

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/309694527>

Creating, Regulating and Allocating Rights to Offset and Pollute: Carbon Rights in Practice

Article · January 2016

DOI: 10.21552/cclr/2016/3/4

CITATIONS

2

READS

80

2 authors:



Charlotte Streck

Universität Potsdam

113 PUBLICATIONS 1,137 CITATIONS

[SEE PROFILE](#)



Moritz Von Unger

Silvestrum Climate Associates

17 PUBLICATIONS 118 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Sustainable supply-chain [View project](#)



International Climate Change Law [View project](#)

Creating, Regulating and Allocating Rights to Offset and Pollute: Carbon Rights in Practice

Charlotte Streck and Moritz von Unger*

The adoption and entering into force of the Paris Agreement is a welcome occasion to re-assess the legal foundations of emissions trading and, in particular, the nature of ‘carbon rights’. Cap-and-trade (‘allowances’) and baseline-and-credit (‘credits’) represent the main emission trading approaches, the former imposing compliance obligations, the latter stipulating voluntary action to reduce and monetize emissions. Each approach comes with legal characteristics and raises legal questions concerning property rights and protection, taxation, and financial regulation, on the one hand, and the proper recognition of individual mitigation efforts (in the context of environmental services) and participation rights, on the other hand. This article places the different type of rights in the context of their creation, purpose, and function.

I. Introduction

In December 2015, representatives of almost 200 sovereign nations gathered in Paris to negotiate a long-term legal framework to address the risks of climate change. The resulting Paris Agreement (PA) establishes an obligation for all Parties to develop and communicate ‘nationally determined contributions’ (NDCs) that formulate a country’s mitigation strategies and goals. It is the first universal climate treaty that expects all – developing and developed – Parties to formulate mitigation pledges.¹ The Agreement builds in significant flexibility in meeting the commitments. Parties can put forward joint NDCs,² can cooperate in meeting NDCs³ and can engage in a mechanism that contributes to mitigation and sustainable development⁴. While the Paris Agreement does mention market mechanisms, it allows the transfer of ‘mitigation outcomes’⁵ and of ‘emission reductions’⁶ that can be used to meet NDCs. These carefully chosen, purposefully vague formulations allow the linking of the Paris Agreement and country-specific NDCs to market mechanisms without explicitly authorising market-based transactions or anchoring them as an integral element in the treaty architecture. The drafters of the Paris Agreement also failed to define trading rules and an infrastructure with institutions similar to those of the Kyoto Protocol.

Mitigation outcomes or emission reductions – however they will eventually be defined – are expect-

ed to be acquired by Parties to meet the NDCs communicated under the Paris Agreement. Authorised public and private entities may engage in acquisitions to meet obligations under national legislation. That means that the tradable mitigation outcomes, as recognized under the PA, will belong to the growing number of ‘carbon rights’, a shorthand term for a plethora of different tradable greenhouse gas (GHG) rights. Carbon rights tend to come with little explanation, but that hardly can disguise their colourful legal nuance including rights as distinct as administrative emissions allowances, private certificates, or beneficial rights to natural (tangible and intangible) resources.

* Dr Charlotte Streck (<c.streck@climatefocus.com>) is director of Climate Focus. She advises governments, NGOs, and private entities on climate law and policy. Before co-founding Climate Focus, Charlotte served as Sr Counsel with the World Bank in Washington DC. She is adjunct lecturer at the University of Potsdam in Germany and a Board Member of Climate Strategies. Dr Moritz von Unger (<m.vonunger@atlasela.com>) is director at Atlas Environmental Law Advisory and principal at Silvestrum Climate Associates. As senior counsel, attorney (Berlin and Brussels) and policy expert, he specialises in international climate frameworks and climate finance schemes.

1 Art 4.2 Paris Agreement (PA), adopted on 15 December 2015 at the 21st Conference of the Parties to the UNFCCC, open for signature since 20 April 2016 at the UN headquarters in New York.

2 Art 4.16 PA.

3 Art 6.2 PA.

4 Art 6.4 PA.

5 Art 6.2 PA.

6 Art 6.4 PA.

The legal commentary on carbon rights, while trying hard to maintain a neutral position, has been shaped by the controversy surrounding market mechanisms⁷ and continues to retain a remarkable unease.⁸ Clear decisions on the nature and the treatment of these rights are, however, important to provide transactional certainty to both governments and private (or public) entities and provide security and confidence to the trading system.

We take the adoption of the Paris Agreement and the anticipated discussions on the nature of mitigation outcomes as welcome occasion to step aside for a moment and discuss the different aspects of carbon units and rights and their legal characteristics in national and international law. In particular, we will attempt to describe these rights in the context of their creation, purpose, and function.

We will set out with a brief overview of different carbon rights thereby defining necessary terms and providing a system to classify different rights (section II). In the subsequent section, we will discuss publicly created and assigned allowances in the context of emission trading systems (section III). Contrasting these rights that are created through legal act, we will next discuss the nature of rights created through certified mitigation actions, generally referred to as carbon credits or carbon offset (section

IV). We conclude this paper with drawing lessons of existing and emerging experience on how mitigation outcomes could be transacted under the Paris Agreement (section V).

II. Carbon Rights: Terms and Concepts

Emission trading systems are based on the creation of tradable pollutant rights (see Box 1 for an overview of emission trading systems). Where such pollutant is a GHG, these entitlements are often lumped under the concept of 'carbon' rights. But carbon rights – despite the ubiquitous use of the term – are neither defined nor systematically described. On the contrary, the term covers a wide field of units, certificates, quotas and allowances.⁹ The term oscillates, nevertheless, around two contrary yet complementary notions: the right to emit a certain quantity of GHGs (for entities with a cap on emissions) on one hand and the right to benefit from measured GHG emission reductions on the other (for entities developing projects in areas without emissions limits or caps).

Carbon units can, thus, either be issued to regulated entities operating under a cap-and-trade system, in which case they are often referred to as allowances (see section III for more detail), or issued following the measuring of emission reductions generated by a mitigation activity under a baseline-and-crediting system, in which case they are often referred to as carbon credits (see section IV for more detail). Under a cap-and-trade system, an overall emissions cap is set to achieve emissions reductions. Under a baseline-and-credit system, carbon credits are issued for reductions of emissions against a business-as-usual baseline. This means that allowances represent a required permit to release a certain quantity of GHG emissions into the atmosphere, while carbon credits are often used for offsetting emissions.

Both types of units are first and foremost accounting units, which are tracked and recorded through GHG registries. But carbon units are also tradable instruments which are transferable among entities. The creation of transferable rights in the context of emissions trading schemes represents the main difference between emission trading systems and instruments rooted in the traditional command-and-control approach of environmental policy.¹⁰ Where-

-
- 7 For many: Lily N Chinn, *Can the Market Be Fair and Efficient - An Environmental Justice Critique of Emissions Trading*, (1999) 26 *Ecology L.Q.* <<http://scholarship.law.berkeley.edu/elq/vol26/iss1/3>> accessed 4 October 2016; Thomas Tietenburg, *Emissions Trading: Principles and Practice* (Resources for the Future 2006); Tamra Gilbertson and Oscar Reyes, *Carbon Trading - How it works and why it fails* (Critical Currents, Transnational Institute's Carbon Trade Watch Project 2009); Simon Caney, *Markets, Morality and Climate Change: What, if Anything, is Wrong with Emissions Trading?* (2010) 15 (2) *New Political Economy*; Christian Egenhofer et al, 'The EU Emissions Trading System and Climate Policy Towards 2050: Real Incentives to Reduce Emissions and Drive Innovation?' (2011), CEPS Special Reports' in Richard G Newell, William A Pizer and Daniel Raimi, *Carbon Market Lessons and Global Policy Outlook* (March 2014) 343 (6177) *Science* 1316-1317; Lawrence H Goulder and Andrew Schein, 'Carbon Taxes vs. Cap and Trade: A Critical Review' (NBER Working Paper No 19338, 2013).
- 8 Cf Karoliina Anttonen, Michael Mehling and Karl Upsten-Hooper, 'Breathing Life into the Carbon Market' (2007) 16 (4) *European Environmental Law Review* 96; Aynur Ates, *Der Handel mit Emissionszertifikaten* (Eul Verlag 2011) 96 et seq.
- 9 Thiago Chagas and Moritz von Unger, 'Trading with Carbon: A Global Response to a Global Challenge' in Frank Wijen et al (eds), *A Handbook of Globalization and Environmental Policy* (2nd edn, Edward Elgar Publishing 2011).
- 10 Matthieu Wemaere, Charlotte Streck and Thiago Chagas, 'Legal Ownership and Nature of Kyoto Units and EU Allowances' in David Freestone and Charlotte Streck (eds), *Legal Aspects of Carbon Trading: Kyoto, Copenhagen and beyond* (Oxford University Press 2009) 35-58.

Box 1. Emission Trading: An Overview

The first tradable emission rights were created by the 1980's US programme to phase out lead from motor fuel. This pioneering market-based approach geared towards solving an environmental problem was followed by the Acid Rain Program that was created by Title IV of the 1990 *Clean Air Act amendments*.^a

Emission trading became a subject of international law, when the *Kyoto Protocol* of 1997 established international emission trading among developed country parties as an essential tool to achieve compliance. The base unit of the Kyoto Protocol was defined as Assigned Amount Unit (AAU), equivalent to one metric tonne of carbon dioxide emissions. Developed countries were given AAU budgets for the first commitment period and could choose whether to achieve the emission reduction target through domestic reduction efforts alone or whether to purchase additional units from other countries. Newly created units came in two forms, as Certified Emission Reductions (CERs), ie units generated in developing countries and traded into developed countries (Clean Development Mechanism, CDM), and as Emission Reduction Units (ERUs), ie units generated in industrialised countries (with specific accounting rules towards the AAU budget of the country of generation). The trade with CERs under the CDM became of particular practical importance when the linking of the European Union Emissions Trading System (EU ETS) made it popular among the European private sector.

To help meet their Kyoto commitments, a number of developed countries introduced market mechanisms as a means to regulate pollution from major emitters, such as power stations and industrial plants. These include *New Zealand's Emissions Trading Scheme* and *Australia's Carbon Farming Initiative*, though the largest and longest lived of these emissions trading systems is the *EU ETS* established on the basis of an EU directive (EU ETS Directive).^b Covering the EU Member States plus Iceland, Liechtenstein and Norway, the EU ETS is a cap-and-trade system with allowances (EUAs) traded between market participants. At the same time, the EU ETS Linking Directive^c has permitted the limited import of Kyoto offsets (ERUs, CERs) for compliance purposes.

A number of US States have developed regulations to limit GHG emissions internally. The most prominent of these is *California's Global Warming Solutions Act*, also known as AB32, which forms the basis for the development of California's Cap-and-Trade Program, operational since 2012. Emission trading is also pioneered in developing countries. In total, *six developing countries* are currently considering implementation of a domestic ETS, and an ETS has been operational in *South Korea* since 2015^d. Seven regional pilots have been introduced in China from 2013 with the aim of creating a national ETS by 2017. *China* is already exploring the possibility to link these regional pilots (and eventually a national ETS) with other ETSs.

In parallel to regulated carbon markets, *voluntary carbon markets* emerged in the late 1990s, largely driven as an offer to private companies and individuals to 'offset' their emissions.

^a Title IV of the Clean Air Act, enacted as part of the Clean Air Act Amendments of 1990, Pub.L. No. 101-549, 104 Stat. 2399 (1990).

^b Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowances trading within the Community and amending Council Directive 96/61/EC, most recently amended by Regulation No 421/2014.

^c Directive 2004/101/EC of the European Parliament and of the Council of 27 October 2004.

^d Developing countries in which an ETS is under consideration are Thailand, China, Turkey, Ukraine, Mexico and Chile. See World Bank Group, 'Carbon Pricing Watch' (2015) <http://www-wds.worldbank.org/external/default/WDSContentServer/WDS/IB/2015/08/26/090224b08309a09a/4_0/Rendered/PDF/CarbonPricing0e0released0late02015.pdf> accessed 4 October 2016. Information on registry infrastructure developed to support market mechanisms in Kazakhstan and Thailand have been presented at the PMR Workshop in Sacramento, 23-25 September 2015 <https://www.thepmr.org/system/files/documents/4.Kazakhstan%E2%80%99s%20Carbon%20Units%20Registry.pdf> and <https://www.thepmr.org/system/files/documents/3.TGO_Registry_23Sep15.pdf> accessed 4 October 2016.

as in command-and-control instruments the entitlement to emit is granted on an individual basis as a condition to operate a well-defined installation, this entitlement is not transferable.

Private carbon standards define their own flavour of emission reductions. Standards, such as the Verified Carbon Standard (VCS) or the Gold Standard operate similar to the CDM as they provide rules on how to quantify emission reductions measured against a project-specific baseline. Whether issued under a regulated or private standard, most systems

define carbon units as corresponding to one metric tonne of carbon dioxide equivalent.¹¹ They assign a serial number to each allowance or carbon credit and thus create a traceable carbon 'unit'.

¹¹ The Regional Greenhouse Gas Initiative uses short ton, not metric ton. There are also examples, in which multiplying factors are applied in that an emission reduction needs to be > 1 tCO₂eq. in order to be eligible for conversion into a credit unit (see, in this context, the application of the JI mechanism in New Zealand).

In the absence of laws and standards, pioneering transactions may involve the transfer of rights to verified emission reductions. This may happen before a carbon unit is issued (or even without any intention to create issued carbon units). In such cases, the transferred carbon right is bilaterally defined in the contract entered into by the parties. These contracts do not transact a defined carbon unit, but agree that one party pays for the contractually defined 'emission reductions' (or removals of GHG from the atmosphere) generated by the other party. This applies, among others, to transactions that involve the generation and transfer of verified emission reductions against payments for results. Examples of such contracts also include early emission reduction purchase agreements signed in anticipation of the Kyoto Protocol's entry into force, international public performance-based payments for reduced forest emissions, but also voluntary transactions (among individuals and private entities) where one party pays for a particular environmental service in return for the right to use the generated mitigation benefit for offsetting or other purposes.¹²

Table 1 provides a reference point and overview of the different types of carbon rights which will be elaborated in more detail in the sections III and IV.

III. Allocated Pollution Rights

Under a cap-and-trade system a regulated entity needs to surrender a number of allowances (or units, certificates or quotas, etc) in an amount equivalent to the emissions the operator's installation has caused. Allowances are given out to operators for free on the basis of historic emissions ('grandfathering') or through auctions (the exception), subject however to a continuous reduction in the annual amount.¹³ If designed right, the downward trend leads to, and increases over time, market scarcity, which in turn triggers trading between operators and market intermediaries. This is because some operators take the trouble to reduce their own emissions, while others rely on allowance purchases.

Allowances are issued into and traced through a registry, with each unit being tagged with a unique serial number. In principle, anyone who holds an account in a registry can trade allowances. Depending on the registry and the system, formal requirements can be simple or more sophisticated, and certain trade restrictions may apply.¹⁴

With the exception of the initial allocation process (when grandfathering and/or auctioning is used to transfer allowances), allowances are traded on the basis of private law contracts. As transfers may cross borders, contracting parties must (or should) agree on the governing law that applies to the trade. This is mostly done without raising contentious issues, even though there is little common ground between nations and legal systems as to how to define the underlying nature of allowances.

Much of today's understanding and conceptualisation of emissions trading and 'carbon rights' is derived from the Kyoto Protocol; yet, the Protocol, strictly speaking, defined emission limitations only and arguably has not created a right to emit. The Conference of the Parties (COP), in 2001, confirmed that 'the Kyoto Protocol has not created or bestowed any right, title or entitlement to emissions of any kind on Parties included in Annex I...'¹⁵ The Protocol does however 'assign' GHG amounts to Annex B Parties, authorising them to acquire and transfer them to another party, and imposes mandatory compliance obligations to be served with AAUs. In 2001, the COP adopted the modalities that define the rules for transfer of AAUs, for their surrender and the assessment of compliance (or failure thereof).¹⁶ Article 18 Kyoto Protocol in conjunction with Decision 27 CMP.1 es-

12 Christopher Carr and Flavia Rosembuj, 'World Bank experiences in contracting for emission reductions' (2007) 2 *Env. Liability; General Conditions for ERPA's of the Forest Carbon Partnership Facility* <https://www.forestcarbonpartnership.org/erpa-general-conditions> accessed 4 October 2016.

13 The calculation of allocation quota is complex and often oriented at benchmarks. For the EU ETS, almost all allowances were given out for free during the first trading period (2005-2007); in the second trading period (2008-2012), the share of free allocation stood at about 90%; during the third trading period (2013-2020) auctions have nominally become the default mechanism; however, in manufacturing the share of free allocation still stood at 80% in 2013, but will go down to about 30%; other rules apply for different sectors, see for a summary European Commission, 'Explanatory Paper 2011' <http://ec.europa.eu/clima/policies/ets/allowances/docs/explanatory_paper_en.pdf> accessed 4 October 2016. For AB 32, see sub-ch 10 Climate Change, art 5, s 95800: the quota of free allocation is at roughly 90% and will decline over time; for a summary see C2ES, California Cap and Trade Program Summary (January 2014) <<http://www.c2es.org/docUploads/calif-cap-trade-01-14.pdf>> accessed 4 October 2016.

14 The EU registry, following a series of events, in which units were stolen (or 'phished'), has greatly increased the levels of protection (creating trusted accounts, delaying transactions and so on). For a summary of technical details to protect the EU registry see European Commission, 'General Questions and Answers on Registries' (5/2013) <http://ec.europa.eu/clima/policies/ets/registry/fa_en.htm> accessed 4 October 2016.

15 COP Decision 15/CP.7.

16 COP Decision 19/CP.7.

Table 1. Overview of tradable carbon rights

Source	Carbon Right	Issued Units	Regulated	Legal Characteristics
International law: Kyoto Protocol	Allocated right. Allocation of an 'assigned amount' under a cap-and-trade system.	Allocated allowances: Assigned Amount Units (AAUs)	Annex B Parties of the Kyoto Protocol. Public and private entities can hold and transfer any unit defined by the Kyoto Protocol, if authorised by their Party.	Tradable units defined under international law. No clear legal qualification, but gives a functional guarantee of compliance (and protection against sanctioning).
International law: Kyoto Protocol	Carbon credit. Credits issued for internationally approved mitigation activities under a baseline-and-credit system.	Credits: CERs, ERUs (for projects), RMUs (for land use activities at the national level).		Tradable units defined under international law. Right to offset emissions, equivalent to AAUs.
Supranational law: EU ETS	Allocated right. Allocation of allowances to regulated private sector entities under a cap-and-trade system.	EU Allowances (EUAs).	Private and public entities operating energy-intensive installations in the EU.	EU law does not define the legal nature of allowances. This is left to Member States which defined EUAs in multiple ways. New legislation defines allowances as financial instruments (effective as of 2017).
National law: Australia, Carbon Farming Initiative	Carbon credit. Regulator issues credits to projects generating emissions reductions according to approved methodologies (baseline-and-credit system).	Australian Carbon Credit Units (AC-CUs). There are two types of AC-CU: Kyoto ACCUs, generated from projects within Australia's Kyoto Protocol emissions reporting inventory, and non-Kyoto ACCUs, for use in voluntary markets.	Private and public entities that are Recognized Offsets Entities.	The Regulator can only issue ACCUs to entities holding an account with the Australian National Registry of Emissions Units (ANREU or the Registry). ACCUs can subsequently be traded between entities within the Registry.
Subnational law: California	Allocated right. Cap-and-trade system with allocation of allowances (AB32).	GHG Allowances.	Public and private emitters in California.	Tradable unit defined under State law. Limited authorisation to emit GHG; tradable, but does not grant a property title. <i>Table continued on next page...</i>

establishes a compliance mechanism that facilitates compliance and sanctions continued failure of compliance.

Falling short of defining a *right to pollute*, the Kyoto Protocol has created a category of *tradable*

public-law instruments that can be used for compliance with agreed obligations under Article 3 Kyoto Protocol. During the negotiations of the Protocol, developing countries expressed concerns that assigning AAUs to developed country parties would bestow

Table 1 continued

Source	Carbon Right	Issued Units	Regulated	Legal Characteristics
Subnational law: California	Carbon credits. Offset Protocols, generation of credits under a baseline-and-credit system,	Registry offset credits (ROCs) equivalent to ARB offset credits	Public and private entities.	Tradable unit issued by recognized standards into recognized Offset Project Registries. ROCs are initially tracked on separate authorised Offset Project Registries (OPRs), and must be converted to 'ARB credits' before they can be used for compliance with the cap and trade program. Tradable, but do not grant a property title.
Private standard: Verified Carbon Standard (VCS)	Carbon credits. Credits for privately certified mitigation activities; credits under a baseline-and-credit system.	Verified Carbon Units (VCUs).	Public and private entities.	Unit 'representing the right of an account holder... to claim the achievement of a GHG emission reduction or removal'. ^a
Bilateral contract under national law): FCPF Emission Reduction Payment Agreement (ERPA), and ERPA General Conditions	Carbon credit. Credit generate by baseline-and-credit system, established and recognized by agreement between the contractual parties.	'Emission Reductions' defined by ERPA with cross-reference to ERPA General Conditions.	Participating governments.	Defined as 'real and verifiable emission reductions' measured against a jurisdictional reference level; includes 'all rights, titles and interests associated with ERs' (FCPF Charter), but not 'beneficial, legal or customary interests or rights in the land' (General Conditions).
Public-Private Partnership (national law): Costa Rica	Credit for environmental services. Contract between a public entity (<i>Fondo Nacional de Financiamiento Forestal</i>) and private land owners (no regulatory obligation of participation).	Certificates for environmental services.	Private land owners.	Certificates are tradable and deemed 'private property'.

^a VCS Program Definitions, version 3 (2012).

these parties with rights to emit.¹⁷ The reluctance to create permits that would grandfather historic rights to pollute is not only a concern under the international climate regime. It is also prevalent in domes-

tic regulation. The result is an ambiguous regulatory definition of the tradable unit created, often withholding the property status *expressis verbis*.

US regulators, in particular, zealously stand guard to avoid granting property rights. The US federal legislator, when establishing the emissions trading system around sulphur dioxide emissions (causing 'acid rain'), clarified that the allocated allowances do 'not constitute a property right', but were no more than a

17 Lasse Ringius, Asbjørn Torvanger and Arild Underdal, 'Burden Sharing and Fairness Principles in International Climate Policy' (2002) 2 International Environmental Agreements: Politics, Law and Economics 1–22.

'limited authorization to emit sulphur dioxide' (§ 403(f)).¹⁸ In the same vein, California's emissions trading scheme – based on Assembly Bill No 32, the Global Warming Solutions Act of 2006 (AB32) – implementing regulation clarifies that each compliance instrument (including allowances) represents a 'limited authorization to emit up to one metric ton in CO₂e of any greenhouse gas...', but 'does not constitute property or a property right'¹⁹. The nine States participating in the north-eastern Regional Greenhouse Gas Initiative – a multistate cap-and-trade scheme for CO₂ emissions from power plants – have similar regulations in place.

Two considerations seem central in this respect.²⁰ Some commentators suggested that the US Congress was reacting to environmentalists, who warned of moral concerns with a regulatory scheme that attributed 'rights' to pollute.²¹ More relevant from the point of view of the regulator is the ability to regulate the market by adding and cancelling allowances. The Congress clarified that the authorisation to pollute is 'limited' in § 403(f) of the Clean Air Act²² in order to keep a free hand over allocation as to ensure the achievement of the Acid Rain Program's pollution-reduction goals. As 'owners' of allowances, economic operators would insist on this right and therefore new attributions, withdrawals or 'devaluation' for environmental purposes would become more difficult as the system matured.

The EU legislator is less explicit on stripping EUAs of the features of a property right. The EU ETS Directive defines the created carbon unit as 'an al-

lowance to emit one tonne of carbon dioxide equivalent during a specified period, which shall be valid only for the purposes of meeting the requirements of the Directive...' (Article 3.b EU ETS Directive), and leaves it otherwise to EU Member States to decide on their legal nature. These have used their discretion generously. EUAs are sometimes deemed to vest property rights in the rightful holder (eg UK)²³; in other Member States they are (and remain) an exclusive right of the treasury (eg Hungary)²⁴; others vaguely consider them subjective public law rights (eg Germany)²⁵; intangible rights similar to patents (eg Finland)²⁶, or financial instruments (Sweden)²⁷. More recently, in the context of delegated legislation concerning registries and responding to a number of incidents, in which EUAs were stolen and subsequently reclaimed,²⁸ the EU delegated legislator added certain legal characteristics, but again refused to define the legal nature of allowances to be valid and applicable throughout the Union. The relevant regulation laid down that an allowance is a 'fungible, dematerialized instrument that is tradable on the market', that the registry shall 'constitute prima facie and sufficient evidence of title', and finally that a purchase and holder of an allowance acting in good faith shall 'acquire title to an allowance or Kyoto unit free of any defects in the title of the transferor'.²⁹ In a separate statement, the Commission made clear however that the Regulation 'does not harmonise the ownership of allowances'.³⁰

In EU case law, the right to property – recognized under Article 17 of the EU Charter of Fundamental

18 42 USC. 7651b (Title 42 - The Public Health and Welfare, ch 85 - Air Pollution Prevention and Control – sub-ch IV-A - Acid Deposition Control - Sec. 7651b. Sulfur dioxide allowance program for existing and new units).

19 § 95820 (c) Compliance Instruments Issued by the Air Resources Board, 17 CA ADC § 95820, Barclays Official California Code Of Regulations.

20 Daniel H Cole, 'Clearing the Air: Four Propositions about Property Rights and Environmental Protection' (1999) 10 Duke Envtl. L. & Pol'y F. 103, 114.

21 Robert W Hahn and Gordon L Hester, 'Where Did All the Markets Go? An Analysis of EPA's Emissions Trading Program' (1989) 6 Yale J. on Reg. 109, 142- 43.

22 42 USC. 7651b (Title 42 - The Public Health and Welfare, ch 85 - Air Pollution Prevention and Control – sub-ch IV-A - Acid Deposition Control - s 7651b. Sulfur dioxide allowance program for existing and new units).

23 *DLW GmbH v Winnington Network Ltd* [2012] EWHC 10 (Ch). The High Court held that EU allowances are to be considered property under English Common law, as they comply with the

relevant elements, namely that they are identifiable by third parties having a unique serial number and that they are transferable.

24 Jonathan Verschuuren and Floor Fleurke, 'Report on the legal implementation of the EU ETS at Member State level' (EN-TRACTE, September 2014).

25 '*Subjective öffentliche Rechte*'; the matter is contested, however, see for a discussion Carolin Küll, *Grundrechtliche Probleme der Allokation von Co2-Zertifikaten* (Schriftenreihe Natur und Recht, Springer 2008).

26 For the Nordic perspective see Anttonen, Mehling and Upston-Hooper (n 8) 97.

27 *ibid.*

28 See European Commission, 'General Questions and Answers on Registries' (n 14).

29 Art 40 of Regulation (EU) No 389/2013 of the Commission (3 May 2013) OJ L 122/1.

30 See European Commission, 'General Questions and Answers on Registries' (n 14).

Rights³¹ – has regularly been invoked to challenge compliance obligations,³² corrective deductions of free allocations³³ or the outright rejection of free allocations³⁴. The Court initially did not respond to the claim, but instead preferred to discuss the matter within the concept of equal treatment³⁵ or proportionality³⁶. However, General Advocate Kokott recently examined the Article 17 EU Charter claim to property with more detail and found that, in principle, it applied to an operator's right to allowances, as it 'applies to rights with an asset value creating an established legal position under the legal system, enabling the holder to exercise those rights autonomously and for his benefit'³⁷. However, since Article 10a(5) of the EU ETS Directive allows for the European Commission to adjust the levels of free allowances, an initial calculation of allowances by Member States is 'not capable of creating an established legal position'³⁸.

The reasoning of the General Advocate and her readiness to reject the plaintiffs' material claim point to an important distinction: the protective rights of allowances, once released into the market sphere on the one hand, and the operator's expectation to receive allowances from the government on the other hand.

The weariness to define (and harmonise) the legal nature once and for all leads to an array of regulatory uncertainties, notably in terms of taxation, and the EU Court of Auditors has recently reprimanded the European legislator for avoiding the matter in its legislation.³⁹ While the application of value-added-tax (VAT) to allowances in (VAT-using) countries seems

fairly settled (regardless of their property characterisation) – spot-market traded emission allowances are subject to VAT as they are a taxable supply of services – there is no common approach to whether VAT should be charged to the issuance of allowances (instead of only at the moment of secondary transactions) and whether, beyond VAT, corporate taxation applies to freely allocated emissions.⁴⁰

It is noted that the argument for withholding property rights over allowances loses its strength and that many of the problems raised above could disappear or at least fade in importance, the more the cap-and-trade system in question replaces (free) allocation with auctions. The EU ETS, for instance, has continuously increased the share of allowances that are auctioned – and thus paid for – rather than allocated for free. In 2013, the auction share stood at 40%; by 2020, this share may increase to up to 50%.⁴¹ Common sense would argue that an entity that has acquired and paid for allowances may rightfully claim 'ownership' over this new asset. The issue raises questions of its own, however, in cases in which the legislator explicitly excludes the possibility of assuming property rights over allowances. At the time of writing, the California Chamber of Commerce had appealed against a decision of the Superior Court, in which the Chamber had challenged AB32. The State Court of Appeal requested the parties to provide supplemental letters concerning, inter alia, the 'rationale for and purpose of regulations stating that auction credits confer no property right'.⁴²

31 1. Everyone has the right to own, use, dispose of and bequeath his or her lawfully acquired possessions. No one may be deprived of his or her possessions, except in the public interest and in the cases and under the conditions provided for by law, subject to fair compensation being paid in good time for their loss. The use of property may be regulated by law in so far as is necessary for the general interest.
2. Intellectual property shall be protected.

32 Case C-127/7 *Arcelor* (CJEU, 16 December 2008) ECLI:EU:C:2008:728.

33 See most recently CJEU, Judgments in Joined Cases C-191/14 and C-192/14 *Borealis Polyolefine GmbH and OMV Refining & Marketing GmbH v Bundesminister für Land-, und Forstwirtschaft, Umwelt und Wasserwirtschaft* (28 April 2016) ECLI:EU:C:2016:311, Case C-295/14 *DOW Benelux BV and Others v Staatssecretaris van Infrastructuur en Milieu and Others*, and Joined Cases C-389/14, C-391/14 to C-393/14 *Esso Italiana Srl and Others, Api Raffineria di Ancona SpA, Lucchini in Amministrazione Straordinaria SpA and Dalmine SpA v Comitato nazionale per la gestione della direttiva 2003/87/CE e per il supporto nella gestione delle attività di progetto del protocollo di Kyoto and Others* (28 April 2016) ECLI:EU:C:2015:754.

34 T-630/13 *DK Recycling und Roheisen GmbH v European Commission* (CJEU, General Court, 26 September 2014)

ECLI:EU:T:2014:833; the appeal was rejected by the CJEU on 22 June 2016, C 540/14P.

35 C-127/7 *Arcelor* (n 32).

36 T-630/13 *DK Recycling und Roheisen* (n 34).

37 Joined Cases C-191/14 and C-192/14 *Borealis Polyolefine GmbH and Others* (n 33), Opinion of AG Kokott, para 162.

38 *ibid* para 163.

39 European Court of Auditors, The integrity and implementation of the EU ETS, Special Report No 6, 2015 http://www.eca.europa.eu/Lists/ECADocuments/SR15_06/SR15_06_EN.pdf accessed 4 October 2016: '... Furthermore, the legal status and definition of allowances should be clear in order to contribute to stability and confidence in the market for emissions allowances.'

40 European Commission, 'Carbon Market Report 2015' (November 2015) <http://ec.europa.eu/clima/policies/strategies/progress/docs/com_2015_576_annex_1_en.pdf> accessed 4 October 2016.

41 European Commission, 'Information on Auctioning' (June 2016) <http://ec.europa.eu/clima/policies/ets/auctioning/index_en.htm> accessed 4 October 2016.

42 Court filings <https://www.reedsmith.com/files/uploads/alert-attachments/2016/alert_16103_order.pdf> accessed 4 October 2016.

Nonetheless, auction removes many of the uncertainties around emission allowances. Taxation events will become clear, and auctions will also dispense accountants from the difficult task to measure in a firm's financial statements the allowance assets the firm has received free of charge and whether the liability for the obligation to surrender the allowances allocated should be recognized immediately at the time of allocation. The International Accounting Standards Board (IASB) has been discussing the matter for years, without resolving the matter conclusively yet.⁴³

Other details retain their contentious nature, whether or not allowances are freely given out or auctioned. A case in point is the field of financial regulation. The lion's share of transactions in emission allowances – at least in the EU – is in the form of derivatives (futures, forwards, options), which are then subject to financial markets regulation, in the EU the Financial Instruments Directive (MiFID)⁴⁴. However, transactions for immediate delivery of allowances (also called 'spot' transactions) are currently not subject to equivalent rules at the EU level – though some Member States have adopted separate rules⁴⁵ – and are not supervised. Under the revised version of MiFID (MiFID II)⁴⁶, to be fully implemented by 2017, allowances will be considered financial instruments per se; however, individual ETS compliance market participants acting on own account will be exempt from authorisation and compliance duties under MiFID II, as well as investment service providers engaging in allowances purchases as long as the actions in questions are ancillary and the provider is not part of a financial group.

IV. Carbon Credits

Where they are not allocated by a regulator, carbon rights can also be generated by an activity that reduces emissions or sequesters carbon. They are generally referred to as 'emission reductions' or 'credits' and are closely associated with the emission reducing activity. In contrast to emission allowances, carbon credits do not per se constitute a right to emit a defined quantity of GHG.⁴⁷ Instead they constitute a reward or incentive to reduce emissions. Where carbon credits are however recognized under a regulated emission trading system (eg the Kyoto Protocol under international law, or the EU ETS under EU law)

they can offset emissions and serve as de facto or quasi entitlement.

The generation of carbon credits is incentivised by baseline-and-credit systems. Under a baseline-and-credit system emission reductions (or removals) are certified as the differential between the measured emissions and those that would have emitted in a business-as-usual scenario but are not emitted due to the implementation of a mitigation activity. Baseline-and-credit systems can cover whole countries or jurisdictions, but they can also be confined to a program or project. The incentive framework for reduced emissions from deforestation and forest degradation (REDD+) is perhaps the most prominent baseline-and-credit system calculating emission reductions against a national reference level; the CDM is the best known project-based baseline-and-credit mechanism, which measures emission reductions against a project-specific baseline.

Carbon credits – representing verified emission reductions – are issued under public ('compliance') or private ('voluntary') standards. Both the CDM and Joint Implementation (JI)⁴⁸ represent international public standards. Australia's Carbon Farming Initiative (CFI) is a mechanism to generate carbon credits through land use activities and an example for a national public standard.⁴⁹ Carbon credits are also the main currency in voluntary carbon markets. The Verified Carbon Standard, the Gold Standard, the American Carbon Registry, among others, all recognize and

43 See the IASB's Discussion Paper DP/2013/1, *A Review of the Conceptual Framework for Financial Reporting* (2013).

44 Directive 2004/39/EC.

45 Sweden considers EU allowances as financial instruments in any constellation (Germany does the opposite by defining that allowances are not deemed financial instruments, art 7(5) Greenhouse Gas Emissions Trading Law 2011; France does not make any classification but puts spot trades under financial oversight, see *Loi de Régulation Bancaire et Financière* of 2010.

46 Directive 2014/65/EU; note that the European recently proposed legislation to extend the implementation period for MiFID II citing factual difficulties of the supervisory bodies, see Proposal of the European Commission of 10 February 2016 (2016/0033 (COD)).

47 *INEOS Manufacturing Scotland Ltd v Grangemouth CHP Ltd and Another* [2011] EWHC 163, paras 5, 41-47. In *INEOS v Grangemouth* the defendant claimed that emission reductions defined as 'CO₂ emissions credits or entitlements' with respect to an activity would not fall under the definition of allowances; see Sabina Manea, 'Instrumentalising Property, An Analysis of Rights in the EU Emission Trading System' (PhD thesis, London School of Economics 2013).

48 The project-based mechanism defined in art 6 Kyoto Protocol.

49 See <<http://www.environment.gov.au/climate-change/emissions-reduction-fund/cfi/about>> accessed 4 October 2016.

certify emission reductions that have been generated in accordance with the respective standard rules.

In the context of regulated systems, baseline-and-credit systems often complement cap-and-trade systems. Carbon credits can be generated by investments into mitigation projects that fall outside the capped sectors, and used to offset emissions within the capped systems. Credits that have been generated by an approved project can be traded in the system (albeit often with limits on their use), thereby increasing flexibility and further reducing compliance costs in the system.

A major source of uncertainty in some - in particular land-use - project categories is which entity involved in a project has the right to apply for and obtain carbon credits issued for a certain project or programme. In contrast to a cap-and-trade system there is no regulated entity that is the designated holder of carbon units. Carbon projects are often implemented based on the initiative of one or several private entities: owners, operators, investors, consultants or NGOs. Where a multitude of actors can be associated with the activity in question, it is not clear who could apply for - and receive - the carbon credit once the mitigation action has been recognized and verified under an accounting standard. In energy and industry projects, the owner of an installation, the installation's operator or an investor, can claim the right to the emission reductions. In these cases, the right to emission reductions defines another benefit from an investment and is allocated according to investment agreements.

In land use transactions matters are often more convoluted, complicated and politically sensitive. Weak or unclear land titles, combined with a mix of statutory and customary rights relating to land ownership, harvest and fishing rights, recognized and un-

recognized indigenous rights often create an uncertain and risky ground for the allocation of clear rights concerning access, usage, consent and control and for assessing the impact of the mitigation (or sequestration) intervention on stakeholders, including in terms of a right to the carbon credits generated (or to a certain share). Only in very few cases a recognized right to land-use related emission reductions exists by law, an early example being the Australian province of New South Wales, credited for having established the world's first forest carbon mechanism (see the article of Dibley and Wilder in this issue). At the time of writing, Congo Brazzaville was about to adopt a new Forest Code, which would recognize carbon rights proper.⁵⁰

In the absence of a clear legislative framework on emission reductions, lawyers will rely on principles of national law to classify the rights, including to decide which entity has the right to explore the benefits associated with a project activity. Where domestic law fails to define a distinct class of rights reserved for 'carbon' (as the Australian example shows or as various REDD+ host countries are considering doing), carbon-related rights are explored in terms of their *purpose* and *functions* from the perspective of the general mechanisms and instruments domestic law provides. The legal systems around the globe, whether they follow a common law tradition, a continental tradition or any other, are rich and resourceful and will often offer the legal means to fully recognize carbon credits and what the relevant agents wish them to achieve. The most suitable legal domain to characterise the legal nature of carbon-related rights is often private law, which covers a range of disciplines, including property law and the law of obligations.⁵¹

As for the purpose, emission reductions and removals are the result of a mitigation activity that corresponds to an (environmental) service rendered. In national programmes, carbon-related rights are often lumped together with several other environmental services. In Costa Rica's Payment for Ecosystem Services programme land owners receive payments for reforestation, forest conservation, and sustainable forest management activities implemented based on a management plan designed by a professional forester who will also be responsible for monitoring its implementation. Since 2002 Costa Rica has rewarded more than 4,400 farmers and forest owners for their successful participation in the pro-

50 A version of the revised Forest Code is with the authors. It is not yet adopted, but formal adoption is foreseen for 2016. It includes provisions on both 'carbon credits' and 'carbon rights'. Any person, whether a natural person or a legal entity, may 'generate carbon credits', it being understood that actors other than the State must be specifically authorized as 'project proponent' (*promoteur de projets*) in order to be eligible for carbon credit generation (art 179) and whatever the title to any particular carbon credits, holders of customer rights (*droits d'usage*) are deemed 'beneficiaries of carbon rights' by law (art 180).

51 For a recent example under the Forest Carbon Partnership Facility, see the legal assessment of carbon rights from the perspective of civil law in the Emission Reduction Program Document (ERPD) as approved in May 2016 for the Democratic Republic of the Congo <<https://www.forestcarbonpartnership.org/democratic-republic-congo>> accessed 5 October 2016.

gramme.⁵² In 2008, Costa Rica started issuing tradable Certificates for Environmental Services for protecting forest lands. While these certificates are not equivalent to tonnes of emission reductions, they include the reward for carbon sequestration and emission reduction services. Where payments are linked directly to tonnes of emission reductions, the service provider has the initial claim to the carbon credit. Civil law provisions governing the performance of a service in return for a price or a compensation are fully capable of describing the legal nature of the process and of allocating all related claims.

As to function, the product of the GHG mitigation activity – the carbon credits – are usually tradable, while their final purpose differs. They may be given compliance effects under national emission trading schemes (what the EU ETS foresaw, and to some extent still foresees, concerning CDM and JI credits), they may be used by a government to demonstrate achievement of NDCs (under the Paris Agreement),⁵³ or they may be sold under a results-based scheme at a certain price (eg the Forest Carbon Partnership Facility)⁵⁴. In all three variations, carbon credits have a clear economic value and they establish a firm legal position for the person who holds that value. Most legal systems would grant the person that holds such position protection against theft, expropriation, or other, either under the domestic property rights regime or under tort law, or under the law of unjust enrichment (or any combination of these).⁵⁵

The most suitable format to clearly determine carbon credit related claims (and avoid any conflicts), representation rights, rights to compensation and legal protection are contracts, or chains of contracts. Such contracts need to clarify the (environmental) service, the terms of contribution and compensation, as well as the right to request carbon credit issuance and to effectuate transfers of carbon credits to third parties. The latter is particularly relevant in situations, in which the entity contributing a service and thus holding the right to benefit from the emission reductions in question is not equipped, willing or able to take on the responsibility to monetise this right. Through a contract or a sub-contract with a duly authorised representative, the right holder can transfer the rights to sell carbon benefits of the activity to an intermediary. This construction is very common in small-scale projects which involve land of multiple small land owners, farmers or households. In land-use projects, in general, if consistent-

ly applied to all land-users during the preparation process, contracts also have the added benefit of securing stakeholder participation as well as the principle of free, prior and informed consent.

V. Conclusions

Climate change is one of the greatest failures of human development. It is also one of the greatest market failures.⁵⁶ Since the start of the industrialisation the atmosphere has become a growing depository of toxic gases benefiting relatively few, but putting at risk the life-backing resources of all. The absence of regulation – and the resulting absence of a price – has encouraged an unsustainable and disregardful abuse of our climate system.

Over the last 30 years, governments have started to impose overall limits on pollution and to experiment with different carbon pricing instruments. Much promise emanated from emission trading solutions that would assign rights to pollute (allowances) to individuals and commercial entities as well as reward mitigation efforts through the assignment of tradable rewards (carbon credits). Tackling an environmental problem through economic instruments seemed to reduce the costs of controlling and limiting GHG gases, while shifting the task to identify abatement opportunities to private actors, more agile and effective in scenting out the largest and cheapest mitigation potentials.

Assigning a transferable right to pollute to operators is compelling, in particular in the case of GHG emissions whose long-term impact is always global, not local. Such rights can be assigned in the context of formal trading programmes – and they can be applied not only to direct fossil fuel-based emission

52 Pax Natura <<http://www.paxnatura.org/CostaRicanPESProgram.htm>> accessed 1 August 2016; TEEBcase by R O Russo and G Candela, 'Certificate for Environmental Services, Costa Rica' (2010) <<http://TEEBweb.org>> accessed 5 October 2016.

53 Art 6.2 and 6.4 Paris Agreement.

54 See s 2.1 (b) of the Charter of the Forest Carbon Partnership Facility: '... a performance-based payment system for Emission Reductions generated from REDD activities ...'

55 The reasoning the High Court made in *DLW GmbH v Winnington Network Ltd* [2012] EWHC 10 (Ch), to grant property rights seem equally applicable in this context, *mutatis mutandis*.

56 Stern Review on the Economics of Climate Change (2006) Executive Summary, i <http://webarchive.nationalarchives.gov.uk/20070701115910/http://www.hm-treasury.gov.uk/media/8AC/F7/Executive_Summary.pdf> accessed 1 August 2016.

sources (industrial installations), but also along the manufacturing processes and supply chains. Offset credit provisions can channel finance into particular sectors or geographies. Verified emission reductions, even if not tradable, can also help evaluate the effectiveness of a mitigation policy or the use of donor funds.

As we have seen, a clear definition of carbon units is essential for a fully functioning emission trading system. Encumbered units carrying the risk of cancellation by a public regulator or retirement by a private standard setter lead to high discounts in the market, up to a point where the economic benefits of carbon pricing markets disappear. Regulators therefore face the continuous challenge of creating stable units, while remaining able to interfere with the market where this is demanded by the environmental purpose of the instrument.

Baseline-and-credit systems, for their part, help extend the scope of emission trading and provide for horizontal instruments put at the disposal of economic actors including – in land-use related projects and programs in particular – local communities. Not all countries, however, define specific legal rules for voluntary carbon market investments. In these cases domestic law is usually capable of addressing inherent questions of legal authority, legal protection, participation, and claims to carbon proceeds. Countries may resolve to install a dedicated legal framework and even to define a carbon right proper. This may, indeed, give specific procedural assurances (including of participation in the proceeds) and facilitate investment. It should not be seen, however, as a prerequisite for crediting action in the first place.

In any case, in order to avoid ambiguities, it is important to specify what is meant with ‘emission

rights’ or ‘carbon rights’: the authority to implement a project or programme, the authority to reject it, the right of participation, the right to generate carbon credits, or the right to carbon proceeds. This is not least important for public sector investors, who increasingly use carbon accounting systems as a proxy for impact evaluation and who are less concerned with the creation of a carbon unit than with defining a measurement for ‘results’ which can trigger payment obligations. Concerned about the effectiveness of finance and the need to show mitigation progress, an increasing number of donors rely on results-based finance modalities that link payments to the verification of emission reductions. Donors rarely intend to sell the so-rewarded emission reductions on; they sometimes do not even require the transfer of any unit. Despite lacking any formal market link, transactions tend to rely on methodologies (baseline-and-credit) and instruments (registries, methodologies, verification) developed for carbon market instruments.

It remains to be seen how negotiators, policy makers and private actors will interpret the provisions of the Paris Agreement. The Agreement does not establish any market infrastructure, but by allowing the transfer of ‘internationally transferred mitigation outcomes’ (ITMOs) it rewards an encouraging nod towards market and trading mechanisms. When defining the nature of such ITMOs policy makers are encouraged to rely on existing concepts and draw on experiences gathered in the last two decades of carbon market transactions. This would help avoid ambiguities and allow an accelerated implementation of the Paris Agreement with a focus on action rather than discussions around legalities and concepts.