The Evolution of
Sustainable Development
in the
Voluntary Carbon Market

MSc Thesis

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AN INSTITUTIONAL ANALYSIS

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Abstract

This study aimed at uncovering the processes and dynamics that institutionalized sustainable development into the voluntary carbon market institution. This was done by analyzing the regulative, normative, and cultural-cognitive dynamics that facilitated this institutionalization from the release of the Brundtland Report in 1987 to the release of the Paris Rulebook in 2022. The voluntary carbon market institution is a dynamic and complex playing field for agents who aim to contribute to climate change mitigation and adaptation through trade in emission reduction units generated on the project level. The size of the VCM makes it a substantial and influential part of contemporary global climate policy. Therefore, concepts and topics dominating the institution must be backed with meaning and a common understanding of how to operationalize them in order to safeguard social and environmental integrity. This study shows that concepts are elevated to a prominent position in the VCM institution via methodologies on the inside, restricting and empowering regulations from the outside, pressures and incentives which create norms and values from the in- and outside, constitutive rules, common cultural convictions, and the uptake of a sustainable development discourse. Besides shedding light on the drivers of the institutionalization of sustainable development in the VCM, this study found several topics over which unclarity and tensions remain. It can be concluded that the VCM is a complex institution that connects to myriad of other institutions and is influenced by insiders and outsiders. Elements that create tensions as well as harmonization both led to the institutionalization of the concept of sustainable development in the VCM throughout the years.

Keywords: sustainable development, voluntary carbon market, social and environmental integrity, environment, institutional change, Brundtland Report, Kyoto Protocol, Paris Agreement.

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List of abbreviations

ACR	American Carbon Registry
CCBA	Climate, Community & Biodiversity Alliance
CCB Standards	Climate, Community & Biodiversity Standards
CDM	Clean Development Mechanism
CDM EB	Clean Development Mechanism Executive Board
CER	Certified Emissions Reduction
COP	Conference of the Parties
GHG	Greenhouse Gas
GS4GG	Gold Standard for the Global Goals
ITMO	Internationally Transferred Mitigation Outcome
MDGs	Millennium Development Goals
MRV	Monitoring, Reporting, and Verification
PA	Paris Agreement
SDGs	Sustainable Development Goals
UN	United Nations
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
VCM	Voluntary Carbon Market
VCS	Verified Carbon Standard
WCED	World Commission for the Environment and Development

1. Introduction

The concept of sustainable development is an unmissable component in the voluntary carbon market (VCM) institution (VCMI, 2021; Climate Focus, 2022; UNFCCC,2021). However, consensus lacks on its meaning, role, and operationalization, making it a risk for the social and environmental integrity of VCM projects and carbon credits in general. Carbon markets are continuously subject to criticism due to their complexity and role in the reversal of anthropogenic climate change (Aggarwal & Brockington, 2020; Drupp, 2011; Dehm, 2016). The elevation of the concept of sustainable development in the VCM, if not operationalized robustly, could therefore lead to additional negative impacts of the institution on people and the planet. With the introduction of sustainable development to the international community through the Brundtland Report in 1987, myriad policy fields integrated the holistic concept through regulations, the establishment of norms, and the sharing of beliefs, discourse and cognitive stimuli. This research aims to map the regulative, normative, and cultural-cognitive dynamics that have elevated sustainable development in the VCM during the period of 1987 to 2022. These findings will help understanding the drivers of institutional change and those that create common agendas of institutions.

Carbon markets are market-based policy instruments that play an important role in international climate governance ever since the release of the Kyoto Protocol's threefold Flexible Mechanisms in 1997. The origin of carbon markets, however, dates back to before the 1960's when tradeable emission units were regulating air pollution in the United States (Calel, 2013). As depicted in **Figure 1**, in carbon markets, greenhouse gas (GHG) emissions are reduced or removed from the atmosphere through projects in a host location and used for the compensation of emissions elsewhere. Emission reduction projects generate carbon credits that enable offsetting claims by the owner of the credit. Commonly, carbon credits are used by private and public actors in order to achieve climate targets in a cost-efficient way or claim "carbon neutrality" (Climate Focus, 2022). Most emission reduction projects take place in countries located in the Global South and generate tradeable units for use in the Global North. This is due to the fact that generally the potential for low-cost emission reduction at the margin is much higher in those countries that have yet to reach enhanced levels of energy-efficiency (Twyman et al., 2015; South Pole, n.d.).
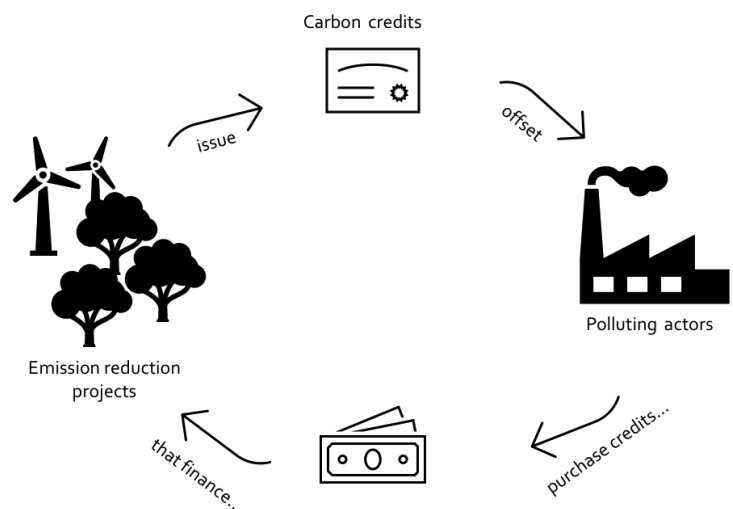

Figure 1 Simplified carbon cycle (own visualization). Emission reduction projects generate carbon credits which can in turn be used to compensate unavoidable emissions by polluting actors. The purchase of carbon credits partially finances the maintenance or development of emission reduction projects.

Traditionally, difference is made between compliance carbon markets and voluntary carbon markets. Compliance markets are regulated (inter)national schemes or transnational mechanisms under the authority of governments or the United Nations (UN). The largest emission reduction mechanism operating at the time is the Europen Union Emissions Trading Scheme (EU ETS) including over 11.000 companies that trade in credits under a cap[1] (European Commission, n.d.-b). The most prominent emission trading mechanism of the Kyoto Protocol is the Clean Development Mechanism (CDM) which was brought into life by a consortium of Member States that have ratified the Kyoto Protocol with the idea that developed countries (referred to as Annex I) must finance carbon reduction projects in developing countries (non-Annex I countries) in order to compensate for their emissions and stimulate sustainable development in the host countries (UNFCCC, 2022g). The dual objective of the CDM was to enable industrialized countries to reach their emission reduction targets, and to promote 'sustainable development; in non-Annex I countries (Michaelowa et al., 2020). Notwithstanding, the CDM has suffered from decreased popularity and weighty criticism regarding pricing, methodological loopholes, and negative social and environmental impacts (Michaelowa & Buen, 2012; Calel, 2013; Schneider, 2011; Carbon Market Watch, 2018; Aggarwal & Brockington, 2020).

The VCM, on the other hand, is a private-sector led institution that came forth from shortcomings of the compliance market and from corporate social responsibility (CSR) strategies in the early 2000s (Hamrick & Gallant, 2018). Due to the flexible and less stringent character of the VCM, the institution's actors had and have the opportunity to adapt to global transitions and trends rather quickly and simultaneously radiate stimuli to external institutions. The central organs of the VCM are voluntary carbon standards that, like the CDM, provide project developers with different methodologies for projects. These methodologies prescribe rules and requirements that enable the project developer, most commonly NGOs in collaboration with local partners, to generate labelled carbon credits, which can in turn be sold to clients that wish to utilize the purchased credits for their own ends. Project developers submit project documentation to standards, which commission independent third-party auditing bodies to control project documentation. If approved, standards issue carbon credits. The sale of carbon credits can also happen via a retailer, or broker, who usually matches credits with buyers. A visualization of these interactions is given in **Figure 2**.

Similar to the CDM, the VCM has been subject to criticisms that regard social and environmental integrity. Rules and requirements of VCM standards are determined by the carbon standards themselves, rather than legal instances like governments. This self-regulation allows for flexibility on the one hand, but leaves room for weak enforcement and greenwashing practices on the other hand. At several instances, reports have been made on human rights abuses of VCM projects (Belmaker, 2021; Human Rights Watch, 2022). Less extreme, but evely undesireable are carbon credits that are advertised with their contribution to sustainable development that turn out to be empty marketing tactics.

The mindset that guided the emergence of the VCM was the strive for 'sustainable development', a concept which had been introduced to the international community in 1987 through the publication of the Brundtland Report (WCED, 1987; The Voluntary Carbon Standard, 2007). Given that the VCM initially departed from the CDM (and its shortcomings), the commitment of voluntary carbon standards to

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[1] A so-called "Cap and Trade" system allocates a fixed number of "emission allowances" that can be traded between the scheme's participants. The ceiling – or maximum number – of allowances decreases with time and thereby safeguards the long-term decrease in overall emissions. Further reading: https://www.c2es.org/content/cap-and-trade-basics/

sustainable development is no surprise. In the VCM nowadays, sustainable development is addressed in one way or the other.
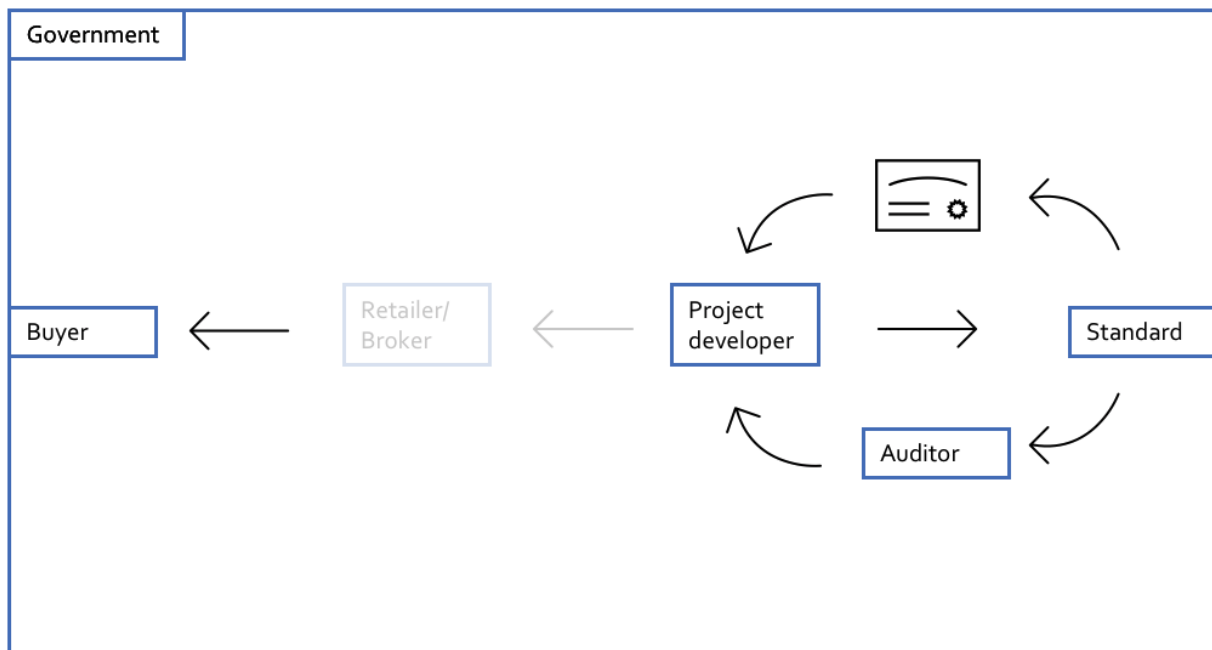
Figure 2 Simplified Depiction of VCM interactions (own visualization). Voluntary Carbon Standards issue carbon credits if project documentation by Project Developer has been approved by the Standard and controlled by the third-party Auditor. Carbon credits are purchased by Buyers, via Brokers or directly from Project Developers. All actors are subject to the legal frameworks they are situated in, provided and safeguarded by Government.

However, sustainable development is a holistic concept unapplicable for the concrete use in emissions trading. Its definition, "development that meets the needs of the present without compromising the ability of future generations to meet their own needs", (WCED, 1987, p.41) leaves room for interpretation that VCM actors gladly fill modify to meet their own interests. The VCM institution is carried by the interactions of its participants and influenced by stimuli from the in- and outside. VCM conferences and collaborations of VCM actors, as Knox-Hayes (2010) suggests, are some of the practices that provide a common agenda from the inside. Legal frameworks, on the other hand, force the institution to adapt from the outside. Like with carbon neutrality claims, confusion about the interpretation of the term are commonplace among consumers (Day et al., 2022). Simultaneously, the supply side of the VCM – project developers, voluntary carbon standards, and brokers/retailers of credits – make use of this freedom by attributing their own criteria for sustainable development to projects. This lack of orchestrated sustainable development implementation in the VCM increases the risk of greenwashing if actors react to institutional developments and dynamics in their own interest and neglect other values.

Once anchored in an institution, a concept is difficult to remove. Therefore, safeguards need to be in place that ensure that the concept is filled with meaning, and backed with regulation, moral convictions, and an unwritten code of conduct. The dynamics responsible for the anchoring in institutions are of regulative, normative and cultural-cognitive nature, attaching actors to the institutions in a lengthy process through aligned beliefs, norms, and rules (Scott, 2013). In order to understand how the concept of sustainable development has attained its current position in the institution, it is important to understand the cultural convictions, motivations, rules, processes and resources that have contributed to this over time.

Objectives

The aim of this research is to uncover the drivers of institutional change in the context of sustainable development within the VCM and to examine how regulative, normative, and cultural-cognitive dynamics shape the institution. Investigating how sustainable development is institutionalized through the three pillars of institutions sheds light on which resources and practices are informative for institutional change.

This research is important because it indicates how institutional bodies influence each other in the adaption of certain actions, visions and missions, which is in this case embodied in the concept of sustainable development. The VCM, being embedded in a wider international policy making realm, is regarded a partly solution to the climate crisis. If this is true, the concepts dominating the institution must be backed with meaning and a common understanding of how to operationalize these.

Research Questions

Therefore, the following research question and subquestions were developed:

How was the concept of 'sustainable development' institutionalized in voluntary carbon markets during the Brundtland – Glasgow period?

1. *What were the regulative dynamics that shaped the institutionalization of sustainable development in voluntary carbon markets?*
2. *What were the normative dynamics that shaped the institutionalization of sustainable development in voluntary carbon markets?*
3. *What were the cultural-cognitive dynamics that shaped the institutionalization of sustainable development in voluntary carbon markets?*

Thesis Content

This thesis is structured as follows. Chapter 2 introduces the theoretical framework of the research. Then, Chapter 3 explains the analytical framework and applies the theoretical framework to the research subjects: sustainable development and the institution VCM. In Chapter 4, the method of this research will be outlined. Chapter 5 to 7 each discusses one era of international climate policy facilitating sustainable development in the VCM. For each era, the key developments of the institutionalization of sustainable development will be discussed in order to draw an overarching conclusion on the regulative, normative, and cultural-cognitive processes that have elevated sustainable development to the position it has in the VCM in 2022. Chapter 5 starts with the Brundtland Report (1987) and ends with the Kyoto Protocol (1997). Chapter 6 departs from Kyoto and covers the period until the release of the Paris Agreement in 2015. Chapter 7 discusses the most contemporary era that goes from the Paris Agreement to the latest Conference of the Parties (COP) held in Glasgow in 2021 and the consecutive release of the "Paris Rulebook" in 2022. Hereafter, the findings and other theoretical considerations will be discussed in Chapter 8. This is followed by the conclusion and future recommendations.

2. Theoretical Framework

This section describes the underlying theory, assumptions, and perspectives that steer this research. The investigation of the different streams of influence on the promotion of sustainable development dives into institutional theories. The VCM is an institution, composed of actors that are influenced by internal and external stimuli. Organizations in the VCM are conceptualized as actors that do or do not follow a common agenda and whose power relations might be imbalanced and act out via different regulative, normative, and cultural-cognitive channels. All interactions, shared convictions, moral standards, and regulatory elements together make a robust institution, if harmonized.

The concept of emissions trading, and with it the concept of sustainable development, sees overlap with elements of the broader theoretical framework of political economy as well as political ecology. According to political economists, policymakers are influenced by interest groups that pursue their own means and thereby shape policies. Interest groups mostly have economic focus and obtain advantages through the shaping of policies (Perman et al., 2003). The political choices made are based on streams of information obtained from interaction with stakeholders and from selected information provided. Largely polluting states in the United States, for instance, retrieved advantages from co-shaping the US Clean Air Act of 1977, a regulatory framework distributing emission allowances in order to reduce air pollution (Perman et al., 2003). The school of political ecology, on the other hand, addresses the political, social, and economic nature of environmental issues and – depending on its streams – examines economic interests of groups, power structures in environmental decision-making, or the interwovenness of capitalism and environmental issues (Bryant, 2001; Forsyth, 2001; Escobar, 1996).

However, in the attempt to understand institution-steering concepts like sustainable development, the deeper dynamics that inform the behaviour of actors that influence policymakers needs to be analysed. This means that, on top of the pressures and incentives at stake in higher level political decision-making, this thesis goes beyond the political and discloses cultural assumptions, moral obligations, and (in)formal regulatory systems that inform individual behaviour, which in turn informs the institutional setup of the VCM. Yet, power systems are an integral part of the broader structure of institutions, where powerful actors are held in their position through underlying institutional assumptions shared by all its members. Especially in market-based neoliberal policy instruments, power is not expressed through autocratic force, but maintained through myriad of small-scale dynamics, often not clearly detectable because they play at the cognitive level (Scott, 2013).

A deeper analysis of the international emissions trading regime can be achieved by applying a constructivist lens in the field of international relations. As Fearon and Wendt (2002) argue, the constructivist stance sees international relations as socially 'constructed' and influenced by discursive and other elements. The constellation of relationships, shared norms and believes, are also determining the way international relations between actors are constructed. This is also applicable to the international emissions trading regime. Yet, zooming in on the VCM, an integral part of the international emissions trading regime, provides an even clearer picture of the underlying motivations of actors that shape the perception of sustainable development. The dynamics driving sustainable development implementation in the VCM institution may be extrapolated to describe dynamics steering the international emissions trading regime. Having elaborated these broader theoretical assumptions, the nature of the VCM institution can be examined. Influence exercised by different actors in the VCM on the role of sustainable development can only be disclosed when analysed from within the institutional context. A look at the emergence of the institution can assist in outlining the drivers of sustainable development, manifested in shared beliefs, norms, and rules.

Institutional Theory

There is no unanimously recognized definition for the term 'institution' among institutional theorists. Yet, a definition that is most accurately describing the term and is tailored for this research is provided by Richard Scott. He describes institutions as follows: "Institutions comprise regulative, normative, and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life" (Scott, 2013, p.56).

The institutionalization of carbon markets based on this definition has been researched by Knox-Hayes (2010) who herself defined institutions in general as "a system of norms that regulate the relations of individuals to each other as well as what these relations should look like" (p.178). Consequentially, a set of organizations that wish to internalize societal values become "institutionalized" while gradually transitioning into an isomorphic state. Social systems in general, and carbon markets in particular, are existing in order to pursue collective action. Besides that, and based on Scott (2013), Knox-Hayes (2010) argues that institutions are built on three pillars, namely the regulative, the normative and the cultural-cognitive pillar. An overview of the three pillars is provided in **Table 1**. Together, the three pillars form the basis for legitimacy. An action - or an actor - will reach this condition by adhering to generally accepted formal and informal rules or norms, or by being in harmony with a shared culture or cognitive framework (Scott, 2013). In the following, each of the pillars will be outlined in more detail.

Table 1 The three pillars of institutions (Scott, 2013, p.60). For each pillar, a basis of compliance, basis of order, mechanism, logic, set of indicators, affect, and basis of legitimacy exists. These elements draw the boundaries between the three pillars, although a certain degree of overlap exists between the pillars.

	Regulative	Normative	Cultural-Cognitive
Basis of compliance	Expedience	Social obligation	Taken-for-grantedness Shared understanding
Basis of order	Regulative rules	Binding expectations	Constitutive schema
Mechanisms	Coercive	Normative	Mimetic
Logic	Instrumentality	Appropriateness	Orthodoxy
Indicators	Rules Laws Sanctions	Certification Accreditation	Common beliefs Shared logics of action Isomorphism
Affect	Fear Guilt/ Innocence	Shame/Honor	Certainty/Confusion
Basis of legitimacy	Legally sanctioned	Morally governed	Comprehensible Recognizable Culturally supported

Regulative Pillar

The regulative pillar informs monitoring, sanctioning and different enforcement mechanisms institutions impose on individual and organizational behaviour. Scott (2013), states in his work that "[…] regulatory processes involve the capacity to establish rules, inspect others' conformity to them, and, as necessary, manipulate sanctions – rewards or punishments – in an attempt to influence future behaviour. These processes may operate through diffuse, informal mechanisms, involving folkways such as shaming or shunning activities, or they may be highly formalized and assigned to specialized actors, such as the police

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and courts" (p.60). In essence, there is no clear-cut definition of how formalized a rule must be to be a regulative element. The important characteristic of all regulatory processes is, however, that the more disagreements there are in a situation, the more of a necessity regulation becomes. By imposing regulations in an institution, feelings are triggered. These feelings go from fear and guilt in cases of non-compliance to feelings of innocence and vindication in cases of compliance in which regulatory systems serve as a protection layer. Emotions play a crucial role in social life as they are a main motivator for behaviour. As a result, the maintenance or disruption of institutional setups depends highly on the emotional attachedness of its subjects (Scott, 2013).

Additionally, it is important to note that regulatory schemes exist to both empower and constrain actors. Empowering actions or incentives (think of licences, discounts, etc.) are a common tool in the private sector since the outlook to special powers drives market-based actors to pursue desired behaviour. Public actors, while having the power to impose both positive incentives and negative sanctions on their actors of interest, rely mostly on negative sanctions (think of taxes or incarceration).

Of course, rules and regulations do not come out of nothingness. Regulatory processes and even laws, the most formalized form of regulatory mechanisms, must in their definition not be denied their normative and cognitive foundation. Regulatory elements are a conglomerate of collective social values and norms that attach great importance to obligation, precision and delegation and find their ends to be "an occasion for sense-making and collective interpretation" (Scott, 2013, p.62).

Normative Pillar

The normative pillar is defined as the foundation of the regulative pillar as it causes conformity to certain rules by enforcing, with a non-binding, yet obligatory nature, social values that are shared by a system. Community beliefs, symbolic systems, and construction of social realities are key features of the normative pillar as they disclose what is desirable and what should be done (Knox-Hayes, 2010). Within the normative dimension, values and norms deserve closer attention. Values, on the one hand, indicate the desirable and serve as a tool to set standards to which the status quo (in terms of behaviour or institutional structures) can be compared. Norms, on the other hand, are defining the means to specific ends: they specify "how things should be done" (Scott, 2013, p.64) for certain actors. In the normative dimension, roles are established which prescribe certain behaviour for specific actors. These roles are reflected in external social expectations and internalization of the regarded actors. They can be formalized, by, for example, granting certain actors in an organization access to resources that are inaccessible for others, or they exist in a highly informal fashion, for example where a charismatic group member has attained the position of "group leader" throughout years of influence, whereas the powers the actor attains are not manifested in statutes but in expectations within the group.

Like the regulatory, normative processes can either empower or constrain behaviour. Working in both ways, normative elements can levy responsibilities, duties, mandates, privileges, rights and licences. Even without a regulative framework involved, normative elements that empower certain actors are immensely powerful, as many social experiments have shown[2] (Ajzen et al., 2009; Jakob et al., 2017; Sabucedo et al., 2018). However, normative processes depict not only how influential external expectations can be, but also how routines and standard procedures form the social reality of many organizations and individual lives (Scott, 2013). In terms of values, which we touched upon briefly, standard setting and accreditation organizations are the most important normative organs since they

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[2] To a more morally conflicted degree, the Milgram experiment is a drastic but appropriate example.

institutionalize demand for certain social realities. They are also described as the "guts of institutions" (Scott, 2013, p. 65).

Again, emotions play an essential role in normative processes. They differ from those evoked by regulatory processes in that they are less absolutist or extreme. Feelings evoked in association with norms entail honour and respect in cases where norms are lived up to, and feelings of shame and disgrace when norms and values are not implemented in respective behaviour (Scott, 2013).

Cultural-cognitive Pillar

The cultural-cognitive pillar dives even deeper in the matter of social reality than normative and regulative processes can. Cultural-cognitive processes are the intrinsic foundation for both other pillars: they "create the frames through which meaning is made" (Scott, 2013, p.67) and make individuals understand and process the happenings of everyday interactions and events. An influential parameter in the creation of conceptions are symbols ("words, signs, gestures" (Scott, 2013, p.67)) which – if they make sense in the context of an individual's environment – are integrated into the meaning one gives to objects or events.

The meaning one gives to social reality is, of course, highly subjective and depends on an individual's cognitive structures, but at the same time, this process is shaped by the external environment the subject is situated in. The "cognitive" therefore describes this highly subjective perception while the "cultural" refers to the wider framework one is subject to externally. Scott argues rightly that, "beliefs are held by some but not by others" (Scott, 2013, p.68). Yet, this is not a static phenomenon since cultural frameworks on the macro-level influence cognitive perceptions on the micro-level. Simultaneously, individual cognitive perceptions can create (read: build) the cultural frameworks that are so instrumental on the macro-level. Adding to that, beliefs differ especially among actors in times of change or social rearrangements.

Other than normative processes, there can hardly be talk of a conscious perception towards certain patterns of behaviour in the cultural-cognitive dimension, as these processes are highly internalized and taken for granted. Compliance is therefore reached because "other types of behaviour are inconceivable" (Scott, 2013, p.68). Social roles, too, are following a different logic than those in the normative dimension. Where normative processes are based on feelings of obligation, cultural-cognitive processes are embedded in scripts and templates for certain behaviour. In other words, habits become internalized both by repetition and "prefabrication" of scripts by other higher organizational structures. The feelings associated with compliance to cultural-cognitive processes are confidence and certitude, whereas non-compliance evokes feelings of confusion and disorientation. An outsider to a cultural-cognitive system will feel disconnected and incompetent (Scott, 2013, p.70).

Knox-Hayes (2010) breaks Scott's cultural-cognitive pillar down into relational systems and conceptions of control. Relational structures are determinant for the social structure of an institutionalized system, covering the relationships between actors in a system that are shaping the way things are done and the culture they will serve to maintain. Interactions between actors create a feeling of trust and eventually, routine.

Conceptions of control, on the other hand, establish additional power structures between actors which are underlying and unstated in the system. On one side, conceptions of control exist between insiders and outsiders that give shape to a system, and on the other side there are locational conceptions of control. Geographically and actor-related, hotspots of knowledge and information emerge in institutions. Locations in which certain behaviour occurs in a high frequency are deemed hotspots that trickle down positive (and negative) impacts of this trade to its geographic surroundings. Actors, mostly

experts in senior positions, commonly switch between organizations, sharing scarce knowledge with different parties within the network. Through these mechanisms, a culture emerges that latently gives contour to the cultural-cognitive features of institutions.

Symbols, as touched upon briefly above, are a key indicator in the analysis of cultural-cognitive processes. Scott (2013) states that "in a world of words, many of the most important strategies involves as to how to frame the situation, how to construct a powerful narrative, how to brand the product" (p.79). The fundamental role of the cultural-cognitive pillar as the foundation of the normative and regulative pillar is not to undermine.

This chapter has shed light on the theory of the three pillars of institutions (Scott, 2013). While building up on each other, the regulative, normative, and cultural-cognitive pillar carry any institution that gives stability and meaning to social life. In the following chapter, these three pillars will be analytically applied to the VCM institution and the concept of sustainable development.

3. Analytical Framework

The subjects of this research are the concept of sustainable development and the VCM institution. Sustainable development is the key concept that will be analysed with the help of institutional theory. VCM actors, distributed in categories, are the units of the research as their relationships ant activities with regards to sustainable development will be investigated. The institution of voluntary carbon markets constitutes the location of the research. It is against the backdrop of the three pillars of institutions framework developed by Scott (2013) that the institutionalization of sustainable development is analysed. The three pillars are of regulative, normative and cultural-cognitive nature. A general set-up of the research in these terms is visualized in **Figure 3**. It is the aim of this research to map the processes and practices in each of the three pillars of institutions that formed the institutionalization of the concept of sustainable development. In the following, the application of the theory to the research will be outlined with regards to the regulative, normative and cultural-cognitive pillar.
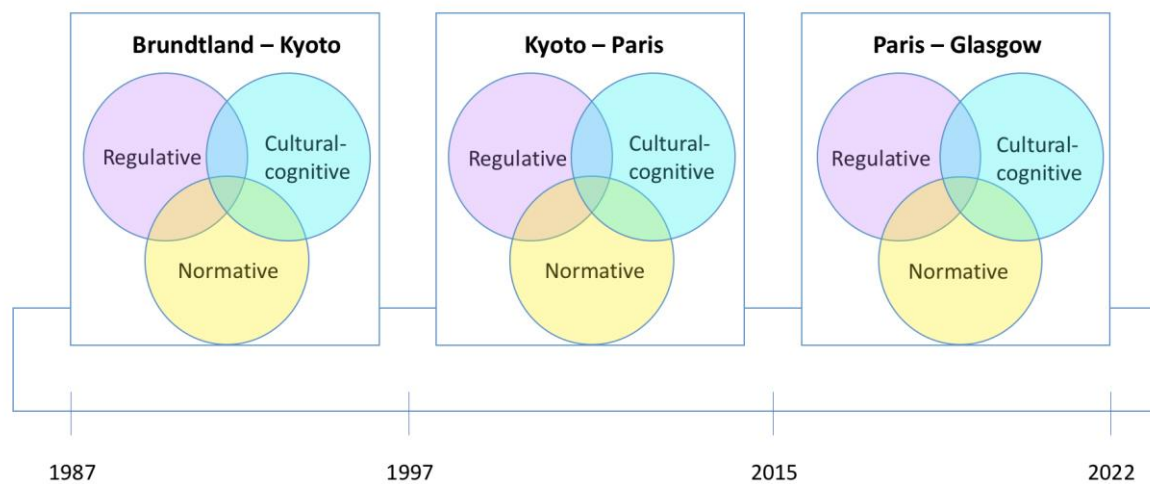
Figure 3 Analytical framework. The three periods "Brundtland – Kyoto", "Kyoto – Paris", "Paris – Glasgow" will be examined for the regulative, normative, and cultural-cognitive elements that have shaped the institutionalization of sustainable development in the VCM.

Regulatory processes in the VCM

The fundament of the regulative pillar are the rules, laws, and other legal structures that steer behaviour in a system (Bright, 2014). Scott (2013) states that specifically the constraining or regulation through empowerment of behaviour is carried by the regulative pillar. According to Knox-Hayes (2010), the regulative pillar in the VCM consists of the property rights that enable ownership of emission reductions. In this thesis, this assumption is opposed due to the variety of regulatory influences the concept sustainable development has brought along with it. As is outlined above, regulatory processes cover not only legal conceptions of ownership, but vary from highly informal to formal frameworks that aim at steering the behaviour of an institution's actors. Therefore, the regulative pillar must be given more attention than it was given in Knox-Hayes' analysis and be acknowledged as a considerable part of the institution.

In the VCM, a diversity of actors and processes shape the existing regulative framework. Rules are determined by voluntary carbon standards, governments, intergovernmental organizations and private actors. The processes that contribute to the strengthening of sustainable development in the VCM vary per set of actors involved. For instance, national legal frameworks restrain only those actors operating

within the respective national or legal boundaries. Funding systems operated by the UN, on the other hand, empower a different set of actors. Additionally, the regulative system of sustainable development in the VCM is carried to a high degree by voluntary carbon standards. Regulatory instruments are standard principles and requirements, methodologies, and certificates for carbon credits with incorporated sustainable development contributions. In cases of non-compliance with sustainable development related VCM requirements, sanctions or other enforcement mechanisms are created by standards.

Normative processes in the VCM

Normative processes in carbon markets are reflected in shared values and norms, roles, and expectations on what is appropriate in terms of sustainable development implementation. Values, as they are indicating desirable standards that can contest the status quo, play a key role here. The same is valid for norms, the ideals of how to pursue a certain end, as they path the way for collective patterns of behaviour. The common goal of the VCMs partitioning organizations is the reduction of GHG emissions and the fighting of climate change, while at the same time generating profit from decarbonization (Paterson, 2012). Therefore, it is important to disclose how the actors' expectations towards sustainable development shape their behaviour. For example, if a trend towards sustainable development is discovered among buyers of carbon credits, project developers might tend to feel the obligation to implement features of sustainable development in the carbon projects they develop in order to fit in their role.

The expectations and moral obligations actors feel with regards to their own role or position in the VCM are crucial for the understanding of the normative dimension. Accreditation bodies are understood to be the main normative institutional bodies. This is also applicable for the VCM, in which voluntary carbon standards centralize and broadcast expectations, social roles, and responsibilities of other actors. If all market-leading carbon standards incorporate sustainable development requirements or recommendations in their organizational systems, others might follow lead, driven by feelings of responsibility and marketing advantages.

On top of that, demand and supply in this market prescribe behaviour. In the VCM, different actors (buyers, retailers, brokers, voluntary carbon standards, project developers, watchdog organizations) anticipate values, follow an agenda and feel moral obligations towards sustainable development implementation in their work. Moreover, Knox-Hayes (2010) argues that the construction of social realities in the VCM with all its demand and supply structures emerged superficially through ambitious networking, artificial price signals, and the like. Demand and supply are now influencing the actors in the market as well. For instance, carbon credits with sustainable development contributions can be sold for a higher price due to social acceptance of this add-on criterium by buyers. Since sustainable development forms a price-lifting element to carbon markets, the institution will react on this and possibly back this development with regulative elements.

Cultural-cognitive processes in the VCM

The cultural-cognitive pillar builds the foundation of the meaning actors give to an institution. It reflects the unstated and taken-for-granted. According to Knox-Hayes (2010), however, in the year 2010, the carbon market institution was relatively immature, not yet facilitating a commonly internalized structure and system of behaviours which is adopted and community-wise accepted by its operators. Meanwhile, in the year 2022, a structure is detectable which will be analysed in this research. The relationships between actors (for instance between buyers and retailers) are built and maintained by market conferences and other forms of interaction, in which expectation management, socialization, the construction of a common culture, and the exchange of meanings and opinions is facilitated (Knox-Hayes,

2010). The relationships within the small universe of the VCM creates trust and credibility. This underlying informal system is the fundament of the cultural-cognitive domain.

Also, the individual level is crucial since culture is influenced by cognitive conditions, as has been outlined above. Therefore, cognitive conceptions of individual actors within the VCM must be investigated to a degree that explains certain underlying assumptions and routines of groups or individual actors. This means that feelings of privilege or guilt experienced by VCM actors will be analysed, along with cultural and religious assumptions that are articulated with regards to sustainable development.

High levels of activity between sets of actors represent an approximation of a shared belief system. Transmitted knowledge within the institution and from the outside to the inside does, too. For instance, people who have worked in the financial sector who recently entered the VCM will shape the structure of the VCM merely by giving new information a stage. Simultaneously, a project developer who transfers to a voluntary carbon standard will integrate novel knowledge to the new organization and influence frameworks there.

As cultural-cognitive processes are indicated by semiotics and symbols, discourse plays an important role, too. Public communications of actors in the VCM connected to sustainable development reflect on the role of the concept within the system. This means that while methodologies and rules set by voluntary carbon standards might be deemed regulative means, the wording and framing used in these methodologies discloses the cultural-cognitive processes forming the basis of the regulative framework in the first place. Additionally, the usage of the terminology "sustainable development" might be subject to changes throughout the years, oscillating between a handful of expressions. The harmonization of a set of words is a sign for the institutionalization of the concept of sustainable development.

Legitimacy

In the VCM institution, legitimacy to act is an important asset that is often connected to sustainable development motivations (Benites-Lazaro & Mello-Théry, 2017). According to Scott (2013), legitimacy is prerequisite of institutions. As cited in Suchman (1995), this definition of the concept is applied: "Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (p.574). Legitimacy, and interchangeably credibility, are important drivers for sustainable development motivated activities in the VCM. Scott (2013) adds regulative, normative and cultural-cognitive elements of legitimacy to the general definition. In the regulative perspective, a legitimate organization functions in and adheres to established "legal and quasi-legal requirements" (Scott, 2013, p.74). Also, organizations and their actions must be legally backed to be legitimate. This means that institutional bodies must find themselves anchored in rational legal frameworks to become authority. Normative legitimacy appeals to moral standards that can also depart from legal requirements. Action is legitimate when validated by social acceptance within the group. These can be in conflict with given institutional legal settings because they extract their controls from morality and normative perceptions of the group, and not necessarily their legal frameworks. The least tangible form of legitimacy is cultural-cognitive. This legitimacy is reached when the individual or organization is acting according to a "common definition of the situation" (Scott, 2013, p.74).

For the VCM and the pursuit of sustainable development, legitimacy is reached or aimed at through different processes and dynamics. Regulative frameworks like laws and UN treaties facilitate action that is comprehended as legitimate within these legal boundaries. Accreditation of actions that contribute to sustainable development by voluntary carbon standards can be a tool to reach normative

legitimacy. Otherwise, all forms of social acceptance of sustainable development in VCM activities are facilitating this legitimacy. Cultural-cognitive legitimacy is reached as all parties apply the same set of definitions to sustainable development and follow an unexpressed set of actions to "reach" sustainable development in the VCM. In this study, the terms legitimacy and credibility are used interchangeably and stand for the definitions just outlined. It is important to keep in mind that the regulative, normative, and cultural-cognitive modes of legitimacy can contribute to a generally accepted application of the concept of sustainable development in the VCM.

Having outlined the analytical implications for the three pillars in the VCM and the meaning of legitimacy in the institution, the next chapter displays the methodological steps that were taken to conduct the research.

4. Methodology

The concept of sustainable development has undergone a lengthy evolution in the VCM, being influenced by myriad of parameters. The influences that shaped the institutionalization of sustainable development could operate on the micro-level as hidden cultural convictions carried by individual actors, but also on the macro-level in the form of law backed with stringent enforcement mechanisms. The regulative, normative, and cultural-cognitive dynamics at stake move in two directions. Perceptions of sustainable development, moral standards on the matter, and organizational rules inherited by one actor are broadcasting stimuli to other actors, who in turn adjust their behaviour and maintain this cycle. Also, the institutionalization of sustainable development witnessed evolutionary change in individual behaviour and organizational structures over time, adding a temporal component to the dynamics at stake.

Some factors imperative for the institutionalization of sustainable development are not tangible for a top-down targeting approach like surveys, but rather only come above the surface when individuals are given the space to deeply think about the matters that are important to them. The cultural-cognitive dimension, for instance, is difficult to unwrap. Yet, it is possible to get a notion of cultural-cognitive elements through words. As has been outlined in theoretical and analytical framework, changes in discourse over time as well as the uttering of cultural convictions by individuals disclose this dimension. The latter is also true for the normative dimension which reflects moral standards, norms, and values. The regulative dimension is displayed in rules, written or unwritten. However, in the VCM, sustainable development requirements are a regulative instrument to steer actors behaviour towards the pursuit of sustainable development. Methodological organizational requirements of standard setting organizations, for instance, disclose these regulative dynamics.

To answer the research questions, semi-structured interviews and a document analysis were conducted. The document analysis was applied to public program documents provided by voluntary carbon standards and had the dual objective to identify changes in the implementation of the concept of sustainable development and to disclose relational institutional developments, like collaborations and other relations between VCM actors thoughout the periods researched. Semi-structured interviews were conducted to verify insights from the document analysis and, where necessary, retrieve data inaccessible via the standard's databases. The qualitative data gathered from interviews also disclosed individual and organizational perceptions of sustainable development in the VCM. The cultural-cognitive, normative, and regulative elements derived from interviews contributed to the robustness of findings derived from the document analysis. Complementary background research was done in order to introduce the complex institutional setup of the VCM and the concept of sustainable development. Background research was also used to outline historical developments and key events that shaped the application of sustainable development in the VCM. In addition, complementary information was gathered through the attendance of several VCM-related webinars, the attendance at COP26, and work experience in the VCM and sustainable development testing from 2021-2022.

Document Analysis

The aim of the document analysis was to retrieve data on the usage of the term sustainable development by voluntary carbon standards and to disclose relational institutional developments between VCM actors. Specifically, the years in which changes were made to voluntary carbon standard documents were of interest. These were identified and contextualized with other developments in the VCM and international climate and development policy. Many changes in a shorter period of time indicated institutional movement in favor of (or opposing) the concept of sustainable development. Also identified was whether

sustainable development monitoring, reporting, and verification (MRV) was required, recommended, or just mentioned. All three forms of sustainable development uptake gave insights in the dynamics that influenced the VCM. Voluntary carbon standards are the guts of the institution and influence the way other VCM actors perceive sustainable development in the institution (Scott, 2013).

The primary source of the document analysis were public organizational documents by the voluntary carbon standards Verra and Gold Standard[3] in the entirety of their existence. Those included mission statements, program descriptions, methodologies, taskforce communications, and newsletters. The way voluntary carbon standards change their conceptualization of sustainable development is indicative for how their understanding of it influenced and still influences the wider institutional context of the VCM. On the regulative level, the inclusion of sustainable development requirements in methodolgoies mandates sustainable development MRV and therefore regulates the supply side of the VCM. Normatively, updates in sustainable development requirements or recommendations are an institutional adaptation that can be weighted as reactive to demands from clients or other incentives that emerge for VCM actors. It also indicates social acceptance of the inclusion of sustainable development in VCM activities. Cultural-cognitive indicators can best be uncovered by analysing discourse. Therefore, changes in terminology are indicators for how the concept of sustainable development is institutionalized through terminological patterns. The evolution of the wording used to describe (qualitative) social and environmental benefits is overlooked.

Insights from the document analysis assisted in tracking the historical development of sustainable development in the VCM (Bowen, 2009). Throughout the years, institutional change was mapped according to updates launched by voluntary carbon standards. Additionally, the document analysis gave insight in relationships between VCM actors. The merge of standards (like the Verra uptake of the CCB Standards), the founding of new programs (like Verra's SD VISta), and other collaborations between in- and outsiders of the VCM with regards to sustainable development are important findings of the document analysis. Moreover, background and historical context were given by the analysis which makes the document analysis a helpful tool "when events can no longer be observed" (Bowen, 2009, p.31). Additionally did findings from the analysis verify findings from other sources.

Based on the outcomes of the document analysis, questions for interviews could be prepared. These regarded the the difference in uptake of sustainable development between standards, how much freedom project developers have in the MRV process of sustainable development, where sustainable development demands stem from, and the like. In sum, the evolution of sustainable development in standard documents opened new debates on the regulatory nature of standards, the norms and values leading to the inclusion of sustainable development, and the cultural convictions shaping the sustainable development mindset.

Semi-structured Interviews

The second method this research is based on are semi-structured interviews held with several parties involved in the VCM. Semi-structured interviews took place conversationally with one person at a time and made use of closed and open-ended questions (Adams, 2015). Where appropriate, the "why" and "how" were asked to gain deeper understanding of responses given. Semi-structured interviews also assit

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[3] Note that the Verra Program is composed of VCS, CCB, SD VISta, and other initiatives. For more information see: https://verra.org/. The Gold Standard includes their updated standard GS4GG, see: https://www.goldstandard.org/project-developers/standard-documents.

in disclosing individual views, other than within groups. Other than in focus groups, more honest answers might be received due to the unconstrained character of these interviews (Adams, 2015). The VCM is a competitive market in which pioneer work is mostly rewarded with competitive advantages, which makes group interviews an unsuitable tool. Second, as in contrast with surveys, interviews enable in-depth understanding of individual viewpoints. Especially normative and cultural-cognitive perceptions are difficult to retrieve from standardized and close-end questions. The flow of a conversation can help gaining deeper insights in intrinsic motivations and underlying assumptions.

The open character of the method made it possible to delve into unforeseen and commonly unexpressed perceptions that were necessary to disclose the three pillars of the institution. Moreover, being a versatile means of collecting data, the semi-structured interviews facilitated a better "understanding of the research questions by exploring contradictions within [the] participants' accounts" (Miles & Gilbert, 2005, p.67). This fits the aim of the research, namely the identification of regulative, normative and cultural-cognitive institutional dynamics in the VCM, be they harmonizing or contradicting.

16 semi-structured interviews were conducted in the time between April 2021 and February 2022. The interviews were conducted in English, and each interview took 45 minutes to one hour. Due to the COVID-19 pandemic and its circumstances, interviews were conducted online. The purpose the interviews was the identification of VCM actor's perceptions of the role of sustainable development in the VCM. The selection of respondents was conducted following the snowball sampling method and online research on potential interviewees. Entry contact has been a project developer working with the Gold Standard certification body who initiated snowball sampling by recommending contacts. On top of the recommended contacts, other VCM actors were contacted in order to reduce selection bias. Determinant for the selection were the job functions "Program Officer" and "Communications (Manager)". Additionally, staff explicitly mentioned as contact persons were contacted. Furthermore, organizations were free to decide on matching interview partners within their organization. This meant in some cases that sustainable development experts were identified by the entry contact and interviews were conducted with the former. The respondents represented organizations in the VCM, but were prompted to discuss their individual opinions besides their organizational stances. The respondents organizational positions varied between "(Senior) Advisor", "(Senior) Consultant", "Senior Certification Manager", "Senior Procurement Manager", "Energy Manager", "Environmental Manager and Economist", "Program Manager", "Manager", "Marketing Manager", "Fund Manager", "Independent Entrepreneur", "Projects & Social Impacts Officer", "Founder", " Policy Employee", Climate Strategy Director", and "Project Coordinator". The organizations interviewed were all except for one active in the VCM at the time of the interview. The one interviewee not connected directly to the VCM had sufficient knowledge of it and worked in sustainability at the time of the interview.

The VCM organizations were classified in seven categories: retailers/brokers, voluntary carbon standards, project developers, auditors, independent experts, buyers, and government. These were identified as the core organizations the VCM is composed of. It is important to note that several organizations do not work exclusively in one category, and that the given categories to not indicate conflicts of interest per se. A project developer can, for instance, additionally engage in the sale of emission reductions, thereby constituting a "project developer" and a "retailer". By the same token, one branch of an organization might engage in project development, and the other branch might conduct independent auditing of projects. The groups interviewed steer demand and supply of sustainable development in the VCM and therefore inform regulatory implications, set a common agenda, or transfer their personal cultural convictions to their professional surroundings. By collaborating (or working against each other), the institution is formed by these VCM actors. The individual organizations are categorized

also in order to remain anonymous. As mentioned earlier, VCM actors are subject to market competition, thus must their integrity be protected in order to maintain their participation in studies like this. Also, anonymization intended to safeguard privacy and not disturb organizational reputation through statements. The coding of the categorization is depicted in **Table 2**.

The interview guide (see Appendix) was drafted using principles provided by Miles and Gilbert (2005). Based on this guidance, interviews were taylored to the respondents' organizational backgrounds and expertise. This included reading into the subjects and persons of interest, categorizing questions into open- and close-ended questions transcribable in a comprehensive way post-interview, structuring the interview in terms of topics, and asking for supplementary documents that the respondents would like to share. The interviews additionally aimed at disclosing the values VCM actors attached to dynamics in the VCM they have personally experienced. The regulative, normative and cultural-cognitive processes of the Brundtland – Kyoto period, however, had to be interpreted based on documents from 30+ years ago, since addressing this time period in interviews was not possible. Therefore, this period is rather descriptive and forms the basis for the other periods in which the institutional transformation of sustainable development is grasped in more detail. The documentation in the other periods is enriched by data retrieved from interviews and webinars.

Topics touched upon in interviews regarded the structure of the VCM, the concept of sustainable development, and the regulative, normative, and cultural-cognitive environment of sustainable development in the VCM according to the respondent. Regulatory elements discussed were laws, rules, regulations, and government interventions of any kind. Normative elements regarded the roles and responsibilities respondents felt in the implementation of sustainable development in the VCM. The cultural-cognitive stances were articulated through discussions on religion, personal backgrounds, cultural convictions on the topics of environmental action and development aid, to name two. Since topics are addressed in an informal conversation style, semi-structured interviews are helpful instruments for discussing sensitive topics that help understand cultural-cognitive dynamics, like e.g. the prioritisation of either development or environment.

Through the means of semi-structured interviews, a document analysis, and background research qualitative data was retrieved, coded and categorized in the themes "regulative", "normative", and "cultural-cognitive". Hereafter, the data was interpreted according to the research questions. The results of the analysis bring us to the empirical findings, which will be discussed in the following three chapters.

Table 2 Overview of categorized interviewees and respective categories. Several respondents are active in several VCM activities that belong to different categories. The Category Titles can be found in Table 2. Respondent 1 is, for instance categorized as Independent Expert and Buyer. The first column from the left shows the seven stakeholder groups that have been categorised (Retailer/Broker, Standard, Project developer, Auditor, Independent expert, Buyer, and Government). A number was given to each category (second column from left). In the third column form the left the number of respondents per category is displayed. Several respondents per category increase the representability of the integrity of the findings. The right column shows the identification tags to which will be referred in the report.

Respondent #	Category #	Retailer/Broker	Standard	Project Developer	Auditor	Independent Expert	Buyer	Government
1	5,6					X	X	
2	1,3,5	X		X		X		
3	2,3		X	X				
4	1,2,3,4,5	X	X	X	X	X		
5	6						X	
6	6						X	
7	1,3,5,6	X		X		X	X	
8	2,3,5		X	X		X		
9	1,3,4,5	X		X	X	X		
10	6						X	
11	7							X
12	1,3,4,5	X		X	X	X		
13	1,3	X		X				
14	4,5				X	X		
15	2		X					
16	5					X		

5. Brundtland – Kyoto

The first period analysed in this study is the period between the release of the Brundtland Report in 1987 and the launch of the Kyoto Protocol in 1997. The Brundtland Report is regarded a milestone in international policy as it has given birth to the concept of sustainable development that is still used in 2022. The period saw both the first voluntary offsetting agreements and voluntary certification programs. It draws to a close with the launch of the Kyoto Protocol.

The Brundtland Report marks the beginning of an era of holistic approaches to developmental and environmental issues on the global scale. Shortly after the Brundtland Report's release, the first private carbon trading transactions have taken place, inspired by fragments of the Brundtland Report and climate policy interventions like the US Clean Air Act of 1977 (WCED, 1987; Calel, 2013). Since first pilot projects driven by CSR motivations failed to deliver on environmental and social integrity goals, certification to safeguard those goals was urged by myriad of people involved in carbon projects. This urge translated into the establishment of voluntary carbon standards that imposed rules on emission reduction projects. In all these events, sustainable development was an instrumental concept, and despite playing from the backline sometimes, it shaped the behaviour of the actors in the VCM. Both emissions trading and sustainable development had to yet take root in international policy as well as in people's heads. This root-taking was fostered by cultural-cognitive as well as normative processes that eventually established the institution VCM with regulative elements.

This chapter discusses the Brundtland Report, the first attempts to offset emissions, and the emergence of certification bodies, addressing the interconnectedness of sustainable development and the yet-to-emerge VCM. The chapter concludes with an analysis of motivations for voluntary carbon trading in this period, mostly regarding CSR and credibility issues. The constitutive nature of the Brundtland Report will be discussed as well as the meaning of sustainable development in this time.

Our common future

In 1983, the UN General Assembly formed the World Commission for the Environment and Development (WCED) with the mandate to map global problems concerning the environment and development (United Nations, n.d.-b). The commission's objective was the re-examination of both environment and development with a strategic proposal on how to integrate both and reach sustainable development (United Nations, n.d.-b; United Nations, 1984). In the years before the founding of the WCED, the development realm had undergone a widespread paradigm shift away from economic growth as the tool for measurement. Moreover, an increasing recognition of the hardship the environment was suffering from the economic growth trajectory was the driver for a re-examination of the role of both in the global problem (Brisman, 2011).

The commission has gained its informal but popular name "the Brundtland Commission" from the former chair of the commission, the Norwegian Prime Minister Gro Harlem Brundtland and was the third in a series of political calls to action formulated by UN bodies (WCED, 1987). The definition of sustainable development in the report is:

> "[...] development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p.41)

The Brundtland Report is known for broadcasting the first "institutional backing" (Bermejo et al., 2010, p.13) of sustainable development and has ever since been influential in myriad fields of policy. Though critics have denounced the concept as being vague and even possibly perpetuating global inequalities, its

framing of the interconnectedness of humanitarian development and environmental sustainability is a prominent conceptual lens in international diplomacy more than 30 years later.

The Brundtland Commission itself was appointed in order for the Governing Council of the United Nations Environment Programme (UNEP) to be able to formulate the Environmental Perspective to the Year 2000 and Beyond. This means that The Brundtland Report, while being a highly influential UN document, was never a binding regulatory tool, but rather a recommendation to the UNEP. The Environmental Perspective to the Year 2000 and Beyond was accepted by the General Assembly and later used as a policy framework which should guide and direct governments and UN bodies' strategic action for the protection of the environment. The terminology and the definition of sustainable development was adapted from the Brundtland Report by the UN system, including the UNEP and the General Assembly (United Nations, 1984). It is therefore to conclude that the Brundtland Report was embedded in a formalized setting of intergovernmental policymaking, and despite being non-binding, has contributed greatly to the establishment of a novel policy framework which would soon be adapted globally.

Applying Scott's (2013) regulative lens to this and zooming out from the Brundtland Report, the UN proves to be an informally regulatory organization exercising political power on the global scale while not being equipped with the legal instruments of most national governments. However, being bound by the UN Charter, Member States of the UN have certain rights and privileges, but also expect sanctions and exclusion when non-compliant (United Nations, 1945). The integration of sustainable development, being central part of a policy framework rather than law, is not enforced by sanctions, but rather informally constructed within the broader UN influence realm. The Environmental Perspective to the Year 2000 and Beyond, for instance, is non-binding in its character, but articulates sharp recommendations for governments, private enterprises, transnational corporations, international organizations, NGOs, the scientific community and citizen groups that evoke feelings of guilt in cases of non-compliance. Thus, since the Brundtland Report, sustainable development is an informal regulative element since it was established in the UN regulative context and serves as a framework rather than a rule.

Yet, applying a normative perspective to the Brundtland Report gives a deeper insight in the meaning of sustainable development and the consequences it had for the private sector through the imposing of norms and values. As elaborated above, the Brundtland Report is non-binding with its raison d'être being a policy proposal. When analysing its content, it becomes apparent that normative elements are strongly shaping the narrative of the report. In several cases, the status quo of international policymaking is criticised as being insufficient since global change is commonly not approached by governments with the necessary speed and urge. The report states that, "[g]overnments' general response to the speed and scale of global changes has been a reluctance to recognize sufficiently the need to change themselves" (WCED, 1987, p.17). This critique on the status quo is attributing a role to governments, an inactive and inflexible one. The creation of the VCM was a reaction by the private sector to the inflexibility of top-down regulated UN propositions and the slow uptake of an emissions reduction regime.

Not only by describing the status quo and shortcomings of current dynamics are roles distributed among the actors addressed in the Brundtland Report. Responsibilities of actors are articulated directly, and roles are attributed in an equally direct way, where "multinational companies can play an important role in sustainable development, especially as developing countries come to rely more on foreign equity capital" (WCED, 1987, p.23).

Besides multinationals who contribute to the degradation of the environment and the creation of dependencies of developing countries on foreign direct investments, international organizations like the

where the World Bank, the International Development Association, and the International Monetary Fund are directly addressed in their responsibility to integrate sustainable development in environmental projects in developing countries. These examples show the strong normative character of the Brundtland report through the creation of expectations, and the distribution of roles and corresponding responsibilities.

The evolution of sustainable development from Brundtland to Kyoto

After the release of the Brundtland Report, the very first individual voluntary offsetting projects were launched. These projects had, through their shortcomings on the social and environmental level, important influence on how the concept of sustainable development would be integrated in the VCM later.

In 1989, the first private sector voluntary carbon offsetting agreement has been made between the global power company AES and the NGO CARE. AES was looking for a project that would offset the emissions created by the construction and operation of a new power plant in continental America (Lang, 2009). The project, an ongoing afforestation activity in Guatemala, had the initial objective to alleviate poverty until it received funding by AES. Hereafter, it counted as the first project explicitly aimed at the offsetting of external emissions. This shift in objective shifted the allocation of project related resources to carbon accounting and left local stakeholders with catastrophic negative consequences. These were land conflicts, mobility restrictions of local populations, resettlements, and so forth. As Wittman & Caron (2009) describe, "CARE, as a development organization, has prioritized rural farmers' needs for poverty alleviation before carbon mitigation. To maintain project funding, however, it must also achieve mandated targets in establishing carbon sinks. The tension the CARE staff felt in regard to the need to attend to both carbon sequestration and poverty alleviation is manifest in the difficulties that extension agents face in reaching their targeted population—when the objective of rural poverty reduction does not overlap with that of increasing the size of carbon sinks, where do they direct their scarce resources?" (p.716). Moreover, the project fell grossly short of its offsetting targets where only 270,000 tons instead of the aimed at 15.5 to 16.3 million tons were offset (Lang, 2009). The project not only created a trade-off between its development objective and the carbon accounting objective but failed to deliver on both levels.

The AES-CARE agreement is just one of the many examples of unregulated voluntary attempts to offset emissions before VCM standards existed. The implementation of sustainable development in these projects was not a priority. However, the CSR strategies companies were operating at the time are reflected in projects like this. After all, AES voluntarily initiated the search for a way to compensate for its polluting operations, being aware of its negative environmental impact (Bellassen & Leguet, 2007).

In the years to follow, first attempts of the regulation of these voluntary carbon projects showed. In 1994, Plan Vivo, a partnership between the University of Edinburgh, El Colegio de la Frontera Sur and other local partners, piloted the carbon offsetting project *Scolel'te* in Mexico with the aim to help local communities plant trees. In 1997, Plan Vivo claims to have sold the first certified carbon credits and from 1998 onwards to operate as an official certification body in the VCM (Plan Vivo, 2020). In 1996, the American Carbon Registry (ACR) – back then under the name Environmental Resources Trust – made the claim to be the first private voluntary offsetting program (ACR, n.d.). Regardless of which organization was the first to certify carbon credits, this time marks the beginning of carbon credit certification in the VCM. The first voluntary carbon standards brought with them guidance on robust and credible carbon accounting and requirements that projects were expected to meet with regards to environmental and

social goals (ACR, n.d.; Plan Vivo, 2020). An overview of the key developments in this era is depicted in **Figure 4**.
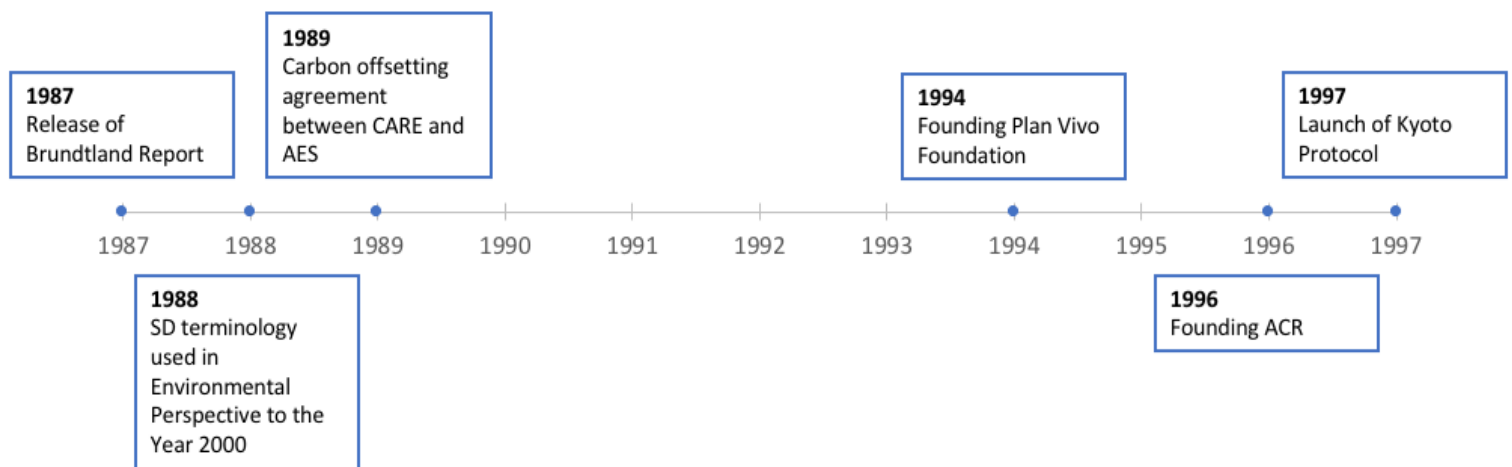

Figure 4 Overview of Key Developments in Brundtland – Kyoto Period

Analysis of regulative, normative, and cultural-cognitive dynamics

When looking at the dynamics that shaped the time between Brundtland and Kyoto, there are a few regulative, normative and cultural-cognitive processes that are noteworthy for the institutionalization of sustainable development in the (early) VCM.

Institutional backing and constitutive rules

The Brundtland Report is the institutional backbone of the concept sustainable development. The legal character of the report is negligible if compared to the impact it had on international development and climate policy. The report and the UN adapting this terminology facilitate the implementation of sustainable development in myriad of fields. This is what Scott (2013) calls a "constitutive rule" (p.77). Scott (2013), in highlighting the power of the cultural-cognitive pillar of institutions, discusses the constitutive rule as "creat[ing] the very possibility of certain activities" (p.77). He also argues that constitutive rules establish a place for a concept in a context by creating premises, presumptions and perceptions (Scott, 2013). The prompts articulated in the Brundtland Report shape the way one sees international development and the planetary boundaries and suggests strategies on how to solve these problems. Therefore, the holistic application of sustainable development is prescribed and the path for its implementation in newly emerging policy fields is determined.

Objectives of sustainable development in the VCM

CSR

The offsetting agreement between AES and CARE came forth from a CSR motivation on AES' side. The company was well aware of its impact on the natural environment and aimed at a way to compensate its own emissions with reductions elsewhere. This is a manifestation of decarbonization in the capitalist system that is used to describe the common agenda of carbon markets (Paterson, 2012). This mechanism leaves the compensating corporate to do good while sticking to their common mode of operation, a highly attractive outlook. Since no international climate regulations were in place in the 1990s, this pioneer approach sets the norm of carbon offsetting for corporates that aim to act ahead of policies and in the sense of the people.

Since implementation partners were located in regions where activities like tree planting were easier than in the industrialized US, the fact that offsetting was combined with development aid was predictable. In the carbon offsetting project described earlier, while AES focus laid on environmental mitigation, the partner NGO CARE had its focus on delivering development benefits to its impact region Guatemala. The combination of both is therefore perfectly in the light of sustainable development. Hence, this might be the beginning of a culture and unwritten narrative of carbon offsetting: from the beginning onwards, carbon offsetting projects were connected to development aid, and standalone carbon accounting was not commonplace.

Safeguarding

The Brundtland – Kyoto period facilitated the founding of the first voluntary carbon standards. These standards regulate projects through rules, requirements, and tests in the form of methodologies. According to Scott (2013) standards can be viewed as the "guts of institutions" (p.65) as they attribute norms and appropriateness to behaviour by actors achieving certification. In reference to the first methodologies, however, and given the fact that the first offsetting projects led to negative social and environmental impacts, one could talk rather about safeguards than sustainable development contributions. The very emergence of PlanVivo and ACR are consequences of the negative impacts the first unregulated voluntary carbon projects had on both people and the planet. They therefore aimed at the avoidance of negative impacts. The fact that standard setting organizations exist highlights the extent to which the VCM is carried by normative elements from the beginning onwards.

Terminology and other dissensions

After the release of the Brundtland Report, no unified sustainable development terminology was used in relation to emissions trading. The early projects and agreements were focussing on environmental accounting and development aid, yet did both objectives fail to deliver due to a lack of regulation. Whether a common terminology would have helped achieving the objectives remains subject for speculation. Notwithstanding, the sustainable development terminology born from the Brundtland Report slowly found uptake in several policy fields (United Nations, 1984; United Nations, n.d.-b). PlanVivo argued that without mentioning it, the organization has always been pursuing sustainable development. They claim that same is true for the buzzword nature-based solutions. In their view, sustainable development depended on project design components like a bottom-up approach and the inclusion of local stakeholders. In this sense, Plan Vivo can be viewed as a voluntary carbon standard that has been focussing on the implementation of sustainable development ever since its first operation in 1994 yet refrained from adapting the terminology until recently (Respondent 3, personal communication, May 7, 2021). This could be also valid for other VCM organizations that applied sustainable development values in their work without naming it accordingly. This aspect opens the debate on terminology, which oscillated between several terms throughout the years.

The Brundtland – Kyoto period marks the initiation of the sustainable development mindset on the international level, while also facilitating the first voluntary offsetting projects. After this fundament has been established, the Kyoto – Paris period marks the beginning of the VCM as we know it today.

6. Kyoto – Paris

The period between 1997 and 2015, from Kyoto to Paris, marks a set of crucial developments in international politics and private sector dynamics that regarded sustainable development and the VCM. In fact, the Kyoto Protocol's CDM paved the way for the VCM to emerge. As a reaction to the shortcomings of the CDM, several voluntary carbon standards were brought into existence. Moreover, this period denotes the lengthy evolution of the Millennium Development Goals (MDGs) to the Sustainable Development Goals (SDGs), and the evolution of market leading voluntary carbon standards.

With the CDM and voluntary carbon standards anchoring sustainable development in their methodologies and requirements, the concept gained importance on the regulative level. Moreover, governments increased their engagement in the CDM, the VCM and sustainable development, and imposed regulations to avoid negative impacts of VCM projects as well as incentives for good performance. Consequently, the debate on safeguards versus positive contributions depicts the importance of normative stimuli with regards to sustainable development as it draws attention to the fine conceptual line that separates safeguards from sustainable development contributions and shows the close connection between the regulative and normative pillar. The norm to include sustainable development in VCM activities reached the CDM, where de facto implementation of sustainable development was initiated through agreements between project developers and buyers that went beyond methodological requirements. The MDGs and SDGs also fed the terminology debate as different actors in the VCM applied "co-benefits", "social and environmental benefits", "social and economic benefits" and "sustainable development". Yet, on the cultural-cognitive level, the Kyoto Protocol serves as a constitutive rule facilitating the combination of VCM activities and the pursuit of sustainable development, thereby facilitating a smooth starting phase of the VCM.

This chapter will first discuss the Kyoto Protocol's CDM and its sustainable development requirements. Hereafter, the evolution of the MDGs and SDGs together with the founding of several VCM standards will be outlined. Several attempts of public and private actors to implement sustainable development measuring and reporting in the VCM will be highlighted. The chapter concludes with an analysis of safeguards and contributions, normative implementation of sustainable development, terminology used in the VCM, and the constitutive character of the Kyoto Protocol which enabled the combination of emissions trading and sustainable development.

The Kyoto Protocol

At COP3 in 1997, held in Japan, the Kyoto Protocol was launched by the UNFCCC and was ratified a couple of years later in 2005 due to its complex ratification process (BMUV, 2017). The Kyoto Protocol follows an annex-based structure which only commits industrialized countries listed in Annex I to individual emission reduction targets. These targets are legally binding for those countries committed and were operated in two commitment periods (from 2008-2012 and 2012-2020). In the first commitment period, the targets of the 38 Parties add up to a five percent reduction in emissions as to compared with 1990, and in the second commitment period, the targets add up to 18 percent as compared to 1990 levels, but then are addressed by a different set of Parties than in the first commitment period (UNFCCC, 2022g).

The characteristic that made the Kyoto Protocol an unprecedented UN treaty is, besides its binding, common but differentiated targets, its focus on the trade in emission permits, known as the Flexible Mechanisms. As climate change is a global phenomenon and GHGs in the atmosphere spread across the whole planet, the location of emission reduction efforts was considered subordinate to the costs of such. Hence, it was possible for Annex I countries to achieve their emission reduction targets by

trading emission permits generated elsewhere in a cost-effective way (UNFCCC; 2022g; Nederlandse Emissieautoriteit, 2017).

The Flexible Mechanisms are threefold, consisting of the CDM under Article 12, Joint Implementation (JI) under Article 6 and Emissions Trading (ET) under Article 17 (UNFCCC, 2007). All of them aim to encourage Parties to abate emissions trough trade and encourage the private sector to contribute to this trade (UNFCCC, 2022e). The JI mechanism enables Parties that have ratified the Kyoto Protocol to participate in any emissions reduction project and count it towards their own Kyoto targets, as long as the project is situated in a country that has also committed to the Kyoto Protocol. The ET mechanism enables the acquiring of emission reduction units under international schemes with an international accounting system by countries committed to the Kyoto Protocol. The first and biggest emissions trading scheme globally, being initiated by the Kyoto Protocol, is the EU ETS (UNFCCC, 2007; European Commission, n.d.-a).

For the emergence of the VCM as well as for the institutionalization of sustainable development in carbon markets, the CDM is the most important Kyoto mechanism. Under the CDM, emission reduction projects located in non-Annex I countries generated certified emission reduction (CER) credits, which Annex I countries could acquire to meet (part of) their Kyoto targets (UNFCCC, 2007). The generated credits were qualified through a series of tests on additionality, measurability, realness, and verifiability conducted by the CDM Executive Board (CDM EB). A credit resembles one ton of CO_2 equivalent that has been reduced or removed from the atmosphere. This metric as well as the CDM issuance process have been adapted by compliance and voluntary carbon standards worldwide, which is why the CDM is regarded a trailblazer in retrospective (UNFCCC, 2007; UNFCCC, 2022e).

The dual objective of this government-led mechanism was to provide industrialized countries with flexibility in their efforts to reach their targets, and to promote sustainable development through the collaboration of Annex I and non-Annex I countries (Dirix et al., 2016; Michaelowa et al., 2020; UNFCCC, 2007). It is important to understand the how the CDM works as well as what its shortcomings are, as it shapes perceptions of how (voluntary) carbon trading is supposed to be done. The CDM is a large mechanism that reached its peak in 2012 with over 500 projects registered and the volume of CERs issued already trespassing 867 million tons of CO_2 equivalents (UNEP CCC, 2022; Crowe, 2013). Additionally, the CDM forms the foundation of the VCM, as voluntary carbon standards played in on CDM shortcomings, especially those regarding sustainable development.

What concerned sustainable development in CDM projects, enforcement under this mechanism was rather faint. As Michaelowa et al. (2020) analysed, sustainable development benefits did not require monitoring, even though a section designated to sustainable development existed in the first CDM template. In the registration process, each project developer needed to submit a project design document to the CDM EB with a letter of approval from the Designated National Authority (host country) attached to it.

This letter was to confirm a description of how the project activity contributed to the sustainable development strategy followed by the host country. The requirements for this sustainable development reporting, however, differed per country. Some countries like Brazil, Malaysia, Peru, Rwanda and Uruguay were known for enforcing rather strict rules (Michaelowa et al., 2020). Other Parties, in contrast, approached sustainable development benefits with a laissez-faire attitude and the templates were free to be filled in by the project developers. Also, some governments were keen on deciding for themselves what sustainable development meant on the local ground and opposed the external imposition of sustainable development goals from the outside.

This lack of alignment of criteria was justified by governments with the argument that only few stakeholders were interested in sustainable development anyways and therefore no pressure to align existed (Michaelowa et al., 2020). Another reason for why sustainable development benefits were not standardized in the early years of the CDM is the costliness of sustainable development monitoring. Benefits, especially if they are indirect, require randomized control trials which turned out to be unproportionally expensive when compared to the selling-price of CERs (Michaelowa et al., 2020)

Despite the lack of reporting requirements, according to Michaelowa et al. (2020), a certain "good practice" existed in CDM projects that regarded pre- and while-project stakeholder consultations of communities affected by projects. What exactly this good practice entailed is not clearly prescribed, which leads to the conclusion that different practices have become the norm.

The lack of sustainable development reporting requirements, as well as a lack of safeguards to avoid negative impacts of CDM projects was harshly criticized by environmental and humanitarian NGOs, civil society (Johl et al., 2013; Carbon Market Watch, 2012; International Rivers, 2012; CDM Watch, 2012; de Kruiff et al., 2012) and academia (Schneider, 2011; Dirix et al., 2016; Alexeew et al., 2010; Subbaro & Lloyd, 2011).

A demand for coherent sustainable development reporting was articulated by academia even in the early phase of the CDM (Matsuo, 1998; Thorne & La Rovere, 1999), which together with pressure from environmental and humanitarian NGOs influenced the operationalization of sustainable development requirements throughout the years (Michaelowa et al., 2020). In the time succeeding the Marrakesh Accords in 2001, a set of criteria for the accounting of sustainable development was slowly discovered for CDM projects, but yet no alignment between government approaches was established, nor was an overarching CDM regulation introduced (Michaelowa et al., 2020).

The evolution of sustainable development from Kyoto to Paris

In the years to follow the Kyoto Protocol until the Paris Agreement in 2015, both the concept of sustainable development and the institution VCM developed substantially. The two developments will be outlined in the following.

In September 2000, the MDGs were launched at the World Leaders Summit in the UN headquarters in New York. The MDGs comprise eight global goals that were to provide a sustainable development strategy that adapts to the needs of the global community, with a special focus dedicated to marginalized groups, such as ethnic minorities and indigenous peoples. The target date to achieve the goals was set to the year 2015 (SDG Fund, 2018; United Nations, n.d.-a; Orellana, 2010). In the UN resolution, the principles of sustainable development as articulated in the Agenda 21 of 1992, are reaffirmed and supported (United Nations, 2000).

With the prospect of reaching the MDGs only partially and unevenly until the target date, the discussion on a post-2015 Agenda was raised on UN level. In 2012, the United Nations Conference on Sustainable Development took place in Rio de Janeiro (also known as the Rio +20 Conference). During this conference, world leaders together with academia, civil society and the private sectors, consulted on a development strategy that should "carry on the momentum" created by the MDGs (SDG Fund, 2018). Soon after, a working group to draft a new set of targets communicated the proposal of the SDGs to the General Assembly in August 2014 (United Nations, 2012; United Nations 2014).

Up until then, the concept of sustainable development has been applied to the VCM yet only gained its position in VCM regulations after some time. The same is true for the CDM, as illustrated in the

previous section. However, superimposing the evolution of the VCM and the development of sustainable development in international climate politics, a strong connection between sustainable development and the VCM became apparent. With the VCM seeing global growth and evolving into a sophisticated institution in the context of climate change mitigation and adaptation, the concept of sustainable development gained importance in this context, too.

In the aftermath of the wave of criticism towards the CDM, and growing demand for social and environmental benefits accounting, several NGOs kickstarted collaborations in the early 2000s and founded voluntary carbon standards that were to deliver improvements to the CDM (Michaelowa et al., 2020; Headon, 2009; Schneider, 2007). Despite the fact that voluntary carbon standards experimented with pilot projects in the late 1990s already, the year 2003 marks the beginning of the VCM institution that is still up and running in 2022.

In that year, the Gold Standard Foundation was founded by the WWF and other international NGOs with the intrinsic motivation to contribute to sustainable development and guarantee environmental integrity of carbon reduction projects (Gold Standard, n.d.-b). The initial name of the Gold Standard was the "CDM Gold Standard" as it was intended to add up to the CDM project requirements. The standard was created in order to set social and environmental benchmarks that would attribute a monetary value to benefits other than emission reductions (Schneider, 2007; Headon, 2009). The same motivation drove a group of international NGOs[4] to launch the Climate Community & Biodiversity Alliance (CCBA) in the same year. The CCBA focused on land-use projects with the aim to promote voluntary carbon markets that have positive impacts on communities, biodiversity and the climate. In 2005, the first version of their voluntary standard was launched: The Climate, Community & Biodiversity (CCB) Standards 1st Edition (Conservation International, 2022a; Conservation International, 2022b; CCBA, 2005).

In this 1st Edition, the concept sustainable development is applied as a marketing tool to attract governments to invest in carbon projects and project developers to produce projects featuring sustainable development contributions. In the program guidelines, sustainable development is promoted at several points. It is claimed that "[f]or example, a reforestation project that provides the environmental and social co-benefits identified by the Standards may attract funds from a variety of groups: private investors for the carbon credits, governments for sustainable development and philanthropic organizations for biodiversity conservation" and that "[g]overnments can use the CCB Standards to ensure that projects within their boundaries will contribute to national sustainable development goals. Also, donor governments can use the Standards to [...] satisfy multiple international obligations, such as the Millennium Development Goals" (CCBA, 2008).

Besides VCM actors, governmental bodies, too, engaged in carbon trading and the prioritization of sustainable development. The European Commission, for instance, awarded the private company ST Microelectronics with the European Commission's Management Award for Sustainable Development for their proactive carbon offsetting efforts in 2002[5] (Bellassen & Leguet, 2007). At the same time in 2003, the European Union reacted on the human rights abuse criticisms of the CDM with the introduction of

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[4] Among which the NGO CARE, which was involved in the early offsetting project in collaboration with AES in 1988, see Chapter 5.

[5] Yet, carbon standard or third-party engagement was lacking (for more information, see Bellassen & Leguet (2007)).

regulative checks to prevent negative impacts of CDM projects on local communities. These were especially important for hydropower CDM projects, which were subject of human rights abuse accusations regularly and even beyond 2003 (Smits & Middleton, 2014; Michaelowa et al., 2020). In 2006, the British government set up the Government Carbon Offsetting Fund that would support only those projects contributing to social and economic sustainable development. This idea disseminated soon when Finnish, French, Norwegian and New Zealand administration bodies set up similar funds (Bellassen & Leguet, 2007). Especially small-scale projects were supported as they were regarded as contributing to sustainable development to a greater extent (Michaelowa et al., 2020; Bellassen & Leguet, 2007). In 2005, coinciding with the ratification of the Kyoto Protocol, the EU ETS was launched, which comprises the biggest compliance scheme operating globally (European Commission, n.d.-a). These dynamics show that government involvement in emission trading had become commonplace in UN level schemes, like the CDM and EU ETS, as well as voluntary action, like the case of ST Microelectronics. The involvement of the European Commission, in these cases, regarded safeguards against negative impacts of projects, but also incentives and rewards for efforts to contribute to sustainable development by voluntary action.

Another important development observed in this period is the so called "CDM gold rush" (Smits & Middleton, 2014; Michaelowa & Buen, 2012). In this period of the early 2000s, and especially in 2005, there was an overflow of CERs offered for relatively low price stemming from a set of complex events. In these times, the buyers of CDM CERs were able to differentiate between credits and focusing on the quality of the very. As Michaelowa et al. (2020) state, these were high times for sustainable development, as buyers started to give attention to it.

In 2007, the VCS (Voluntary Carbon Standard), which would later be known as Verra, was founded by a set of international NGOs and business leaders with the objective to enhance innovation and transparency in carbon markets (VCS, 2007). A year later, the CCBA launched the 2nd Edition of the CCB Standard, in which the use of the concept sustainable development remained the same as in the 1st Edition.

Changes were also applied in the Gold Standard, where the Principles and Requirements of Gold Standard projects asked for a "Sustainable Development Matrix" from 2009 onwards. This matrix covered different sustainable development categories and linked them to the MDGs. The outcomes were presented as a score of each sustainability indicator (The Gold Standard, 2010). This was enforced more granularly on the methodology-level, too. An example of this is the Gold Standard Methodology for Biodiesel v.1.0 of August 2009, which features a "sustainability matrix" (The Gold Standard, 2009).

This stable demand for the implementation of "co-benefits" or sustainable development contributions is also reflected in policy suggestions on ways to include sustainable development benefits in CDM projects at the time (Boyd et al., 2009, p.828). In some cases, these were adapted by CDM project developers de facto as a reaction of buyer demand, but not by the CDM EB officially (Michaelowa et al., 2020). This effort is underlined by research that has proven that Gold Standard projects at that time only slightly outperformed CDM projects on the subject of sustainable development benefits (Michaelowa et al., 2020; Drupp, 2011).

Throughout the years, the CDM was subject to change initiated by the upcoming of sustainable development in carbon markets. In 2011, the UNEP Copenhagen Climate Centre developed the Sustainable Development Tool (SD Tool), which prescribed project developers to prepare a sustainable development co-benefits report for CDM projects registered. Unfortunately, the adoption of the tool was on a voluntary basis, which is why only a minimal percentage made use of it (Michaelowa et al., 2020). Early critics of the SD Tool also argued that no regulation, verification, monitoring or safeguards against

negative impacts were provided (Michaelowa et al., 2020). Criticism on the CDM and its negative social and environmental consequences was expressed in research (Olsen & Fennhan, 2008; Osborne, 2011).

In 2013, the 3rd Edition of the CCB Standard was launched. The description why sustainable development implications were favourable for project developers and governments featured in the 1st and 2nd Edition were kept up in the 3rd Edition, yet the Monitoring Report of CCB projects was updated, and a "Benefit Summary Page" was added to it. This page serves as an indication page for project developers on how many universal and unique project benefits, next to emission reductions, have been achieved during the monitoring report and the project lifetime (CCBA, 2013). In the same year, research has shown that the CCB Standards clearly overperform with regards to poverty benefits as compared to the CDM and the latter still fails to deliver sufficient co-benefits (Michaelowa et al., 2020; Crowe, 2013). In the following year, Verra took over the CCB Standard and included it in its programme system (Respondent 15, personal communication, February 10; Carbon Finance, 2012).

In its Principles and Requirements of 2013, the Gold Standard anchored sustainable development to its standard principles. Principle 2 states that "[a] project shall demonstrate a net positive contribution to sustainable development through completion of a detailed impact assessment using Gold Standard tools" (The Gold Standard, 2013). This means that a project must contribute positively to two sustainability categories (environmental and social) and must at least be neutral to the third (technological). Thus, both positive and negative impacts are monitored, other than in the CDM (The Gold Standard, 2013). An overview of the key developments in this era is depicted in **Figure 5**.
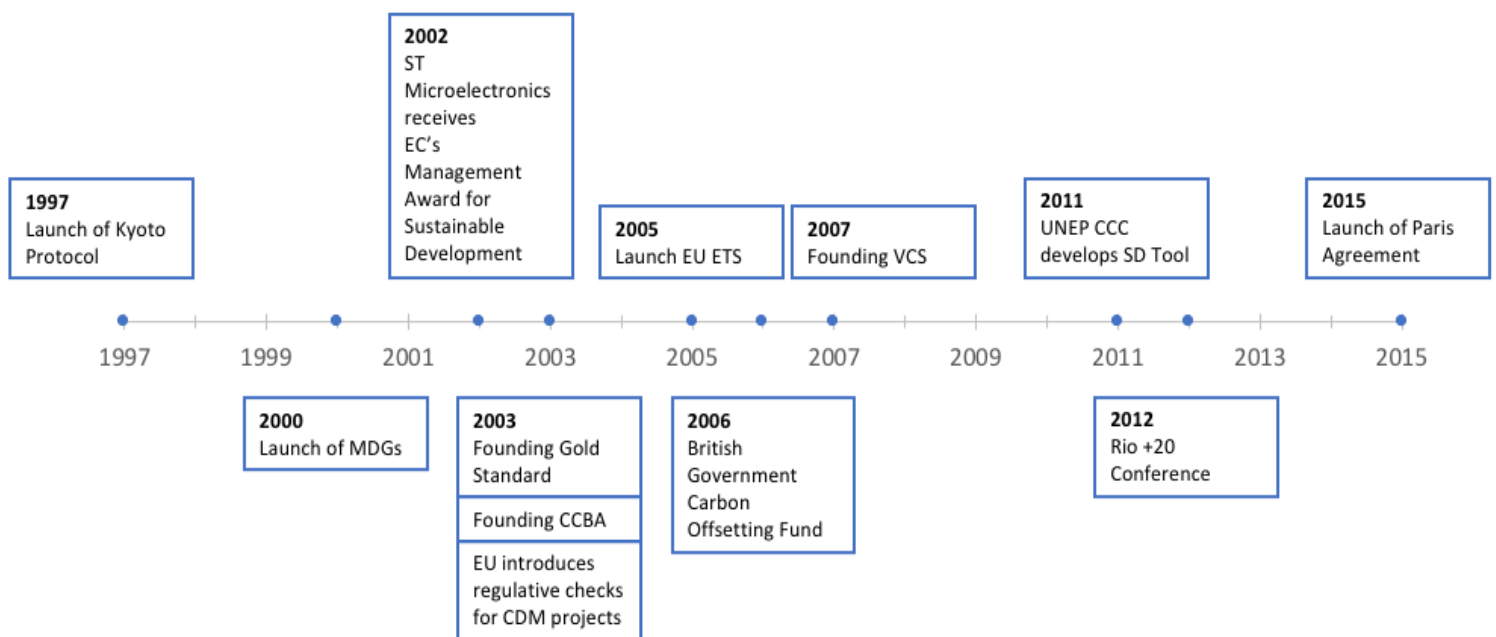
Figure 5 Overview of Key Developments in Kyoto - Paris Period

Analysis of regulative, normative, and cultural-cognitive dynamics

The Kyoto – Paris period marks the evolution of the MDGs to the SDGs and the evolution of the VCM as an institution. As has been outlined before, the VCM emerged as a reaction to the shortcomings of the United Nations CDM. There are several regulative, normative and cultural-cognitive dynamics that shaped the relationship of sustainable development in the VCM in this timeframe.

Institutional backing and constitutive rules

The MDGs, SDGs and especially the Kyoto Protocol can be seen as constitutive rules that ontologically establish the very possibility to combine emissions trading with sustainable development (Scott, 2013). By launching the MDGs and repeatedly putting effort in the framework's development, the UN has facilitated the application of the goals to the emerging VCM. This has become easier with the SDGs and the increase of operationalization.

Issues of global importance, like international trade, globalization, and climate change, are communicated to the international community with a fixed set of terms that are highly informative for how social realities and values are constructed. Both sustainable development as well as emissions trading have been terms that the public was aware due to former UN activities. The Kyoto Protocol is the first UN treaty to regulate and feature emissions trading (which would soon be the foundation of the VCM) and emphasizes the role of sustainable development globally. By doing so it achieved to combine the two concepts and formed the social reality that enabled governments and voluntary actors to engage in emissions trading and the implementation of sustainable development in combination.

The manyfold of voluntary carbon standards disseminated sustainable development-related methodologies and templates and elevated sustainable development as a key criterion for successful carbon projects. These methodologies and templates have not only regulative and normative, but also strong cultural-cognitive elements. According to Scott (2013) they are scripts for action that determine the means to pursue the objective of providing sustainable development benefits. Whether sustainable development plays a role it the methodologies or not, or when sustainable development first played a role in most methodologies is a regulative as well as cultural-cognitive indicator that must not be undervalued. By being, the MDGs, SDGs, the Kyoto Protocol and sustainable development-related methodologies stimulate VCM actors to implement sustainable development in their work.

Objectives of sustainable development in the VCM

Safeguards vs contributions

Looking at the regulative dynamics characterizing this period, it is noticeable that the VCM as an institution was a product of the inflexibility and inadequate management of sustainable development contributions under the CDM. The regulation of sustainable development in the CDM was subject to criticism from NGOs, civil society, and academia, as outlined earlier. This has led several actors to form partnerships and establish voluntary carbon standards that were more flexible and responsive to external demands and pressures (CCBA, 2005; VCS, 2007; Gold Standard, n.d.-b).

Yet, the impact the CDM had on government regulations of sustainable development must not be undermined. Both incentives for positive contributions of projects as well as bans of projects with negative contributions were imposed by government bodies through the years. Government funding stimulated project developers to increase their sustainable development-related efforts, and the EU ban of industrial gas projects serves as an example of how negative contributions are punished in the regulatory framework of governments.

Another regulatory element observed in both the CDM and early VCM standards is the anchoring of sustainable development in standard methodologies. As has been observed in the CDM, the CCB Standards, the Gold Standard and the VCS, sustainable development reporting, despite being unaligned and even unmonitored, had been a formal requirement from the beginning. Moreover, buyers of carbon credits argued that they would want to assure their clients that their carbon neutrality claims were

untouched by any negative social or environmental impacts (Michaelowa et al., 2020). With regards to negative impacts and positive contributions, the debate on safeguards versus contributions was started.

This debate, persisting to be relevant beyond this period, perfectly depicts the interconnectedness of the regulative and normative dimension of the sustainable development inclusion in the VCM. Safeguards generally are "do-no harm" principles, checks to avoid negative impacts and the ban of project types that aim to steer certain behaviour. In this case sustainable development and the VCM, the avoidance of negative sustainable development outcomes is regulated by the methodology, and if not sufficiently done, by governments in the form of bans and other punishments. Safeguards can be resultatively rooted in jurisdictional systems. For instance, a project is bound by law (either national or international) and cannot justify homicide if it results in emission reductions.

The demand for the reporting of positive sustainable development outcomes or contributions, on the other hand, is rather rewarding than restricting. It stems from other streams of influence that are ascribable to issues as marketing (and with it, pricing), image building and social acceptance. Sustainable development benefits reporting works as a marketing tool for project developers and brokers, as research has shown that credits with high sustainable development reporting quality can sell credits for a higher price (Michaelowa et al., 2020). This serves as an incentive for project developers and brokers of credits to establish sustainable development reporting mechanisms (Respondent 2, personal communication, April 29, 2021). On the backside of the same coin, the pricing issue moves two ways: with high sustainable development contributions comes a high selling price which is desirable for retailers of credits. Nevertheless, buyers with little interest in sustainable development can profit from this trade-off in economic attractiveness by purchasing low SD, low-cost credits (Respondent 3, personal communication, May 7, 2021; Respondent 9, personal communication, May 19, 2021). Secondly, the establishment of a positive public image is a reason for buyers (including governments) to demand sustainable development contributions. On the one hand, buyers who resell their credits expand the marketing cycle and use the same argumentation as their prior seller, and on the other hand, governments can benefit from projects with high sustainable development contributions by funding them and attribute the positive sustainable development contributions to their national strategy. This is an issue that has not yet gained importance in the double-counting debate that should grow with the Paris Agreements sustainable development implications.

De facto implementation of sustainable development

As has been observed, voluntary carbon standards included sustainable development in their methodologies, which can be viewed as a regulative anchoring of the concept into the VCM that is maintained in the Paris - Glasgow period. Yet, the normative dimension of this development must be analysed in order to understand the driver for the methodological regulation.

The VCM emerged because of pressure exercised on the CDM by international NGOs, expressions of demand for sustainable development by public and private actors, critics from academia, and so forth. Insiders in the CDM were too inflexible to adapt to the growing pressure, so that eventually a whole new institution, the VCM, was established whose organs would be able to respond and do justice to the demands expressed. The new voluntary carbon standards took on the role of implementing sustainable development. Moreover, the objective was to establish credibility in claims. The official objective of the CDM was to deliver sustainable development yet failed in doing so (as did the regulative attempt to standardize sustainable development reporting with the SD Tool because of its voluntary character). Nevertheless, Michaelowa et al. (2020) found that de facto implementation of customized sustainable development reporting did take place, stemming from a dialogue between buyers and project developers.

Even though there are no formalized rules or obligations imposed by the CDM EB, a set of good practices established. The norm and shared value that it was appropriate to include sustainable development in projects emerged in the carbon market after all.

Terminology and other dissensions

Yet, misalignment remains regarding a shared belief of what sustainable development actually means. This misalignment is reflected in the myriad of terms used by different actors in the institution that all more or less intend to express what sustainable development contributions are. The CCBA uses the term "co-benefits", the Gold Standard reasons with "social and environmental benefits", government administrations like the Finnish Presidency of the European Union recognize "social and economic benefits", whereas in the CDM, there is talk of mere "sustainable development". In terms of tools and instruments, several unaligned attempts have been made in order to map and report on project contributions to sustainable development. Scott (2013) emphasizes that actions, actors and their intent are subject to framing and differing definitions in contested situations. In this period, consensus on which terminology to use lacks, which leads to the conclusion that the cultural-cognitive elements that create universal meaning to the terms used are not established.

The Kyoto – Paris period witnessed various important dynamics that shaped rules, perceptions, and convictions of the role of sustainable development in the VCM. Especially the evolution of voluntary carbon standards is a characteristic of this era. In the period to follow, government, the UN, standards, and all other VCM stakeholders play an important role in the shaping of sustainable development in the institution.

7. Paris – Glasgow

In the period between COP21 in Paris and COP26 in Glasgow, myriad of significant changes has taken place in the VCM with regards to sustainable development. Given the fact that sustainable development has already been a prominent concept in international climate politics, many VCM actors were now able to modify the concept to pursue their specific goals. The Paris Agreement (PA) anchored sustainable development in the field of international climate policy. Furthermore, several voluntary carbon standards updated their methodologies and programs in favour of sustainable development. Governments kept on supporting sustainable development practices in the form of funding, partnerships, and access to resources.

The Paris – Glasgow period features the PA, which further deepened the embedding of sustainable development in the UN regulative framework by declaring the pursuit of sustainable development legally-binding. The period also sees the operationalization of sustainable development in the form of the SDGs that serves the accurate reporting and measuring of project level progress. Norms and values connected with sustainable development are articulated, addressing marketing and demand mechanisms, collective beliefs on why sustainable development is crucial in the network, and expectations and responsibilities related to the pursuit of sustainable development. In the years to follow the PA, sustainable development has increasingly been integrated into VCM certification requirements and marketing strategies and has become a buzzword informing buyer preferences and demands. Increasingly, sustainable development becomes a catalyst for credibility and enables reputational and financial competitive advantages in the VCM. Also, a responsibility to "help" is uttered by some, backed by Christian religious beliefs that prompt altruistic behaviour. Notwithstanding, a lack of consensus on the sustainable development agenda is evident, as cultural beliefs of individual VCM actors differ. As convictions do not align in all cases, expectations on the implementation of sustainable development vary, and a demand for top-down regulation is showing among several VCM actors. Notwithstanding, both the PA and the Paris Rulebook are constitutive rules, reinforcing the connection between the VCM and sustainable development by providing a platform for action.

This chapter will firstly outline the PA and its implications for sustainable development, then outline a selection of the sustainable development related developments that have taken place from Paris to Glasgow. The chapter concludes with an analysis of the institutional backing of the concept of sustainable development by the UN and discusses several objectives of sustainable development in the VCM, covering the marketability of sustainable development, the responsibility to help, and legitimacy and credibility issues. Lastly terminological and other frictions imperative for sustainable development in the VCM are analysed.

The Paris Agreement

In 2015, the Parties to the UNFCCC adopted the Paris Agreement at COP21. In succeeding and superseding the Kyoto Protocol, the PA is the main policy instrument to govern the international response to climate change from its ratification in 2016 onwards (Bodansky, n.d.). The Paris Agreement is a legally-binding treaty that has been adopted by 193 Parties to the UNFCCC. It forms an agreement on climate change action on the international scale with the objective to limit global warming to well below 2 or preferably 1,5 degrees Celsius compared to industrial levels through international collaborative action. As a part of the approach, global GHG emissions were to reach a peak as soon as possible in order for the international community to reach net zero emission levels by 2050 approximately (UNFCCC, 2022b).

According to Stern (2018), the PA's success stems from its bottom-up and hybrid form between binding and non-binding elements as "it bets on the force of rising norms and expectations rather than law to achieve its aims". The PA mandates its Parties to submit their respective climate action plans, a form known as Nationally Determined Contributions in 5-year cycles. A country's NDCs are to outline emission reduction efforts planned as well as adaptation measures to cope with the effects of climate change. The first round of NDC submissions took place in 2020 and will be repeated in 2025, 2030, and so forth. Each successive NDC has to describe a national progress departing from the former status quo in order to reach high long-term ambitions (UNFCCC, 2022c). The Parties must submit successive NDCs and account for them. It is also mandatory to implement ambitious measures in order to reach the submitted goals (Bodansky, n.d.). The way in which a Party designs and communicates its NDCs is free for the Party to fill in, as long as it reaches the agreed-upon Paris targets (Michaelowa et al., 2020).

Whereas the PA and the Kyoto Protocol are sharing the principle of "common but differentiated responsibilities", the PA departs from the Kyoto mindset which prescribes the sole responsibility of developed countries to impose climate action and provides a support system for technology, finance and capacity building transfers among Annex I and non-Annex I countries (UNFCCC, 2015; UNFCCC, 2022b; UNFCCC, 2022c), while acknowledging that the reaching of a GHG peak will take longer for developed countries.

Overarchingly, the planned emission reduction efforts by all Parties must be guided by the principles of sustainable development and equity: "This Agreement [...] aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty [...]" (UNFCCC 2015, p.5). Specifically, the prioritization of poverty eradication in countries in which this was a crucial development priority is emphasized in the PA. Nevertheless, climate action is mandatory for all Parties (UNFCCC, 2022f).

For the development of the VCM, the PA has been a milestone as it prescribes a way in which the VCM can be integrated into compliance emissions trading. As defined in Article 6 of the PA, Parties can achieve emission reduction targets by trading in internationally transferred mitigation outcomes (ITMOs). These contribute to a Parties' NDCs with safeguards to avoid double-counting of emission reductions and to ensure environmental and social integrity (UNFCCC, 2015). As a prerequisite, ITMOs must be designed in the light of sustainable development. Since the PA has been ratified in 2016, debates on the "dual objective of promoting both mitigation and [sustainable development] in the establishment of the new multilateral market mechanism" (Michaelowa et al., 2020, p.60) have been held on multiple levels (Dzebo et al., 2019; Healy, 2017; Carbon Market Watch, 2017). Applying a normative lens on the PA, the fact that ITMOs and other voluntary emission trading mechanisms are substantive part of the treaty is indicating that emissions trading is a generally accepted strategy to pursue climate action that further boosts VCM activities.

Especially Article 6 of the PA has been the central object of discussion. Ambiguity prevailed to the greatest extent in Article 6.2 and 6.4:

> "2. Parties shall, where engaging on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards nationally determined contributions, promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to this Agreement"

"4. A mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development is hereby established under the authority and guidance of the Conference of the Parties serving as the meeting of the Parties to this Agreement for use by Parties on a voluntary basis. It shall be supervised by a body designated by the Conference of the Parties serving as the meeting of the Parties to this Agreement, and shall aim;

(a) To promote the mitigation of greenhouse gas emissions while fostering sustainable development;

(b) To incentivize and facilitate participation in the mitigation of greenhouse gas emissions by public and private entities authorized by a Party;

(c) To contribute to the reduction of emission levels in the host Party, which will benefit from mitigation activities resulting in emission reductions that can also be used by another Party to fulfil its nationally determined contribution; and

(d) To deliver an overall mitigation in global emissions" (UNFCCC, 2015, p.7).

Implications for the accounting of emission reduction outcome (referred to as "cooperative approaches") as well as the roles of private and public entities in this mechanism had yet to be determined.

With the objective to resolve these ambiguities, myriad of stakeholder consultations and negotiations have taken place post-Paris. These negotiations have resulted in the "Article 6 Rulebook", which has been finalized in 2021 at COP26 in Glasgow (di Leva & Vaughan, 2021) and will be outlined in the section elaborating on the characteristics of COP26.

The evolution of sustainable development from Paris to Glasgow

In the period of 2015 to 2021 from Paris to Glasgow, several developments have taken place that shaped the VCM and the institutionalization of sustainable development in it. These developments regard actors in the public sphere as well as in the private, steered by insiders as well as outsiders of the VCM institution. Therefore, not only the high-level United Nations resolutions, but also individual changes in perceptions of what sustainable development is and private sector events like webinars and the forming of partnerships led to the embedding of sustainable development observed in Glasgow and beyond.

The most relevant development observed in this time period is the launch of the SDGs as they became highly influential for the implementation and measuring of sustainable development in the VCM (Respondent 8, personal communication, May 10, 2021; Respondent 15, personal communication, February 10, 2022). Coinciding with the PA, the post-2015 Development Agenda – a multi-stakeholder conglomeration commissioned to define the continuation of the UN Millennium Development Goals – transitioned into the 2030 Agenda for Sustainable Development. The so called "Agenda 2030" is also acknowledged in the PA and emphasizes the pursuit of sustainable development (Michaelowa et al., 2020; UNFCCC 2015). Through the Agenda 2030, the Rio +20 Conference, and the work of the Open Working Group on Sustainable Development, the SDGs were communicated to the General Assembly of the UN on January 1st, 2016 (United Nations, 2016; United Nations, 2015; UN DESA, n.d.; United Nations, 2018). The SDGs are 17 global goals pursued by the Parties to the United Nations. They aim at social, environmental and economic sustainability and are distributed into the five categories of people, planet, prosperity, peace and partnership (United Nations, 2015). While being non-binding, governments are still expected to incorporate the SDGs into their national policies and action plans (United Nations, 2018; The

Natural Step Germany, 2017). Each of the 17 goals is composed of several targets through which progress is monitored. In 2017, the SDG framework was revised in a General Assembly resolution, and specific indicators were attached to each target through which progress monitoring was supposed to be eased even more (United Nations, 2017; United Nations Statistics Division, n.d.).

Several organizations and initiatives have been formed and launched which all had in common the promotion of sustainable development in the VCM. For instance, the United Nations Carbon Offset Program and the Climate Neutral Now Initiative have been launched by the United Nations in 2015 in order to promote voluntary carbon markets and link them to sustainable development benefits (UNFCCC, 2022a; UNFCCC, 2022d; UNFCCC, 2020). The Fairtrade Climate Standard label has been launched in 2015, too. By enforcing Fairtrade International principles like democracy and transparency, minimum prices and proper labour conditions, it serves as an add-on standard to Gold Standard certified projects in an attempt interpret sustainable development and execute it (Fairtrade international, n.d.; Fairtrade International, 2015; Respondent 8, personal communication, May 10, 2021). The launch of this label indicates an interest of outsider organizations to engage in the VCM and support sustainable development objectives on the inside. Also, in 2017, the Sustainable Development Initiative on the Implementation of Article 6 of the Paris Agreement under the UNFCCC process (SDI) was launched. Hitherto, this initiative is operated by the Gold Standard Foundation and UNEP Copenhagen Climate Centre and receives public support by several European governments (UNEP CCC, n.d.). The SDI aims to depict the opportunities existing for sustainable development provisions under Article 6 of the PA. Actively, they stimulate policy dialogues and broadcast research stakeholder views on the best ways to implement sustainable development via tools, pilot projects, strategic partnerships and sophisticated communication of sustainable development in carbon trading.

Another trend that marked this time is the increasing demand for voluntary carbon standards that implement sustainable development contributions in their work. Gold Standard, the CCB Standards and Social Carbon are examples of voluntary carbon standards that incorporated sustainable development requirements or objectives in their methodologies ever since their founding and have experienced great demand for their projects in the Paris – Glasgow period: "[i]n 2015, almost 40% of transactions on the voluntary markets used one of these three standards, […]" (Hamrick, 2015, as cited in Michaelowa et al., 2020, p.58). In all three standards, meetings with stakeholders and sustainable development monitoring are mandatory.

From 2017 to 2019, several revisions and updates have been made in the programs of the market-leading standards Verra and Gold Standard. The latter launched the Gold Standard for the Global Goals (GS4GG), a version that supersedes all former standard versions and refers to the SDGs already in its updated name (Gold Standard, n.d.-b). Additionally, the CCB Standards mandated the reporting on sustainable development contributions of projects in all existing editions in their Monitoring Report templates from 2017 onwards (Verra, 2020). In 2019, Verra launched a new standard, called the "Sustainable Development Verified Impact Standard" (SD VISta), which aims at the certification of SDG contributions to VCM generated carbon credits on top of their GHG certification (Verra, 2021). In the subsequent years, Gold Standard prepared its SDG Tool which was launched in 2021. The SDG Tool is an instrument with the dual objective of translating SDGs to the project level and the avoidance of overclaiming of project benefits (Gold Standard, 2019). Several other VCM initiatives with a focus on sustainable development were launched just ahead of and shortly after COP26 in Glasgow but will not be outlined here for the sake of brevity (for reference, see VCMI, 2021; VCM Global Dialogue, 2021; Climate Focus, 2022; TSVCM, 2021).

Implications of COP26 and the Paris Rulebook

In November 2021, COP26 was held in Glasgow, Scotland. Despite the general consensus that the tackling of climate change would not end in Glasgow, several steps in the good direction have been taken (Mountford, 2021). The most important implications of the Glasgow pact were the preparation of a roadmap for global emission cuts to half by the end of the decade, a consensus to phase "down" coal consumption, the doubling of adaptation finance for developing countries, the installation of a loss and damage dataset and reporting system, and the reaffirmation of the Paris Agreement, as well as a finalization of the "Paris Rulebook" (Harvey, 2021; Mountford, 2021).

The latter, being named one of the most contentious issues in recent years, deserves closer attention as it prescribes the future of voluntary emissions trading and sustainable development. The rulebook instructs "how countries can collaborate in the implementation of their NDCs to allow for higher ambition in their climate actions and to promote sustainable development and environmental integrity" (Climate Focus, 2021). With regards to sustainable development and VCM activities, the most important clarifications that have been made were in the context of Article 6.2 and 6.4.

Olsen and Arens (2021) analysed the Paris Rulebook and dedicated a close look to sustainable development in its results. They found that under both Article 6.2 and 6.4, project developers are obliged to report on their projects' sustainable development contribution. Specifically, the reporting must clarify the extent to which the activity contributes to the sustainable development objectives of the host country. The authors compare these requirements with the CDM requirements on sustainable development and call it "a major step forward". The enforcement of sustainable development is prioritized as the Paris Rulebook clearly requests from the Supervisory Board under Article 6.4 to

> "[r]eview the sustainable development tool in use for the clean development mechanism and other tools and safeguard systems in use in existing market-based mechanisms to promote sustainable development with a view to developing similar tools for the mechanism by the end of 2023" (UNFCCC, 2021, p.2).

In order to understand the impact this requirement has on the policy arena of emissions trading and national efforts to achieve NDCs, the overall outcomes of the Article 6.2 and 6.4 negotiations are summarized in the following.

Under Article 6.2, Parties can engage in the government-level bilateral trade of ITMOs. For mere trading, ITMOs do not have to be measured in GHG units, yet they need to be translated into such once they are used for NDC contributions (Climate Focus, 2021). The negotiations resulted in an agreement on non-double counting of ITMOs in Parties' NDCs, which will be controlled by a supervisory board established by the UNFCCC (UNFCCC, 2021). While it is generally accepted that only one country can account for emission reductions, ambiguity concerning private cooperative approaches and the accounting by (host-)countries regarded a solution.

This issue is solved under Article 6.4 through a mechanism called "corresponding adjustments". Article 6.4, also known as the "Sustainable Development Mechanism", delivers a private and public system that is due to replace the Kyoto Protocols CDM (Farand, 2019). Instead of the generation of CERs, the tradeable assets under Article 6.4 are called A6.4ERs and abide to an updated set of requirements provided by the UNFCCC (Crook & Dusfranse, 2021). According to the Paris Rulebook, host countries of low carbon projects now have the authority to either label generated emission reductions or removals as ITMOs or A6.4ERs and attribute them to their own NDCs or trade them with other Parties. The mere support as VCM activities without the application of corresponding adjustments is also an option. In this

case, the generated units are allowed for "other purposes", like private carbon neutrality claims or offsetting in general (Climate Focus, 2021; Crook & Dusfranse, 2021).

The outcomes outlined above mean drastic changes for the VCM as host countries of projects now have an unprecedented authority over carbon rights and, consequently, requirements. In sum, the future of the VCM depends on how Parties will interpret the Article 6 Rulebook and plan its implementation. The most important resolution is, however, that any activity in touch with the United Nations must happen in the context of sustainable development.

The impact these decisions possibly have on the VCM are already perceptible shortly after having been made publicly. The VCS, for instance, was updated in January 2022 and now requires the reporting of at least three SDGs per project (Thiel, 2022). Moreover, Verra is planning on eventually requiring SDG reporting across all programs they offer. This would mean that their VCS, JNR, CCB Standards, SD VISta, Plastic Program, and LandScale initiative incorporate sustainable development reporting (Respondent 16, personal communication, January 31, 2022). An overview of the key developments in this era is depicted in **Figure 6**.
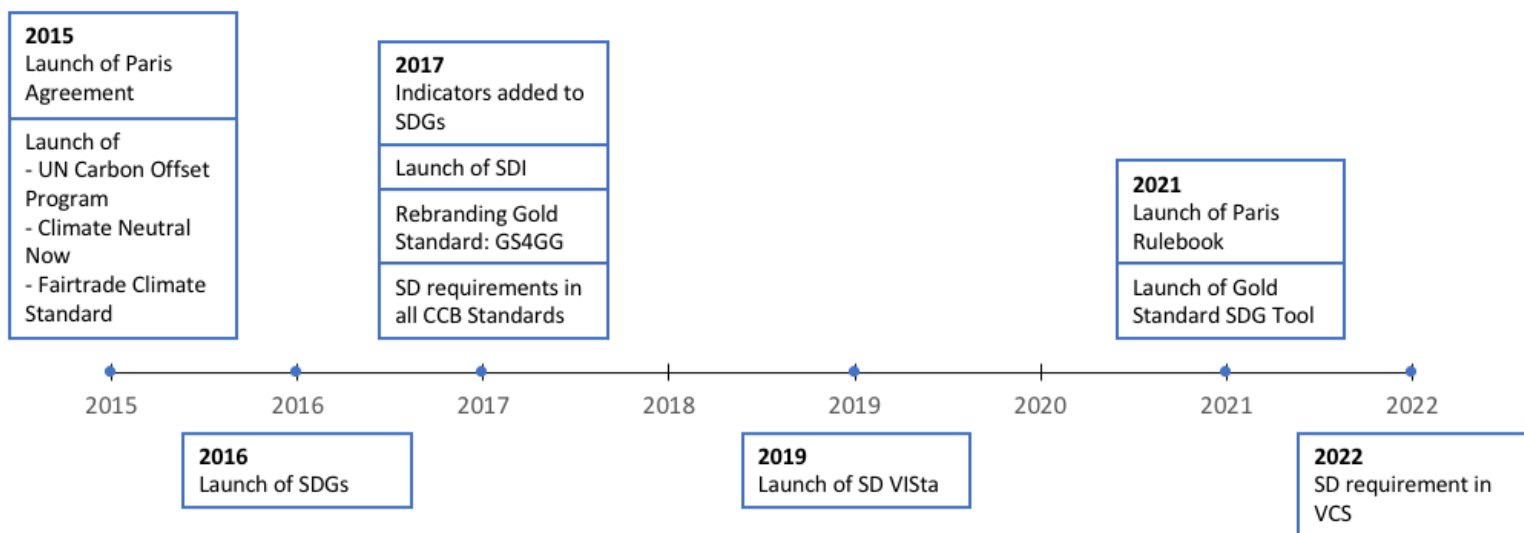
Figure 6 Overview of Key Developments in Paris - Glasgow Period

Analysis of regulative, normative, and cultural-cognitive dynamics
This section of the chapter disentangles the several dynamics observed in the Paris – Glasgow period and analyses them in combination with key findings derived from interviews.

Institutional backing and constitutive rules
In the last 75 years, the United Nations have played a key role in almost all global issues (Gareis, 2012). The activities undertaken by the UN influence the international community through regulative, normative, and cultural-cognitive dynamics. The same is true for the institutionalization of sustainable development in the VCM as both concepts are situated in the sphere of influence of the United Nations. It is, again, important to acknowledge the interconnectedness of the regulative, normative, and cultural-cognitive processes at stake. Formalized UN regulations, for instance, might lack enforcement mechanisms and derive their cogency from normative impulses, or even address cultural patterns.

A proper example to elaborate on this argument is the Paris Agreement. Its success is said to rely on its normative bottom-up nature, yet it does feature regulative elements that control the usage and implementation of sustainable development globally (Stern, 2018). The Paris Rulebook added to this regulative body by legally defining the future of the VCM and the role of sustainable development in it. Overarchingly, the United Nations is authorized to pass treaties that are legally binding in the sense of the Vienna Convention (Bodanksy, 2016). This means that the signatories of dedicated treaties like the PA must abide to respective legal elements within the documents.

For sustainable development, this legal establishment is crucial, as a legally binding[6] system for the pursuit of sustainable development is created. Whereas all activities under the Paris Agreement have to be developed "in the context of sustainable development" (UNFCCC, 2015, p.1), Olsen and Arens (2021) have outlined in their analysis of the Article 6 Rulebook that sustainable development reporting is mandatory under both Article 6.2 (ITMO generation) and 6.4 (A6.4ER generation) activities. The trade in mitigation outcomes is, as provided in Article 6, voluntary. However, once a Party engages in those voluntary approaches, the implementation of sustainable development becomes legally binding by being delivered in a 'shall'-formulation (UNFCCC, 2015; UNFCCC, 2021).[7] It is noteworthy that the PA as well as the Paris Rulebook operate as constitutive rules since they offer the opportunity to engage in both emissions trading and sustainable development. The engagement in emissions trading is voluntary, yet the pursuit of sustainable development – relatively free for interpretation – becomes mandatory once the party is engaged in trade.

Moving towards the normative elements featured on UN-level, the often-claimed lack of enforcement mechanisms of the Paris Agreement and Paris Rulebook needs to be discussed. Despite no formal sanctions await Parties in cases of non-compliance, informal options of "calling others out" are valuable alternatives for sanctions that have proven effective in the pursuing of objectives previously, as observed in the field of human rights (Karlsson- Vinkhuyzen, 2017; Hockin, n.d.; Kim, 2015).

This approach, anon, is based on collective norms and values that are enforced by naming and shaming activities rather than coercive force. Each Party is free to decide on their specific country targets and strategies, as long as they are in line with the overarching Paris target that limits global warming to well below 2 degree Celsius. Beyond this, and zooming in on sustainable development, the conclusion can be made that governments will integrate sustainable development into national climate strategies as an acknowledged UN concept due to a feeling of responsibility, or as Scott (2013) would argue, a feeling of honour and respect, as opposed to feelings of shame or disgrace in case of non-compliance.

Additionally, by dedicating one out of 25 Articles to the recognition of "cooperative implementation" (read: the trade in mitigation outcomes), the PA sends another important normative

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[6] Note: Legally binding does not mean that enforcement mechanisms are in place. For further information, see Bodanksy (2016).

[7] As Bodansky (2016) explains, in United Nations treaties "[t]he particular character of a provision is usually determined by the choice of verb: for example, 'shall' generally denotes that a provision in a treaty creates a legal obligation, 'should' (and to a lesser degree, 'encourage') that the provision is a recommendation, 'may' that it creates a license or permission, and various non-normative verbs (such as 'will', 'are to', 'acknowledge' and 'recognize') that the provision is a statement by the parties about their goals, values, expectations or collective opinions."

stimulus to Parties that combines the VCM institution and sustainable development (UNFCCC, 2022b). The mere acknowledgement of emission trading mechanisms as a legitimate approach to tackle climate change is a way for the United Nations to broadcast their support for compliance and VCM activities. This support is also reflected in the multitude of negotiations and efforts put in the Article 6 Rulebook developed in Glasgow (Climate Focus, 2021; Olsen & Arens, 2021). The UN, by formulating the PA, refreshed the status quo by recognizing emissions trading with sustainable development implementation as a legitimate tool to tackle climate change.

Another normative way in which the United Nations have informed sustainable development-related activities in the VCM is through the interaction and collaboration with other organizations. As has been outlined previously, several partnerships between UN bodies and other VCM as well as public actors show that UN partnerships influence the way VCM actors perceive sustainable development. The normative pillar of the VCM is constructed by the social value and collective target of emissions reduction in which a multitude of actors play an important role. Media, scientific organizations and financial organizations all construct the social value, according to Knox-Hayes (2010). On top of this, the UN, together with NGOs and other private actors, make efforts construct a common agenda. Activities to do so include awareness raising, the communication price signals, the drafting of guidelines and many more.

In order to understand the cultural-cognitive pillar that carries the institution, one needs to take a closer look at certain terminology dominating the VCM in this period. On the UN-level, the mere mentioning of voluntary carbon trading and sustainable development in treaties and decisions - regardless of the legal status of the concepts - is enough to initiate private and public engagement to combine those two concepts. This is due to a set of reasons: Firstly, as has been discussed in Chapter 6, UN treaties featuring concepts are constitutive rules creating possibilities for action. Secondly, and this is detected in the current period, a number of respondents have stated that they would include sustainable development in their work as they felt the responsibility to adapt to United Nations terminology (Respondent 1, personal communication, April 28, 2021; Respondent 7, personal communication, May 12, 2021). Some would, in their responses, depart directly from the SDG language to describe their works' connection with sustainable development (Respondent 4, personal communication, May 7, 2021; Respondent 8, personal communication, May 10, 2021), and others would explain that the assimilation with UN terminology would grant access to resources, like funding or collaboration opportunities with actors in their professional surroundings (Respondent 10, personal communication, May 18, 2021; Respondent 13, personal communication, July 26, 2021). The uptake of the appropriate wording is creating positive incentives for actors that behave accordingly (Respondent 1, personal communication, April 28, 2021; Respondent 6, May 6, 2021; Respondent 5, personal communication, May 4, 2021).

Appropriate in this context means, of course, supported by the shared conceptions of the institution. As we have seen in the Kyoto - Paris period, the terminology of VCM sustainable development has evolved throughout the years. Whereas in the former period terms like "co-benefits", "sustainable development contributions" and "impacts" were used, in the Paris – Glasgow period the "SDGs" dominate the discourse. The right terminology is important for a working institution due to the variety of different interpretations that are attached to words. The application of a certain terminology is also driven by different motivations. Project developers and brokers, for instance, can ask a higher price for carbon credits with an explicit SDG contribution (Respondent 2, personal communication, April 29, 2021; Respondent 15, personal communication, February 10, 2022; Respondent 14, personal communication, January 13, 2022).

The normative force of wording also becomes apparent when looking at the example of the SDGs and the Paris Agreement. SDG language implicitly stands central in the PA, where "poverty alleviation" is a central objective, while also constituting an SDG. The Agenda 2030 is not only explicitly recognized in the PA but is also implicitly incorporated in the PA language (UNFCCC, 2015). It stands to reason that more and more VCM actors adapt SDG reporting as they observe UN-level decisions and thereby assimilate with the goal to fit UN requirements and gain credibility in the institution. Yet, there is a lack of consensus on the wording that will be discussed later.

Moreover, the Article 6 negotiations and the United Nations agenda are leading and will lead to an important development. VCM projects are and will continue to be integrated into countries' legal and regulatory frameworks (Respondent 16, personal communication, January 31, 2022). This means that the line between compliance and voluntary emissions trading will continue to blur as governments show increasing interest in VCM projects under Art. 6.2. Not only are they an instrument to tackle climate change, but VCM projects also help pursuing national sustainable development objectives and policies (Respondent 16, personal communication, January 31, 2022) Peru, accepting VCS baselines for their national REDD+ strategies, shows that this is already happening and working. Another example is the German joint venture Re-Spire which develops VCM projects in German forests and contributes to the German SDGs (Respondent 12, personal communication, July 14, 2021; Respondent 16, personal communication, January 31, 2022; Re-Spire, n.d.-a).

Objectives of sustainable development in the VCM

Marketability of sustainable development in the VCM

An important topic regarding the inclusion of sustainable development into VCM activities is marketing and the marketability of carbon credits with sustainable development contributions. Derived from communication with respondents and Scott (2013), we have seen that market-based stimuli move in two directions. The first being actors that exercise pressure on others to pursue a certain behaviour (negative) and the second being actors expecting advantages from actions (positive). In this context, the implementation of sustainable development into the VCM institution is initiated by external and internal pressures as well as monetary and reputational incentives.

Pressures are exercised by independent entities like NGOs, consulting firms and watchdog organizations that urge project developers to implement sustainable development in a transparent way. Moreover, pressure is exercised on voluntary carbon standards to require sustainable development reporting, or on buyers to purchase only carbon credits with credible sustainable development contributions. Here, expectations are articulated externally by outsider organization and directed at insider organizations. The communication channels for these pressures are events like webinars, position papers, news articles, policy briefs, etc. (Respondent 14, personal communication, January 13, 2022; The Gold Standard Foundation, 2021, VCM Global Dialogue, 2021).

Pressure can also be put on voluntary carbon standards, project developers and brokers by buyers of carbon credits who want to use sustainable development claims for their own ends (reselling for certain price, CSR, etc.). Additionally, voluntary carbon standards and brokers exercise pressure on project developers and vice versa. In these cases, expectations are articulated by insiders of the institution, distributing roles and creating responsibilities from within.

The positive alternative to these pressures is incentives for VCM actors where the inclusion of sustainable development can translate into advantages for the respective actor (Benites-Lazaro & Mello-Théry, 2017). From the perspective of all VCM actors, the implementation of sustainable development in

VCM projects can generate credibility and attract buyers and clients (Respondent 7, personal communication, May 12, 2021; Respondent 15, personal communication, February 10, 2022). Contributing to sustainable development is an integral part of CSR strategies of some organizations, a concept that establishes social acceptance (Martinuzzi & Schönherr, 2019). Moreover, Voluntary carbon standards are a crucial part of this mechanism, as they generate credibility through the certification of sustainable development contributions within VCM activities. Because of the complexity of (and sometimes controversy within) the market, social acceptance and reputation of organizations and collaborating partners are important elements in the VCM. It is crucial to communicate good intents and credibility for organizations selling carbon credits. Fairtrade, for instance, advertises its collaboration with the Gold Standard Foundation with the social acceptance of the Gold Standard: "The Fairtrade Climate Standard was developed in collaboration with the Gold Standard, an internationally recognized organization with expertise in climate and development projects." (Fairtrade International, n.d.). Re-Spire, the German forestry joint venture, also claims to follow "generally accepted certification principles and criteria from the VCM" (Re-Spire, n.d.-b). Implementing sustainable development into one's activities is also attractive for brokers, project developers and Voluntary carbon standards because it enables the supplier to ask for a higher price for carbon credits. In this, the communication and delivered narrative is important, argued some respondents, as the usage of buzzwords and transparent approaches guarantee market success and consumer satisfaction (Respondent 2, personal communication, April 29, 2021; Respondent 3, personal communication, May 7, 2021; Respondent 9, personal communication, May 19, 2021; Benites-Lazaro & Mello-Théry, 2017).

The responsibility to help

Examining the drivers of action of VCM actors is a crucial step in the attempt to understanding the role of sustainable development in the institution. Different actors will take on roles in the institution, and to those roles come certain responsibilities. Determinant for the roles that actors take on are underlying cultural convictions. As Scott (2013) outlines, "internal interpretive processes are shaped by external cultural frameworks" and "culture provides patterns of thinking, feeling and acting" (p.67).

Within the VCM, a multitude of actors expressed a cultural "western responsibility to help" regarding the implementation of sustainable development in their work. Hence, the privileged take on the role of the helping entity and justify this responsibility to act with their economic welfare and access to resources (Respondent 7, personal communication, May 12, 2021; Respondent 10, personal communication, May 18, 2021). Besides resource availability, some claim to follow Christian principles in their sustainable development efforts. Their role they see directed towards contributing to social development of the developing world and to help the poor (Respondent 4, personal communication, May 4, 2021). This Christian culture is pursued on the personal as well as on the organizational level, where individuals act upon their religious responsibilities and incorporate them in their work, or employees following their organizations' vision and mission. An example of the latter is FairClimateFund, a VCM project developer and broker organization that is part of the Christian development aid foundation Cordaid (Nauta, 2021). FairClimateFund follows the principles and cultural vision of its mother organization and communicates its responsibility to help publicly, as on their website they state, "It is unfair that people in developing countries suffer more from climate change than we do in the West, while we are largely responsible for climate change" (FairClimateFund, n.d.). In their case, this has led to the intrinsic motivation to include sustainable development efforts in their VCM work.

This statement on unfairness is representative for the feeling of guilt many Western (VCM) actors have when it comes to social and environmental inequality. This feeling drives actors' responsibility to do good and tackle inequality (Respondent 8, personal communication, May 10, 2021). In the VCM, actors

can follow this urge through the implementation of emission reduction projects that impose sustainable development contributions. It is, accordingly, noticeable that the line between development aid and emission reductions is blurring, if ever those two things were separate. Many sustainable development contributions featured by VCM activities can be categorized as development aid, even though this view has contenders (Rasmussen, 2017; Calnek-Sugin, 2020; Kleiche, 2006). The example of FairClimateFund reflects the social and environmental are combined in the pursuing of sustainable development in VCM activities. Same is true for the CDM, which had the objective to contribute to the sustainable development of non-Annex I countries while simultaneously assist in reaching emission reduction targets. This conglomeration of terms and notions perfectly reflects the dual objective of climate action and social development that is immanent in the VCM through cultural-cognitive and normative patterns.

Legitimacy & credibility

As briefly mentioned before, the adequate reporting of sustainable development contributions awards the supply side of the VCM with credibility. Voluntary carbon standards play a big role in this, as they set the standards of what is normal and what should be done and by that provide credibility and legitimacy to those compliant to the standard (Respondent 15, personal communication, February 10, 2022; Scott, 2013).

Credibility, legitimacy, and trust were terms that often came back in conversations about successful sustainable development implementation in the VCM (Respondent 2, personal communication, April 29, 2021; Respondent 3, personal communication, May 7, 2021; Respondent 6, personal communication, May 6, 2021; Respondent 11, personal communication, May 18, 2021; Respondent 12, personal communication, July 14, 2021; Respondent 16, personal communication, January 31, 2022). In the first years of the VCM, "wild claims" on contributions, both regarding emissions reduction and sustainable development were made by VCM actors but proof of action was untraceable or non-existent (Respondent 16, personal communication, January 31, 2022). This almost anarchist beginning phase enabled free-riding and greenwashing by many organizations as has been outlined in Chapter 6 already. These years have also germinated mistrust among VCM actors as no one would know which claims were credible and which were not. That this is an on-going issue even in the Paris – Glasgow period is reflected in the statements of respondents expressing trust issues towards other VCM actors. Statements like, "You have some people who will…" or "There are people who do not care" were a regular encounter when talking about dedication towards sustainable development efforts (Respondent 9, personal communication, May 19, 2021; Respondent 12, personal communication, July 14, 2021).

The organizations implementing sustainable development in their VCM work have gained legitimacy, yet not to the full extend. The three dimensions of legitimacy described above work through different mechanisms and might even contradict each other. In the VCM, this is the case. Sustainable development is a legally established concept with legal and quasi-legal requirements to it, which makes organizations that implement sustainable development legitimate. The normative view on legitimacy points to the moral obligation to implement sustainable development. Organizations who put extra effort into the implementation of sustainable development where this is not legally or formally required, would be legitimate in this case. However, the conviction that it is appropriate to include sustainable development in the VCM is not shared by everyone, and critics have a strong voice from the outside (Martinuzzi & Schönherr, 2019; Bellassen & Leguet, 2007). Notwithstanding, on the inside of the institution the appropriateness of sustainable development contributions is generally accepted (VCM Global Dialogue, 2021; VCMI, 2021; Climate Focus, 2022; Respondent 2, personal communication, April 29, 2021; Respondent 3, personal communication, May 7, 2021; Respondent 4, personal communication, May 4, 2021; Respondent 8, personal communication, May 10, 2021; Respondent 9, personal

communication, May 19, 2021; Respondent 12, personal communication, July 14, 2021; Respondent 15, personal communication, February 10, 2022; Respondent 16, personal communication, January 31, 2022). Yet, coming back to the trust issues among VCM actors within the institution, the majority of respondents has stated that with properly transparent sustainable development MRV, the credibility of claims, and hereby the organizations legitimacy, increases (Respondent 2, personal communication, April 29, 2021; Respondent 7, personal communication, May 12, 2021; Respondent 14, personal communication, January 13, 2022; Respondent 16, personal communication, January 31, 2022). This is also underlined by GS4GG which outlines on its website: "More specifically for Gold Standard stakeholders, the ascendance of sustainable development in carbon markets -- great news for local communities and our global society and ecosystems -- has also led to increasing cases of "SDG washing." Overclaiming, or citing positive impacts from projects that have not followed safeguards, engaged stakeholders, or verified their positive contributions, poses a threat to market credibility that is important to mitigate" (Gold Standard, 2019).

With regards to cultural-cognitive legitimacy, Scott (2013) uses the example of the Mafia, an internally legitimate organization that derives its legitimacy from exhibiting "a culturally constituted mode of organizing to achieve specific ends" (p. 74) while at the same time lacking regulative and normative legitimacy. With sustainable development, a culturally constituted mode of organizing is not yet established, as actors on the inside are in disagreement about how to measure, report on, and communicate sustainable development contributions in the VCM. Dissensions still dominate the institution, which makes the institution lack cultural-cognitive legitimacy with regards to sustainable development. An overview of the factors that have facilitated the institutionalization of sustainable development is provided in **Table 3**.

Terminology and other dissensions

Despite the promotion of sustainable development on many levels, a lack of consensus on several topics remains. Whereas some divergencies to not unsettle the institutionalization of sustainable development in the VCM per se, other divergencies pose a high risk to the harmony of the VCM. The divergencies between VCM actors articulated are a reflection of how normative values and beliefs are not yet aligned, and the regulative framework for the implementation of sustainable development is hampered in its evolution. Moreover, where a lack of consensus is detected, future recommendations for policymakers and the VCM can be expressed departing from these issue areas.

Minor differences in opinion were expressed by respondents on the official start of the VCM. Where some state that the first corporate actor purchasing carbon credits marked the beginning, others say that the founding of the first voluntary carbon standard has been the beginning point and yet others name the Kyoto Protocol as the catalyst for voluntary carbon action.

Yet, multiple regulative elements have been subject to diverging ideas. Firstly, the issue who should govern the VCM and the concept of sustainable development came up. Secondly, there was a lack of consensus on how to measure sustainable development contributions. The issue regarding the governance of the VCM split up between the ones who believe that governments should engage more in the regulation of VCM activities and even impose sustainable development requirements on VCM actors (Respondent 2, personal communication, April 29, 2021; Respondent 16, personal communication, January 31, 2022) and others who believe that the VCM can regulate itself in the most efficient way (Respondent 7, personal communication, May 12, 2021; Respondent 15, personal communication, February 10, 20). From interviews it also became apparent that the measurement of sustainable development contributions is highly misaligned, with a variety approaches fragmenting the institution. The very fact that methodologies for sustainable development reporting differ per standard and still

project developers can fill the templates with high levels of freedom and interpretation shows that there is no rule of thumb on how to do so. These two issues are closely connected as this degree of chaos, if pertained for a longer time in an institution, will spur a demand for top-down regulation eventually (Respondent 16, personal communication, January 31, 2022; Scott, 2013).

Differences in opinion remain with regards to shared values and normative perceptions. These regard whether or not a moral obligation to enforce sustainable development exists in general, and what the objective of the VCM is. Both are closely connected, yet the former dissension goes beyond the VCM. This is because the VCM is only one of the many platforms on which sustainable development can be implemented for the advocates of sustainable development. However, the norms and values around the objective of the VCM remain a hotspot for discrepancy.

As has been touched upon earlier, accepted moral obligations and cultural beliefs steer the way in which actors perceive the VCM. On the one hand, quantitative emission reduction under the theme of climate change mitigation counts as the main objective of the VCM (Paterson, 2012; Knox-Hayes, 2010; Respondent 1, personal communication, April 28, 2021, Respondent 11, personal communication, May 18, 2021), and on the other hand, the VCM is said to stem from the demand for sustainable development contributions ever since its beginning (Michaelowa et al., 2020; Respondent 3, personal communication, May 7, 2021; Respondent 8, personal communication, May 10, 2021; Respondent 11, personal communication, May 18, 2021).

The meaning actors give to the VCM and its objective depends on the respective roles actors have taken on in VCM, as well as their cultural or organizational background (as we have seen in the case of FairClimateFund). This issue connects to the more general debate on environmental sustainability and development aid that displays some differences in cultural views. Generally, different opinions were expressed on the importance of (social) development versus environmental sustainability. There are different underlying worldviews and cultural constructions that need to be identified here: One group of respondents argued that without social development (that is, sustainable development in the VCM and development aid), people are not capable of being environmentally sustainable due to their lack of resources and capacities (Respondent 4, personal communication, May 7, 2021; Respondent 7, personal communication, May 12, 2021). Therefore, VCM projects without sustainable development contributions are deemed worthless by this group. On the other hand, people argued that with increasing social and economic welfare, lifestyles become unsustainable. The execution of development aid projects and VCM activities with sustainable development impacts form a sort of imperialist imposition of values and move the focus away from the real polluters in the developed world, as the majority of countries in which VCM activities take place are in countries with comparatively low per capita emissions (Respondent 1, personal communication, Aril 28, 2021; Bachram, 2006; Bumpus & Liverman, 2011; Dehm, 2016). Others, again, stand in between those two stances and argue that sustainable development in the VCM means that social and environmental components must be targeted in order to do justice to the meaning of sustainable development (Respondent 3, personal communication, May 7, 2021). Notwithstanding, it is important to note that this is not a matter of right or wrong, but that this matter is an illustration of different cultural assumptions and worldviews on development and climate change. In the VCM, the views do differ, and therefore, we see the concept of sustainable development not universally applied in the institution.

Another cultural-cognitive debate points to the true meaning of sustainable development. When being asked for definitions of sustainable development, only few respondents would refer to the Brundtland definition (Respondent 4, personal communication, May 7, 2021; Respondent 12, personal communication, July 14, 2021), and others would generally refer to economic, social and environmental

components that need to harmonize. Interestingly, two respondents mentioned "exit strategies" as the true instrument for the reaching of sustainable development. They argued that for the VCM, sustainable development cannot be found in project activities, but in the effects of the project after its termination. The true sustainable component of VCM activities therefore lies in what happens after the project implementation team has left the site and emission reduction target are not quantified anymore. The integration of exit strategies was, in the respondents' view the key to sustainable development in the VCM (Respondent 2, personal communication, April 29, 2021; Respondent 6, personal communication, May 6, 2021).

The myriad of definitions of sustainable development can be linked to the inconsistency of the sustainable development terminology covered in Chapter 6. There is no dominating terminology, yet actors in the institution circulate around some terms (co-benefits, impacts, contributions, SD, SDGs, etc.). The SDGs are an improved framework to measure contributions and form a step closer to standardized measurement of sustainable development in the VCM. Yet, with the SDGs, the measurement becomes more detailed and analytical, and the question arises on why sustainable development is framed this way. As Scott (2013) states: "In a world of words, many of the most important strategies involve choices as to how to frame the situation, how to construct a powerful narrative, how to brand the product. In contested situations, some of the most effective weapons available to contenders involve how to define the actions, the actors, and their intent. Are we seeking "Black power" or "civil rights"?" (p.79). In the context of the VCM and sustainable development, are we seeking "co-benefits" or "sustainable development"?

In sum, the demand for government regulation of the VCM and sustainable development has been expressed at several instances. According to Scott (2013), a demand for top-down regulation shows in cases of lacking consensus among actors in an institution. The demands expressed regarded either national law, carbon standard level regulations, or broker regulations in the VCM that regard sustainable development (among others). By resolving the unbearable complexity of the VCM and the on-going conflicts about what is right and wrong among actors in the institution, governments could benefit from support in their sustainable development strategies, too.

Having stated the empirical findings during the three periods at stake, a discussion will follow that addresses the evolution of sustainable development in the VCM over time, the concepts and topics that pertained to be important, and three other issues that proved to be noteworthy. Having touched upon them in the empirical chapters before, these issues regard the SDGs (or the measurement of sustainable development), greenwashing, and the objective of the VCM.

8. Discussion

The VCM is an institution that has been built by its several actors throughout the years, has been shaped by outsiders and insiders through regulative, normative, and cultural-cognitive processes, and still is subject to change in the global context. The evolution of sustainable development has seen the UN create constitutive rules, governments create regulative frameworks, and standards establish methodologies for the implementation of sustainable development. Moreover, a myriad of interactions between VCM actors was also influential in this matter. Discussions on the meaning of sustainable development and appropriate terminology and the objective of the VCM remain to shape the role of sustainable development in the VCM. Additionally, trust issues among VCM actors feed the greenwashing debate with regards to sustainable development, especially since MRV approaches remain unaligned.

The most important events in the Brundtland – Kyoto period are the release of the Brundtland Report, the first private voluntary carbon offsetting projects, and the founding of the first voluntary carbon standards for emission reduction projects.

In the Kyoto – Paris period, the Kyoto Protocol and its flexible mechanisms, the evolution of the MDGs to the SDGs, and the rise of the several VCM carbon standards that emerged from the shortcomings of the CDM were regarded milestones for the institutionalization of sustainable development in the VCM. Additionally, government interventions, requirements for sustainable development reporting by voluntary standards, and several other demand streams for sustainable development shaped this time. Eventually, even CDM projects experienced de facto implementation of sustainable development beyond methodological requirements.

The Paris – Glasgow period saw the launch of the PA, the increasing operationalization of the SDGs, government incentives like funding and access to resources, and pressures and incentives that supported the implementation of sustainable development in the institution. Important dynamics that were captured in the Paris – Glasgow period, that were valid in the Kyoto – Paris period to a certain degree already, is the emergence of competitive advantages on the supply side of the VCM, both in terms of financial resources and credibility and a demand for top-down regulation of both the VCM and the concept sustainable development. Through standards, sustainable development enhanced private actor's reputation and credibility. Additionally, responsibilities to act, or "help" based on a feeling of guilt drove actor's behavior towards sustainable development. A cognitive connection between development aid and environmental action was observed in this time.

It is important to note that in the three periods analyzed, some elements are specific for the very period – like the government interventions that kickstarted in the Kyoto – Paris period – whereas other processes subsist and reoccur in different forms throughout the periods. As outlined in **Table 3**, standard methodologies, outsider demand and pressures for sustainable development, the uptake of sustainable development by the UN, an ever more consistent terminology, feelings of guilt, privilege, and responsibility as drivers, and religious convictions have been at stake already during the Brundtland – Kyoto period and persisted to be imperative for the institutionalization of sustainable development over time. The fact that these dynamics are not repeated in the other periods does not mean their importance vanished; rather the opposite is true. In the Kyoto – Paris period, the CDM, government interventions, reputational and market dynamics entered the arena and facilitated the institutionalization of sustainable development. In the Paris – Glasgow period, the Paris Agreement make the pursuit of sustainable development legally-binding when engaging in the trade in emission reduction units. The cultural-cognitive pillar is not separated into three periods in this overview. This is because cultural-cognitive

elements are subject to lengthy, intangible evolution. The elements noted here were retrieved in the form of notions and personal background rather than from the interpretation of key events throughout the years. Additionally, the mentioned feelings of guilt, privilege, etc., and religious convictions might even have been at stake prior to the release of the Brundtland Report. This proves that the solidification of an institution is a lengthy process in which myriad of dynamics form perceptions, standards, and rules.

Table 3 Overview of influential concepts in the institutionalization of sustainable development in the VCM. Some concepts were imperative for the institutionalization of sustainable development in the VCM ever since the Brundtland – Kyoto period and have continued to be imperative ever since.

Time periods / Drivers of SD in the VCM	Brundtland – Kyoto	Kyoto – Paris	Paris – Glasgow
Regulative	Methodologies requiring SD		
		CDM with SD objective	Paris Agreement makes pursuit of SD legally binding
		Government interventions: bans and controls on SD-harming activities	
		Government interventions: funding and access to resources for SD-VCM activities	
Normative		Reputation increases with SD	
		Competitive advantages through SD implementation	
	Outsider demand for SD		
	UN uptake of SD sends normative stimuli to VCM in favor of SD		
Cultural-cognitive	UN treaties and resolutions as constitutive rules enabling the institutionalization of SD in the VCM		
	Somewhat unified set of terms for sustainable development		
	Feelings of guilt, privilege, responsibility		
	Religious convictions that motivate SD activities		

Having stated these findings, the question remains of what these processes mean for the institution. Robust institutions steer behavior by enjoining legal, moral, and cultural boundaries on its

members. Against the backdrop of appropriateness and inappropriateness, members of institutions are empowered in certain actions, all within the boundaries imposed. As robust institutions are commonly resistant to change, it is important to understand what those legal, moral, and cultural boundaries are for sustainable development in the VCM because they are determining the future of people and the planet.

This study has identified that the UN, governments, private actors, and standards are highly informative for behavior through regulatory activities, both restricting (through rules and sanctions) and empowering (through funding and rewarding). Other, less salient interactions between VCM actors have elevated sustainable development to a generally accepted concept in voluntary carbon trading. The dynamics and events outlined from Brundtland to Kyoto do not cover the entirety of all that happened in the VCM on the regulative, normative and cultural-cognitive levels. A multitude of events have been organized by different VCM actors on the topic of sustainable development, policy papers have been written, and partnerships and other – sometimes even untraceable – manifestations of developments have shaped the debate on sustainable development in the VCM. This happened partly through the transmission of feelings of guilt and shame where sustainable development was neglected, and pride and safety where it was not. Notions of credibility, legitimacy, competitive advantages (monetary and reputational), as well as trust are additional drivers.

Yet, institutions are maintained through myriad of processes and dynamics, not all of them harmonized by default. Dialogues, frictions, discussions, and dissensions give form to the social reality by defining the desirable and the wanted. In 2022, dissensions exist that regard a deeper discussion as they address crucial topics in the VCM.

The role of the SDGs: measurement, quality, and according terminology

Firstly, with regards to trending terminology, the SDGs are an object of ambiguity in the VCM. The SDGs have become a prominent tool of measurement for emission reduction projects, as they enable the indication of how much (quantitatively and qualitatively) a project has contributed to single SDGs. Beyond the legal, moral, and cultural dynamics that have contributed to this elevation of the SDGs, the discussion point lies in the applicability of the SDGs to the VCM in general.

The SDGs are a global tool, tailored for national application. The translation from the national policy level to the VCM project level is a risky endeavor in which initial values and objectives might get lost. For instance, if a project developer interprets SDG 1 (No Poverty) in purely economic terms using US\$, yet with no consideration of other possible forms of tradeable assets or livelihoods, the true contribution cannot be covered appropriately by the project. Applying the SDGs on projects without proper translation to the project level increases the risk of neglecting the local context, which puts the possible positive contributions of VCM projects at risk.

In an attempt to do so, the SDG framework needs to be worked over, as practical obstacles remain when zooming in. For instance, social and environmental SDGs reveal trade-offs. According to Scherer et al. (2018, p.70), "meeting basic human needs is likely to transgress planetary boundaries". Should the SDGs be used as the major framework to report on sustainable development contributions, special focus must be dedicated to the nature of individual SDGs in order to avoid conflicting "contributions" in a single VCM project.

A third issue at stake is whether priority is given to the quantity or quality of SDGs claimed by projects. If future marketing and demand dynamics develop towards a "more-SDGs-higher-worth" agenda, then carbon credit suppliers will seek quantity before quality in order to hold their market position. Both market-leading standards GS4GG and VCS, for instance, require projects to report on at

least three SDGs, yet for the quality of those contributions, no minimum thresholds are provided with regards to quality. This is, as one could argue, because projects inherit complex local contexts that are difficult to map and address in the form of unified methodologies. Yet, the 17 goals, 169 targets, and 231 unique indicators (United Nations Statistics Division, n.d.), make path for unlimited ways to measure project contributions and potentially neglecting the quality of these contributions. A translation of SDGs to the project level could be approached per project type or country in order to do justice to the local context. Alternatively, an annex delivered provided by project developers could clarify contributions more qualitatively, avoiding a trend towards a higher number of SDGs as compared to less, higher-quality SDGs.

No standardized measurement of sustainable development contributions exists in the VCM, even though the SDGs are helping in approximating this goal. VCM actors have uttered different definitions of what sustainable development means, and visibly, this difference in opinions is reflected in the fact that no MRV design has yet been commonly adapted.

Recent research has offered analytical insight in the possibilities for robust accounting systems for anthropologic contributions of VCM projects. Herr et al. (2019) conducted an impact analysis of the positive and negative impacts of coastal carbon offsetting projects on livelihoods. The sustainable development realm could learn from insights gained from studies like this, as livelihoods is a common concept to map project impacts on populations in the VCM. The conceptual framework used by Herr et al. (2019) to measure positive and negative local livelihood impacts is separated into four themes that cover project types, project outcomes, social impacts and external factors. Per conceptualized indicator, the positive and negative impacts are summarized by examples of projects.

Negative impacts of projects could be accumulated and combined. Based on this, common negative impacts of certain project types can be used to formulate recommendations for the improvement of sustainable development methodologies provided by voluntary standards. For instance, if coastal carbon offsetting projects repeatedly undermine income sources of local fisheries, methodological requirements to avoid any negative impacts on those fisheries can be imposed on these project types by default.

Eventually, these analyses will make it easier to distinguish between actual positive contributions and the avoidance of negative impacts. Also, recommendations for the design of improved MRV mechanisms align conceptions of what appropriate sustainable development implementation is in the VCM.

Further research is needed on the standardization of the SDGs on VCM project-level actions that sheds light on appropriate MRV means for sustainable development contributions in different contexts. Also, in reaction to the demand for government regulation of sustainable development contributions in the VCM uttered by some, the regulation by governments needs to be researched for this matter. Findings could assist in the proper translation of SDGs to the project level according to country specific characteristics. The merge of voluntary and compliance schemes that is underway anyways could also benefit from research on government interventions (Peters-Stanley, 2001; Day et al., 2022; Olsen & Arens, 2021).

Opening the greenwashing debate

This leads to a second point that addresses the quality of reported sustainable development contributions in the VCM. Whether sustainable development consists of the avoidance of negative impacts (safeguards) or the active contribution to the improvement of social and environmental (and economic) conditions of project-affected subjects regards the discussion of active- versus passiveness. In the history of sustainable

development in the VCM, actors have imposed restrictions on projects with negative impacts and simultaneously incentivized the reporting of positive impacts. Both restrictions and incentives were labelled as safeguarding or contributing to sustainable development, with clarifications of the concept lacking in the majority of cases. This is also reflected in the lack of consensus on the definition of sustainable development or standardized MRV design that this research has found among VCM actors.

Firstly, it is important to note that some of the influences the VCM experienced from the outside are subject to bigger institutional settings which put the integrity of concepts like sustainable development at risk. The United Nations, for instance, was highly informative for the institutionalization of sustainable development in the VCM. Nevertheless, it is an institution described as operating "anti-politics" that are steered by lobbying, framing, and technocratic expropriation of stakeholders that are affected by the decisions made on higher levels (Bracking, 2014). In drafting the Green Climate Fund, negotiators copied processes of previous funds without testing them and applied terminology without backing it with meaning. As Bracking (2014) states: "[...] the discursive signifier of "international best practice" is most often found in the absence of stating the exact system of accounting, transparency or safeguarding that will apply" (p.292).

Therefore, it is crucial to view the institution VCM not as a closed system influenced by outsiders with pure intentions and clear agendas, but as a complex institution influenced by other complex institutions. The concept of sustainable development must be operationalized in the VCM context in order for it to not become a hollow concept transferred across institutions. With upcoming concepts like carbon neutrality claims, net zero targeting, or even buzzwords like nature-based solutions, the VCM is an ideal playground for concepts to move legal, moral, and cultural boundaries from the inside and outside. All of these, including sustainable development could be used to broadcast excellence or create other positive images without being tested. Therefore, the United Nations must do efforts to give sustainable development a modified meaning for the VCM context. Besides acknowledging the fact that sustainable development is a holistic concept, it is necessary acknowledge that concepts adapt to different institutional contexts and regard adaptation.

To support this argument, the Corporate Climate Responsibility Monitor 2022 revealed the analysis of 25 large companies that fell grossly short on their communicated climate pledges and failed to stand transparency criteria. As a reaction to the complexity and confusion sawn by private actors with regards to carbon neutrality claims, the assessors summon private as well as public actors to abandon the "carbon neutral" and "net zero" terminology, as accounting and measurement have failed to be aligned and form a black box of greenwashing (Day et al., 2022). They criticize the European Commission for having "net zero targets" yet not being transparent about details of their efforts. The authors demand regulative bodies to initiate regulations and to choose robust accounting systems over reputational terminology (Notes Webinar CCRM 07Feb2022).

An analysis of whether the concept of sustainable development is used in the same untransparent way as "carbon neutral" could contribute to a more robust application of the concept to international policy fields. This could regard the VCM but also go beyond it, as sustainable development is not restricted to environmental matters. One institution that is merely researched from this point of view is the pharmaceutical field where the concept of sustainable development is yet to be institutionalized, while its importance has already been acknowledged (Wynendaele et al., 2021). An analysis of corporate action similar to the Corporate Climate Responsibility Monitor 2022, could apply a discursive lens on sustainable development and selected terms related to it (for instance, "co-benefits", "social benefits", "environmental benefits", "livelihood impacts") in different institutions and examine whether the

concepts are backed with proper and transparent accounting methodologies. For the pharmaceutical field, lessons learned from the sustainable development debate in the VCM could possibly be provide the establishment of a sustainability standard setting organization similar to the voluntary carbon standards. Additionally, debates on social development versus environmental actions in drug discovery and development are also expectable in this field, and lessons can be learned from this study.

Building on the criticism uttered by the authors of the Corporate Climate Responsibility Monitor 2022, the VCM must be understood as a highly complex institution that inhabits myriad of concepts and words that are even misinterpreted by insiders of the institution. While acknowledging that many concepts would be regarded as important by insiders in the VCM, introducing all concepts at stake in the VCM would go beyond the scope of this research. Many of the concepts do regard sustainable development in one way or the other, yet do they require explanation that shift focus away from the objective of this study. Examples are the GHG Protocol, the SBTi, policy documents like the NDCs, common carbon market accounting terms like additionality, scopes 1-3, baseline setting, permanence testing, CSR and social and environmental integrity. This variety of terms is a consequence of the conglomeration of fluctuating insiders and outsiders that change positions and transfer knowledge across companies, across sectors and across governments, all of which forming the VCM (Respondent 3, personal communication, May 7, 2021). Also, because sustainable development is a holistic concept in the first place, clear boundaries are difficult to draw.

This realization is important since research has found that certain concepts in carbon markets serve as "social license" for action. In the context of sustainable development, accurate wording creates legitimacy for operation, "portrayed as a means of achieving sustainable development" (Benites-Lazaro & Mello-Théry, 2017, p.224). Moreover, VCM actors have experienced reputational advantages from this social license. Not only by implementing of sustainable development in their work, but also during interviews, some respondents took great care their organizations' reputation was not harmed. The image of an organization detectably steered answers, especially when the cultural-cognitive dimension was addressed, so that sustainable development was an intrinsic value rather than anything disgraceful like a marketing tool. Some opinions tended to favor a companies' outer appearance or were in line with organization policies rather than reflections of opinions. This social desirability bias was detected among respondents belonging to organizations rather than among independent experts. This is by no means invalidating the institutional dynamics of the VCM. On the contrary, it reflects the organizational reality some VCM actors live in and a good example of how institutions maintain themselves through actors that communicate institution related topics in a commonly accepted way.

The misaligned objective of the VCM: development versus environment

Ambiguity remains on the true objective of the VCM in terms of social or environmental targets. As Michaelowa et al. (2020) argue, the 2030 Agenda for Sustainable Development and the PA "mark the culmination of decades of negotiations on governing climate and development policy together […]" (p.60). Yet, the targets different actors aim at are diverse, counting from development aid to environmental sustainability, aiming at publicly communicated carbon neutrality claims to behind-the-doors philanthropy. This diverse set of intentions and lack of a common agenda makes the differentiation between actual positive contributions and greenwashing a complex problem. Paterson (2012) argues that the common goal of the VCM is decarbonization operating in a capitalist system, yet when it comes to sustainable development, the objective of the VCM seems to broaden. Further research is needed to examine the common agenda of the VCM as perceived by a representative number of VCM actors. Research could also shed light on the nature of the objective of the VCM, whether it is singular or potentially a combination of development aid and environmental action, as Michaelowa et al. (2020)

propose. Climate change, by being an environmental threat to humanity, legitimates social development aid projects under the cover of carbon offsetting. Sustainable development is a means for this legitimation Benites-Lazaro & Mello-Théry, 2017).

Connecting with this dissension in mindsets from a top-down perspective, Bracking (2014) analyzed that political dynamics around the UN-negotiations of the Green Climate Fund in which the false dichotomy of "serve the people or fix the planet" (p.290) stood central, too. Implicitly, the UN draft documents he analyzed express the assumption that "development and climate change mitigation efforts should be seen as heuristically opposed" (p.290). This is a suggestion on the UN-level on climate finance and shows that the paradigm of development aid versus environmental actions is perpetuated not only on the VCM-level. Viewed from a CSR stance, Benites-Lazaro & Mello-Théry (2017) found that VCM actors' motivations to include CSR activities (in this case conceptually including sustainable development), also oscillated between the "social protection discourse" and "business environmentalism" (p.224).

One reason for this split is the organizational background of change agents. This complex institution is constantly being changed by internal and external influences that steer the direction of dynamics. Actors coming from a finance background might be more interested in achieving a stable market price for carbon credits, whereas former humanitarians might focus on sustainable development mainly. Former government employees might contribute to a higher degree of bureaucracy in the VCM. A follow-up research on the organizational background of the actors included in this study could shed more light on this effect. In this context, it is also noteworthy that this research mainly shed light on those actors in the VCM who have attributed importance to sustainable development. The possibility is given that this research outlined important dynamics between pioneer organizations and pro-sustainable development actors and does not represent the institution in its entirety. Yet, the voluntary carbon standards analyzed in this research possess the biggest market shares, which enables the formulation of general conclusions on voluntary carbon standards.

Theoretical perspective

Zooming out, the VCM and the concept of sustainable development must be viewed from a political ecology perspective since the VCM and the institutionalization of concepts are embedded in a wider political economy context (see 2. Theoretical Framework). This study has highlighted the regulative, normative, and cultural-cognitive dynamics that facilitated the institutionalization of sustainable development in the VCM, grasping the unwritten, informal, and subjective perceptions of sustainable development and touching upon moral standards that solidified into law over time. However, other scholars have examined the concept sustainable development applying political ecology considerations, which is comparatively analyzing on the macro-level (Bryant, 2001; Escobar, 1996). The concept of sustainable development can be viewed as a mindset that is imposed on certain regions geopolitically. In contrast, this study took sustainable development as a concept that is filled with meaning on the individual/organizational level within the VCM institution. In order to gain a holistic understanding of how both the VCM and the concept of sustainable development is viewed among different schools, it is helpful to look at how other scholars have approached both the institution and the concept.

Two streams of the political ecology school are particularly interesting as they show considerable overlap with the theoretical considerations of the political economy outlined earlier: realist political ecology and poststructuralist political ecology. Both schools address the power of groups that steer institutions, whereas realist political ecologists focus on these socially constructed power structures, the poststructuralist stance examines the role of capitalism in the political, social, and scientific processes that facilitate certain perceptions of the environment. By applying the realist lens, the VCM becomes an

institution that is steered by the powerful actors in the "First World" that determine leading science and technology studies, constructing a discourse that follows the agenda of those who made it or at least shapes the perceptions of environmental processes at stake. Biophysically real environmental assumptions in the VCM – the listing of possible carbon stocks, methods to reduce and remove emissions, the listing of eligible GHGs – are steered by one group, but do not necessarily reflect the needs and wants of others. Deforestation is mentioned as an example of an environmental process that is connotated as degradation by some, but as benefit by others:

> *"The construction of deforestation as degrading is therefore a hybrid blend of physical impacts, social framings and values that reflect the perspectives of more powerful groups"* (Forsyth, 2001, p.4).

The VCM, and with it the concept of sustainable development, is seen by some as a construct of Northern mainstream environmentalism that still shows links to the colonial past of many countries involved, therefore being a highly politicised institution (Bachram, 2006). The sustainable development discourse can be viewed as a conceptual result of political and social struggles that aimed at a holistic solution to global inequalities and environmental protection. However, it is not guaranteed that perceptions transmitted in this discourse are shared by all. Moreover, applying sustainable development to the VCM poses the risk that complex biophysical processes are oversimplified under the motif of sustainable development, thereby perpetuating inequalities and "degradation".

In contrast to the realist political ecology perspective, the three pillars of institutions by Scott (2013) provide a more neutral look at the evolution of the concept of sustainable development in the VCM. By not judging political and social processes a priori as following an imperialist agenda, the three pillars are rather descriptive and serve as a means to anticipate future institutional change. This study has indicated the main developments and dynamics that carry the concept of sustainable development in the VCM yet refrained from placing these dynamics in a political context. Lessons from this study can be learned about the elements imperative for changes in the VCM.

However, there is additional value in analysing the evolution of sustainable development in the VCM with a realist political ecology perspective. The dynamics that initiate institutional change could be enriched by their political and social meaning and consequently influence the discourse of sustainable development and emissions trading. As Forsyth (2001) argues, no discourse fully grasps the nature of environmental biophysical processes (including climate change). However, different discourses do reflect the social reality groups are living in and thereby contribute to a mutual understanding of the needs of the other. Combining alternative biophysical and social assumptions on emissions trading with those on development could make common ground for interlinked climate and development policy.

An alternative approach to analyse the sustainable development realm in the VCM is initialized in the theory of poststructural political ecology, as it implicates thought on the natural environment as well as on capitalism. Similar to Forsyth (2001), Escobar (1996) argues that "the promotion of [sustainable development] by a First World-led coalition of government, business, and science reflects a series of assumptions about society, science, technology, development, and the environment which are supportive of the social and economic status quo worldwide" (p.49). Assumptions of what sustainable development and the VCM are, are the foundation for environmental and social action, which is why contesting definitions of these concepts are greatly important (Bryant, 2001). Furthermore, in the poststructural political ecology perspective, capitalism is seen as the system in which environmental degradation perpetuates social inequalities between South and North, conditioned by scientific discourses. Bryant (2001), too, uses the example of deforestation to highlight this point:

> *"To take the forestry case again, logging practices reflect not only market imperatives of supply and demand. They are also conditioned by scientific knowledge acquired about the properties and incidence of commercially valued trees" (p.163).*

The political, social, and scientific processes that have facilitated, contributed to, or at least not rejected voluntary carbon trading are therefore responsible for the scale and impact of the VCM, and also for the institutionalization of sustainable development in it. Like environmental factors, social development is measured, monitored, and accounted for in the form of the SDGs – again a product of political and social developments taking place in a Northern influenced discourse (Ziai & Schöneberg, 2020).

This postmodern ecological capitalism "is an attempt by business and science to generate new sources of economic accumulation through penetration of the essence of nature and life itself" (Escobar, 1996, as cited in Bryant, 2001, p.163). The commodification of not only emission reduction carbon credits but also of sustainable development contributions happens through "activities which are reshaping basic categories of life as part of the wider quest for profit" (Bryant, 2001, p.163). The trade of carbon credits is composed of, viewed from this perspective, the accumulation of economic profit by the supply side of the VCM (brokers, project developers, retailers, …) covered in scientific knowledge on environmental conditions and modernist development strategies (Bachram, 2006).

Poststructuralist political ecologists call for the abandoning of the term 'sustainable development', and more generally prompt action that opposes development trajectories that sell development and environmental truths. This call for action aims at the abandoning of the exploitation of the Third World and a political struggle that oscillates purely between concepts and assumptions, like biodiversity, economic growth, income generation, as the list continues. Some of these concepts are downright tools to impose the sustainable development thinking on regions, be it in VCM activities or not. Concepts are mostly backed with scientific and expert knowledge:

> *"Such expert knowledge has encompassed such things as health, education, economy, and ecology [the SDGs], and has served the purpose of enhancing outsider understanding of, and control over, local populations and human-environmental dynamics [VCM supply chain]" (Bryant, 2001, p.163).*

The imposing of the sustainable development mentality is described as "a means of enabling closer and more systematic monitoring of all environmental management practices in the area by the state, with the declared aim of safeguarding the natural environment" (Bryant, 2001, p.165). Certainly, the aspiration to robustly account for and monitor environmental components in the VCM, and especially sustainable development contributions in it, are visible trends that have also found articulation in this study. The VCM mainly operates projects in non-Annex I countries, whereas credits are sold in Annex I countries (UNEP CCC, 2022; Respondent 2, personal communication, April 29, 2021). This fact, in addition to the market dominating discourse of "robust accounting" by VCM actors (Gold Standard, n.d.-a; UNDP, 2021; Climate Focus, 2022), makes the hypothesis of imposed outsider mindsets on local populations and human-environment dynamics sound plausible.

What poststructural political ecologists overlook in this case, is that many VCM actors adapt to the circumstances they find themselves in and aim to improve already established systems. An NGO working with or in the VCM might have concerns about the objective of the VCM yet might be working on the standardization of the SDGs in VCM projects in order to improve the flawed – yet real – system and safeguard environmental and social integrity out of a fear that no other VCM actor is willing to do it.

However, looking at the concept of sustainable development in the VCM from a poststructural political ecology perspective might enable a more critical view on the commodification of the natural environment and shed a different light on sustainable development in voluntary carbon trading. The theory succeeds in criticising the concept of sustainable development as one selected truth, unable to mirror global needs, and challenging the taken-for-granted concept of holism. Value could be attached to single dynamics if the findings of this study – the dynamics that elevated sustainable development to a prominent position in the VCM – would be combined with considerations regarding South and the North, development trajectories, science and technology, and different kinds of knowledge. The VCM is a capitalist tool in the fight against climate change, and therefore a critical analysis that covers the nature of capitalism itself is helpful in understanding the VCMs sustainable development implications for local human-environment dynamics.

9. Conclusions and recommendations

This study aimed at uncovering the processes that institutionalized sustainable development into the VCM. This was done by analyzing the regulative, normative, and cultural-cognitive dynamics that facilitated this institutionalization from the release of the Brundtland Report in 1987 to COP26 in 2021. Besides shedding light on the drivers of the institutionalization of sustainable development in the VCM, this study found several topics over which unclarity or even tensions remain. It can be concluded that the VCM is a complex institution that connects to myriad of other institutions and is influenced by insiders and outsiders. Elements that create tensions as well as harmonization led to the institutionalization of the concept of sustainable development in the VCM throughout the years.

This study sheds light on the drivers of institutional change using the perspective of sustainable development in the institution VCM. Institutions, the basis of social stability, are generally resistant to change, hence is identifying the elements that maintain institutions crucial for the future of international climate policy. This is because the common agenda shared by the actors of a private actor-led institution are not necessarily in line with the objectives of effective climate action from an international policy point of view. Therefore, a holistic understanding of the processes that integrate sustainable development in the institution VCM assists in the anticipation and preparedness of and for institutional change that affects social realities and possibly the future of people and the planet.

The study covered the period of 1987 through 2022. This timespan was divided into three periods: "Brundtland – Kyoto" (1987 – 1997), "Kyoto – Paris" (1997 – 2015), and "Paris – Glasgow" (2015 – 2021). Background research on these timeframes was complemented by a document analysis of selected voluntary carbon standard methodologies and UN resolutions and treaties. Furthermore, 16 interviews were conducted with VCM actors and external experts. This data was complemented by insights gained at VCM related online and physical events, e.g. webinars and COP26 in Glasgow. Focus was dedicated to regulative, normative, and cultural-cognitive elements regarding sustainable development in relation to voluntary carbon trading.

Consequently, several processes were found to be forming the regulative, normative and cultural-cognitive pillars of the institution VCM. A variety of elements are specific for each period, and others remain important throughout the whole timespan. As is visible in **Table 3**, many influential dynamics date back to the Brundtland – Kyoto period (or even before that) and remain important institutional drivers during the other two eras. The roots of the institutionalization of sustainable development stem from the period between Brundtland and Paris yet solidify in the form of law only in the Paris – Glasgow period. Drivers come from within the institution as well as externally. Additionally, no process is purely regulative, normative, or cultural-cognitive. Rather, processes have bigger and smaller influences of each or two of the categories, connecting the institution from within.

In the VCM, this study has shown, concepts are elevated to a prominent position in the institution via methodologies on the inside, restricting and empowering regulations from the outside, pressures and incentives which create norms and values from the in- and outside, constitutive rules, common cultural convictions, and the uptake of a certain discourse.

Firstly, the certification of socially accepted processes by voluntary carbon standards established reputational values and marketing incentives among VCM actors that drove sustainable development in all three periods. Voluntary carbon standards are the normative and regulative guts of the institution. This is because methodologies anchored sustainable development in the VCM ever since the late years of the "Brundtland – Kyoto" period.

Secondly, both government interventions aiming at the avoidance of negative impacts of VCM projects and support provided to projects that positively contribute to sustainable development are tools that regulative and normatively steer VCM actor's behavior. These interventions were observed most notably in the period "Kyoto – Paris", where bans of project types were integrated into EU law. Furthermore, government support for positively contributing projects in the form of sustainable development funding and the awarding of sustainable development related prices was observed in both the "Kyoto – Paris" and "Paris – Glasgow" period.

Thirdly, the integration of sustainable development as a framework by UN bodies created the norm of integrating sustainable development among VCM actors. The UN resolutions and treaties discussed in this study also serve as constitutive rules that cognitively create the possibility for sustainable development to be integrated into the institution VCM. The interaction between UN and VCM is therefore normative and cultural-cognitive.

Additionally, outsider organizations like watchdog organizations and environmental and social NGOs put pressure on VCM actors concerning sustainable development. Inside the institution, VCM actors experience competitive advantages when integrating sustainable development in their work, both in monetary and credibility terms. The pressures are persistent throughout all periods, whereas the incentives are a phenomenon that came along with the rise of voluntary carbon standards in the "Kyoto – Paris" period.

Lastly, sustainable development terminology evolved from a mixture of several terms to a somewhat unified set of terms referring to sustainable development. Furthermore, cultural convictions pointed to a "responsibility to help". This means that sustainable development in the VCM functions as a holistic framework in which development aid and environmental action are harmonized. These convictions are in some cases rooted in Christian religious beliefs of the development aid paradigm and in other cases connoted with "Western" feelings of guilt. An overview of all relevant dynamics is provided in **Figure 7**).

The elements that remain subjects to tensions regard sustainable development MRV requirements offered by voluntary carbon standards. Furthermore, trust issues among VCM actors exist that jeopardize credibility and the establishment of a common agenda. Greenwashing risks with regards to sustainable development exist if the respective terminology is to be associated with hollow words. Finally, both the objective of the concept sustainable development and of the VCM are subject to dissensions. These dissensions are grounded in fundamentally different mindsets on whether development aid or environmental action should be prioritized.

As a consequence of these drivers and frictions, the concept of sustainable development will increasingly become important in the VCM. As has been outlined in this study, voluntary carbon standards are highly flexible organs of the VCM institutions that quickly respond to changes in demand. Thus, standards, along with all other actors in the institution, will continue to discuss sustainable development in the VCM context, trying to resolve frictions while at the same time following their own interests and making paths for robust sustainable development integration in voluntary carbon trading. Derived from the fact that many are interested in it or even working on it already, it is expectable that the standardization of MRV requirements will be targeted by insiders and outsiders of the VCM in the future.

Conclusions from this study have implications for other fields in which either voluntary carbon trading or sustainable development play a role. The study has disclosed special traits of both the VCM and sustainable development, yet can the analysis be used separately for the institution and the concept. In the VCM, this study can be used as a blueprint to analyze other VCM-related concepts like carbon neutrality, carbon footprints, integrity, or CSR. Since regulative, normative, and cultural-cognitive processes can harmonize an institution, this means for carbon markets that an anticipation and steering of institutional change is possible. Further research on these concepts will bring different findings which open new debates, which is why it is recommended in order to understand the VCM in relation to these "trending" concepts.

Governments
SD awards, funding, bans, and sanctions

UN
Basis of national SD regulatory frameworks

Voluntary carbon standards
Methodologies, rules & requirements

Governments
SD discourse

UN
Constitutive rules for SD in the VCM

VCM actors
Feelings of guilt, privilege, responsibility
Religion

Governments
SD awards, funding, bans, and sanctions

UN
UN activities and collaborations send normative stimuli in favor of SD

VCM actors
Reputational advantages with SD
Competitive advantages with SD
Social acceptance of SD among VCM actors

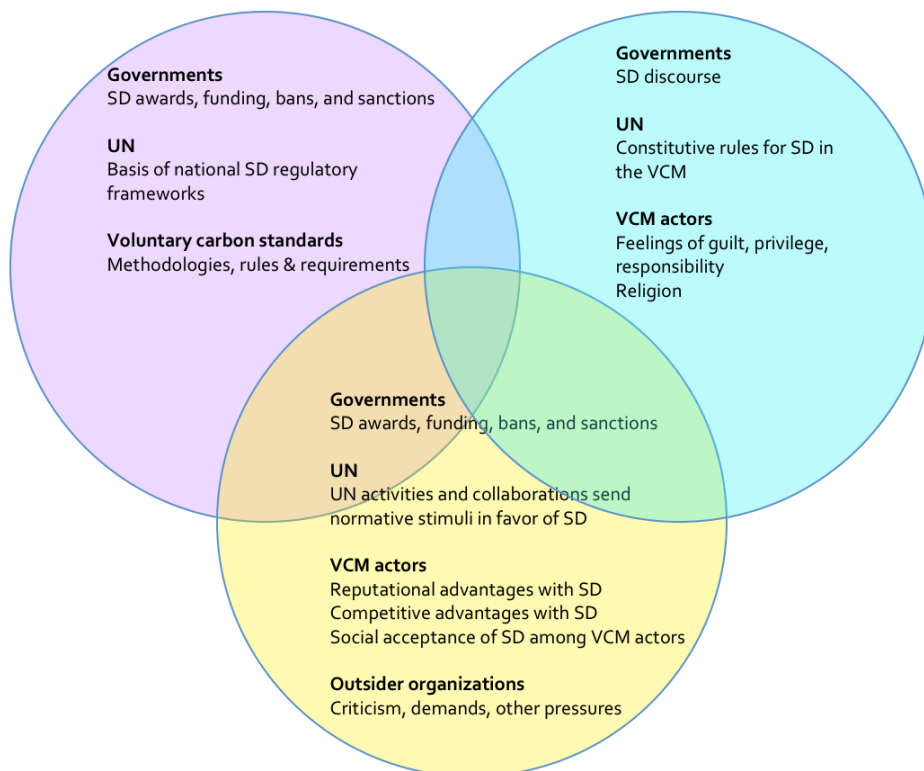**Outsider organizations**
Criticism, demands, other pressures

Figure 7 Overview of Dynamics Facilitating the Institutionalization of sustainable development in the VCM. Whereas Table 3 shows imperative concepts through a temporal lens, this Figure depicts the categorisation in regulative, normative, and cultural-cognitive dynamics.

With regards to sustainable development, this study helps understanding the concepts' institutionalization in other fields. The global spread of the concept of sustainable development touches not only voluntary carbon trading, but also fields in international diplomacy or private actor-led institutions. Thus, this study helped in the dual understanding of how sustainable development (the concept) is institutionalized in an institution, and how the VCM (the institution) institutionalizes concepts.

Moreover, in order to better understand the elements that remain to cause friction with regards to sustainable development in the VCM research is needed. These elements represent important topics in the pursuit of sustainable development in the VCM in a socially and environmentally integrative way that suits all VCM actors, e.g. a standardized measurement tools for sustainable development, or top-down regulation by national governments or the United Nations.

Private actors in the VCM should consider collaborations with the aim to develop holistic SDG standardization methodologies and align their work with other VCM actors. Simultaneously, private actors need to learn more about sustainable development values and the impact of their work in a global

perspective. Moreover, the UN should provide a translation framework of the SDGs to project level actions in collaboration with project developers, sustainable development experts, and project-affected populations. Lastly, governments should increase their knowledge of the VCM in order to be able to regulate if necessary, and to better impose those regulations and target the right groups. Minimizing greenwashing risks and safeguarding integrity, is a government task, especially where governments must comply to the PA. As this knowledge is lacking while governments even merge their sustainable development strategies with VCM activities, it is necessary that they understand the market to the highest possible extent.

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Appendix: Topic guide

The voluntary carbon market (VCM), like any other institution, is carried by three pillars: the regulative, normative, and cultural-cognitive pillar. Since the release of the Brundtland Report in 1987, the concept of sustainable development (SD) has been institutionalized in the voluntary carbon market. The aim of my research is to assess how this is done through regulative, normative, and cultural cognitive processes.

Main Questions	Additional Questions	Clarifying Remarks
(A) Could you describe the structure of the VCM?	• What is your position in the VCM? • Describe your professional surroundings (relationships, operations, …) • Describe the history of the VCM	• You are free to answer from your personal perspective, but also from your organizational background. • You can talk about trends that you have observed if you do not have personally experienced a topic.
(B) What is SD?	• How would you define SD? • What is the history of SD? • What is the role of SD in your VCM work?	
(C) How is sustainable development regulated in the VCM?	• Is SD anchored in law? • Is SD anchored in voluntary standard methodologies? • Are there any SD-related funding mechanisms that you are aware of?	
(D) What is your normative stance on SD in the VCM?	• Do you feel any responsibility or moral obligation to pursue SD in your VCM related work? • Are there any marketing implications related to SD that you are aware of? • In particular, can you expand on reputational implications of SD in the VCM? • What are pressures and incentives that you feel with regards to SD in the VCM?	
(E) What are your cultural convictions with regards to SD in the VCM?	• Do you think development aid/environmental action is a task of yours or your culture? • What are important terms in the field of SD in the VCM? • Do you know of knowledge transfer or hotspots in the VCM?	