Also, because the climate change problem requires both technological and policy innovation, the MMRV protocols benefit nation states by enhancing the clarity of shared information.

The international MMRV requirements are currently under revision. From Bali until Paris, there were different, but seemingly parallel, standards for developing and developed country parties with regard to transparency, national communications, and domestic mitigation.[17] Under the Paris Agreement, it appears that the existing MMRV protocols will be replaced by a new transparency framework.[18] Although its details will not be known until 2018, the substantive requirements for developing and developed country parties will be the same. Procedural differences may remain

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12 D. Takacs, 'Forest Carbon (REDD+), Repairing International Trust, and Reciprocal Contractual Sovereignty' (2013) 37 *Vermont Law Review*, pp. 653–737, at 665–71.

13 United Nations (UN) Climate Change Secretariat, *Handbook on Measurement, Reporting and Verification for Developing Country Parties* (UN Climate Change Secretariat, 2014), available at: https://unfccc.int/files/national_reports/annex_i_natcom_/application/pdf/non-annex_i_mrv_handbook.pdf.

14 UNFCCC Secretariat, Decision 1/CP.13 adopted by the Conference of the Parties at its Thirteenth Session, held in Bali from 3 to 15 Dec. 2007, UN Doc. FCCC/CP/2007/6/Add.1 (Bali Action Plan), available at: http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf. See also Takacs, n. 12 above, p. 665.

15 UN Climate Change Secretariat, n. 13 above.

16 D. Takacs, 'Measuring, Monitoring, Reporting, and Verifying (MMRV): Negotiating Trust in Transnational Contracts for REDD+' (2012) 106 *American Society of International Law*, pp. 518–24, at 523.

17 L. Rajamani, 'The Climate Regime in Evolution: The Disagreements that Survive the Cancun Agreements' (2011) 5(2) *Carbon & Climate Law Review*, pp. 136–46.

18 Draft Decision -/CP.21, 'Adoption of the Paris Agreement, Report of the Conference of the Parties on its Twenty-first Session, held in Paris from 30 Nov. to 11 Dec. 2015', UN Doc. FCCC/CP/2015/L.9/Rev.1, 12 Dec 2015.

insofar as developed country parties will provide assistance to developing countries to ensure they are able to meet the new standards.[19]

The purpose of the new transparency framework is to promote transparency in the communication and measurement of emissions. The required communications include the progress made by each country in implementing and achieving its Nationally Determined Contributions (NDCs).[20] In this respect, any domestic framework for the mitigation of climate change must align with international requirements for MMRV. The Paris Agreement indicates that transparency in climate change mitigation policies and laws may no longer be a matter of national sovereignty. The Agreement has resulted in a financial pledge to assist developing nation states, but the obligations that accompany this pledge include heightened transparency standards. Although the transparency requirements for developing nation states, including China, will be more onerous than previously, we are unable to explore the details of these requirements because they are the subject of further negotiations. In this article, therefore, we will continue to refer to MMRV protocols when we address existing transparency requirements from a top-down perspective.

3. DEFINING TRANSPARENCY

Providing a definition of transparency suitable for transnational application is a difficult task.[21] As is the case for all general principles of governance and law, crafting a universal definition of transparency is complicated by the many stakeholders with an interest in its implementation.[22] The purpose of the definition advanced in this article is therefore merely to provide a broad, approximate understanding of the term and its common features in the legal context. A simple definition of transparency is 'the extent to which information is made publicly available within a given social system'.[23]

If we were to rely exclusively on this definition, it would be necessary to pursue 'the full flow of information within a [given] polity'.[24] However, such a construction focuses rather narrowly on the availability of information within systems and ignores the amount, quality, and method of data dissemination. It raises questions about the quality of information provided and the way in which it is provided. The emerging

19 Ibid., Art. 13(14).

20 Ibid., Art. 13.

21 J. Fox, 'The Uncertain Relationship between Transparency and Accountability' (2007) 17(4) *Development in Practice*, pp. 663–71, at 664.

22 Martin Lodge points out that these relationships are often characterized by different types of power imbalance: see generally M. Lodge, 'Accountability and Transparency in Regulation: Critiques, Doctrines and Instruments', in J. Jordana & D. Levi-Faur (eds), *The Politics of Regulation: Institutions and Regulatory Reforms for the Age of Governance* (Edward Elgar, 2004), pp. 124–44.

23 M.J. Moon, E.W. Welch & W. Wong, 'What Drives Global E-Governance? An Exploratory Study at Macro Level', conference paper presented at the Proceedings of the 38th Annual Hawaii International Conference on System Sciences (HICSS'05) – Track 5, Island of Hawaii (Big Island), 3–6 Jan. 2005, available at: http://www.ieeexplore.ieee.org. See also discussion in D. Curtin & A.J. Meijer, 'Does Transparency Strengthen Legitimacy? A Critical Analysis of European Union Policy Documents' (2006) 11(2) *Information Polity*, pp. 109–22, at 111.

24 J.R. Hollyer, B.P. Rosendorff & J.R. Vreeland, 'Measuring Transparency' (2014) 22(4) *Political Analysis*, pp. 413–34, at 413.

literature on transparency acknowledges these limitations and questions the transformative potential of transparency, so defined, in achieving good governance.[25] The concept of access to information is intimately connected with other procedural rights, including the right of public consultation and access to justice. Yet, commentators often separate these requirements rather than making the term 'transparency' all-encompassing. For example:

> Rooted in both international human rights and the treaties and practice of international environmental law, the public's access to information is one of three closely related procedural rights that have emerged as fundamental to environmental protection and sustainable development: (1) the right to access information (transparency); (2) the right to participate in decisions that affect your life and livelihood (inclusivity); and (3) the right of access to justice (accountability).[26]

Frederick Schauer describes three dimensions of transparency: (i) consideration of *who possesses the information*; (ii) consideration of *which data or documents need to be disclosed*; and (iii) consideration of *who is entitled to those documents or data*.[27] We argue that transparency should include the concepts of inclusivity and accountability, as noted above, and therefore add a fourth dimension which considers *the method of disclosure of information*, and a fifth which requires *consideration of supporting processes such as community consultation and access to justice*.

These general concepts of transparency provide an excellent starting point for understanding its meaning. The increasing importance of transparency requires more than a minimal definition. To properly define transparency, we must consider the purpose for which a regime is being analyzed and the basis on which we may claim that transparency does or does not exist. For example, it is useful to distinguish between internal and external transparency.[28] As noted by Huggins, 'a distinction can be made between internal transparency, under which only regime management and members are privy to information gathered through monitoring processes, and external transparency, where such information is more widely disseminated, including through availability to the public'.[29]

This distinction is vital to the consideration of transparency for climate change governance and particularly to the concept of the ETS. Indeed, if a scheme is not externally transparent, it cannot be said to be transparent in any meaningful way. Therefore, the public view is crucial when we consider the transparency of any emissions trading framework.

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25 See, e.g., A. Bianchi & A. Peters (eds), *Transparency in International Law* (Cambridge University Press, 2013), p. 10.

26 Hunter, n. 8 above, p. 343.

27 F. Schauer, 'Transparency in Three Dimensions' (2011) 4 *University of Illinois Law Review*, pp. 1339–58, at 1346.

28 R.B. Stewart, M. Oppenheimer & B. Rudyk, 'Building Blocks for Global Climate Protection' (2013) 32 *Stanford Environmental Law Journal*, pp. 341–92, at 385–6.

29 A. Huggins, 'The Desirability of Administrative Proceduralization: Compliance Rules and Decisions in Multilateral Environmental Agreements, PhD thesis, University of New South Wales, 2015, p. 56.

4. TRANSPARENCY AND EMISSIONS TRADING

4.1. *Transparency in Practice*

Transparency in an ETS framework is ensured by the active promotion of meaningful access to information. This requires both internal and external transparency, with external transparency clearly the more difficult to achieve and less frequently demonstrated by existing schemes. An analysis of transparency in the ETS context can draw on a growing body of commentary.[30] Below we consider California's ETS in more detail as it provides an example of a scheme renowned for its transparency.

In California (United States (US)), the emissions of over 300 businesses are currently regulated through a cap-and-trade scheme by the California Air Resources Board (ARB).[31] Beginning in 2013 and now in its second phase, the Californian scheme has been praised for its highly transparent and inclusive consultation process.[32] One way in which the Californian approach has increased transparency is through the use of auctions rather than free allocation of carbon allowances.[33] The over-allocation of free permits was a major problem for the European Union (EU) ETS,[34] resulting in windfall profits for certain nation states and industries and arguably reducing the environmental effectiveness of the scheme.[35] Indeed, some commentators argued that this practice represented an extension of 'state aid'.[36] The method for allocating allowances can therefore have a key impact on a scheme's transparency.

In contrast to the Californian scheme, the EU ETS experience resulted in calls for principles or clear guidelines for the practice of allocating allowances.[37] The EU

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30 Lessons about transparency and design might also be learned from other regulatory schemes aimed at increasing access to information on environmental issues. Perhaps the longest running and most well-known of these, the Toxic Release Inventory (TRI) Program – overseen by the United States (US) Environmental Protection Agency (EPA) – makes information about toxic chemical releases and pollution activities available to the general public. Though the TRI focuses on toxic releases of toxic chemicals (as opposed to GHGs), there is evidence to suggest it has been effective in increasing emissions transparency and changing organizational behaviour: see, e.g., US Government Accountability Office (GAO), 'EPA's Toxic Release Inventory Is Useful but Can Be Improved', 27 June 1991, available at: http://www.gao.gov/products/RCED-91-121; S. Konar & M.A. Cohen, 'Information as Regulation: The Effect of Community Right to Know Laws on Toxic Emissions' (1997) 32(1) *Journal of Environmental Economics and Management*, pp. 109–24. Alongside the TRI, the Kiev Protocol on Pollutant Release and Transfer Registers (Kiev (Ukraine), 21 May 2003, in force 8 October 2009, available at: https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-13-a&chapter=27&lang=en), a predominately European treaty, also provides a worthy comparative case study. Like the TRI system, the Kiev Protocol establishes a system of pollutant release and transfer registers (PRTRs). Further research would be welcomed into whether the Kiev Protocol has aspects of transparency which might apply equally to an ETS.

31 A. Talberg, 'Background Note: Emissions Trading Schemes Around the World', Parliament of Australia Department of Parliamentary Services, 2013, available at: http://www.aph.gov.au.

32 A. Bumpus et al., *Carbon Governance, Climate Change and Business Transformation* (Routledge, 2015), p. 181.

33 Ibid.

34 Ibid.

35 A.D. Ellerman, C. Marcantonini & A. Zaklan, 'The European Union Emissions Trading System: Ten Years and Counting' (2016) 10(1) *Review of Environmental Economics and Policy*, pp. 89–107, at 92.

36 A. Johnston, 'Free Allocation of Allowances under the EU Emissions Trading Scheme: Legal Issues' (2006) 6(1) *Climate Policy*, pp. 115–36.

37 M. Grubb, C. Azar & U.M. Persson, 'Allowance Allocation in the European Emissions Trading System: A Commentary' (2005) 5(1) *Climate Policy*, pp. 127–36, at 134.

scheme now provides detailed guidance on allocation rules and methodologies.[38] Similarly, California has established an Economic and Allocation Advisory Committee (EAAC) – a group of economic, financial, and policy experts, who advise on the allocation of allowances including, importantly, 'the implications of different allowance allocation strategies such as free allocation, auction or a combination of both'.[39] Within the category of free allocation there are various methods for determining the allowance allocation. These include benchmarking and grandfathering. Commentators argue that grandfathering does not necessarily achieve environmental effectiveness and runs contrary to the 'polluter pays' principle.[40] These arguments do not speak to the transparency of the scheme, but we suggest that where grandfathering is based on information provided by an installation, benchmarking is a more general measure of emissions history and therefore, depending on the associated methodology, is a more transparent means of allocation. Allocation principles or guidelines, coupled with *independent* advisory committees overseeing or advising on allocation methods, are likely to be fundamental in improving transparency design in future schemes. Of course, the decisions, reasoning, and recommendations of these bodies should also be freely available as in the Californian example.[41]

The Californian scheme demonstrates a number of other features that enhance transparency. For instance, the ARB maintains a comprehensive website about the scheme and regularly posts information including Compliance Offset Issuance Data.[42] The ARB offset credits represent 'verified greenhouse gas emission reductions or removal enhancements achieved under ARB's Compliance Offset Protocols or approved early action quantification methodologies'.[43] The ARB updates its website bimonthly with new issuance data. Other information about programme implementation is released including data on allocation, auctions and GHG emissions, lists of covered entities, estimated state auction budgets, and compliance reports. The availability of current and *verified* information is a clear indication of scheme transparency and is essential in any framework seeking to meet a minimum standard in this respect.

Despite the positive aspects of the Californian scheme described above, there also appear to be some impediments to transparency. For instance, while emissions data submitted to the ARB is 'public information',[44] participating firms may apply for

38 European Commission, 'Emissions Trading Scheme', available at: http://ec.europa.eu/clima/policies/ets/cap/allocation/documentation_en.htm.

39 State of California (Climate Change), Economic and Allocation Advisory Committee, available at: http://www.climatechange.ca.gov/eaac.

40 A. Putinela, 'Are Carbon Markets an Effective Way to Address Climate Change?', *Climate Home*, 16 Oct. 2012, available at: http://www.climatechangenews.com/2012/10/16/does-emissions-trading-really-work.

41 Ibid.

42 California ARB, 'Cap and Trade Program', available at: http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm.

43 California ARB, 'Offsets Issuance', available at: http://www.arb.ca.gov/cc/capandtrade/offsets/issuance/issuance.htm.

44 Centre for Climate and Energy Solutions, 'Summary of California's Cap and Trade Program', available at: http://www.c2es.org/us-states-regions/action/california/cap-trade-regulation.

their results not to be released on grounds of trade secrets or other exemptions from public disclosure under the California Public Record Act (CPR Act).[45] Such exemptions would seem to place transparency behind the more lucrative demands of intellectual property and corporate privacy. Because transparency is so crucial to the design and implementation of cap-and-trade schemes, freedom of information (FOI) legislation should not treat emissions data as confidential or trade secrets and thereby undermine confidence in the scheme. As the US Environmental Protection Agency (EPA) notes, FOI laws aimed at other areas of regulation may need to be changed to reflect the urgency associated with climate reduction strategies.[46]

4.2. *Elements of Transparency in Emissions Trading*

Climate change is inherently global and, although some regions will feel its effects more than others,[47] solutions ought ultimately to be driven by cooperation across the global community.[48] Climate mitigation efforts are increasingly being facilitated by interactions among state, sub-state, and non-state actors, spanning jurisdictional boundaries and political systems. These relationships – forged as they often are against the backdrop of trade and geopolitical opportunities – are increasingly commonplace. The possibility that domestic ETSs in Asia, the Americas, and Europe may become linked augments the need for a genuinely transnational framework of transparency.[49]

Aligning domestic frameworks with international standards is one method by which to create a transparency framework with transnational application. Recent empirical research has found that, in the absence of alignment with international accounting standards, liable firms within emissions frameworks are reluctant to release information about such emissions liabilities in their financial accounts; thus, where no associated international standards exist other stakeholders may be unlikely to have access to accurate emissions data.[50] Therefore, where domestic requirements are linked to international standards, companies are more likely to provide information, and that information is more likely to have transnational application.

This brings us to our discussion of specific requirements for transparency in the context of climate change. Firstly, of utmost importance in any climate change mitigation framework – particularly one in which liability is imposed on the basis of emissions measurement – is compliance with international MMRV standards. Without such compliance, it is possible for domestic governments to make an otherwise

45 Cap and Trade Regulation 2006 (California), sub-Art. 16.

46 US EPA, Office of Air and Radiation, 'Tools of the Trade: A Guide to Designing and Operating a Cap and Trade Program for Pollution Control', EPA430-B-03-002, June 2003, available at: https://www.epa.gov/sites/production/files/2015-06/documents/tools.pdf.

47 This discussion is taken up in the discourse around climate justice. There are several emerging works on this topic: see, e.g., H. Shue, *Climate Justice: Vulnerability and Protection* (Oxford University Press, 2014).

48 See the discussion in T. Etty et al., 'Transnational Dimensions of Climate Governance' (2012) 1(2) *Transnational Environmental Law*, pp. 235–43, at 235.

49 See, e.g., N. Anger, 'Emissions Trading Beyond Europe: Linking Schemes in a post-Kyoto World' (2008) 30(4) *Energy Economics*, pp. 2028–49.

50 H. Lovel, *The Making of Low Carbon Economies* (Routledge, 2015), pp. 166–7.

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transparent regime opaque through obscurities of measurement and lack of real verification. Where a framework's MMRV principles are linked to international standards, the information surrounding those features is readily available. As noted by Takacs, 'the methodologies of MMRV must be sufficiently uniform to allow for comparisons and the ability of all parties to review the data'.[51] Of course, where international standards are unclear this becomes less feasible. It is important, therefore, that parties consider uniform standards, such as those provided by the International Organization for Standardization (ISO).[52] International standards formulated by the ISO currently underpin the MMRV principles of the international climate change regime. The ISO standards are therefore important in the flexibility mechanisms of the regime, including the Clean Development Mechanism (CDM). As such, the ISO standards are important for any regime that allows surrender of the internationally generated credits from such mechanisms.

A second important feature of transparency in emissions trading frameworks relates to the method of allowance allocation. Ideally, an independent body will oversee allocation and assessment methods (as in the case of the Californian ETS). Allocation has caused a number of problems in other schemes, such as the EU ETS. We argue that auctioning allowances in an open forum allows for transparency, whereas grandfathering may not. Where auctions are not a viable option, benchmarking allows for standardization across similar entities, which in turn ensures that information is accessed more easily. This is not to suggest that benchmarking is preferable to grandfathering in every respect, but it is from a transparency perspective since standardized information is more transparent than individualized allocation.

A third feature of a transparent framework is the availability of current and verified information. Such a requirement may appear similar to the reporting requirements noted above. However, information in and off itself has little value if it is not regularly updated and available in a format that is readily accessible and easily understood by the public. As such, a transparent emissions trading framework must have a verified and accurate online source of information, regularly updated and available to the general public.

Finally, for a framework to be transparent, the legal system within which it fits must also demonstrate particular qualities. FOI laws must not inhibit the free flow of information to the regulated entities and to the public; otherwise, it may be possible for regulated entities to hide behind general FOI laws, which would create obstacles for transparency.

These four features are not exhaustive, but we consider them to be crucial and measureable. They provide basic minimum requirements for a transparent emissions

[51] Takacs, n. 12 above, p. 668.

[52] ISO 14064-1:2006 'Greenhouse Gases – Part 1: Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals, available at: http://www.iso.org/iso/catalogue_detail?csnumber=38381 (specifies principles and requirements at the organization level for quantification and reporting of GHG emissions and removals. It includes requirements for the design, development, management, reporting and verification of an organization's GHG inventory).

trading framework. We now test and explore this draft framework in an evaluation of China's pilot ETS programmes.

5. CASE STUDY: TRANSPARENCY AND EMISSIONS TRADING IN CHINA

In 2007, China overtook other industrialized nations to become the world's largest emitter of GHGs.[53] As a result, China's mitigation policies have been a focus of recent international climate change negotiations. The Chinese government has responded to international concerns about GHG emissions in a number of ways, including a promise to introduce a nationwide ETS. The introduction of this scheme has been preceded by a number of pilot ETSs: by 2013, seven pilot carbon markets had been established, including two at the provincial level (Hubei and Guangdong) and five at the municipal level (Beijing, Tianjin, Shanghai, Chongqing, and Shenzhen).[54] The case study assesses those pilot studies against our proposed principles of transparency.

5.1. *The Chinese Path to Emissions Trading*

China has witnessed rapid national economic growth since its market reform in the 1970s.[55] Annual growth in gross domestic product (GDP) has averaged a staggering 10%, which has reportedly removed over 500 million people from poverty.[56] Economic growth has resulted in an explosion of urbanization and industrialization. Significant economic and social changes during this period have brought major environmental challenges, including increasing carbon emissions, energy consumption and, as a result, degraded air quality. Between 1994 and 2004, China's GHG emissions increased annually by approximately 4%.[57] China's emissions growth rate peaked around 2010, reaching 10% annually, and started to slow down around 2012.[58]

The Chinese government first considered use of emissions trading in its 11th Five-Year Plan (2006–11),[59] but it was the 12th Five-Year Plan (2011–15) which

53 PBL Netherlands Environmental Assessment Agency, n. 6 above.

54 Ecofys, The World Bank, 'State and Trends of Carbon Pricing, 2014', World Bank Group, May 2014, available at: http://documents.worldbank.org/curated/en/2014/05/19572833/state-trends-carbon-pricing-2014.

55 The World Bank, 'China: Overview', 18 Sept. 2015, available at: http://www.worldbank.org/en/country/china/overview.

56 Ibid.

57 National Development and Reform Commission (NDRC) of the People's Republic of China (PRC), 'China's National Climate Change Programme', June 2007, p. 6, available at: http://www.c2es.org/docUploads/ChinaNationalClimateChangeProgramme%20June%2007.pdf.

58 J.G.J. Olivier et al., 'Trends in Global CO_2 Emissions: 2013 Report', PBL Netherlands Environmental Assessment Agency & Institute for Environment and Sustainability of the European Joint Research Centre, Oct. 2013, p. 10, available at: http://edgar.jrc.ec.europa.eu/news_docs/pbl-2013-trends-in-global-co2-emissions-2013-report-1148.pdf.

59 China's Five-Year Plans are a series of plans which outline key economic and development targets for the country for five-year periods. The 4th Session of the 10th National People's Congress, '11th Five-Year Plan for National Economic and Social Development of the People's Republic of China', Mar. 2006 , available at: http://www.gov.cn/english/special/115y_index.htm.

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specifically acknowledged the need for an ETS to combat GHG emissions.[60] Further details of China's approach to emissions trading were provided in the Working Plan on GHG Emissions Control of the 12th Five-Year Plan (Working Plan),[61] which provided for the development of both voluntary carbon markets and pilot emissions trading markets.

By 2014, seven pilot carbon markets had been established, including two at the provincial level and five at the municipal level.[62] The schemes varied in industry coverage, emissions thresholds, as well as auction and offset rules.[63] There were also vast differences 'in economic development levels, industrial and energy structures and energy efficiencies' among the pilot programmes.[64] The introduction of differing schemes was quite deliberate. Firstly, it enabled aspects of implementation to be evaluated by the national government in anticipation of moving towards a national market. Secondly, the different schemes reflected the unique social, environmental, and political structures in modern China. All seven schemes operated independently, although the idea of linking schemes was suggested at various intervals in their operation.[65]

China's commitment to emissions trading aligns with its international communications on climate change mitigation strategies. In June 2015, China submitted its Intended Nationally Determined Contributions (INDC) to the UNFCCC Secretariat in anticipation of the Paris negotiations.[66] In order to achieve these commitments, the Chinese government agreed to take a number of actions, including 'build[ing] on carbon emission trading pilots, steadily implementing a nationwide carbon emission trading mechanism … to make the market play the decisive role in resource allocation'.[67] Further, the Chinese government has specifically noted that, as a developing country, it will 'enhance the transparency' of its actions.[68]

In September 2015, China announced plans to begin its first national ETS, covering the industry sectors of iron and steel, power generation, chemicals, building

60 The 4th Session of the 11th National People's Congress, '12th Five-Year Plan for National Economic and Social Development of the People's Republic of China', Mar. 2011, available at: http://www.china.com.cn/policy/txt/2011-03/16/content_22156007.htm (in Chinese).

61 State Council of the PRC, 'Working Plan on GHG Emissions Control of the 12th Five-Year Plan', available at: http://www.gov.cn/zwgk/2012-01/13/content_2043645.htm (in Chinese).

62 Ecofys, n. 54 above.

63 Z. Zhang, 'Crossing the River by Feeling the Stones: The Case of Carbon Trading in China' (2015) 17(2) *Environmental Economics and Policy Studies*, pp. 263–97.

64 T. Pang, L. Zhou & M. Duan, 'Linking China's Emissions Trading Pilot Schemes' (2015) 13(3) *Chinese Journal of Population Resources and Environment*, pp. 215–22, at 221.

65 Ibid.

66 UNFCCC, 'Intended Nationally Determined Contributions', 2014, available at: http://unfccc.int/focus/indc_portal/items/8766.php. These communications are available to the public through the UNFCCC submission portal. Within its INDC, the Chinese government committed to the following targets: to 'achieve the peaking of carbon dioxide emissions around 2030 and making best efforts to peak early'; to lower carbon dioxide emissions per unit of GDP by 60–65% from the 2005 level; to increase the share of non-fossil fuels in primary energy consumption to around 20%; and to increase the forest stock volume by around 4.5 billion cubic meters on the 2005 level.

67 Department of Climate Change, NDRC, 'China's Intended Nationally Determined Contribution: Enhanced Actions on Climate Change', 30 June 2015, p. 14.

68 Ibid., p. 19.

materials, paper manufacturing, and non-ferrous metals.[69] The national ETS, which will start in 2017, may build upon experience gained from the pilot schemes. It has been reported that 'the success or failure of the pilot scheme experiments will to a large extent determine the future of climate policies in China'.[70] Despite this claim, it is suggested that any national scheme will be established by a top-down rather than bottom-up approach.[71]

China has made significant progress towards establishing a national ETS over the course of the operation of the pilot schemes.[72] A national registry is now in place and the legal framework for an offset scheme is in operation. The offset scheme allows for the allocation of credits known as China Certified Emissions Reductions (CCERs) in return for approved projects, which has attracted significant interest. As of 16 June 2015, 745 projects were in progress. The majority of these projects involved alternative power supplies, including wind, hydro, and solar power projects.[73] It is anticipated that there will be some demand for these offset credits as these CCERs may be surrendered for liabilities incurred in the pilot schemes as well as the proposed national ETS.[74]

5.2. *The Transparency of the Chinese Pilot Schemes*

It is important to recognize that the pilot schemes vary in significant respects. They were launched by various local bodies at different times and thus display varying degrees of transparency. As a result, examination of the transparency of the scheme requires a comparative analysis.

Most of the rules associated with the pilot schemes have been released by local governments. Notably, only the Shanghai, Tianjin, and Chongqing pilot markets published comprehensive scheme rules at the launch of the market, under the heading of 'Trial Measures'.[75] Other markets, such as those in Beijing and Shenzhen, were introduced through a decision by the local People's Congress, which resulted in market rules of only a very general nature and lacking specificity. The rules of these two pilot markets have been clarified progressively with the publication of detailed rules following the markets' commencement. In Guangdong, however, the Trial

[69] The White House, Office of the Press Secretary, 'US-China Joint Presidential Statement on Climate Change', 25 Sept. 2015, available at: https://www.whitehouse.gov/the-press-office/2015/09/25/us-china-joint-presidential-statement-climate-change.

[70] G. Han et al., *China's Carbon Emission Trading: An Overview of Current Development*, FORES Study 2012:1 (FORES, 2012), available at: http://www.sei-international.org/mediamanager/documents/Publications/china-cluster/SEI-FORES-2012-China-Carbon-Emissions.pdf.

[71] International Carbon Action Partnership (ICAP), 'Emissions Trading Worldwide', Status Report 2015, p. 15, available at: https://icapcarbonaction.com/images/StatusReport2015/ICAP_Report_2015_02_10_online_version.pdf.

[72] ICAP, ibid.

[73] Ibid.

[74] The transparency of the offset scheme in China will be the subject of further research.

[75] Shanghai Trial Measures on Carbon Market Management (People's Republic of China) Shanghai Municipal Government, Order 10, 20 Nov. 2013; Tianjin Trial Measures on Carbon Market Management (People's Republic of China) General Office of Tianjin Municipal Government, Order 112(2013), 20 Dec. 2013; Chongqing Trial Measures on Carbon Market Management (People's Republic of China) Chongqing Municipal Government, Order 17(2014), 26 Apr. 2014.

Measures on Carbon Market Management were in draft form at the launch of the market; there was no Congress Provision on which to rely, and it was not until one month after the market launch that a document containing the rules was finally released. This approach is clearly not conducive to transparency and gives an indication of the readiness of the regulator for the establishment of this type of legal framework. It is suggested that this approach is neither necessary nor desirable for the national market.

Although the pilot ETS markets were modelled in part on markets introduced in other parts of the world, they include features that may make external transparency more critical. For example, each of the seven pilot markets permits allowance trading by investors who are not themselves liable under the ETS.[76] The Shenzhen pilot programme goes further by allowing foreign investors the opportunity to trade within the ETS; this increases liquidity in the market and appears to have caused significant price fluctuations in this particular scheme.[77] As a result, in the interest of promoting investor confidence and stability in the market, it is essential that information relevant to investment decisions is readily available.

Other operational differences between the Chinese pilot schemes and existing schemes, such as those of the EU and California, make the pursuit of transparency all the more crucial. For instance, liability for emissions in the pilot schemes attaches to businesses rather than to facilities associated with the pollution.[78] In addition, liability under each pilot scheme is for both the direct and indirect emissions of the enterprises, including emissions attributable to electricity generated both within and outside the pilot region.[79] These points of difference may reduce the risk of carbon leakage between the pilot areas, and presumably may cause less economic disruption as a result. Although these differences may not directly impact on the transparency of the schemes, they do suggest an intention to address a significant environmental issue without substantial economic impact. We suggest that the pursuit of transparency will make this goal more achievable on a long-term basis. We turn now to consider the transparency of the pilot schemes in accordance with the framework proposed in this article.

Compliance with MMRV international standards and requirements

We have suggested above that transparency in emissions trading requires that certain features of trading schemes align with international standards. Alignment with and clear communication of MMRV protocols is important not only for transparency but also for practical reasons, in the sense that measuring and reporting requirements at the domestic level constitute a clear and transparent pathway for international

76 Z. Zhang, 'Carbon Emissions Trading in China: The Evolution from Pilots to a Nationwide Scheme', (2015) 15(sup. 1) *Climate Policy*, pp. S104–26, at S117.

77 R. Song & H. Lei, 'Emissions Trading in China: First Reports from the Field', World Resources Institute, Jan. 2014, available at: http://www.wri.org/blog/2014/01/emissions-trading-china-first-reports-field.

78 Zhang, n. 76 above, p. S106.

79 Ibid.

reporting. As such, the accounting rules and the rules associated with measuring and monitoring of GHG emissions provide a good indication of scheme transparency.

In each of the pilot schemes, measuring, reporting, and verification (MRV) requirements were developed using a bottom-up or localized approach. At this stage, each pilot scheme (excluding Chongqing) requires calculation only of carbon dioxide in their MRV guidelines.[80] This is broadly aligned with the national guidelines for reporting, which have developed over time.[81] In 2013, ten sectors were included in the initial national standards.[82] Currently, 24 sectors are covered by the national monitoring and reporting guidelines.[83] These national guidelines make reference to internationally acknowledged methodologies, such as the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories[84] and the ISO 14064-1:2006 'Greenhouse Gases – Part 1: Specification'.[85] These guidelines also adhere to requirements published by the National Development Reform Commission (NDRC) in 2011.

Despite this positive development, it does not appear that transparency has been prioritized in the early development of the pilot schemes. Notably, not all of the pilot markets succeeded in publishing their MRV rules at the launch of the market. In some cases, participants had difficulty interpreting the reporting requirements, a problem made worse by the inadequate time allowed between publication of the schedule and the deadline for reporting and verification.[86] When the market rules were not clear, the resulting participation was compromised and the market itself had the potential to become less environmentally effective. One hopes that the lessons from the pilot markets will ensure a better national market approach.

Most of the problems of the pilot markets have been corrected and there are now clear regulations for pilot schemes regarding the measuring and monitoring of emissions data in accordance with established standards. At the time of writing, not all of the pilot schemes had gone through the formal legislative process with regard to these standards, which clearly is not ideal if regulators seek transparency. However, most participants in the pilot markets have had the opportunity to understand and

80 PMR Secretariat, 'A Survey of the MRV Systems for China's ETS Pilots', PMR Technical Note 8, July 2014, p. 15, available at: https://www.thepmr.org/system/files/documents/Technical%20Note%208_proper%20covers.pdf.

81 NDRC, 'General Office of the State Development and Reform Commission : The Issuance of the Third Installment of 10 Industries and Enterprises Greenhouse Gas Accounting Methods and Reporting Guidelines (Trial)', 2015, available at: http://www.ndrc.gov.cn/gzdt/201511/t20151111_758288.html (in Chinese).

82 NDRC, 'General Office of the State Development and Reform Commission : The Issuance of the Initial Installment of 10 Industries and Enterprises Greenhouse Gas Accounting Methods and Reporting Guidelines (Trial)', 2013, available at: http://www.ndrc.gov.cn/zcfb/zcfbtz/201311/t20131101_565313.html (in Chinese).

83 NDRC, n. 81 above.

84 IPCC, Task Force on National Greenhouse Gas Inventories, available at : http://www.ipcc-nggip.iges.or.jp/public/2006gl.

85 N. 52 above.

86 The rule on declaration and verification of emissions in Guangdong was published on 18 Mar. 2014, while the date for declaring GHG emissions to the authorities was 15 Mar. 2014, according to Art. 11 of the local regulation: Guangzhou Trial Measures on Carbon Market Management (Republic of China) Guangzhou Provincial Government, Order 197, 15 Jan. 2014.

comment on the guidelines through the public and stakeholder engagement process. Yet, transparency requires not only that information is communicated but also that it is simple and comprehensible; overly complicated information associated with MMRV protocols may not be transparent even when it is in the public domain.

The various pilot schemes take similar approaches to measuring and monitoring emissions, with all pilot schemes employing calculation-based methodologies, most of which are reasonably simple in nature and require multiplication of activity data with an emissions factor.[87] Where the simple method is not appropriate, a mass balance method is deployed, which uses a complete balance of carbon entering and leaving the installation to estimate emissions. This is arguably somewhat more complicated than measuring inputs.[88] However, broadly speaking, the calculation-based methodologies used by the pilot schemes are aligned with international standards.[89]

Beijing, Shanghai, Hubei, Guangdong, and Shenzhen also allow measurement-based methods, which we regard as inherently less transparent because of uncertainty in the ability to accurately measure GHG emissions, and it is also accompanied by the increased risk that information could be manipulated.[90] In principle, the use of calculation-based methodologies is preferable in any emissions trading regime, except where this is impractical because of industry complexities. This position is reflected in the Chinese national ETS, which will prescribe only calculation-based methodologies and will not allow the use of measurement-based emissions data accounting.[91]

Each pilot scheme requires emissions inventories to be verified by third party auditors and that the auditors are accredited, although the process for accreditation varies across the schemes. Interestingly, in some of the pilot schemes, participants must use an assigned auditor and do not have the freedom to choose.[92] When the national verification requirements are finalized, some of the local verification procedures may need to be changed if local auditors wish to operate at the national level, and some installations may need to adjust their practices to ensure that they meet the national requirements.

The verification requirement in the pilot markets is welcome insofar as it ensures that emissions are reported in an accurate manner. The differences among the verification requirements do not affect the transparency of the individual pilot markets yet, considered in the aggregate, such differences may lead to confusion and complications that impede transparency. Uncertainty concerning which procedures will be adopted at the national level may necessitate an adjustment period for the liable entities. This is not to say that the verification procedures are barriers to transparency, but rather that alignment should be pursued promptly to ensure simplicity in what is otherwise a complicated endeavour.

87 PMR Secretariat, n. 80 above, p. 15.

88 European Commission, 'Guidance Document: The Monitoring and Reporting Regulation – General Guidance for Installations', MRR Guidance Doc. No. 1, 16 July 2012, p. 24.

89 See, e.g., ISO 14064-1:2006, n. 52 above.

90 Ibid.

91 PMR Secretariat, n. 80 above, p. 15.

92 Ibid., p. 13.

Methodologies associated with allowance allocation

It is widely accepted that transparency is pivotal to the quality and function of any carbon market. Transparency ensures the effectiveness of climate mitigation efforts and enhances their credibility and public acceptance. Transparency also enhances predictability in a commercial environment, which is vital to investors and other market participants.[93] Thus the method of allowance allocation must demonstrate transparency. Indeed, in the Californian scheme described earlier, the open auctioning of units has been regarded as an important indicator of the scheme's transparency. Moreover, California has established an independent board to consider and report on assessment and allocation methods.

In China, the method of allowance allocation differs significantly across the pilot programmes. In Beijing, Guangdong, Shanghai, and Shenzhen, allowances are allocated in accordance with grandfathering protocols for some entities; for the remainder, a benchmarking process will apply.[94] We noted above that benchmarking has the potential to be more transparent as a result of the simple application of a single standard across an industry. Chongqing province allocates allowances entirely on the basis of the participants' self-reported emissions, which must, of course, be verified. Hubei also allocates on the basis of entities' historic reported emissions, although in this province there is a unit allocation reward for early action. Tianjin does not allow benchmarking but rather allocates allowances only by way of grandfathering.[95]

Not only must allocation methods be clearly communicated to ensure transparency, but the calculations must also be communicated in a manner that can be understood by both participants and the public generally. Qian and co-authors studied China's allocation methodologies in the seven pilot markets.[96] They revealed that 'allocation rules are explained only in general terms in the Carbon Emissions Allowance Allocation Plans released by each ETS pilot'. These allocation plans provided the calculation formula, but the exact calculations were not disclosed publicly.[97] The authors also noted that 'the extent to which enterprises are aware of how to determine efficiency factors or emission reduction factors varies on a case-by-case basis'. Finally, it was noted that 'industry would like to see more transparency about the rules'. We suggest that this would mean not only being made aware of the rules, but having rights to access information on the requirements of market participants.[98]

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93 'EU Commissioner in Climate Change: China's Carbon Market Will Send Important Signals to the World', *21st Century Business Herald*, 7 Feb. 2015, available at: http://m.21jingji.com/article/20150207/0721f117e5ed551514274acebe64394e.html.

94 PMR Secretariat, n. 80 above.

95 Ibid.

96 W. Qian, M. Neelis & C. Casanova, 'Chinese Emission Trading Schemes: Initial Assessment on Allocation', Ecofys, 7 Apr. 2014, available at: http://www.ecofys.com/en/publication/initial-assessment-on-chinese-ets-allocation.

97 Ibid.

98 Ibid. The article notes that 'Chinese ETS pilots are still sensitive about the individual allocation to compliance entities. None of the pilots have published a full list of allocations, a general approach taken by the EU ETS to provide transparency and incentive competition'.

Availability, reliability and credibility of information

In carbon markets it is generally accepted that each transaction should be recorded in a registry. Each of the pilot programmes has an emissions exchange centre and an online platform to provide support for emissions trading, including information about trading amounts, turnover, average trading price, and price evolution. An annual or quarterly summary is also provided in the pilot programmes to give a general idea of the transaction position.

As in other carbon markets, the pilot schemes break down emissions data in several ways, such as emissions by activity and emissions by area.[99] These data do not usually reveal to the public individual emissions levels, so that the confidentiality of each company's energy and emissions status may be preserved. Emissions data includes verified emissions (actual emissions reported and then verified by certified organizations) and surrendered units (units surrendered by the covered entities for compliance under the carbon market). For this to be meaningful, information about surrendered units should detail the types of unit, such as allocated allowances or different kinds of credit. Information about the verified emissions is equally important as it reflects the scope of the carbon market and the market's demand for carbon allowance. In the pilot markets this information was disclosed in a collective way only: for instance, the Beijing market regulator in 2015 reported that a total of 60,000 tonnes of carbon emissions were offset by CCER credits.[100] The general nature of this information makes it less transparent and less easily understood by both scheme participants and the public.

In addition to facilitating market development, the emissions exchange platforms provide a place to publish the status of China's voluntary offset programmes, including their application status and the number of CCERs transferred and generated in the market. It is important to make such information public because the number of CCERs generated has an impact on the total allowances within the market. This information is readily available, and the method of disclosure is such that in this respect, at least, transparency exists in a real sense.

The national market follows the standard set by the pilot schemes, with online, openly accessible information registries. The national registry has been developed and tested.[101] Initially the registry will be open only to CCER 'developers and traders',[102] but there are plans to open it to all participating entities once the ETS starts operation. Although this does not guarantee that information about emissions levels, allowances, and offsets will all be openly available to the public, it is a good starting point. We urge that the information provided through this platform

99 European Environment Agency (EEA), 'EU Emissions Trading System (ETS) Data Viewer', 5 Oct. 2015, available at: http://www.eea.europa.eu/data-and-maps/data/data-viewers/emissions-trading-viewer#tab-based-on-data.

100 Beijing Municipal Commission of Development and Reform, 'Key Emitters Made a 100% Compliance, the First to Accomplish the 2014 Carbon Emissions Trading Compliance Work', 1 July 2015, available at: http://www.bjpc.gov.cn/zwxx/zcfg/zcjd/201507/t9860647.htm.

101 ICAP, n. 71 above, p. 15.

102 Ibid.

must be simple enough to be comprehensible, and it must be accessible to the public generally rather than to participants only.

Removing residual obstructions to the free flow of information

FOI legislation in China has grown rapidly over the last decade, especially at the provincial level. Over a dozen provinces or special municipalities have enacted and implemented such legislation (Provisions or Measures on Access to Government Information), which Snell and Xiao describe as a 'strange but intriguing phenomenon'.[103] From our analysis, there is no real evidence that the exemptions associated with FOI legislation in China have inhibited the free flow of information relating to the pilot schemes. Indeed, it is not clear whether groups or individuals have sought to obtain information about the pilot schemes through FOI processes. That said, Xiao reports more generally that government agencies in China tend to use broad-based 'non-statutory' exemptions, such as those that exist for 'internal documents', to refuse requests for information and to control access to documents which identify the reasons behind government decisions.[104] According to Xiao, China has FOI 'but not as we know it', mainly because of the lack of other preconditions for the implementation of transparency measures, including the rule of law, a liberal democracy, and a free press.[105] Those more entrenched issues are likely to continue to hamstring the pursuit of transparency in China for some years to come.

6. CONCLUSIONS AND FURTHER RESEARCH

This article began with the task of developing some basic elements or principles of transparency applicable to ETS design. Specifically, we investigated what is meant by transparency, how it relates to broader concepts of accountability and legitimacy, and how it might best be implemented in terms of climate change governance. The emissions trading transparency framework developed in this article is, of course, preliminary; as international requirements for transparency in climate change governance evolve, so should the framework. Having said this, we suggest that the generic requirements of international alignment, allocation methods, information communication, and removal of obstacles to the free flow of information ought to remain substantially unchanged.

In applying the suggested elements of transparency to the pilot ETS projects in China, we conclude that China has, in fact, taken seriously the notion of transparency in recent years. However, its measures with respect to climate governance have been slow in coming, and we argue that the effectiveness of transparency measures must be more closely considered by Chinese regulators. One of the identified shortcomings is the insufficiency of information provision requirements as applied to market

103 R. Snell & W. Xiao, 'Freedom of Information Returns to China' (2007)(Jan.–Mar.) *Public Administration Today*, pp. 44–7, available at: https://www.law.yale.edu/system/files/documents/pdf/Intellectual_Life/CL-OGI-Snell-Weibing-English.pdf.

104 W. Xiao, *Freedom of Information Reform in China: Information Flow Analysis* (Routledge 2013), p. 108.

105 Ibid., p. 1.

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regulators and regulated firms. Further, at present GHG emissions information is exempt from pollutant release registers. Additional policies must be introduced in the relatively short-term future to address this gap. Any such amendments must require that GHG emissions information be accessible, easy to understand, and readily usable for a diversity of purposes. Such information also needs to be measurable and verifiable in accordance with internationally accepted standards. This helps to avoid reporter bias and provides civil society with the ability to conduct and report independent analyses.

It must also be noted that the transparency deficiencies in the pilot markets in China do not necessarily doom the transparency of the anticipated national market, which begins in 2017. The pilot markets were established within a short period of time, and local authorities charged with administering them may have lacked the experience and resources to properly administer a complicated market mechanism.

In the end, China faces broad-based challenges with respect to democracy, accountability, and the rule of law. Increasingly, we see the Chinese government commit to these ideals in environmental governance, and in the future this should further the debate about how best to implement the principles of transparency in climate governance. Transparency is not an end in itself, but it does empower communities, non-governmental organizations, and other nation states to put pressure on authorities and regulated entities to respect and apply the law.