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Assessing Credibility in the Voluntary Carbon Market?

Developing, testing, and evaluating a credibility assessment framework using the Integrity Council for the Voluntary Carbon Market as a case study

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Thank you all for being.

Abstract

Voluntary carbon markets (VCM) have grown significantly over the past years. However, the VCM is facing a 'credibility crisis' due to governance, technical, and market issues. Notably, despite the significant role of credibility in the VCM, a lack of systematic assessment frameworks in this area is discerned. To address this knowledge gap, this thesis set out to build, test and evaluate a framework for assessing the credibility of international standard-setting (ISS) initiatives. The thesis follows a three-staged process: (i) the development of an assessment framework, (ii) its application to the Integrity Council for the Voluntary Carbon Market (ICVCM), and (iii) the evaluation of the proposed framework. Using a set of complementary analytical methods, the research outcomes reveal numerous findings. First, credibility assessments should be based on multiple dimensions to encompass the concept's complexity and multilayeredness. Second, the ICVCM is credible in terms of the level of expertise involved and diverse stakeholder engagement but fails regarding transparency and impartiality. Third, credibility assessments are context-specific and only valid at a given place and time as normative beliefs and an initiative's function evolve over time. This thesis contributes to improving the functioning of the VCM as it helps to identify areas for improvement within ISS initiatives, raise awareness of the imperfection of the VCM, and distinguish good practices from bad ones.

Keywords: voluntary carbon market, ICVCM, credibility, assessment framework

Executive Summary

Background and Problem Description - Climate change is accelerating at a life-threatening pace. In response, carbon markets (CM) have become a prominent market mechanism in combating climate change. Theoretically, CMs can deliver greenhouse gas (GHG) emission reductions at the lowest possible cost and provide incentives to innovate in emission reduction or carbon removal technologies. In parallel to the surge of companies' net zero and carbon neutrality pledges, the voluntary carbon market (VCM) has grown significantly in recent years. However, unlike compliance carbon markets (CCM), which are regulated by mandatory regimes, the VCM has been facing a growing 'credibility crisis' due to governance, technical, and market issues (e.g., lack of regulation, lack of additionality, greenwashing, etc.) In response, several international standard-setting (ISS) initiatives, such as the Integrity Council for the Voluntary Carbon Market (ICVCM), have emerged to address critical quality and use issues and restore market and public credibility.

ISS initiatives play a crucial role in the VCM. They are the steering force behind the VCM because they develop the rulebooks and standards that actors within the VCM have to comply with to ensure that carbon credits (CC) represent real and genuine GHG emission reduction. Various frameworks and methodologies exist in the VCM to assess the quality of CCs, the rigour of carbon crediting standards or the truthfulness of environmental claims. However, there is a clear lack of comprehensive and systematic frameworks for assessing ISS initiatives' credibility. This is troublesome because, first, ISS initiatives are self-regulated and primarily led by the private sector, implying a conflict of interest since companies develop the rules they need to comply with. Second, these initiatives attempt to be a global governance and oversight body in order to steer and shape the future of the VCM, which could potentially delay urgent climate action. In short, despite growing consensus in the CM community about the role and significance of credibility in the VCM, there is a knowledge gap regarding how credibility can be assessed in the context of the VCM.

Aim and Research Questions – Prompted by the growing 'credibility crisis' of the VCM, this thesis aims to build a framework for assessing the credibility of these initiatives. The thesis hypothesizes that such assessments should enable stakeholders to better understand ISS initiatives' credibility and trustworthiness. Moreover, a functional and systematic evaluation of ISS initiatives' governance structures and operating models help identify areas for improvement, raise awareness of the VCM's imperfection, and distinguish good practices from bad ones.

To that end, the specific objective is to develop, test, and evaluate a credibility assessment framework that can be applied to ISS initiatives. First, this thesis develops an assessment framework based on stakeholders' discursive positions and a set of nine credibility principles plus qualitative indicators that can be potentially used to assess ISS initiatives in the VCM. Second, the proposed framework is tested in the field by assessing the credibility of the ICVCM. It involves stakeholders to improve the quality and applicability of the assessment framework. Third, the framework's suitability and adequacy are evaluated based on the results obtained and the criterion of trustworthiness. Against this background, four research questions emerged, guiding the three-staged process of the framework. While the first three focus on the framework's design, the last addresses its evaluation.

RQ1: How can the credibility of ISS initiatives in the context of the VCM be conceptualized and assessed?

RQ2: What discursive positions dominate stakeholders' perceptions regarding the VCM and ICVCM?

RQ3: Using the ICVCM as a case study, what factors contribute to or challenge an initiative's credibility?

RQ4: What can be said about the suitability and adequacy of the assessment framework?

Research Design and Methodology – Different qualitative methods were deployed to achieve the thesis' objective. Regarding data collection methods, the thesis includes 18 semi-structured interviews with VCM experts from different stakeholder groups, literature reviews (e.g., journal articles, grey literature, and governance documents of the ICVCM) and first-hand observations in webinars (e.g., the introduction of the new ICVCM meta-standard). Concerning data analysis, three analytical tools were deployed, each with particular strengths to contribute to finding answers to the research questions. For **RQ1**, a principle-based concept analysis was conducted to advance the scientific concept and obtain a theoretical definition of credibility in the study's context. For **RQ2**, discourse analysis was applied to identify the dominant discursive positions of interviewees regarding the VCM and ICVCM and understand their perceptions of the ICVCM's credibility. Finally, for **RQ3**, a qualitative content analysis was performed to determine critical factors shaping an initiative's credibility. Finally, to answer **RQ4** based on the evaluation criterion of trustworthiness, the researcher locates his worldview, values, and beliefs in the constructivist paradigm.

The Research Case Study: The ICVCM – The ICVCM, established in 2021, is an independent, stakeholder-led, and self-regulated governance body for the VCM. The private-sector-led ICVCM aims to develop and implement a new global meta-standard for high-quality offset credits to accelerate a just transition to 1.5 degrees Celsius. In light of this ambitious goal setting, this organization is argued to be a game-changer in the landscape of the VCM.

Results Part I: Dominant Discourse Positions – The research identified five dominant discursive positions regarding the VCM, including (i) purpose, (ii) crisis, (iii) market development, (iv) systems change, and (v) policy interaction, and one, namely (vi) expectations, regarding the ICVCM.

The findings reveal that (i) stakeholders primarily focus on the financial potential rather than the emissions reduction potential of VCMs. (ii) The 'credibility crisis' seems to be caused mainly by the incompatibility of an imperfect and *squishy* market instrument with bold claims for carbon neutrality. (iii) While many stakeholders assume that the VCM will continue to grow, none believe it will explode, as postulated by several recent growth projections. (iv) Due to inherent quality issues and greenwashing, several stakeholders question the market's credibility and, more importantly, the system behind it, leading to the development of alternative approaches, such as *climate contributions*. (v) Although regulatory enforcement and voluntary compliance are often perceived as two forces that tend to go opposite, voluntary action is not a good substitute for government policy and regulation. (vi) While many stakeholders hesitate to judge the ICVCM's credibility, the ICVCM's attempt at establishing a meta-standard to ensure the high quality of CCs is associated with various opportunities (e.g., higher quality standards, building confidence among buyers) but also risks (e.g., dependence on willingness of market players, legitimization effect of low-quality CC).

Results Part II: ICVCM's Credibility Assessment – Based on the concept analysis, *credibility is conceptualized as a multidimensional and complex concept that describes an attitude within a continuum towards an institution held at a given time, space, and context by a particular receiver.* The conceptualization of credibility relies on a set of multidimensional characteristics, including *(i) competence, (ii) character, and (iii) goodwill,* because credibility cannot be directly measured. Instead, it is defined and shaped by normative belief systems and determined by a receiver's background, discursive position, and

experiences. Therefore, a systematic and functional framework that intends to go beyond biased and influenced stakeholder perceptions is essential for gaining a deeper and more objective understanding of an ISS initiative's credibility.

Given the above, a credibility assessment framework consisting of a set of nine principles and several qualitative performance indicators is proposed. Finally, the framework was applied to the ICVCM, and Figure 0.1 summarizes the results, followed by a short explanation of some important insights from the assessment results.

Principle	Description	Overall rating
Expertise	The initiative has the necessary knowledge, skills, and experience to effectively achieve their near-term and long-term goals and targets.	**High**
Improvement	The initiative seeks to understand their impacts, measures and demonstrates progress towards their intended outcomes, and engages in ongoing learning and adaptation.	**Medium**
Consistency	The initiative incorporates the best and most current scientific understanding about good practices and relevant international norms while being consistent in their approach, application, and decision-making.	**?**
Truthfulness	The initiative's claims and communications are verifiable, not misleading, and enable an informed choice. It ensures the quality, accuracy, reliablity and integrity of the information provided by the initiative.	**Medium**
Transparency	The initiative is transparent in its processes, decision-making, funding and communication and makes relevant information publicly available and easily accessible.	**Low**
Authenticity	The initiative is honest and commited to reaching its long-term goal while not trying to whitewash its reputation or be sensationalist. Its actions and communication are aligned with its values and vision.	**Medium**
Fairness	The initiative engages a balanced and representative group of stakeholders that is impartial, diverse and equitable, and it empowers stakeholders to resolve complaints with fair mechanisms.	**Medium**
Engagement	The initiative provides meaningful and accessible opportunities for active involvement, participation, and consultation of stakeholders.	**High**
Impartiality	The initiative identifies and mitigates conflicts of interest throughout their operations, particularly in decision-making and governance. Transparency, accessibility, and balanced representation contribute to impartiality.	**Low**

Figure 0.1 Summary of the ICVCM's credibility assessment

The ICVCM is considered *credible* in terms of expertise and stakeholder engagement because the Expert Panel demonstrates extensive knowledge of CM and fundamental technical and practical expertise with an excellent track record regarding supply and demand issues along the CC value chain in the VCM. Moreover, various experts have already designed, implemented, and evaluated comparable or similar initiatives (e.g., the Carbon Credit Quality Initiative (CCQI)). Also, the initiative promotes public consultations for stakeholder input, workshops, etc., to gather feedback and suggestions (e.g., public consultation on the draft standards with more than 5000 responses).

The ICVCM is considered *not credible* in terms of transparency and impartiality because various aspects regarding its funding sources (e.g., corporate funding) and long-term funding strategy (e.g., membership-based fee or service-based fee linked to CC issuance) remain unclear or ambiguous. Furthermore, documents and information regarding decision-making processes and meeting minutes are available but hardly accessible. Additionally, the document's poor structure and bad formatting heavily limit comprehensibility for the reader. Moreover, the initiative claims to be independent as long as most board members (12 out of 22) have no conflicts of interest. However, decisions require a two-thirds majority, implying the governance body always relies on non-independent board members who can be active market participants with a vested interest.

The evaluation of the framework revealed several meaningful insights. First, extending the framework and developing an exploratory sequential design that includes quantitative indicators would be useful for increasing the objectivity and representativeness of the results. However, a qualitative approach is the most fitting choice in the thesis context because the studied subject had to be explored in-depth before deciding which and how variables would have had to be

measured quantitatively. Second, credibility assessments are generally considered part of relevance rather than effectiveness judgements. For instance, interviewees who deem the ICVCM credible often believe that the initiative could be a relevant player to substantially move the market towards higher quality. However, fewer of them believe that it will achieve its long-term goal of developing a globally accepted and applied meta-standard. This contradicts this thesis' initial assumption that credibility is a key determinant of effectiveness. Finally, the results are not generalizable to other ISS initiatives because of the single case study design of the thesis and each ISS initiative's unique characteristics. In contrast, the underlying assessment framework with its principles and indicators can be applied to other ISS initiatives since it has been tested and refined after its development.

Conclusions & Recommendations – The objective of the thesis was to develop, test and evaluate a credibility assessment framework which can be applied to ISS initiatives in the VCM. The outcomes revealed that credibility is a complex, dynamic, and multi-layered challenge for the VCM. First, credibility seems to be framed and dominated by multiple dimensions. Second, credibility is difficult to assess, but a set of credibility principles and indicators can provide adequate guidance for systematic and functional assessments. Third, credibility is powerfully shaped by the relationships and power dynamics (e.g., between the Governing Board and Expert Panel of the ICVCM) among stakeholders and market agents. Fourth, credibility, in terms of the quality of methodologies and integrity of initiatives, relates more closely to the criterion of relevance than effectiveness. Finally, credibility rests on the norms, beliefs, and values that civil society actors expect from or increasingly impose on market agents involved in the VCM.

Even though the thesis faces several limitations (e.g., a small sample of interviewees), its findings bear various meaningful implications for VCM stakeholders and policymaking. At the risk of stating the obvious, there is a strong need for standardized credibility and effectiveness assessments in the VCM. Thus, stakeholders should jointly put lots of effort into this area to increase the comparability of standards, quality criteria, initiatives, and environmental claims in the diverse and fragmented VCM. Policymakers should intend to establish regulatory frameworks to improve the VCM's credibility. Consequently, further research is required to understand better the effect of 'soft' and 'hard' regulation on the VCM and market agents.

While policymakers should not refrain from any tool at hand to achieve the goals of the Paris Agreement, VCMs would be better off not existing if they are used to support climate-damaging business models and delay urgent climate action. Therefore, there is a crucial need to shift focus again from the VCM's financing potential to its GHG emission reduction potential. In the case of the ICVCM, the initiative seeks to achieve both build integrity and scale the market. Future studies could compare the initial and final version of the ICVCM's meta-standard, examining the extent to which changes have occurred due to the power dynamics of involved stakeholders and whether and, if so, how this affects the market and public credibility.

From a methodological perspective, the proposed framework is, by no means, in the position to overcome or solve the complex issue of credibility. Moreover, further research is required to improve the frameworks' suitability and adequacy. Key areas for improvement are broader stakeholder involvement to represent the entire CC value chain of the VCM better, increasing the accuracy and precision of each principle to avoid overlaps between principles and indicators, improve the degree of the frameworks' objectivity and reliability. Regarding the last, for example, quantitative performance indicators for each principle could enhance the framework's degree of standardization, precision and efficiency. In addition, future studies will undoubtedly benefit from a broader and statistically representative sample of interviewees and case studies.

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Abbreviations

C2ES – Center for Climate and Energy Solutions

CC – Carbon credit

CCM – Compliance carbon market

CCP – Core Carbon Principle

CCQI – Carbon Credit Quality Initiative

CDM – Clean Development Mechanism

CM – Carbon market

CO2 – Carbon dioxide

CO2e – Carbon dioxide equivalent

GS – Gold Standard

GHG – Greenhouse gas

ICVCM – Integrity Council for the Vountary Carbon Market

IETA – International Emissions Trading Associations

IIF – Institute for International Finance

IPLC – Indigenous people and local communities

ISS – international standard-setting

JI – Joint Implementation

KPI – Key performance indicator

MEB – Marginal external benefit

MEC – Marginal external cost

MPC – Marginal private cost

MSC – Marginal social cost

MSB – Marginal social benefit

NbS – Nature-based solutions

NDC- Nationally Determined Contribution

TSVCM – Taskforce on Scaling the Voluntary Carbon Market

UNFCCC – United Nations Framework Convention on Climate Change

VCM – Voluntary carbon market

1 Introduction

1.1 Background

Climate change is accelerating at a life-threatening pace, bringing the world dangerously close to irreversible and unpredictable tipping points (IPCC, 2022; Rockström et al., 2009; Steffen et al., 2015). To maintain the chance of achieving net zero by 2050, global greenhouse gas (GHG) emissions should optimally be halved by 2030 (IPCC, 2018). However, despite this race against time, global GHG emissions rose to their highest-ever level in 2021, with a 4% increase from 2020 (IEA, 2021; WMO, 2022). Figure 1.1 illustrates the rise of four GHG emissions sources from 1990 to 2021. The rapid increase in global GHG emissions starkly contrasts the pledges made in the historic Paris Agreement. However, despite international efforts to limit global warming preferably to 1.5 degrees Celsius, the current course of action is on a much more dangerous trajectory of 2.8 degrees Celsius warming above the preindustrial level (United Nations Environment Programme, 2022).

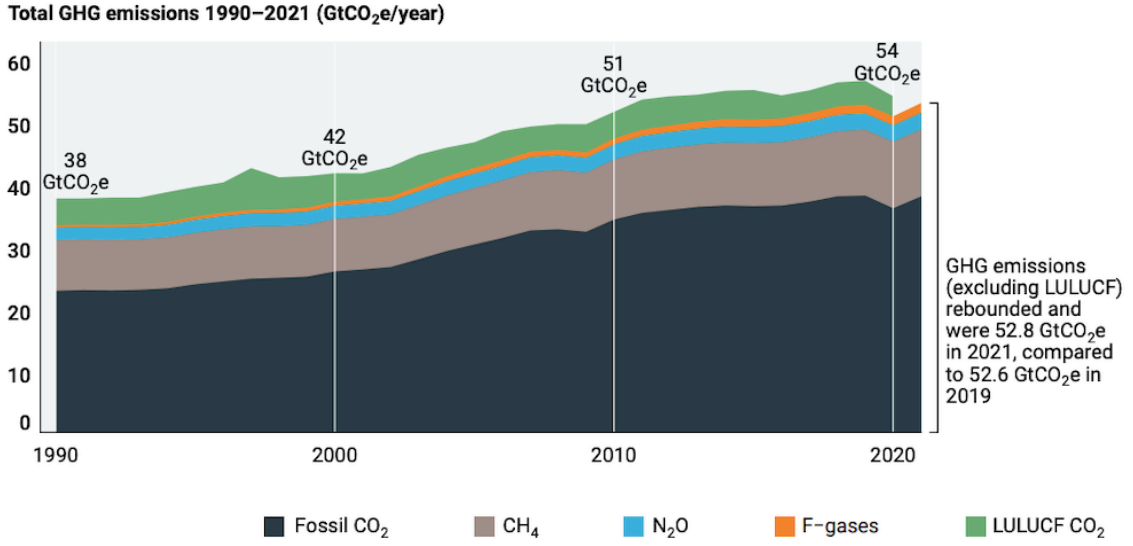

Figure 1.1 Global greenhouse gas emissions (in billion tonnes of CO2e annually)

Global warming is primarily determined by cumulative GHG emissions (Allen et al., 2009; Matthews et al., 2009) and the longevity of the impact of carbon emissions (Solomon et al., 2009), as explained in Section 3.1.1. The search for a concept to halt anthropogenic GHG emissions and stand a reasonable chance of limiting global warming to 1.5-degrees Celsius led to the emergence of net zero – also commonly referred to as climate or carbon neutrality – signalling that the race to zero emissions is inevitable (Fankhauser et al., 2022; IPCC, 2013). Net zero targets cover almost two-thirds of the global GHG emissions (Black et al., 2021). In parallel, reaching a state of net zero emissions has become the long-term strategy of many corporates to contribute to the global effort of tackling climate change (SBTi, 2021; Streck, 2021).

However, net zero emissions can only be achieved when anthropogenic emissions of GHG to the atmosphere are balanced by anthropogenic removals over a specific period (IPCC, 2022). For this, the emission-intensive private sector has two options, although a combination of both is most likely (Allen et al., 2020; Broekhoff et al., 2020). A company (i) ceases an emission-causing activity or (ii) enables an equal emission-reducing or carbon-removing activity elsewhere in the world, commonly referred to as carbon offsetting. The latter implies that offset credits could, in theory, convey a net climate benefit from one entity to another. In short, carbon

offsets, which can be traded as carbon credits (CC) in carbon markets (CM), are intended to make it easier and more cost-effective for entities to achieve net zero emissions (Bayon et al., 2009).

1.1.1 The Voluntary Carbon Market

From an economic policy perspective, one prominent way to reduce carbon emissions is the application of 'price' and 'quantity' policy tools as a form of market-based instruments (Stavins, 2001). The theoretical foundation of carbon trading schemes was laid by and Coase (1960), Montgomery (1972), and Tietenberg (1974), who proposed putting a cap on carbon emissions forcing polluters to purchase carbon permits through trading and favouring those able to cut emissions most cost-effectively, as outlined in Section 3.1.2. Generally, compliance carbon markets (CCM), also called cap-and-trade markets, are created and regulated by regional or national carbon reduction authorities (Peace & Stavins, 2010).

However, over the past decade, noticeable efforts have been undertaken by the private sector to establish a market which functions outside of the compliance markets (Kollmuss et al., 2008; H. C. Lovell, 2010; Worldbank, 2022). This is defined as a *voluntary carbon market* (VCM), enabling companies and individuals to purchase carbon offsets voluntarily and not because a regulation obliges them to do so (Broekhoff et al., 2019; Mendelsohn et al., 2022). In contrast to compliance markets, offset generation and trading in the voluntary market is remarkably more diverse, flexible and fragmented (H. C. Lovell, 2010). Further, since 2019, the trading volumes of CCs in the VCM have grown significantly and experienced a surge in interest from various stakeholders around the globe (Donofrio et al., 2020; Worldbank, 2022). Various organizations and scholars believe in the glorious and fast-growing future of the VCM (Blaufelder et al., 2021; Bloomberg, 2022; IETA, 2022; Miltenberger et al., 2021; Streck, 2021; TSVCM, 2021a). For instance, the VCM is predicted to explode by 2030 – growing by a factor of 15 – to match the increased demand for climate solutions in the private sector (Blaufelder et al., 2021).

Until now, the VCM has not been subject to any internationally accepted governance body (Blum & Lövbrand, 2019; Kreibich & Hermwille, 2021). As a result, all entities that establish standards for generating and certifying CCs – in terms of credibility, transparency, and integrity – are private and nongovernmental organizations (Broekhoff & Spalding-Fecher, 2021; Kollmuss et al., 2008). Consequently, numerous competing crediting initiatives set quality criteria for monitoring, reporting, and verifying CC-generating projects to ensure high-quality CCs (Broekhoff & Spalding-Fecher, 2021; H. C. Lovell, 2010). However, the market functions imperfectly, as explained in Section 3.1.4. Its challenges are manyfold but primarily boil down to insufficient governance as well as technical and market issues.

While numerous key criteria exist for establishing a trusted VCM, many scholars stress the importance of three particular ones: transparency, integrity, and credibility (Broekhoff & Spalding-Fecher, 2021; Cornillie et al., 2021; Kreibich & Hermwille, 2021; Michaelowa et al., 2019). Regarding transparency, the Corporate Climate Responsibility Monitor, launched in 2022, reveals that companies are not always transparent about why and how offsets are used (New Climate Institute, 2022). Environmental integrity also plays a crucial role in producing high-quality CCs (EDF et al., 2020). For example, Schneider & La Hoz Theuer (2019, p. 388) argue that "real, measurable and long-term" mitigation benefits cannot be guaranteed if CCs are not rigorously measured, monitored, and verified. It refers to the concept of additionality, which is explained in Section 3.1.5. Schneider & La Hoz Theuer (2019) even caution that the VCM has the potential to result in higher global GHG levels if not well-designed and adequately implemented. Credibility, in turn, might be considered one of the most important criteria for ensuring that suppliers, buyers and other agents trust the market (Blum & Lövbrand, 2019; Kreibich & Hermwille, 2021). If market agents do not believe in voluntary carbon offsets'

potential to genuinely contribute to climate change mitigation, then there should be no market for trading CCs.

1.1.2 The Credibility of the VCM

Historically, the credibility of offsetting has stood on shaky foundations (McKie et al., 2015; Morgan, 2021). For example, carbon crediting mechanisms under the Kyoto Protocol have been criticized for their low environmental integrity, high transaction costs and complex governance structures (Michaelowa, 2012), as explained in Section 3.1.3. In addition, Cames et al. (2016) and Michaelowa et al. (2019) associate these mechanisms with severe issues concerning over-quantification, lack of additionality and little to no real emission reductions. For example, Calel et al. (2021) found that most Indian windmills financed under the CDM would probably have been erected anyway, implying a lack of additionality. This supports Cames' et al. (2016) findings, revealing that around 85% of all covered Clean Development Mechanism (CDM) projects and 72% of corresponding CCs demonstrated a low likelihood of ensuring environmental integrity.

Even though most quality and use issues of offsetting persist and remain unresolved (Broekhoff et al., 2019; Schneider & La Hoz Theuer, 2019), the corporate world seemed eager to embrace this concept once more under the regime of the Paris Agreement (Donofrio et al., 2020; Streck, 2021; Worldbank, 2022). Currently, various policy discussions and initiatives focus on how to scale and integrate voluntary carbon emission reductions into climate policies and nationally determined contributions (NDC), forming the heart of the Paris Agreement (Fearnehough et al., 2020; Nordic Council of Ministers, 2022; Streck, 2021; VCMI, 2022). Meanwhile, West et al. (2023) found that around 89 million carbon offsets certified by VERRA, a globally leading carbon crediting organization, do not represent genuine emission reductions. Around the same time, Guizar-Coutiño et al. (2022) found that average reductions in deforestation remained much lower than claimed by VERRA.

Recently, the 'credibility crisis' of the VCM intensified and reached the public when a joint investigation – carried out by investigative journalists, natural scientists, and media platforms in 2022 and 2023 – revealed how flawed and misleading many offsetting claims are (Guardian, 2023). Furthermore, a further analysis based on the two above-described scientific papers unveiled that approximately 90% of CC –exclusively verified by the crediting initiative VERRA – are "worthless phantom credits" (ZEIT, 2023, p. 1).

While VERRA disputes the investigation's findings arguing they are largely incorrect (VERRA, 2023), another scandal is shaking the credibility of offsetting in the VCM to its very foundation. The investigative news platform Follow The Money discovered that the flagship project of South Pole, one of the world's most influential sustainability consultancies, "actually resulted in more carbon emissions" than it had conserved (Crezee & Gijzel, 2023). The consulting firm sold approximately 27 million tonnes of offset credits, more than the project generated over its lifespan. This number nearly equals Denmark's annual CO2 emissions (Ritchie et al., 2020)

1.1.3 The Role of International Standard-setting Initiatives

In response to the many challenges the VCM faces (e.g., lack of enforcement, lack of additionality, greenwashing), several international standard-setting (ISS) initiatives are emerging to address these issues under the Paris Agreement (Kreibich & Hermwille, 2021). In the thesis context, *international standard-setting initiatives* are defined as organizations that develop, implement, and promote standards for corporate climate action to reduce GHG emissions, certify CCs, and improve the quality assurance mechanisms of the VCM.

Among the currently most prominent initiatives is the ICVCM, an independent, stakeholder-led and self-regulated governance body. It was established in 2021 by a diverse range of stakeholders, as described in Section 2.5. The ICVCM aims to set aims to develop and implement a new global meta-standard for high-quality offset credits and carbon crediting organizations to accelerate a just transition to 1.5 degrees Celsius (ICVCM, 2022). In light of this ambitious goal setting, this organization is argued to be a game-changer in the landscape of the VCM (Aldy & Halem, 2022; Nordic Council of Ministers, 2022; M. Williams et al., 2023). However, this initiative – among many others engaged in the VCM –embraces a voluntary approach and is supported in numerous ways by the private sector (Kreibich & Hermwille, 2021). This could ultimately result in a dilemma as the ICVCM's standards must be flexible enough that all relevant market players accept the rules but rigid enough to ensure the high integrity and quality of any offset activity (Darby, 2003). This trade-off implies that the ICVCM could face the risks of lacking credibility or being mistrusted by stakeholders.

1.1.4 The Importance of Defining and Assessing Credibility

Credibility as a conceptual criterion is challenging to grasp and define (Heink et al., 2015). In plain language, it is commonly understood as the quality or power of inspiring belief (Merriam-Webster, 2023). However, numerous scholars use it interchangeably with other terms, such as trust (Fearnehough et al., 2020; Lemos & Morehouse, 2005; Peters et al., 2006) or legitimacy (Vogel et al., 2007). This can lead to confusion and, as a result, to different interpretations of the term credibility, as examined in Section 3.2. Nonetheless, credibility is often coined as a critical determinant of the success and effectiveness of institutions and policies (Ho, 2014).

1.2 Research Problem Description

It is argued that ISS initiatives play a crucial role in establishing a trusted VCM and ensuring that CCs are of high integrity and have a real impact on reducing global GHG emissions (Broekhoff & Spalding-Fecher, 2021; Murun & Takahashi, 2021). However, the credibility of some ISS initiatives has been called into question in recent years, aggravating the 'credibility crisis' of the VCM as a whole (Corporate Accountability, 2022). Despite this alarming trend, scholars continue to ponder how to restore the credibility of the VCM and CCs (Mendelsohn et al., 2022; Miltenberger et al., 2021; Murun & Takahashi, 2021) rather than scrutinizing the credibility and role that these initiatives play.

This is troublesome because, in addition to the economic principles, the underlying and steering force behind the VCM and CCs are truly these initiatives (Cadman & Hales, 2022; Hickmann, 2016; Kreibich, 2021; Kreibich & Hermwille, 2021). They develop the rulebooks, standards, and guidelines that actors within the VCM must comply with. Further, the corporate world largely rests on the contested credibility of these initiatives as legitimization to justify their partially ambiguous climate actions in the VCM (Bumpus & Liverman, 2008; New Climate Institute, 2022). Hence, determining and assessing the credibility of ISS initiatives involved in the VCM is quintessential for two reasons. First, stakeholders should be enabled to determine the credibility and trustworthiness of the initiative they engage with. Second, a systematic and functional assessment of an ISS initiative's governance structure and operating model contributes to identifying areas for improvement, raising awareness of the imperfection of the VCM, and distinguishing good practices from bad ones.

Despite the significant role of credibility in the VCM, there is a clear lack of comprehensive and systematic frameworks for assessing ISS initiatives' credibility (Chan & Pauw, 2014; Darby, 2003). For example, the OECD (2022) stresses the importance of developing a framework for evaluating the overall credibility of initiatives involved in corporate climate action but has fallen short of providing a methodology for such a credibility assessment. Looking at the wide field

of environmental policy, several methodological frameworks for credibility assessments of, for example, low-carbon investments, environmental risk communication (Peters et al., 2006), and sustainability standard systems (ISEAL, 2013) have already been proposed. Yet, no evidence could be found that such credibility assessment frameworks have been developed to evaluate the credibility of ISS initiatives in the VCM.

Regarding the VCM, it appears necessary to go beyond the methodological elements that current assessments of the VCM include, as they do not assess the credibility of ISS initiatives that shape the VCM and the system behind offsetting through their standards and rules. For example, assessment approaches primarily seek to overcome the integrity problem of CCs (e.g., lack of additionality, non-permanence, over-quantification, etc.) by quality standards for CC-generating projects published by ISS initiatives (Broekhoff & Spalding-Fecher, 2021; EDF et al., 2020). However, these methodologies do not assess the credibility of ISS initiatives that shape the VCM and the system behind offsetting through their standards and rules. Therefore, this study proposes a novel approach to the question raised frequently by numerous scholars (Darby, 2003; Heink et al., 2015): 'How can credibility be assessed?' This thesis addresses this knowledge gap, as introduced in Section 1.3.

1.3 Research Aim and Questions

To address the problem described above, this thesis is a direct response to the call made by many stakeholders and scholars about the growing 'credibility crisis' of the VCM. Therefore, this thesis aims to build a framework for assessing the credibility of ISS initiatives in the VCM as opposed to other methodological aspects of offsetting projects per se. It will provide the targeted audience and the scientific community with a systematic and functional framework enabling them to assess the credibility of ISS initiatives in the VCM comprehensively and soundly.

To that end, the specific objective is to develop, test, and evaluate a credibility assessment framework that can be applied to ISS initiatives. First, this thesis develops an assessment framework based on stakeholders' discursive positions and a set of nine credibility principles plus qualitative indicators that can potentially be used to assess ISS initiatives in the VCM. Second, the proposed framework is tested in the field by assessing the credibility of the ICVCM. It involves stakeholders to improve the quality and applicability of the assessment framework. Third, the framework's suitability and adequacy are evaluated based on the results obtained and against the criterion of trustworthiness.

Against this background, four research questions emerged, guiding the three-staged process of the framework. While the first three focus on the framework's design, the last addresses the evaluation of the framework.

- **RQ1**: How can the credibility of ISS initiatives in the context of the VCM be conceptualized and measured?
- **RQ2**: What discursive positions dominate stakeholders' perceptions regarding the VCM and ICVCM?
- **RQ3**: Using the ICVCM as a case study, what are the key factors that contribute to or challenge the initiative's credibility?
- **RQ4**: What can be said about the suitability and adequacy of the assessment framework?

Importantly, the thesis' purpose is not to make a final judgement of whether a particular ISS initiative is credible. Instead, the purpose is to build an assessment framework that can inform

stakeholders about the degree to which an ISS initiative aligns with each of the credibility principles and indicators. Given the complexity of the topic, sub-questions based on the three-staged process were designed – as outlined in Section – to provide further guidance for the assessment framework's development, testing and evaluation phase.

From a theoretical viewpoint, the thesis contributes to advancing the scientific concept of credibility in the context of the VCM, identifying dominant positions of how stakeholders are currently perceiving the role of the VCM and ICVCM, and developing a more nuanced understanding of factors shaping an ISS initiative's credibility. From a practical angle, the framework provides a practical and valuable tool for credibility assessments, and the thesis contributes to improving the transparency and accountability in the VCM by investigating those who possess the power and influence to substantially move the VCM towards higher quality standards.

1.4 Scope and Delimitations

This thesis aims to build a framework for assessing the credibility of IIS initiatives in the VCM. Given the research aim, various delimitations are set for this thesis. First, from a policy point of view, this analysis draws its system boundaries around the VCM and excludes all CCMs and compliance offset markets (COM) from the thesis scope. This is fundamental because both types, the VCM and CCM, have striking differences in design and implementation (see Section 3.1.4) and are consequently not necessarily comparable. To further delimitate the scope, this thesis does not cover the entire CC value chain in the VCM but focuses on those stakeholders most affected by ISS initiatives (see Section 2.2.4). As the VCM operates on a global scale, interviewees are from various regions across the world but primarily from Northern America and Europe where most of the scientific output regarding the VCM is generated.

Regarding the framework's development stage, some concepts, notions, and phenomena related to this study might be understood differently across stakeholders and disciplines as words are determined by social usage. Words with various meanings are a source of misconceptions provoked by an individual's unique belief systems, background, education, worldview, etc. Furthermore, meanings can vary depending on whether words are used in everyday language or academic disciplines. Nonetheless, "[a] science without definitions of basic constructs would be chaotic" (Eagly & Chaiken, 2007, p. 583), which explains why some concepts should better be defined. For clarity and transparency, the terminology used in this thesis is defined and articulated as precisely as possible but remains context-bound. Finally, since credibility is only valid at a given place and time (see Section 5.1), this thesis can be understood as a cross-sectional study collecting data from only one point in time (see Section 2.3) to build the assessment framework.

Another important delimitation consists of the access to current market data and information. Sustainability reporting and information disclosure standards in the VCM often depend on the goodwill of companies and initiatives (Beare et al., 2014). Additionally, the corporate community strongly influences and steers the sphere of voluntary offsetting and often does not disclose all information needed to evaluate all aspects related to credibility. Furhter, while some initiatives have been in place for over a decade, others have just been founded recently. Consequently, they may not provide the same information regarding both quality and quantity. For example, the ICVCM just appeared on the surface of the VCM in 2021 and will only release the more detailed and important category-level standard for CCs later this year. One may see an insurmountable limitation in the dilemma of limited data availability since access to data is quintessential for any research. To overcome the predicament, the thesis data collection methods include all three types of data sources and rely on interviewees as key informants rather than documentary data.

In the stage of testing, a singe case study design is applied (see Section 2.2.2), assessing only one ISS initiative because of the short timeframe of the thesis project, which does not allow the researcher to evaluate several or all ISS initiatives involved in the VCM initiatives. Also, only a limited number of stakeholder goups and interview participants (n=18) were recruited for the thesis (see Section 2.3.2.), as the recruitment process seeks neither empirical generalization nor objectivity but to select participants and stakeholders that provide unique insights and an in-depth understanding of the topic.

Finally, any research project examining the perceptions, opinions and concerns of various stakeholders affected by the studied subject involves numerous viewpoints and perspectives. Depending on the type of analysis and chosen framework, some views are potentially more strongly emphasized than others. Although efforts were undertaken to ensure a broad collection and objective analysis of stakeholder views (see Section 2.3 and 2.4), it is acknowledged that specific perspectives might not be captured or equally reflected in the results.

Lastly, specific areas and topics are intentionally excluded from this study. In the VCM, credibility can be assessed from various angles in various ways (see Section 3.2.4). However, the thesis explicitly focuses on the credibility IIS initiatives and therefore, largely exludes an in-depth analysis of CC quality criteria, environmental claims, and standards. These important aspects have already been frequently and exhaustively discussed in earlier studies (e.g., Broekhoff et al., 2019; EDF et al. 2020, Neimane & Simanovska, 2020). Instead, the thesis analyzes in depth the governance structure and operating model of an emerging ISS initiative, the ICVCM, which have not been investigated thoroughly yet. After all, the narrow scope is required to guarantee sufficient depth and thoroughness while considering the study's timeframe and resources.

1.5 Ethical Considerations

The research project is being carried out under the supervision of the New Climate Institute. The organization gave the researcher access to internal research documents and policy analyses, shared their network for setting up interviews with relevant stakeholders, and remunerated the author, who was simultaneously employed as a working student, for tasks not dealing with the thesis. The thesis topic was freely chosen and not steered by any influence exercised by the host organization. The author signed a confidentiality agreement with the New Climate Institute to protect any sensitive data collected and analyzed. In addition, this thesis follows the Lund University ethical guidelines and the European Code of Conduct for Research Integrity (ALLEA, 2017; Görman, 2021).

To recognize and consider all relevant ethical aspects, the research plan was based on the guidelines provided by Blaikie (2009) and Creswell & Creswell (2018). Ethical considerations for this thesis primarily pertained to the interviews conducted and data processing and storage. Participants are free to opt out at any time during the research. They were informed about the purpose, aim, and support I received from my organization before the interview. Along with the interview request, participants received, for transparency, a project description and had to sign a written consent form, as depicted in Appendix C and Appendix D, respectively

Further, permission for recording and the disclosure of the thesis' findings were requested from all participants. As personal data should always be highly confidential, no personal data is published to keep participants' anonymity. In terms of data storage, all data gathered is archived safely by good research practice and protected from external access. To the author's knowledge, no harm to participants will be caused or their corresponding organizations. Should there be any risk of psychological, social, physical, or legal harm, all risks will be disclosed to the participants before asking for informed consent.

1.6 Audience

The targeted audience of this thesis is any organization that is directly involved in either the VCM or corporate climate action and is interested in the field of offsetting. As this research is carried out in collaboration with the New Climate Institute, the organization might be particularly interested in the findings and conclusions are drawn since their work streams are closely related to the VCM, offsetting, and corporate climate responsibility. An unintended audience also exists, consisting of the interviewed stakeholders, of whom most also expressed an interest in reading the thesis results.

1.7 Outline

Chapter 1 (Introduction) introduces the research topic, problem, aim and questions. Next, this chapter outlines the thesis scope, reflects on ethical considerations, and introduces the intended and unintended audience.

Chapter 2 (Methodology) introduces the researchers positioning and methodological choices before presenting the research design and methods for dats collection and analysis. Finally, a case study description of the ICVCM is introduced grounded in an in depth literature review.

Chapter 3 (Theoretical Framework) presents the theoretical foundations underpinning this thesis: the theory of CMs and the concept of credibility resting on an exhaustive literature analysis.

Chapter 4 (Findings and Analysis Part I: Dominant Discourse Positions) provides a detailed description and analysis of the findings regarding RQ2.

Chapter 5 (Findings and Analysis Part II: ICVCM's Credibility Assessement) presents the theoretical definition of credibility and explains and justifies the findings of the ICVCM's credibility assessment.

Chapter 6 (Discussion) provides a critical discussion of the results, compares them with existing literature and discusses important limitations of the research.

Chapter 7 (Conclusion) presents the answers to the four research questions and relevant research implications and opportunities.

2 Methodology

This chapter explains the methodology employed during the research. According to (Creswell & Creswell, 2018; Patton, 2002), the following basic steps ought to be included in a qualitative research methodology: (i) planning, designing, and preparation, (ii) data collection, (iii) data analysis; and (iv) discussion and conclusion. Therefore, this chapter first explores and explains the researcher's positionality as ontological and epistemological beliefs inherently influence the research process. Second, methodological choices and approaches are presented and justified, and the three staged instrument is introduced, describing how the framework was developed, tested, and evaluated. Third, methods of what, how, and why data were collected and, at a later stage, analyzed are described in detail. Lastly, a thick research case study description of the ICVCM is provided to better understand its governance and operating model. The research process and methods are outlined in Figure 2.1.

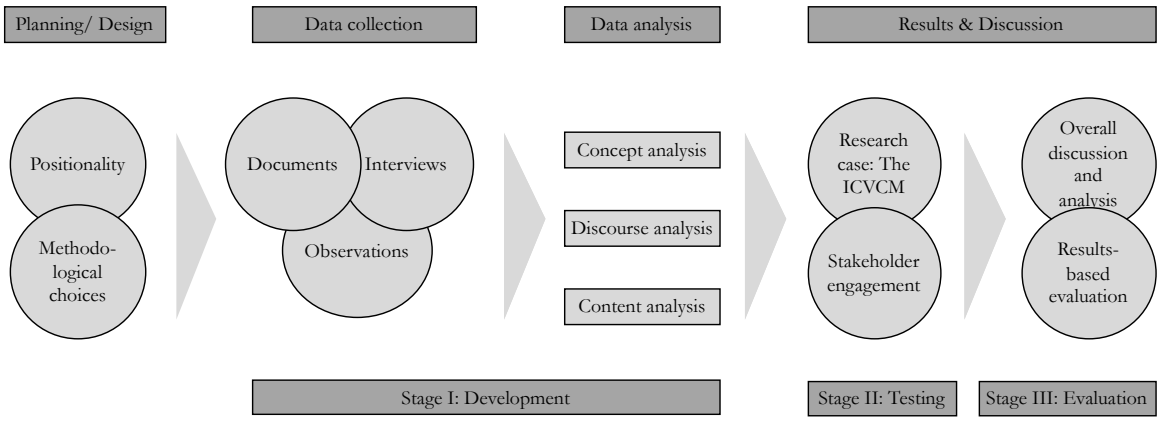

Figure 2.1 Process and methods of research

The logic of the research design primarily concerns two qualities: the efficiency of the procedural steps and the objectivity of the data processing (Krippendorff, 2018). While the former refers to avoiding structural redundancies and preventing noise from weakening the analysis, the latter aims at preventing prejudices from biasing the data or favouring a specific outcome over another. Consequently, Sections 2.1, 2.2, 2.3, 2.4, and 2.5 serve as instructions to comprehend how the research was conducted and allow to replicate this thesis over time and across researchers.

2.1 Researcher Positioning

Positionality – the worldview and position a researcher has adopted within a given research study – is integral to all qualitative research (Holmes & Gary, 2020). Identifying and clearly articulating the researcher's positionality is essential for this thesis because it can influence the process, outcomes, and results (Rowe, 2014). Therefore, careful considerations were made constantly to identify philosophical and personal stances that could potentially affect the research process (Savin-Baden & Major, 2013).

In this thesis, the researcher locates his worldview, values, and beliefs in the constructivist paradigm, best described by Guba & Lincoln (1989). The constructivist belief system is required as an assessment framework's development, testing and evaluation phase can neither be value-free nor completely objective, opposing the positivistic distinction of ontology and epistemology (Fischer, 1995). Therefore, it must be acknowledged that multiple socially constructed realities and truths exist among stakeholders when investigating contentious and current topics such as the VCM. Further, there is no single absolute truth about concepts such as credibility. For example, while someone might consider an ISS initiative truly credible,

someone else could easily reject this truth if the individual represents a different discursive position. Hence, truth is instead defined as the most informed and sophisticated construction on which there is consensus among individuals who are most competent in the eyes of the scientific literature and the researcher. Importantly, truth is dynamic and only valid at a given place, time, and context.

No research is entirely free from influence, as some aspects of a researcher's positionality are culturally ascribed or regarded as unchangeable, including gender, nationality, or skin colour. However, others, such as political views, experiences, and mindsets, are more fluid and subjective (Holmes & Gary, 2020). In this thesis, potential influences might arise from (i) the researcher's level of experience and knowledge, as this research field is highly complex and evolving quickly, (ii) the use of language, as experiences and interpretations are individually and subjectively constructed, and (iii) innate or learned biases that may favour or reject an idea or opinion of particular stakeholders.

In response, the researcher uses a self-reflective and reflexive approach to identify and minimize potential influences. However, instead of seeking to eliminate the effects of inherent values and beliefs, the researcher acknowledges their influence and tries to understand how they could affect processes and outcomes. Furthermore, continuous reflexivity helps increase the researcher's awareness that positionality is never fixed and is always situational and context-dependent (Holmes & Gary, 2020). Finally, even though reflexivity does not guarantee more honest or ethical research (Delamont, 2018), it helps clarify the researcher's position about the research process for all parties involved: the researcher, the participants and the readers.

2.2 Methodological Choices

Awareness of philosophical and personal stances within the research helps make informed methodological choices, including the selection of research approach, research design and methods of this study (Savin-Baden & Major, 2013). This qualitative study was undertaken by using a three-staged process. As outlined in Table 2.1, the stages include *(i) developing a robust framework based on various data collection and analysis methods, (ii) testing the framework by applying it to the case of the ICVCM, and (iii) evaluating the framework based on the results obtained.* A set of sub-questions was designed for each stage, serving a twofold purpose: to provide guidance, clarity, and focus during the research process and to ensure that the assessment framework is conceptually sound and functional.

Table 2.1 Subquestions guiding the three stages of the assessment framework

	Developing the framework
Phase I	Which criteria are associated with credibility? Which criteria are potentially more relevant than others? What do best-practice examples look like? How can each criterion be measured? How should the criteria be weighed and rated? Which indicators are most adequate to assess the extent to which criteria are met?
	Testing the framework
Phase II	What are examples of current good/ bad practice in the ICVCM? What are the risks and uncertainties related to credibility issues? How do stakeholders assess the credibility of the ICVCM?

	What stances in terms of similarities, differences and discrepancies exist between different stakeholder groups?
	Evaluating the framework
Phase III	What is the quality of the assessment framework in terms of transferability, credibility, dependability, and confirmability? What are the strengths and weaknesses of the framework? How appropriate and applicable is the framework for other initiatives in the VCM. Which criteria are considered more important than others by particular stakeholder groups?

2.2.1 Framework Development

Since the framework development followed a qualitative approach in a constructivist research paradigm, it was developed in an inductive, subjective, and contextual manner rather than in a deductive, objective, and general fashion (Mohajan, 2018). In this case, the framework's structure, principles, and indicators emerged throughout the research process based on data gathered from documents and interviews. Furthermore, this study captured various discursive positions and perceptions associated with subjective meaning and interpretation through observations and interviews. Consequently, the data collection methods involved close, personal contact, which might affect the construction of the assessment framework in how data were collected and analyzed. Lastly, this thesis was context-oriented. This means it examined specific situations or narratives of stakeholders in depth and detail, followed a constructivist approach, and used a purposeful sampling technique for selecting stakeholders and interviewing participants.

Designing a framework in environmental policy is notoriously difficult, especially when dealing with complex and complicated problems (Mickwitz, 2003). To this end, sampling, data collection, analysis and interpretation are iteratively related to each other rather than following a linear approach (Busetto et al., 2020). The sampling process and methods used for data collection and analysis are further discussed in Sections 2.3 and 2.4.

Framework structure **-** The framework consists of six structural elements to ensure its accountability, comprehensiveness and functionality (ISEAL, 2013; Nemet et al., 2017; U.S. Agency for International Development, 2005). As outlined in Figure 2.2**,** these elements include (i) credibility principles, (ii) their meaning, (iii) assessment options, (iv) best-practice examples, (v) an overall rating, and (vi) indicators. In this context, a credibility principle represents criteria strongly associated with credibility. In addition, a description explains why each principle is essential for credibility. Also, several options are provided to evaluate the degree to which an ISS initiative meets each principle. Finally, best-practice examples describe how ISS initiatives should embrace and incorporate the principle and what it should look like in practice. The overall rating of each credibility, ranging between *low, medium, and high*, results from the achieved performance of the indicators. Within a continuum (0 to 1), the overall performance of all indicators higher than 0.66 equals a high rating, lower than 0.33 a low rating, and in between a medium rating.

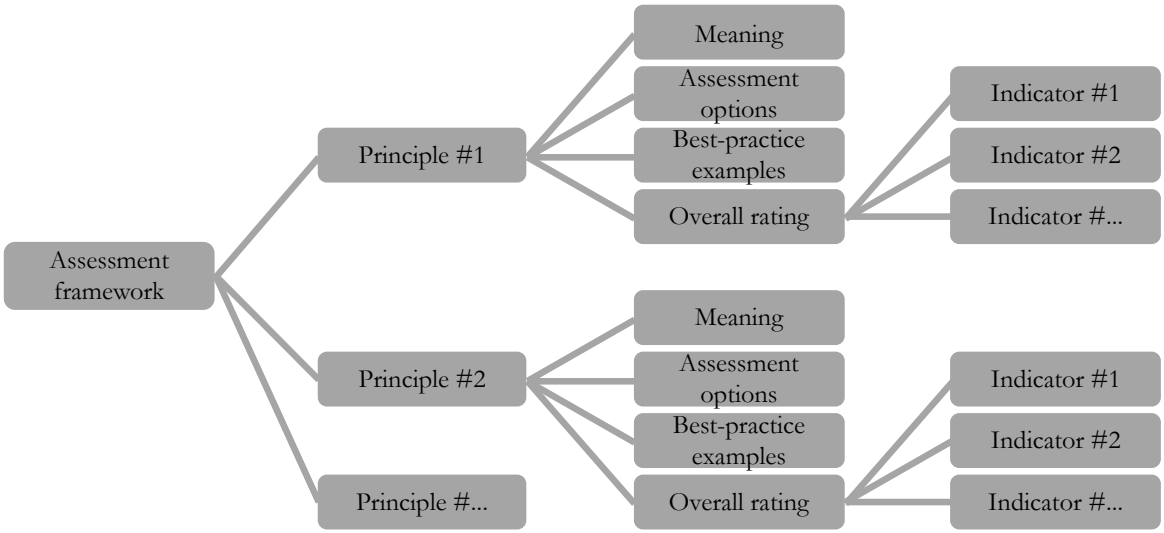

Figure 2.2 The structure of the framework

Indicator design - Indicators for each guiding principle are necessary to assess to what extent an ISS initiative incorporates all the principles. Qualitative performance indicators were used as they provide a more nuanced and holistic understanding of the assessed ISS initiative. Moreover, they capture the richness and complexity of experiences, attitudes and beliefs, which cannot be easily measured through numerical data. All performance indicators were designed to facilitate scoring within a continuum, ranging between *not (0), partially (0.5),* and *fully (1)*. The crafting of indicators was an iterative process to ensure they were well-defined, valid, reliable, operational and sound over time (U.S. Agency for International Development, 2005).

2.2.2 Framework Testing

A framework can substantially increase assessment quality (Pearce et al., 2015). However, this benefit is not guaranteed but can be ensured by testing the framework's adequacy and suitability in the field (Pearce et al., 2015). Busetto et al. (2020) suggest pilot testing and stakeholder involvement as important criteria to enhance the quality of the research and framework.

Case study approach - The testing stage can be performed by applying the framework to a specific case in the real world. Case study research is an appropriate approach to examining the framework's functionality and suitability in the real world. Following Yin (2018), this thesis relies on a single case study in which a single case is selected and assessed. The assessment of the selected case can substantially enhance and improve the developed methodology of the framework. It is often argued that single case studies might be unrepresentative, thus limiting the generalizability of the conclusions (Lazar et al., 2017; Yin, 2018). However, such an approach fosters a deeper understanding of the exploring subject, provides more observation time than time-consuming multiple case studies, and provides practical insights, like lessons learned and areas for improvement that can inform policy and practice (Gustafsson, 2017).

The ICVCM, as one of the most prominent, influential and promising ISS initiatives, is selected as the unit of analysis for this single case study approach. As mentioned in Section 1.1.3, if it succeeds, it could improve the integrity of CCs, potentially pulling the market towards higher quality standards. At the same time, it could help the VCM grow enormously by providing a higher degree of standardization and market confidence. Further, since the ICVCM was only launched recently, more empirical evidence is needed on the initiative's credibility and role in shaping the future of the VCM. Therefore, with its credibility principles and indicators, the

assessment framework is applied to the ICVCM based on a thick case description, as outlined in Section 2.5, and stakeholder involvement.

Stakeholder engagement **-** Reaching agreement on an assessment framework's structure and content is challenging because stakeholders might believe frameworks are unscientific or shallow (Pearce et al., 2015). To avoid this and, at the same time, enhance the recognition of the framework's quality, a variety of stakeholders was involved in the development and testing stage. The underlying assumption is that stakeholders hold unique perspectives and experiences that add value to the research, increasing its applicability and trustworthiness (Busetto et al., 2020). Hence, stakeholder engagement was crucial in three aspects; to enhance the framework, verify findings and validate the approach's robustness. Section 2.2.4 outlines the characteristics on whose basis relevant stakeholders were identified and contacted.

2.2.3 Framework Evaluation

The last stage consists of evaluating the developed framework based on the results obtained from its application in the field. Evaluation helps determine what works well and what could be improved in the framework (Vedung, 2000). Following the constructivist inquiry, this thesis applies the trustworthiness criteria – first coined by Guba & Lincoln (1989) – to evaluate the assessment framework's adequacy and suitability.

The naturalistic criterion of trustworthiness corresponds to the traditional criterion of rigour of the positivist paradigm. However, the conventional criteria are unworkable for constructivist, responsive approaches, as Guba & Lincoln (1989) argued. While in the positivist paradigm, "method has primacy" (Guba & Lincoln, 1989, p. 245), outcome and products are equally important in constructivist inquiry. For this reason, internal and external validity, reliability, and objectivity can be understood as analogous to credibility, transferability, dependability, and confirmability. All four trustworthiness criteria are discussed in-depth in the overall discussion and analysis in Section 6.4.2.

2.2.4 Stakeholder Selection Process

This thesis follows a purposeful sampling approach for selecting relevant stakeholders. This is a non-probability form of sampling in which individuals or groups are selected strategically based on specific characteristics (Alvi, 2016; Marshall, 1996). The aim of this approach is neither empirical generalization nor objectivity but to choose participants or stakeholders that provide unique insights and an in-depth understanding of the topic (Patton, 2002).

Criteria for the selection process were as follows: (i) coverage of both the supply side and demand side, (ii) directly affected by the actions of ISS initiatives engaged in the VCM, (iii) players that represent a driving force in the VCM, and (iv) able to provide in-depth information regarding the VCM, the role of ISS initiatives, and the credibility of the ICVCM. Relevant stakeholders were identified through a practitioner and an academic review and validated during peer debriefs with three CM experts from the host organization that supervised the thesis.

Based on these reviews, the following three stakeholder groups were identified: *(i) voluntary standards and initiatives, (ii) consultancies, and (iii) research institutions.* Voluntary initiatives and standards were selected as they define quality criteria for CCs and often provide voluntary legal frameworks that suppliers or buyers must operate in and comply with. Research institutions design and develop science-based standards and rules adopted by various initiatives and provide crucial guidance for implementation and evaluation. Consultants are generally considered experts and advise buyers regarding CC purchases and offsetting practices. They often represent the interests of the demand side.

Nevertheless, the CC value chain in the VCM is much more complex and diverse and involves many more stakeholders. However, due to the short timeframe of the project, the inclusion criteria were articulated rigidly and, consequently, excluded some relevant players. For example, the driving forces of supply and demand, the project developers and buyers, such as companies, were excluded as they are currently not directly affected by the ICVCM's actions. This is because the ICVCM is still in its development phase, not the implementation phase, as shown in Section 2.5. Also, brokers and rating agencies were excluded as brokers only sell and buy CCs on buyers' and sellers' behalf, and most CC rating agencies still play a nascent role in the VCM, as many were founded only in 2020 and 2021. Lastly, public governance authorities were excluded because it was considered too time-consuming to find individuals who could provide unique insights and an in-depth understanding of the topic.

2.3 Methods of Data Collection

This thesis required qualitative data from various sources to ensure high-quality data. Data was collected through several sources and methods, using all three data gathering methods in the social sciences: documentary, interrogative, and observation methods (Vedung, 2000). In addition, triangulation was used where possible to illuminate the identical problems from various angles (Yin, 2018). Data collection instruments like interview guides were reviewed and tested before being applied. Furthermore, procedures for collecting data, including timing, location, and handling missing data, were established to improve the trustworthiness and authenticity of the chosen research methods. This approach was also informed and guided by the methods and techniques presented by Blaikie (2009) and Creswell & Creswell (2018). Sections 2.2.1, 2.2.2, and 2.2.3 describe all three data collection methods in more depth and detail.

2.3.1 Literature Review

The purpose of the literature review was threefold: (i) to provide a thick case description of the ICVCM's formation, organizational design and other elements, (ii) to understand how credibility can be conceptualized and defined in the given context, and (iii) to identify criteria and factors that contribute to and shape the credibility of ISS initiatives in the VCM. Consequently, the literature review involved systematically searching and evaluating peer-reviewed journal articles, grey literature, official reports, and other published materials such as news articles or blog entries. All literature was accessed between the beginning of December 2022 and the end of April 2023 using several databases, including Google Scholar, LubSearch, and ScienceDirect. The search strategy involved a snowballing technique following the guidelines of Wohlin (2014). This means initial literature results were used to identify further relevant literature, which led to further data inquiries. Finally, the results were summarized and synthesized in a literature matrix.

Background knowledge about the ICVCM, the concept of credibility and credibility factors was generally acquired through the analysis of peer-reviewed articles and books. Although the ICVCM is argued to play an essential role in the VCM for future climate change mitigation, few articles examined its specific function and characteristics. Consequently, more detailed information was gathered from self-published governance documents, including modalities, procedures, and meeting minutes. Also, reports, standards, and guidelines published by the ICVCM were examined if deemed relevant for the study's context. Notably, the author exclusively relied on publicly available data.

In addition, a literature search of relevant scientific articles regarding the concept of credibility and its criteria was carried out, forming the basis of the concept analysis introduced in Section 2.4.1. Lastly, news articles and blog entries were analyzed to gain valuable insights into the views and perceptions of various stakeholders either directly involved in the VCM or expressing

credibility concerns regarding the role of these initiatives. The entire literature review process was done iteratively owing to the complex and fast-moving nature of the VCM. Finally, the triangulation of different literature types helped obtain information from multiple perspectives.

2.3.2 Interviews

Conducting individual interviews with organizations that are part of the VCM's ecosystem served a twofold purpose: i) to explore how investigated phenomena, such as the VCM, the ICVCM, and the concept of credibility, are perceived by different respondents and ii) to test and validate the developed assessment framework. Also, the need to gather views, opinions, and thoughts that could not be obtained from other document sources called for semi-structured interviews with open-ended questions. When permitted, interviews were recorded, and the interviewee approved the information used in this thesis. Appendix D shows the consent form interviewees had to sign prior to the interview. Generally, after recording, interviews were transcribed by FreeSubtitles.AI, a software for automatic free translation. Nevertheless, all transcriptions were reviewed and proofread to safeguard their trustworthiness and authenticity.

Interviewees were selected based on several criteria. First, all interviewees had to fall into one of the three stakeholder categories: (i) voluntary initiatives and standards, (ii) consultancy, or (iii) research institution. Second, all interviewees had to be directly involved in the VCM's supply side, demand side or both and possess a high level of expertise regarding the VCM and international standard-setting initiatives. This implies that all interviewees contacted held leading positions within their organization. Third, (iii) the sample had to strike a balance between members of the ICVCM and non-members who are, instead, directly affected by the ICVCM's vision and mission. Members of the ICVCM were selected randomly from the initiative's website. In contrast, non-members were identified purposefully through a practitioner and academic review. Finally, three CM experts from the host organization reviewed the final list before contacting the selected organizations to ensure that the purposeful sampling resulted in a relevant, representative, accessible, knowledgeable, and feasible group of interviewees.

In total, 18 interviews were conducted virtually using the ZOOM video call platform between 23, 2023 and April 14, 2023. In comparison, the contact list comprised a total of 45 potential participants. The response rate was around 40%, and at least three interviewees per stakeholder group accepted the request. The host organization reviewed and tested the interview guide before being applied in the field. It included various general questions which were posed to every participant. In addition, follow-up questions and probes were frequently integrated to maintain and improve the interview flow or examine a particular topic more deeply. For transparency, Appendix E entails the complete list of all interviewed participants and how they are referenced in this thesis. Appendix B presents the general structure of the interview guide used.

2.3.3 Observations

This data collection method is used alongside other ways to gather information about behaviour and interactions in a naturalistic setting that would otherwise stay hidden from the researcher's eyes. A first-hand account of events and an in-depth understanding of stakeholders' attitudes and actions were gained through two types of observations feeding into this research. First, observing interviewed participants' behaviour, conceptions, and reactions to sensitive or contested issues is essential in evaluating the reliability of specific stakeholders' information (Vedung, 2000). Second, attending events such as press conferences and webinars organized by these initiatives provide an objective and unobtrusive first-hand account of these events (Johnston et al., 1999). Appendix F includes a list of all webinars attended.

2.4 Methods of Data Analysis

In the face of the study's objective of developing a methodological framework for credibility assessments, various methods were employed to achieve it. Each selected method has particular strengths and advantages to contribute to finding answers to the research questions. For RQ1, a principle-based concept analysis was conducted to delineate the scientific concept and obtain a theoretical definition of what credibility entails in this context. For RQ2, discourse analysis was applied to distinguish the discursive positions of interviewees and understand their perceptions of the VCM and ICVCM**.** Finally, for RQ3, a qualitative content analysis was necessary to determine critical factors contributing to or challenging ISS initiatives' credibility. This method analyzed the presence, meanings, and relationships of certain words, themes, or concepts in text material, including documents and transcribed interviews. Sections 2.4.1, 2.4.2, and 2.4.3 describe all three data analysis methods in more depth and detail.

2.4.1 Principle-based Concept Analysis

Concepts such as credibility are complex and multifaceted (Heink et al., 2015; Ho, 2014). Therefore, this thesis relies on concept analysis to capture its complexity and multiple applications. Concepts are empirically based abstractions of reality or truth, representing some aspect of human experience (S. Smith & Mörelius, 2021). Thus, a concept analysis aims to analyze, develop, and evaluate a concept (Delves-Yates et al., 2018). In addition, this type of analysis is dynamic by nature, "as science evolves, so does the scientific concept" (S. Smith & Mörelius, 2021, p. 2). Therefore, the researcher must critically analyze scientific meaning, not everyday notions.

Among various types, the principle-based concept analysis is one of the most widely used approaches (Rodgers et al., 2018). It is an appealing method because it analyses evidence found in the scientific literature to determine what is precisely known about a concept (S. Smith & Mörelius, 2021). The principle-based approach was chosen because it emphasizes multi-disciplinarity, meaning it analyses a concept across the scientific literature of different disciplines (Eppel-Meichlinger et al., 2022). Furthermore, it results in a theoretical definition of a concept, in this case, credibility, which is required for determining the assessment framework's credibility principles and indicators. Lastly, the principle-based approach has proven robust and one of the most thorough methods for conducting a concept analysis (Bernard, 2015; O'Malley et al., 2015).

Nevertheless, it also has some noteworthy limitations. The main disadvantage of concept analsyis is the potential for subjectivity and bias in interpreting and defining complex, abstract and multilayered concepts, such as credibility. Especially the principle-based concept analysis often lacks empirical validation as it relies heavily on theoretical and philosophical principles which are not always grounded in empirical evidence.

The principle-based concept analysis is grounded in four broad philosophical concepts: epistemological, pragmatic, linguistic, and logical. Each principle contributes to understanding the strengths and limitations of the current state of the concept in the scientific literature (Penrod & Hupcey, 2005). Table 2.2 provides an overview of each principle.

Table 2.2 Description of the four principles of the concept analysis

Principle	Description
Epistemological	Refers to the nature of knowledge. Focuses on the discipline's distinction of a concept within the knowledge base.

Pragmatic	Investigates how well a concept is differentiated and defined. Refers to the usefulness of the data. Considers the usefulness of the concept in terms of how it explains or describes phenomena in a discipline. Determines if the literature supports or limits a concept as useful and applicable. Determines if it is recognised as useful by the discipline and members of the profession/group and society.
Linguistic	Refers to human speech and language. Evaluates the consistency of use and meaning of a concept within the scientific literature. Examines the fit of the concept within context.
Logical	Focuses on correct and incorrect reasoning, this principle refers to the integration of the concept with related concepts. Defines conceptual boundaries to prevent the loss of meaning when positioned with other concepts.

The epistemological principle focuses on examining a concept in the scientific literature. In this sense, the key questions the thesis addresses are whether credibility is clearly defined and what the variations between definitions are. The pragmatic principle examines the concepts' use in explaining or describing characteristics encountered in different disciplines. As an operationalization of concepts reflects their pragmatic use in other contexts, the author scrutinized approaches for conceptualizing and measuring credibility. The linguistic principle addresses the consistency of meaning in language use. Here, the author contrasted different uses of the concept of credibility in the context of the VCM. Finally, the logical principle focuses on whether conceptual boundaries are held when positioned with related or other concepts. In this case, the author points out how various concepts relate to credibility but should not be considered synonymous.

The conceptual analysis consisted of two phases. First, the concept development phase identified and analyzed essential characteristics of credibility in the scientific literature by adhering to the four principles. The literature search yielded 19 relevant scientific articles. Of those, four articles were found in the area of communication science, five in information and web science, one in journalism, two in psychology and and eight in environmental policy. Most were qualitative studies (n=17), followed by quantitative studies (n=2). They were published between 1953 and 2016, considering that modern credibility research originated in the middle of the 20th century. In the concept clarification phase, a context-specific theoretical definition of credibility emerged based on the previously performed analysis. While the theoretical definition is presented in Chapter 5, the analysis is situated in Chapter 3, which forms one essential component of the theoretical framework.

2.4.2 Discourse Analysis

Discourse analysis can mean many different things in as many scientific contexts (Hajer, 1995; Tannen et al., 2015). Here, it primarily aims to investigate why a specific understanding of the credibility of ISS initiatives involved in the VCM gains dominance and is perhaps seen legitimized while other understandings are discredited. This makes it particularly valuable for an analysis aiming to understand stakeholders' perceptions and strategic reactions to changes in the overall system of voluntary climate governance.

To present a specific truth, for example, the importance of credible IIS initiatives in the VCM, stakeholders need to define where they position themselves in the overall discourse and justify why they should have a voice (Lang et al., 2019). To determine their discursive position,

stakeholders create narratives, presenting their interpretation of the issue and ascribing specific characteristics to themselves and other stakeholders (Hajer, 1995; Lang et al., 2019). As numerous stakeholders are involved, discourses are generally characterized by multiple narratives with frequently competing truths (Leipold et al., 2019). In this sense, discussions are politicized as one actor or group of actors seeks to dominate the discourse, which will, hence, shape the decision-making and policy-making process (Scott, 2017).

Due to the qualitative nature of this study, discourse analysis served as a tool to tease out the dominant discourses, counter-discourses and marginalized discourses which have an influence on the VCM and ICVCM. Further, it balances these competing truths and identifies differences, similarities and discrepancies between different stakeholders' views and arguments. This type of analysis was continuously considered throughout this research. Therefore, it is embedded in the data collection process, the analytical methods and the final discussion to analyze underlying meanings and interpretations that reflect specific values, assumptions, and interests (Stevenson, 2016). Nevertheless, there are some limitations to consider. The main disadvantage of discourse analysis is that it is overly subjective, meaning different researcher can interpret the same data differently. This makes it difficult to draw any definitive conclusions about the meaning of the data. As discourse and content analysis share many identical limitations, further disadvantages are explained in Section 2.4.3.

While both research methods, discourse analysis and content analysis, are used to analyze written and spoken types of communication, they differ in their focus and approach (Herrera & Braumoeller, 2004). While content analysis examines the words used, topics discussed, and explicit communication patterns, discourse analysis focuses on how meaning is produced through and embedded in the language. In other words, the former analyzes the content of communication to identify patterns, whereas the latter analyzes the context in which language is used.

2.4.3 Conventional Content Analysis

Content analysis is a research technique for making replicable and valid inferences from various types of communication (Krippendorff, 2018). As a qualitative research method, it aims to provide knowledge and understanding of the studied phenomenon (Downe-Wamboldt, 1992; Hsieh & Shannon, 2005). Therefore, the techniques applied must be reliable and result in replicable findings, and the resulting claims should prove valid when facing independent evidence (Mayring, 2014). The types of communication analyzed were text and audio from the literature review and interviews. Hsieh & Shannon (2005) proposed that the thesis relied on a conventional approach because research literature and existing theories on credibility assessments in the context of the VCM are limited. Here, it focused on identifying and filtering systematically and objectively criteria and factors that can contribute to or challenge the credibility of an ISS initiative.

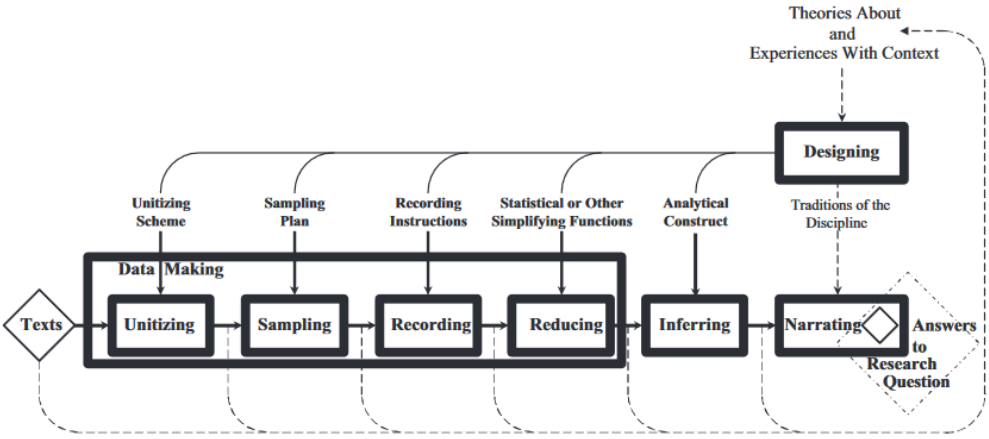

Figure 2.3 Components of a qualitative content analysis

A qualitative content analysis's conceptual steps and design can recur in various guises (Hsieh & Shannon, 2005; Krippendorff, 2018; Mayring, 2014). In this case, it involved six basic components, as depicted in Figure 2.3**.** First, segmentation rules were developed not to interpret the text as a whole but to be separated into segments (Mayring, 2014). In this study, the coding unit referred to clear semantic elements in the text. The context unit included the whole interview and protocol. Lastly, the recording unit comprised the full sample size of interviews (n= 18). The following two steps – sampling and recording – were explained in detail in Section 2.3.2.

Reducing large volumes of data requires focusing on what is relevant to the specific research questions (Krippendorff, 2018). Consequently, not all material has to be included in the analysis. If text material did not explicitly relate to the initial themes of categories, it was not considered in the analytical process. Three themes of categories were defined: i) competence, ii) character, and iii) goodwill. They derived from the theoretical findings of the concept analysis described in Section 2.4.1. Finally, new sub-categories were formed based on inductive category development, meaning sub-categories and names for sub-categories flew from the data (Hsieh & Shannon, 2005). Table 2.1 provides an overview of all final categories and sub-categories.

Table 2.3 Categories identified during the content analysis

Themes	Categories	Subcategories
Competence	Expertise	Knowledge, Professionalism
	Improvement	Audits & revisions
	Consistency	Persistence, effective enforcement, authority
Character	Truthfulness	Accuracy, quality, reliability
	Transparency	Communication, accessibility, funding
	Authenticity	Honesty, commitment, track record, trustworthiness
Goodwill	Fairness	Equal representation, grievance mechanism, diversity
	Engagement	Collaboration, consultations,
	Impartiality	Independence, no conflict of interest, governance structure

All relevant parts of transcripts were read word by word to derive codes by capturing critical thoughts and concepts. Throughout this process, labels for codes emerged, representing the

initial coding scheme. Afterwards, codes were sorted into categories depending on how they were linked and related. The emerging categories were essential to creating meaningful clusters of codes (Patton, 2002). To organize a larger number of subcategories into a smaller number of main categories – the so-called credibility principles –a coding tree was developed to merge similar or comparable criteria (Morse & Field, 1995), as shown in Appendix G. Finally, each principle's meaning, measurement options and best-practice examples were designed, and relevant codes were converted into indicators for each principle. Notably, the qualitative content analysis was not organized linearly. The cyclic design included iterative loops to improve the quality of the analysis (Krippendorff, 2018).

While content analysis can offer valuable insights, it also has certain limitations (Krippendorff, 2018). First, content analysis involves interpretation which introduces subjectivity and inherent bias by the researcher. Second, its generalizability is limited because the sample size (n=18) is rather small with an emphasis on in-depth exploration rather than statisitical representativeness. Ultimately, it has the potential for data overload which can be overwhelming if the researcher lacks skills or expertise. These issues are addressed in Section 6.4 and an alternative method, the factor analysis, is introduced to overcome these limitations.

2.5 Research Case: The ICVCM

The ICVCM presents an adequate research case for this thesis due to its vision to become a global governance body for the VCM, its novelty, and its relevance to policy and practice. First, although the VCM has gained significant attention recently as a mechanism to offset companies' emissions, it faces severe quality and use issues. This makes the ICVCM's role in ensuring the integrity of CCs particularly relevant for research. Second, although the ICVCM was established relatively recently, it has gained a lot of prominence as a body that promises to pull the VCM towards higher quality standards. Therefore, its novelty presents a unique opportunity to investigate the development of a new ISS initiative and its potential impact on the VCM. Lastly, the insights gained from this thesis could inform how the ICVCM is perceived among stakeholders and support efforts to improve the integrity of CCs, the transparency of the VCM, and the credibility of ISS initiatives.

To provide a detailed case description, several sources were used. These largely include official ICVCM documents downloaded on its 'governance materials' website. Additionally, academic, and grey literature and investigative reports enhanced the description by understanding the context in which the ICVCM operates. Finally, all data were synthesized in a literature matrix focusing on six elements: the formation phase, mission and mandate, organizational design, operating model, funding, and ties to the corporate world and other initiatives. All information mentioned is publicly available on the ICVCM's website and can be downloaded under governance materials.

2.5.1 Formation of the ICVCM

The ICVCM superseded the private-sector-led *Taskforce on Scaling Up Voluntary Carbon Markets* (TSVCM), launched in 2020 as an initiative to ramp up the scale and effectiveness of the VCM. The TSVCM was formed as a collaboration between more than 250 representatives from various domains, including buyers and sellers of CC, standard setters, the financial sector, civil society, international organizations, and academics (TSVCM, 2021a). It aimed to bring all parts of the CC value chain together to provide recommended actions for the most pressing issues regarding the VCM.

After facing severe criticism that focusing on scaling a poorly functioning market seemed arbitrary in light of the climate crisis, the task force re-purposed its mission from scaling up the

VCM to reassuring the quality and integrity of offset credits (Bloomberg, 2022). Ultimately, the initiative released a final report on developing and implementing a new governance body – the ICVCM. In 2021, the TSVCM transitioned into a new type of organization, claiming to be an independent, stakeholder-led, and self-regulating body to ensure that the VCM accelerates a just transition to net zero (ICVCM, 2022).

2.5.2 Mission and Mandate of the Governance Body

The ICVCM pursues the mission of ensuring that the VCM serves its primary purpose of reducing and removing GHG emissions to mitigate climate change and accelerate the transition to net zero (ICVCM, 2023d). Hence, the umbrella governance body's mandate can be summarized with the following terms: establish, host, curate, oversee, govern, coordinate, and foster.

First, the ICVCM aims to establish, host, and curate a set of Core Carbon Principles (CCP). The CCPs comprise ten criteria that shall guide the assessment of both crediting programs and different methodologies of CC projects by setting new threshold standards for high-quality CC. While the Assessment Framework for the program level was released in March 2023, the second AF for the categories of CC project will be released later this year. Together, they shall "provide a credible, rigorous, and accessible means of identifying high-quality CC that create real, additional and verifiable climate impact with high environmental and social integrity" (ICVCM, 2022, p. 2).

Second, the ICVCM intends to provide governance and oversight over standard-setting organizations on adherence to CCPs and establish onboarding requirements for market participants and stakeholders while excluding those that do not adhere to the CCPs. Third, the ICVCM aims to help coordinate and manage interdependencies and interlinkages between individual bodies, such as other standard-setting initiatives. Lastly, it intends to define a roadmap for the responsible growth of the VCM, which ties in with the main purpose of the preceding TSVCM.

2.5.3 Organizational Design

There are three parts to the umbrella governance body of the ICVCM: i) Governing Board, ii) Expert Panel, and iii) Executive Secretariat. In addition, a Distinguished Advisory group, without any decision-making power, provides strategic advice and helps engage stakeholders (ICVCM, 2023f). Figure 2.4 outlines the organizational design of the ICVCM with its specific characteristics and interactions.

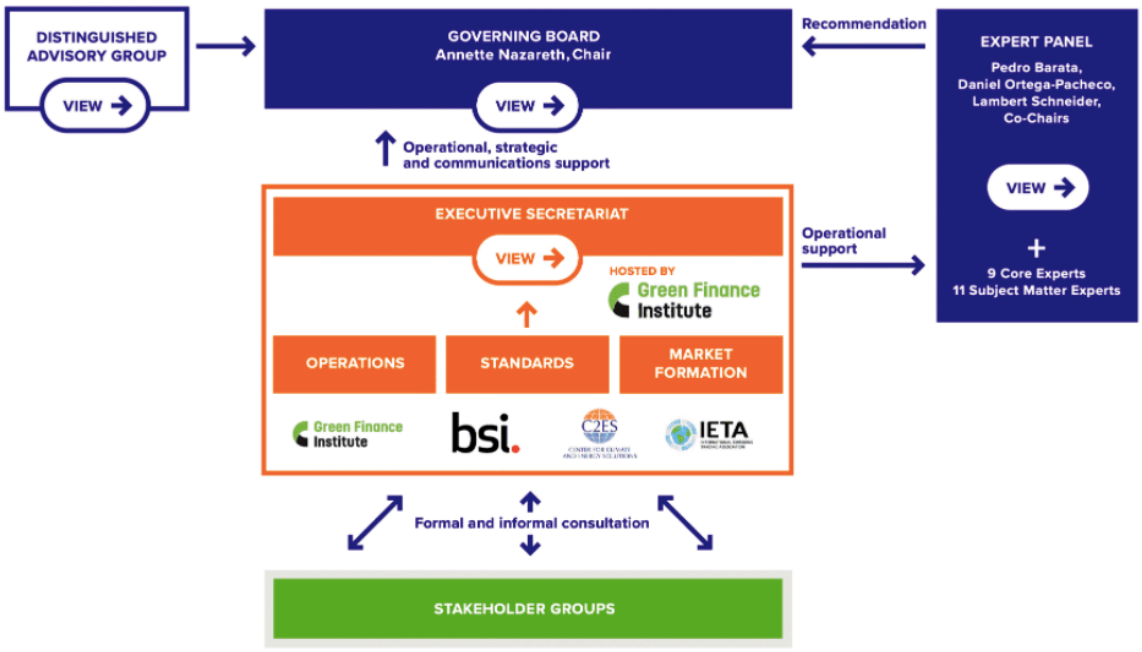

Figure 2.4 Organizational design of the ICVCM

The Governing Board's role is to make decisions on CCPs (e.g., accepting or rejecting the eligibility guidelines and standard assessment framework) and the strategic roadmap of the governance body based on recommendations from the Expert Panel and Executive Secretary. It comprises 22 board members, including i) seven founding sponsor representatives, of which two must be independent, ii) nine independent members such as experts, researchers or 'former'[1] market participants that 'act in the global interest'[2]. In addition, iii) three board members represent active market participants and iv) three members from indigenous peoples and local communities (IPLC).

A board member's term lasts up to three years and can be renewed for another three years if the candidate fulfils specific eligibility criteria. Further, the Governing Board "shall endeavour to have a majority of independent members" to guarantee its independence (ICVCM, 2023f, p. 3). Another feature is the Governance Committee, whose members are appointed by the Governing Board and whose size is freely determined by the board without any restrictions or predefined tenure. Its role is to establish procedures for the application, nomination, and appointment of members of the Governing Board. Lastly, decisions shall be taken by consensus. If no consensus can be reached, decisions can be taken by a two-thirds majority of the members.

The Expert Panel's role is to make recommendations for decisions on CCPs for approval by the Governing Board, which oversees the panel (e.g., the development of the assessment framework and eligibility criteria for CC and crediting programs). The Expert Panel consists of i) three co-chairs, ii) nine core experts for a three-year term, and iii) another 11 subject matter experts. The Governing Board appoints the co-chairs based on a few nomination criteria, including leadership experience, expertise, diversity, and independence. Core experts submit applications to the Executive Secretariat, and appointment is subject to the approval of the Governing Board. Subject matter experts are appointed on an ad-hoc basis corresponding to the required expertise, but detailed nomination procedures are not explained. Notably, members

[1] Former market participants are defined as participants that have not been actively involved in the VCM for at least two years.

[2] In the modalities and procedures document, it is not further specified what is meant by 'acting in the global interest'.

of the Expert Panel must sign that "they agree with the mission and mandate of the [ICVCM]" (ICVCM, 2023f, p. 10). The decision-making process mirrors the one of the Governing Board.

The Executive Secretariat's role is to develop recommendations for strategic decisions of ICVCM and to carry out operational tasks (e.g., managing stakeholder relationships and communication, preparing market infrastructure, supporting experts, etc.). It also serves as a supportive organ for the Governing Board and Expert Panel during their work and helps establish consensus among the other parts of the governance body. The Executive Secretariat is hosted within other organizations (e.g., Green Finance Institute, IETA, C2ES), which should not be a Founding Sponsor. The Governing Board appoints the executive team based on recommendations of the host organization. In addition, the Executive Secretariat freely determines the number of required full-time employees.

The Distinguished Advisory Group's role is threefold. First, it provides advice and unique perspectives to the Governing Board. Second, it serves to "promote the [ICVCM] as the authority on [VCM] standards" (ICVCM, 2023f, p. 13) by engaging the public through social media activities, articles, etc. and expanding the network across geographies, industries, and stakeholder groups. Third, these advisors shall "proactively engage with key stakeholders such as market participants, regulators and [NGOs]" to anticipate trends and opportunities and promote awareness of the ICVCM (ICVCM, 2023f, p. 14). Finally, without any decision-making power, the Advisory Group consists of members from diverse backgrounds who can be appointed without considering the nomination criteria which apply to the Expert Panel.

2.5.4 Operating Model and Principles

The ICVCM intends to put various measures in place that guarantee successful operations of the governance body and the VCM overall. The operating model of the ICVCM consists of five key components: i) general principles, ii) process to manage conflicts, iii) transparency mechanism, iv) grievance mechanism, and v) key performance indicators (TSVCM, 2021b).

Five general principles build on the values established during the setup of the TSVCM (ICVCM, 2023d). First, all actions taken by the ICVCM shall be *purpose-driven*, meaning all offset projects and programs are genuinely additional and do not cause environmental or social harm. The second principle, *high integrity,* refers to the high quality of CC with real, verifiable climate benefits aligned with a net zero pathway. Further, the *transparency* of operational procedures and transactions, such as CC trades, is fundamental for the effectiveness of the VCM. Fourth, neither the VCM nor the ICVCM operate in a vacuum but are *interdependent* with other markets, policies, and organizations to contribute to the goals of the Paris Agreement. Lastly, *inclusivity* is key. Everyone should benefit from the VCM, including, above all, communities where projects are located.

As the ICVCM includes active and former market participants on the Governing Board, Expert Panel and Executive Secretariat, a set of guardrails is required to avoid significant conflicts of interest. Four measures are introduced (ICVCM, 2023c). The first relates to the composition of the parts of the governance body. Independent Governing Board members should form the majority, and active market participants in the Expert Panel should constitute the minority. Second, there is a two-year cooling-off period since the last employment for an organization that generates revenue in the VCM. Third, all members must disclose any commercial or financial interest to ensure they do not have vested interests. Lastly, guidelines for dealing with and minimizing conflicts resulting from market activities were seemingly developed but not further explained.

A transparency mechanism is fundamental for both procedural and transactional aspects. Regarding the latter, with the launch of the CCPs and the Assessment Framework, the ICVCM established a transparency mechanism for disclosing information relating to projects, programs, and credits. Concerning the former aspect, the ICVCM relies on consultation processes with its stakeholders and the public that can provide comments and suggest modifications in relation to policy decisions. In addition, independent reviews of the ICVCM's effectiveness, transparency, advancement and success carried out by a "third-party organization" shall take place "from time to time" (ICVCM, 2023f, p. 15). The ICVCM will also disclose its financial information and annual reports of its activities. However, the Governing Board has the ultimate decision power regarding the nature of the information that should be publicly disclosed and the manner of disclosure.

A procedure that provides a clear framework for addressing grievances, complaints, and other related issues was identified as an essential criterion for the legitimacy of the governance body. Accordingly, the ICVCM includes three elements. The first element is a process to address stakeholders' complaints about procedures and decisions of the governance, including an arbitration method. The second entails mechanisms that ensure privileges and immunities for individuals serving in a role for the governance body. The third element is a process to resolve conflicts among market participants. Although the ICVCM intended to operationalize the grievance mechanism within three to six months after its launch (TSVCM, 2021b), no information is available on whether and how this mechanism was implemented.

The fifth component deals with key performance indicators (KPI) to measure the success of the VCM overall and of the governance body in reducing GHG emissions and accelerating the transition to net zero. Similar to the previous mechanism, KPIs should have been established three to six months after launching the ICVCM (TSVCM, 2021b). Still, no information could be found on how the ICVCM intends to measure the effectiveness of the VCM and how success is defined.

2.5.5 Funding

The ICVCM operates on a not-for-profit basis and has the right to raise funds from third parties, including corporates, philanthropic institutions, governments, and public institutions (TSVCM, 2021b). Funding is secured through a two-phased approach: i) a three-year setup phase, ii) the steady state. In the setup phase, the ICVCM needs approximately USD 8 to 11 million annually. Primary funding sources are recognized for their contribution but do not obtain any rights or privileges associated with their power (TSVCM, 2021b). Founding Sponsors and the organization hosting the Executive Secretariat should but do not have to contribute to funding in cash or 'in kind'.

In the steady state, funding needs amount to approximately USD 7 to 10 million per year (TSVCM, 2021a). To cover these annual expenses, the Governing Board can establish and solely approve a 'business model based on market fees'[3]. For instance, membership fees or a service-based user fee can secure funding. The former implies that members that intend to adhere to the CCPs and Assessment Framework pay a specific annual fee. The latter means the price can also be based on CCP credit issuance or retirement. According to the TSVCM's calculations, required funding corresponds to less than 0.4 percent of the predicted VCM market size in 2024

[3] The ICVCM claims that its independence in decision-making is still preserved and can not be undermined by such a business model.

and further diminishes in subsequent years. The underlying assumption is that the market will grow by a "factor of 6-7 between 2020 and 2024" (TSVCM, 2021b, p. 24).

2.5.6 Ties to the Corporate World and Other Initiatives

The ICVCM, as a stakeholder-led initiative, has close connections to former and active market participants who form part of the Governing Board, Expert Panel, Executive Secretary, and Advisory Group. Some critics even argue that various executives share "a history of weak regulatory oversight and ties to some of the biggest fossil fuel actors" (Corporate Accountability, 2022, p. 4). The following examples substantiate this claim.

Various board members have direct or indirect links to the corporate world. For example, one member is employed by a law firm that advises the coal, gas, and oil industry, including ExxonMobil and Petrobras. The law firm even prevailed on behalf of ExxonMobil against a USD 2 million penalty for violating sanctions against Russia (Davis Polk, 2020). Another member is employed by Standard Chartered, which financed over USD 31 billion towards fossil fuel activities between the signing of the Paris Agreement and 2020 (Banking on Climate Chaos, 2022). Further, one leading member is an executive member at the Institute of International Finance (IIF), which hosts numerous top fossil fuel financiers while being a founding sponsor of the ICVCM. The lobby association communicated support for some sustainable finance policies to meet the goals of the Paris Agreement. Still, it has not supported regulations limiting damaging activities to the climate, such as fossil fuels (LobbyMap, 2023).

Three board members are market representatives whose decision-making power can pose concerns over credibility. One member is VERRA, the worldwide largest carbon crediting organization, whose recent scandals were described in Section 1.1.2. Another member is the climate director at BP, one of the world's largest oil and gas companies, which backs anti-climate lobby groups (Greenpeace, 2020). The third member is employed again by Standard Chartered, representing a significant fossil fuel financier. Moreover, several members of the Distinguished Advisory Group have close ties to the private sector. For instance, members work for multinational investment companies such as BlackRock, fossil fuel financing banks such as Standard Chartered Bank or HSBC, or environmental organizations with big business ties to mining, oil, gas, and chemical industries like the Nature Conservancy.

The Executive Secretariat includes the International Emissions Trading Association (IETA), which describes itself as a "purely business group" (IETA, 2023, p. 1) and consists of numerous board and fee-paying members who are primarily polluting companies such as BP, Shell, Total, Repsol, and Statoil, among others (Corporate Accountability, 2018). Another host organization is the Center for Climate and Energy Solutions (C2ES), whose board includes a climate change advisor from Shell, a Duke Energy executive and a Barclays executive. Duke Energy is a large US power and gas holding company, and Barclay is one of the UK's most prominent fossil fuel financiers (Banking on Climate Chaos, 2022).

3 Theoretical Framework

The theoretical foundations underpinning this thesis are built upon two pillars: the theory of CMs and the concept of credibility. Concerning the former, looking at CMs' theoretical and practical development is essential to understand its current deficiencies when applied in the real world. Regarding the latter, the concept of credibility is the pivot of this thesis. The concept requires a sound and robust analysis of how it can be understood in different disciplines and how credibility assessments are performed in other areas of application.

3.1 The Theory of Carbon Markets

To understand the theory of CMs, Calel (2011) suggests looking at three perspectives (i) the attributes of the climate problem, (ii) how the economics of emission trading developed, and (iii) the formation of international institutions to address climate change. Before that, however, the following section briefly outlines the terminology that is fundamental for understanding each of the three perspectives.

3.1.1 Basic Concepts

A market is a system in which agents, such as buyers and sellers, engage in transactions according to supply and demand. The market's efficiency depends on the degree to which market prices reflect all available relevant information. A market is efficient if all information is already incorporated into prices, implying there is no way to *beat the market*. However, markets can also fail when resources in the market are inefficiently allocated. This can occur for primarily four main reasons: (i) imperfect competition (e.g., barriers to entry), (ii) imperfect information (e.g., information asymmetry between supplier and buyer), (iii) public goods (e.g., air quality, stable climate), and (iv) externalities (e.g., air pollution, GHG emissions) (Callan & Thomas, 2013).

In environmental economics, two theories prevail; the theory of public goods and the theory of externalities (Callan & Thomas, 2013). Public goods generate market failure because of their characteristics of non-rivalry and non-excludability, which prevents market incentives from achieving an efficient allocation of resources. Negative externalities provoke market failure because the production or consumption of a good generates environmental damage outside the market transaction and is borne by a third party. Both theories are aggravated by a third type of market failure: imperfect information along a product's value chain, which can lead to high costs in making an economic transaction, the so-called transaction costs. While public goods and environmental externalities are not the same concepts, they are closely related since most externalities affecting air, water, land, or the atmosphere share the same characteristics of public goods (Callan & Thomas, 2013).

Economists and scientists believe that climate change represents the greatest market failure as it stems from multiple market failures that entities have been unable to account for (Callan & Thomas, 2013). The greatest one is the social and environmental cost of releasing GHG into the atmosphere, which is a global common good. The lack of clearly defined and assigned property rights - an economic construct for determining how a good is used and owned – allows entities and individuals to emit GHG without being directly affected by them. However, GHG emissions have negative effects on society and the environment as higher concentrations of GHGs in the atmosphere result in global warming, which is the main driver of climate change (IPCC, 2022). Moreover, its consequences will be mostly experienced by those who contribute the least to climate change, such as underdeveloped nations and future generations (Bryant, 2019).

3.1.2 The Scientific Perspective

Several unique attributes are essential for explaining the role of CM globally and clearly differentiating them from other emission or resource markets, such as air or water pollution. The first attribute concerns the spatial nature of the global climate problem (Newell et al., 2014). As there is only one globally shared atmosphere, most GHG emissions throughout the world enhance the global warming effect, regardless of where emissions take place (Broekhoff et al., 2019). In economic terms, GHG emissions share identical externality properties (not necessarily values) across all countries.

The second aspect relates to the longevity of GHG emissions (Solomon et al., 2009). These pollutants remain in the atmosphere for decades to millennia (Joos et al., 2012). Therefore, the accumulated global atmospheric concentration of GHGs, rather than emissions at a given time, drives global warming and climate change (Allen et al., 2009). Consequently, a long-term global perspective is required when considering climate policies.

The third attribute concerns the dominance of CO2 as the primary component of GHG emissions. Nonetheless, there are numerous GHGs, such as methane, nitrous oxide, etc. All of them hold different global warming potentials and vary in their lifetime. To compare emissions from various GHG sources, CO2e is used as a metric measure by converting the amounts of other GHG to the equivalent amount of CO2.

The fourth scientific aspect is the pervasiveness of GHGs. They are omnipresent in any part of the economy (Newell et al., 2014). That means they are not identified with a specific set of sources, sectors, or technologies. For example, while energy is needed for everything, its production primarily relies on the combustion of fossil fuels, which is the driving force of human-induced global warming. Even more concerning is that fossil fuels supply about 80% of the world's energy (Ritchie et al., 2022).

Fifth, the climate regime is associated with high scientific uncertainty compared to other emissions markets (Calel, 2011). Related to the global nature, long-time frames, and complexity (e.g., differing global warming potentials) associated with GHGs, uncertainty about environmental risks, mitigation costs, and technological change creates further challenges for ensuring flawless measurements, monitoring and verifying of CC-generating projects (Broekhoff et al., 2019).

3.1.3 The Economic Perspective

According to (Callan & Thomas, 2013)**,** two theories laid the foundation for understanding climate change as a market failure: the Pigouvian welfare economics (Pigou, 1933) and the Coase Theorem (Coase, 1960). Therefore, this section first focuses on the equilibrium between the marginal private cost and marginal social cost and then investigates the allocation of property rights. Both are fundamental for the understanding of the cost-effectiveness of CMs, which is a major concern for market-based policy design (Newell et al., 2014).

In markets where GHG pollution is conceptualized as a negative externality, it is important to distinguish the marginal private costs (MPC), also called internal production costs, from marginal external costs (MEC), which represent an additional cost imposed on third parties by producing an extra unit of a good, as shown in Figure 3.1. Further, GHG-generating entities aim for the free-market equilibrium where MPC equals the marginal private benefit (MPB) without taking into account the MEC. However, under the assumption that there is no marginal external benefit (MEB), the marginal social benefit (MSB) curve equals MPB. Consequently, the social optimum or efficient equilibrium where the marginal social cost (MSC) equals MSB is not

achieved, leading to a social welfare loss. This implies that society is giving up more to produce another unit of the good than it gains in benefits from consuming it.

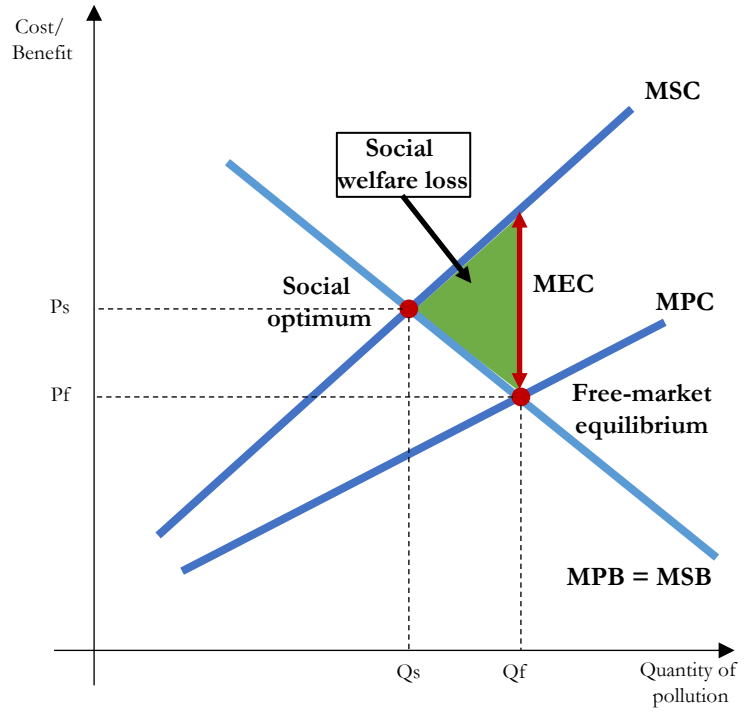

Figure 3.1 Social cost of a negative production externality

In free and unregulated markets, market agents act in their best interest to maximize their profits (Callan & Thomas, 2013). Consequently, they are motivated by private gains, not by social gains. Even though entities may be aware of the environmental and social damage they cause by emitting GHG, there is a disincentive to account for GHG pollution. It would negatively affect their profits. The underlying root of the market failure demonstrated above is the absence of property rights in the context of environmental public goods, such as the atmosphere. Hence, Coase (1960) argued that the assignment of property rights could allow for an efficient solution even in the presence of a negative externality.

According to the Coase Theorem, market agents can negotiate a solution to avoid market failure and to achieve the market's social optimum and efficiency equilibrium as long as property rights are allocated. Two important assumptions of the theory are noteworthy: (i) transactions are costless, and (ii) damages are accessible and measurable (Coase, 1960). However, with the unique attributes of climate change, the Coase Theorem's fundamental assumptions of equal bargaining power and zero cost of transactions often fall short (Callan & Thomas, 2013). Further, for the theory to hold in practice, only a few agents ought to be involved on both sides of the market. Unfortunately, this is not the case for CMs, with many affected parties on both the demand and supply sides. Hence, the theory cannot be commonly applied as a real-world solution (Bryant, 2019). Nevertheless, the Coase Theorem paved the way for incentive-driven or market-based instruments as an alternative to traditional 'command-and-control' regulations (Calel, 2011).

Taxation and tradable permits are two main market-based instruments for controlling GHG pollution cost-effectively (Callan & Thomas, 2013). While the former, which goes back to the Pigouvian tax – a tax borne by unrelated third parties on economic activities that generate negative externalities – is not of specific relevance for this study, the latter is the pivot of the

theory of CM. Tradable permits are marketable rights that allow the emission of polluting substances or the use of a common resource (T. Tietenberg, 2003). Crocker (1966) and Dales (1968) first developed the concept of tradable permits for air and water pollution control, respectively, as a means to tackle the 'tragedy of the commons' (Hardin, 1968). A permit can be traded between market participants, and whoever pays the highest price for it gains the right to pollute.

Under specific conditions, a well-defined tradable permit system can minimize the cost of reaching an environmental goal (Baumol & Oates, 1971). That means pollution control can, in theory, be achieved cost-effectively. In addition, Montgomery (1972) provided evidence that such a system could, in theory, solve other goals (e.g., political feasibility or equity) without sacrificing its most significant benefit: its cost-effectiveness. A practical example supporting the theory is the US Acid Rain Program, the first cap-and-trade system worldwide. It delivered considerable air pollution reductions while creating extensive environmental and human health benefits at far lower-than-expected costs (Siikamaki et al., 2012). Moreover, international emissions trading, in theory, improves cost-effectiveness because eliminating GHG emission sources in another country can be cheaper than doing so domestically (Woerdman, 2005).

3.1.4 The Policy Perspective

In 1992, the United Nations Framework Convention on Climate Change (UNFCCC) acknowledged the importance of global, cost-effective emission reductions. It paved the way for tradable permits, aka emission trading schemes (T. Tietenberg, 2003). In 1997, the Kyoto Protocol operationalized the UNFCCC by negotiating a legal framework with binding emission targets for industrial countries and countries with emerging economies, so-called Annex I countries. The Kyoto Protocol introduced the 'flexible mechanisms,' including the CDM, JI, and emissions trading, creating what is now known as CM (Calel, 2011).

CMs can be divided into two market types; compliance and voluntary carbon markets (CCM & VCM). Table 3.1 indicates how each operates and outlines its advantages and shortcomings.

Table 3.1 Differences between the compliance and voluntary carbon market

Criteria	Compliance Carbon Market	Voluntary Carbon Market
Type of carbon credit	Sells or allocates carbon permits, also referred to as allowances. A permit allows the holder the legal right to emit one metric tonne of CO2e	Sells carbon offset credits with the intention to counterbalance or compensate for an equal amount of CO2e emissions.
Market participants	Companies that fall under the requirements of the mandatory regime are able to purchase allowances.	Individuals and companies alike are able to purchase carbon offset credits.
Issuance and validation	International, regional, and national government bodies create, regulate, oversee, and issue allowances. Allowances are standardized by these entities making them easily trackible and verifiable.	Various private or non-governmental crediting organizations issues offset credits Validation standards lack a formalized and universal verification and accounting system. Regisitries are typically not run or regulated by governments.
Demand and Supply	Regulatory mandate creates demand for allowances. Supply is dictated	Participation is non-mandatory and is driven by personal or corporate

	by regulatory bodies setting a cap for the annual amount of allowances.	responsibility, cabron neutrality pledges, stakeholder pressure or consumer dmeands. Supply is managed by project developers largely situated in the global south
Environ-mental integrity (e.g., additionality)	When using the CCM to reduce GHG emissions, additionality is concrete, each permit not issued or utilized is one tonne of CO2e generated.	The VCM provides uncertain level of additionality, often resulting in little or no added benefit. With no authority to hold parties responsible for offset claims, the VCM can make things worse.

The CM's currency – CCs – can be accrued through two different types (Bayon et al., 2009). First, project-based transactions are emissions reductions or carbon removals generated through a CC project. Second, in cap-and-trade systems, the regulatory body caps the amount of emissions participants can emit and allocates tradable allowance units equal to the cap. The reason is that VCMs, instead of CCMs, do not operate under a universal cap. Therefore, all CCs generated and traded in the VCM are project-based transactions (Bayon et al., 2009). Figure 3.2 presents a scheme of the basic structure of the VCM and illustrates the project-based transactions along the CC value chain.

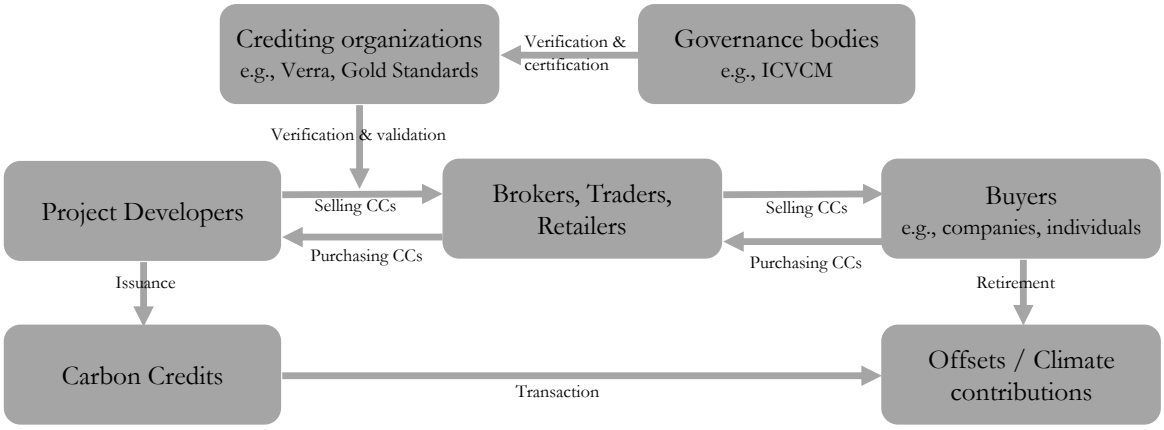

Figure 3.2 Governance and market agents of the voluntary carbon market

3.1.5 The Imperfections of the Voluntary Carbon Market

Despite the compelling theoretical arguments in favour of emissions trading, including (i) its ability to cap emissions at a desired level, (ii) to achieve abatement at the lowest overall cost, and (iii) to provide incentives to innovate in low-carbon technologies, international CM have failed in various aspects. Governance, technical, and market issues are particularly noteworthy in the context of the VCM.

First, the VCM operates with limited regulatory oversight unlike mandatory emission trading schemes. While CCMs have institutions in place to oversee the allocation of emission permits, the absence of comparable governance mechanisms leads to the selling of 'hot air' – CCs with no real emission reductions (Woerdman, 2005). Also, the lack of regulation results in poor harmonization and standardization of methodologies, standards and accounting frameworks. This fragmentation can create confusion, reduce the VCM's efficiency, and impede the comparability and credibility of CCs. Additionally, the enforcement of rules at a global level depends strongly on the effectiveness of national enforcement (T. Tietenberg, 2003). If national enforcement systems are weak, the achievement of the climate-change goals can be jeopardized, too.

Second, the VCM faces severe environmental integrity issues. The overarching concept for ensuring environmental integrity is additionality. Emission reductions and carbon removals are only *additional* if they would *not* have occurred without a market for offset credits (Broekhoff et al., 2019). However, ensuring additionality "can be difficult to determine and verify" in practice (Allen et al., 2020, p. 5) since the counterfactual scenario of the offsetting activity cannot be observed directly. Equally important is the concept of permanence that ensures that GHG reductions or removals are not reversed at a later point. However, this concept is not clearly defined within the scientific literature as its proposed timescale ranges between 20 years to thousands of years (Climate Action Reserve, 2021; Joos et al., 2012; Miltenberger et al., 2021).

In addition, many companies often underestimate their actual GHG emissions through inaccurate or wrong measurements, and many CC-generating projects frequently overestimate the amount of emissions reduced by setting wrong baselines (Broekhoff et al., 2019). Baselines are the reference against which GHG emissions reductions are accounted for. Double counting refers to a situation in which two parties claim the same carbon removal or emission reduction. This can occur in three ways: double issuance, double use, and double claiming (Fearnehough et al., 2020). All of these issues are already well-researched. Thus, the referenced literature provides an in-depth overview regarding the environmental integrity of high-quality CCs (Broekhoff et al., 2019; Cames et al., 2016; Schneider & La Hoz Theuer, 2019).

Third, the VCM faces various market and greenwashing issues that undermine its credibility. The VCM lacks a standardized pricing mechanism, leading to inconsistent prices across different projects, regions, and market participants (Worldbank, 2022). Moreover, the VCM has experienced an oversupply of CCs, implying that issued CCs exceed the demand. Low carbon prices promote the production of low-quality CC rather than those that can really contribute to global GHG emission reductions. Finally, developing projects and companies often make wrong or misleading claims when falsely claiming to be additional or overstating their actual emission reductions (Broekhoff et al., 2019).

3.2 The Concept of Credibility

This section first deals with whether credibility as a concept is well-defined and why the concept can entail various definitions. Second, it examines how credibility is operationalized in different contexts and understood within the scientific literature. Then, related concepts are assessed to draw clear conceptual boundaries when positioned with other concepts. Lastly, a theoretical framework is introduced to justify that credibility assessments can function as a performance or quality measure by linking the persistence of institutions to their credibility.

3.2.1 Definitions of Credibility

Credibility has been defined as believability, trust, reliability, accuracy, fairness, objectivity and various other concepts and combinations thereof (Hilligoss & Rieh, 2008; Self, 2008). It has also been defined in terms of characteristics that make sources of information worthy of or likely to be believed (Flanagin & Metzger, 2008). To better understand the versatility of existing definitions, it helps to look at the historical and ontological aspects of the concept. Historically, Aristoteles' discussion of ethos is widely considered among the first attempts at conceptualizing what is now more commonly referred to as source credibility. While it is widely agreed that source credibility is the "attitude toward a source of communication held at a given time by a receiver," attitude should not be understood as unidimensional but rather multidimensional (McCroskey & Young, 1981, p. 1). However, researchers have not yet agreed on its underlying dimensions, explaining the variety of today's definitions (Rieh & Danielson, 2007). Aristoteles already recognized the concept's multidimensionality, suggesting that ethos had three dimensions: intelligence, character, and goodwill.

Ontologically, it should be noted that concepts are abstract ideas and mental abstractions (Margolis & Laurence, 2007). They are empirically-based abstractions of perceived reality or truth, representing some aspect of human experience (S. Smith & Mörelius, 2021). Following the constructivist paradigm, understanding a concept as 'truth' requires acknowledging the existence of multiple realities and worldviews, therefore, multiple 'truths' (Russell, 2013). Hence, individuals, including scientists, tend to interpret the meaning of credibility differently, which often relate to but also deviate from each other in different contexts. For instance, although researchers have been interested in credibility since the second half of the 20th century, there is no clear definition of credibility (Flanagin & Metzger, 2008). Nonetheless, there is an overarching view that credibility is often equated to believability (Heink et al., 2015; Hilligoss & Rieh, 2008). To quote Tseng & Fogg (1999, p. 39), "[c]redible people are believable people; credible information is believable information."

3.2.2 Dimensions of Credibility across Various Fields

Credibility definitions usually consist of several dimensions. They can vary significantly depending on the context and assessment purpose. For example, in communication science, there is a strong consensus that credibility comprises at least two key dimensions: i) trustworthiness and ii) expertise (Fogg, 2003b). Hilligoss & Rieh (2008) argue that trustworthiness is a key factor in credibility assessment because it helps assess if the information is reliable, unbiased, and fair and if people are honest and sincere. Expertise concerns "the perceived knowledge, skill, and experience of the source." (Fogg, 2003a, p. 124). According to (Rieh, 2002), the assessment of the source's expertise can occur in various ways: someone had first-hand experience with the source or was told by someone else, and the source has a good reputation or credentials.

In journalism, credibility plays a significant role in providing reliable data. Mosier & Ahlgren (1981) also characterized credibility as multidimensional and posited three aspects: (i) clarity (i.e., how easily an article can be understood), (ii) accuracy (i.e., how well documented the information is), and (iii) trustworthiness (how believable the information is). Whereas in the field of educational teaching, three different dimensions were introduced by Teven & McCroskey (1997). They consisted of (i) competence (e.g., expertise or knowledge), (ii) character (e.g., trustworthiness), and (iii) caring (e.g., goodwill or intention).

For science, credibility is also crucial to producing reliable information (Bocking, 2004). Here, the concept is viewed more narrowly and often referred to as the truthfulness or quality of the data (Heink et al., 2015). In this case, knowledge production should adhere to scientific methods, and findings should be derived rigorously and transparently. For example, this can be ensured by a peer-review process or collaborative assessments through a group of experts (Bocking, 2004).

Given the importance of credibility in environmental decision-making and policy-making, Peters et al. (1997) identified three determinants: knowledge and expertise, openness and honesty, and concern and care. Another set of components proposed by Renn & Levine (1991) consists of competence, objectivity, fairness, consistency, and goodwill. Also, it aligns well with the determinants mentioned above. In this case, competence corresponds with knowledge and expertise, character with openness and honesty, and goodwill with concern and care for others in the short and long term.

3.2.3 Related Concepts

Credibility is often equated to believability. However, it is also commonly used interchangeably with other terms, including but not limited to trust, legitimacy, and quality. While all these

concepts relate to credibility, they should not be considered synonymous. Therefore, drawing clear conceptual boundaries when positioned with the abovementioned concepts is essential to avoid confusion or misunderstandings.

Assessing credibility without referring to trust and trusting behaviours can be difficult. Historically, trust has been an integral construct in numerous conceptualizations of credibility (Hovland et al., 1953). However, trust is different from credibility because it refers to beliefs, dispositions, and behaviours associated with the acceptance of risk and vulnerability (Rieh & Danielson, 2007). Similarly, O'Hara (2012, p. 19) defines it as "rely[ing] on the truthfulness or accuracy of" something or someone. Credibility, instead, refers to the perceived quality of a source, which may or may not lead to associated trusting behaviours. Consequently, trustworthiness as a measure of *how much one can confidently rely on something serves as a better characteristic of credibility than trust.*

Second, neither is legitimacy equal to credibility – a notion symbolizing "conformity to recognized principles or accepted […] standards" (Heink et al., 2015, p. 676). Instead, legitimacy is associated with political rule and power (Ho, 2014). Third, legitimacy is tied to the existence of institutions, but in voluntary regimes such as the VCM, governing institutions do not yet exist. Consequently, credibility is a pre-requirement for being considered legitimate.

Third, quality plays a significant role in gaining credibility and vice versa. Information quality includes five aspects: usefulness, goodness, accuracy, currency, and importance (Rieh, 2002). However, these aspects are not necessarily consistent. For instance, something can be important but not accurate, valid but not current, and so forth. Hence, credibility assessments provide another layer of evaluation to select what is initially judged as high-quality (Rieh & Danielson, 2007).

3.2.4 Credibility in the Context of the VCM

Murun & Takahashi (2021) argue that credibility is essential for establishing a trusted market. However, scholars view and assess credibility from various angles, making the concept appear even more unclear and vague. From a market perspective, some scholars stress the importance of a well-designed and adequately implemented VCM to ensure credibility (Mendelsohn et al., 2022). Others emphasize the significance of assessing the credibility of CC in terms of verification, monitoring and exclusive claims (Fearnehough et al., 2020; Gillenwater et al., 2007; Lang et al., 2019; Murun & Takahashi, 2021). Another group of scholars argues that the credibility of corporate claims related to the use of offsets also plays an important role (Blaufelder et al., 2021; New Climate Institute, 2022). Lastly, credibility can also be addressed by examining international standard-setting initiatives based on a set of guiding principles (Chan & Pauw, 2014).

In conclusion, credibility in the context of the VCM is interpreted in multiple ways and is not yet well-defined. Further, there is no common understanding of what dimensions should be considered when assessing credibility, as scholars focus on different aspects of the VCM. Lastly, the concept is used neither consistently nor appropriately within the context and across stakeholders.

3.2.5 The Credibility Thesis

As discussed above, international CM need more international governance mechanisms to avoid institutional failure. The ICVCM attempts to close this gap by becoming a legitimized institution, an independent global governance body for scaling up the VCM. Credibility plays a crucial role in voluntary regimes and is often coined as a key determinant of the success and

effectiveness of institutions (Ho, 2014). It is a pre-requirement for gaining legitimacy in voluntary markets.

The credibility thesis provides a theoretical framework for understanding how societal institutions or social rules come about and evolve. This framework has been applied to explain the success and failure of institutions, policies and interventions for various fields, including but not limited to land use (Ho, 2014), housing (Celhay & Gil, 2020; Davy, 2018), and environmental policy (Ho, 2016; Pero & Smith, 2008). It postulates that institutions are usually designed and built intentionally but never represent the initially intended form (Ho, 2016). Instead, institutions emerge as an unanticipated outcome of actors' interactions resulting from unintentional and spontaneous development. In addition, it posits that institutional persistence, meaning the survival and change of certain institutions over time, depends on its credibility (Ho, 2014).

Its persistence, aka credibility, is determined by the institution's function and actors' expectations rather than their theoretical or ideological form. This implies that under the credibility thesis, "institutional function presides over form" (Ho, 2014, p. 14). In different wording, not form in terms of formality, privatization, or security determines the performance of institutions but their spatially and temporally defined function. Hence, the perceived support at a given space and time equals the institution's credibility (Ho, 2014). For example, to gain credibility, "institutions need to incorporate diverse stakeholder representation, assert their legitimacy and demonstrate their accountability, transparency, fairness and justice" (Pero & Smith, 2008, p. 17). Aron (2000, p. 128) adds that shifting from institutional analyses in which researchers "merely describe the characteristics" of institutions (i.e., form variables) to studies of "performance or quality measures" (i.e., function variables) might be more meaningful.

Credibility cannot be directly measured by asking stakeholders whether they consider an institution credible. This is because all actors are continuously interested in changing the institutional design, and each has different interpretations of the institution and its working (Ho, 2016). Instead, it must be operationalized by using proxies, such as indicators. According to (Ho, 2014), credibility is best conceptualized as a theoretical continuum. The continuum is spatially and temporally determined, meaning an institution could be non-credible at a given place or time but credible at another time or location and vice versa.

Overall, two conclusions can be drawn. First, credibility per se cannot be universally defined. It is a normative concept and, therefore, can be interpreted differently. Also, it is frequently used interchangeably with other related concepts. Consequently, any credibility definition is context-bound and should not be directly transferred to different contexts. Second, credibility cannot be directly measured. Instead, credibility assessments rely on a set of multidimensional criteria – also frequently labelled as characteristics, attributes, or determinants. These criteria are context-dependent, too, meaning they can vary and differ in different scientific fields or areas of application. However, three specific dimensions appear relevant and applicable to most fields. These three consist of (i) competence (e.g., expertise, knowledge, etc.), (ii) character (trustworthiness, objectivity, etc.), and (iii) goodwill (e.g., caring, intention, etc.).

4 Findings and Analysis Part I: Dominant Discourse Positions

The previous chapters provided a detailed overview of the research aims, methodology, and theoretical framework used in this study. This chapter presents the results of the research, which aimed to develop, test, and evaluate a framework for assessing the credibility of ISS initiatives. The chapter is divided into two parts. The first part outlines the main findings of stakeholder perceptions regarding the potential of the VCM and the role of ICVCM. The results stem from the discourse analysis, identifying six dominant discourse positions for the VCM and ICVCM. These positions are as follows: (i) the purpose of CMs, (ii) crisis, (iii) market development, (iv) systems change, (v) policy interactions, and regarding the ICVCM, (vi) the expectations stakeholders have towards the initiative. The way how the interviewees are referenced is outlined in Appendix E.

The second part presents and justifies the results of the credibility assessment of the ICVCM. It is based on two analysis methods. The conceptual analysis performed in Section 3.2 advanced and refined the scientific concept of credibility in the thesis context. The content analysis, based on data collected from various sources, including interviews and literature reviews, identified criteria and factors contributing to or challenging the credibility of the ICVCM.

4.1 Position #1: The Purpose

The first discourse discovered during the analysis deals with the purpose of CMs, as explained in Section 3.1. VCMs have two purposes: (i) reducing GHG emissions cost-effectively and (ii) channel investment for sustainable development and innovation**.** This is also affirmed by interviewee V1, stating, "It is a vehicle for companies to take responsibility for residual emissions, and it can finance activities that would not be financed otherwise" (V1).

However, the main finding is that the dominant discursive position focuses on the financial potential rather than the emissions reduction potential of VCMs. To illustrate, interviewee C1 argues that the VCM is a great financing mechanism for ecosystem protection "that do[es] not happen without government money." Interviewee R1 seconds this by stating, "Thanks to the VCM and CDM, we found a lot of lowest-hanging fruit mitigation options worldwide." Interviewee V3 concludes that "the VCM is a fantastic place […] to create natural climate solutions for removals", while interviewee C8 recognizes that VCMs function as a mechanism to reduce the [finance] gap […] because developed countries have fallen short of what they had promised."

Notably, none of the interviewees stated explicitly that VCMs are a suitable mechanism for reducing GHG emissions on a global scale. Interviewee R1 provides an intriguing explanation for the observation made above. He argues that there is a "big question mark over the extent to which [the VCM] channels climate finance to mitigation activities" (R1). This refers to two questions; *how much finance is the VCM truly channelling to mitigation activities?* And, more importantly*, do the activities have a significant positive climate impact?* Regarding the former question, interviewee C5 explains that one of the significant problems of CMs is "high transaction costs because you must demonstrate that [CCs] fulfil all quality criteria and the current level of carbon prices is far too low," which limits the financing potential of the VCM.

Regarding the latter, it must be acknowledged that "there is no 100% certainty in any project because we rely on counterfactuals" (R7). However, "many [offsetting] projects would have been implemented anyway, as proven by Cames et al. (2016)" (C5), which implies a lack of additionality. Further, "markets are struggling to distinguish the good from the not so good"

(C6), as "[they] try to produce the lowest-cost outcome" (R2), which might not necessarily represent the most significant mitigation activity.

The results show there is a strong agreement among the stakeholders that CMs have provided a great incentive to search and find low-hanging fruits of mitigation activities. Therefore, in theory, it can become an effective climate finance tool to reduce the financial gap in sustainable development. However, finance is only one part of the equation. The second part, its potential positive climate impact, is not as clear as the previous point and is further investigated in the following sections.

4.2 Position #2: The Crisis

The second discourse addresses the fact that the VCM is currently in "a diverse crisis with problems on both sides" (R6). On the supply side, "the quality of CCs" (R1) and "the reliability of CC generating projects" (C1) must be addressed. On the demand side, the question: "How CCs are used by the private sector" (R1) must be addressed. Interviewee C7 adds, "People who work in the VCM have known about the problems for 25 years". However, with this new level of public scrutiny, "companies (*demand*) and standards (*supply*) must address them now" (C7). Many interviewees demand that "this situation needs to be solved" (C1). Interviewee R7 justifies it as follows:

> "We must first solve the issues of offsetting. Otherwise, it would be an investment which would not lead to what it was intended to achieve. In terms of resource allocation, it would not be a perfect outcome and could undermine global climate action on a global scale." (R7)

Hence, this section investigates quality and use issues along the CC's value chain which stakeholders perceive as causes and drivers of this crisis. The key findings of this section are summarized in Table 4.1.

Table 4.1 Contributing issues on the supply and demand side to the VCM's crisis

Supply side	Demand side
High level of confusion due to overload of initiatives and approaches	Continuous use of misleading claims and advertisements
Abundance of uncancelled low-quality CC	Wrong offsetting worse than doing nothing?
The belief in continuous improvement	High buyers' reluctance
Inherent quality issues of CC (e.g. lack of additionality, over-accreditation, leakage)	High price elasticity of CCs
Irresolvable problem of non-permanence	Lack of knowledge among market entrants
Blame & responsibility is always on supply side	

4.2.1 The Supply Side

One attributing factor to the crisis has been a high level of confusion on the supply side. This is because "the market has been a mess for a long time, and you always had a range of different certification standards which were so disparate" (C7). Consequently, it has been hard to distinguish between credible and less credible CCs, leading to different types of supply. Interviewee C4 describes this phenomenon as an "initiative overload [in which] they are kind of falling over each other trying to find their niche." The underlying reason is that "[VCM] has been voluntary, not regulated, [leading to] just 30.000 different approaches" (C7). Notably, interviewee R3, a project developer, argues that "few suppliers […] have high credibility. Most

actors with low credibility can only exist because the market allows it, and they are legitimized by us, the credible ones." In addition, he posed the question of "[w]hat the role of credible suppliers is if they provide legitimacy but are also used to justify greenwashing that is done by free riders" (R3).

This leads to the second problem; the inherent quality issues of CC, which "has always been criticized as insufficient" (R6). There is consensus across all interviewees that CC quality has always been the sore point of the supply side. However, their opinions about how good is good enough and whether quality has improved over time diverge strongly. On the one hand, some interviewees referred to scientific studies, such as (Cames et al., 2016) and argued that there is ample scientific evidence that the vast majority of CC-generating projects were not additional or were over-accredited. And concerningly, "the picture has not really changed since then" (C5). On the other hand, various interviewees claimed that "there has always been a continuous improvement to reduce the flaws of CC" (C1). According to interviewee R3, many actors also strongly believe that the VCM has become "more stringent, more effective, and there are many things that can be improved."

The third issue that remains unsolved is the problem of non-permanence. Interviewee R1 stresses that one "must distinguish between quality and permanence." This means "however high the quality of your CC; this becomes irrelevant if it is not permanent" (R1). And up until now, there is no way of guaranteeing that "you can save the impact on the same timescale as the emissions you try to offset" (R1).

Fourth, there is an abundance of unused CCs, "creating a surplus of issued but not retired CCs" (C3) which keeps the prices of CC constantly low. According to interviewee C3, abundance would even increase "if governments were willing to regulate voluntary climate action." The consequence is that suppliers need to find niches of demand. However, "higher quality [of CCs] would [also] constraint the supply side," argues interviewee R4 because low-price but high-quality credits would be a scarce good owing to the inherent quality issues. Consequently, the marginal abatement costs would shoot up because there would no longer be a surplus of CCs. Hence, to produce the next marginal CC unit, "someone really has to put some effort in it, and then the clearing price is set at the marginal price" (R4). Interviewee R4 doubts that companies would be willing to pay a much higher carbon price "if the cost of the next marginal CC unit shoots up because it could be cheaper to reduce your emissions internally instead."

Remarkably, there is a common understanding among several interviewees that "bookkeeping[4] has always played a role on the supply side, but the bookkeeping on the demand side has never been a subject of investigation" (C1). Further, interviewee C1 believes that "the CM community has mastered that trick [on the supply side]. Interviewee C6 supports this view by stating, "the lack of credibility is on the demand side."

4.2.2 The Demand Side

First, "the market still supports a lot of misleading claims and advertisement" (R1) on how CC are being used. Further, interviewee R1 is convinced that there are "many situations where it is unrealistic to assume one can compensate for emissions, especially if CC is associated with activities that store carbon only in the short term." In contrast, interviewee V3 believes that the major problem of greenwashing is that "there has been no set definition on what carbon

[4] Bookkeeping refers to carbon accounting which is the process of measuring the amount of CO2e emissions which were either emitted by an emission-causing activity or reduced by an emission reduction activity.

neutrality, what climate friendliness, etc. mean", leading companies to "misuse [offset] projects for making claims they should not make" (R2).

Second, several professionals are frustrated that the "criticism uttered by civil organizations and the media is often directed at the project developers but not the companies that make the claims" (R2). For example, interviewee C1 complains, "It is a perverse thing that the press does not attack big companies but attacks the products or means by which companies are substituting their claims." This means the responsibility is mainly on CC-generating projects in developing countries. In other words, it is "like a small cocoa farmer getting scrutinized and criticized for his product ending up in a marshmallow that then increases the risk of obesity." (C1)

Third, corporate buyers are reluctant to engage intensely in the VCM "given all this negative press attention" (R5) and other external factors. Currently, the primary barrier to entry seems to be whether "the product is good" (C4). Many companies have become hesitant to invest in certified CC because it seems too risky under the current waves of scandals dealing with 'phantom credits' or greenwashing.

Fourth, CC are an elastic and not inelastic good, as seemingly assumed by many growth predictions (Blaufelder et al., 2021; TSVCM, 2021a). The high elasticity can be derived from the fact that "companies do [offsetting] voluntarily, it is not directly generating any profit, and it is not part of their core business" (R4). High elasticity makes the market vulnerable to price crashes because the demand side is very sensitive to price changes. For example, when journalists revealed that many NbS CC from Verra were highly inflated, "this whole NbS sector [was] in turmoil, and the price crashed completely, being about 90% less than in the peak of 2021" (C3).

Lastly, a lack of knowledge and certainty exacerbates the issues on the demand and supply side. Interviewee R3 explains that "[t]here is a lot of financial actors and start-ups going into this market without knowing how it actually works, while a lot of processes and instruments are being changed currently" (R3) – creating a double challenge for new market participants. Further, there is no guarantee that they are high quality if you buy CC units from a crediting organization. Consequently, "one must always do quite a lot of internal due diligence" (C5).

4.3 Position #3: The Market Development

The third discourse revealed is about the development of the VCM with a focus on its future. This is an essential discursive element because the VCM seems to stand at a tipping point while facing severe quality and use issues, as analyzed in the previous Section 4.2. All interviewed stakeholders agree that the VCM has been confronted with alternating periods of highs and lows. Figure 4.1 illustrates how the "Markets go in waves" (V1) pattern applies to the VCM. The figure also shows how interviewees have generally perceived the evolution of the VCM since the first peak in 2008. It presents different phases of the VCM from the past until the present. In addition, the discourse analysis discovered two storylines of how stakeholders view the future of the VCM. These hypothetical future scenarios are either growth or decline.

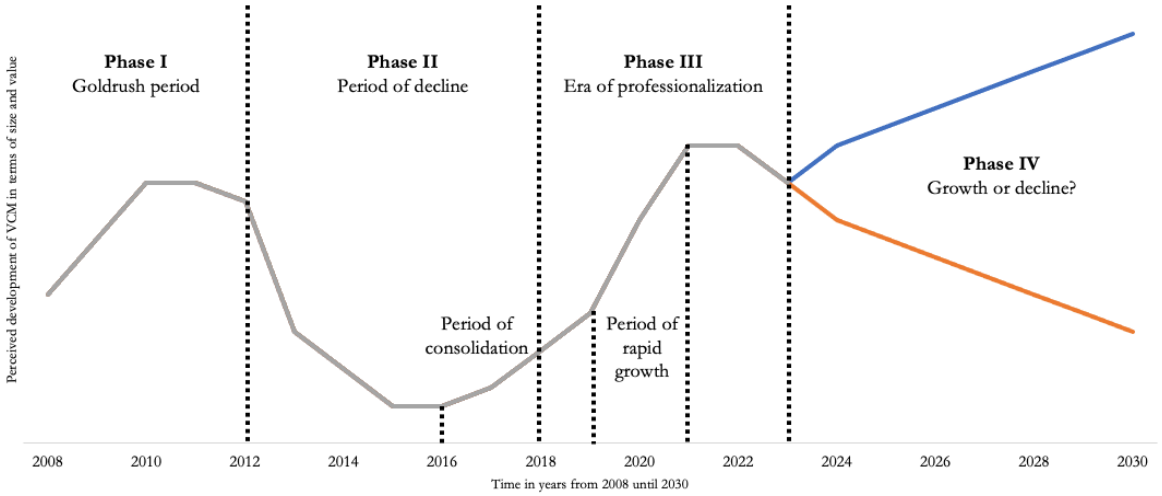

Figure 4.1 Stakeholder perceptions of the development of the VCM since 2008

4.3.1 The Past

The first phase is the peak in 2008, representing the "CDM boom" (C2) which lasted until 2012. From 2012 – 2018, there was a period of decline because "things got chaotic, sales dropped, [and] the commitment period of Kyoto came to an end" (V1). With the adoption of the Paris Agreement, the market began "to toughen in 2016 – 2017" (V1). However, in 2017 – 2018, "no one cared about CM. No one was concerned about it at all" (C4), primarily because "when the market started decreasing, everybody left the industry" (C2).

4.3.2 The Present

From 2018 on, "a more complicated ecosystem around voluntary offsetting emerged" (C4). "There is a real professionalization […] in a way that was not around in the first time." (C4). The "Wild West" of CMs (V2) – a common synonym for the "unregulated, inconsistent, and chaotic" (V1) VCM – then entered an era of professionalization and rapid growth fuelled by three factors. First, an increasing number of companies want to claim carbon neutrality or net zero alignment. "And the easiest way to do so is to buy cheap credits [from the VCM]" (C5). Second, the re-emergence and "preponderance of nature-based solutions (NbS)" (C3) were driven by tech companies from the US buying millions of those CC. In the past, NbS were known as soil and forestry credits. The renaming was considered necessary because forestry CCs "had a bad reputation" (C3) and "were never considered very robust" (C2). Third, "continuous improvements" (C1), such as standardized contracts for different types of credits and better price oversight, increased the level of transparency and reduced the opaqueness that surrounded the VCM for a long time. In addition, there is an "ecosystem of […] quality assurance systems that are starting to be built around the VCM" (R4).

Despite its rapid growth since 2018, "the market is not much larger than it was during its peak in its first gold rush period" (C3). Even in the "explosive" (C4) phase in 2020 and 2021 – representing the current peak of CC transaction volume – "there was an increase in the number of unused [carbon] credits, creating a surplus of issued but not retired [carbon] credits" (C4). It seems that the VCM is "in kind of a bubble: scrutiny has gone mad, the scale has gone mad, [and] lots of new entrants are looking for new opportunities, [although] the norms in the market have not changed much" (V1).

As the "track record of CM is not the best" (R7), public scrutiny of the market is much higher now than in the past and "the public is paying much more attention than before" (R7). This has

led to a string of bad press, "starting with a comedian's show[5] with a lot of airplay and attention" (R5). Followingly, as described in Section 1.1.2, various news articles strongly shaped public opinion and discredited the VCM (C1, C2, R5, V2, V3). Another factor that increases scrutiny is that "new technological methods such as remote sensing" (R7) are more commonly available for monitoring real genuine emission reductions of CC-generating projects.

4.3.3 The Future

Within the discourse of future market development, the *growth or decline* of the VCM represents a storyline with two opposing 'truths' among the interviewed stakeholders. Figure 4.2 shows that the majority (n=8) of interviewees believe that the VCM will grow, while only four interviewees assume it will decline in the future. Interestingly, three believe both scenarios are possible depending on whether trust and credibility can be regained, and the same number of individuals were reluctant to take a clear stance on it.

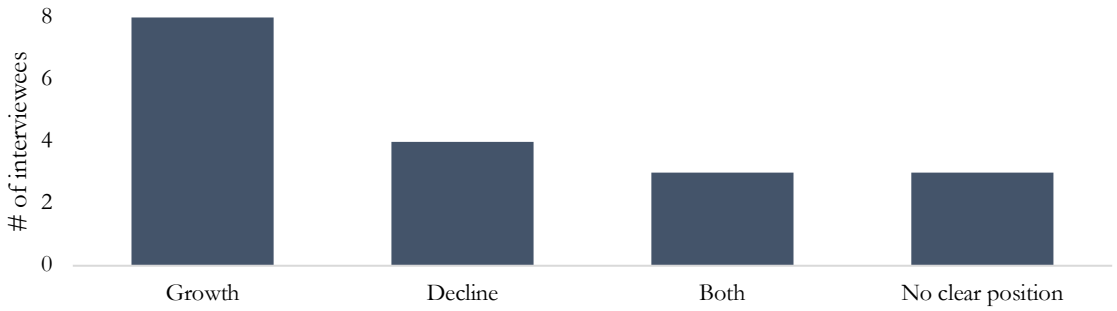

Figure 4.2 Stakeholder perceptions regarding the future development of the VCM

Based on the two opposing storylines, the discourse analysis revealed *three reasons for growth*, including (i) Companies' desire for climate leadership, (ii) insufficient government action, (iii) a race against time; and *five reasons for a declining or shrinking VCM,* including (i) quality issues, (ii) use issues, (iii) public scrutiny, (iv) uncertainty around Article 6, and (v) external factors. These narratives are analyzed in detail below. Lastly, this section investigates what growth means in reality and fantasy.

Growth – Companies demonstrate an increasing willingness to reduce GHG emissions, but "they cannot cut them overnight; [therefore], they are committed to compensating at least a part of their [GHG] emissions through CC" (C1). Interviewee C7 argues that two main reasons motivate companies to engage in offsetting; "Either because they just care about selling products and want happy clients or because they believe climate change is an issue and they need to do something." He adds, "Regardless of the reason, [climate change] is now not going away, and the majority of companies cannot ignore this" (C7). Further, "companies increasingly see [going beyond] their targets as being part of leadership" (V2) which is also seen as a marketing and communication advantage. To illustrate, interviewee R7 argues that the "big surge in [CC] demand is related to climate neutrality claims many companies are currently pursuing."

Voluntary action is needed as national ambitions and government actions are insufficient. Interviewee (R4) sees a "lack of regulations and legislations that come out to address the problem of GHG emissions." Further, there is substantial agreement that it is unlikely that "the market will be regulated so rigidly in the future that there is no room for voluntary climate

[5] Carbon Offsets: Last Week Tonight with John Oliver (HBO). For more information see: https://www.youtube.com/watch?v=6p8zAbFKpW0

action" (R6). In addition, there is disbelief that developed countries will achieve the USD 100 billion goal[6], "that was promised 2009 [but] still has not materialized" (V2). This implies a lack of other financial mechanisms to bridge this gap in terms of "financial support for developing countries" (C8).

The race-against-time justifies all the tools for climate mitigation at reach because "we are eating up our carbon budget" (V3) and "we are running of time" (C7). This rationale partially rests on the two described above. As interviewee V3 explains, "Companies are going to take action on this because governments are not doing it." In addition, the reliance on carbon removals to achieve net zero is a typical example commonly used to illustrate why the VCM is a good mechanism for tackling climate change. "Nascent innovative technology [such as technological carbon removals] would not be spurred if there was not a climate emergency" (V1). And if – as assumed by interviewee V3 – 10% of global annual GHG emissions must be removed by 2050, the VCM would provide a suitable system to generate many more removals by 2050 to reach net zero.

Decline - Severe and persistent quality issues restrict the reliability of CC-generating projects to produce high-integrity CCs. "There is a structural problem" (C3) because "one CC can never be perfect nor constitutes the exact emission reduction or carbon removal of 1 tonne of CO2e" (R6). Despite this imperfection, the market "judge[s] against the standard of perfection" (V2), meaning it assumes the perfection of CC even though absolute or "100% certainty can never be achieved" (C1). Therefore, "there is hot air" (V2), and any new methodology to address the problem will never be perfect.

Companies use carbon offsets for greenwashing and reaching their ambiguous climate targets. They often make unsubstantiated claims by saying they are "carbon neutral, net zero, net zero aligned, climate neutral, climate superhero, climate gold medallist" (V2). Interviewee C1 uses the following example: "Shell or Apple claiming my product or entire company is climate neutral is not credible, and this is the major risk to the CM." However, "if you are called out, then your appetite for more action diminishes" (V2), which could also limit growth. Further, without any action and with a "lack of definition about what claims companies can make" (V3), "neutrality claims or 'whatever fantasy name' will not hold anymore" (C1), resulting in a lack of marketing value, which could disincentivize companies to purchase CC.

The market is under heavy scrutiny and coverage pushed on by NGOs, media, and academia. These actors "suspect that engaging in CM is not an additional activity" (C1) but is *promoted* to achieve companies' climate pledges while not decarbonizing their own value chain. With this new scrutiny by civil society agents, interviewee R7 argues that "companies have become very nervous because it can be a reputational risk depending on where you have invested your money." Interviewee R4 believes that at a certain point "there is too much pressure to spend money at home; why send all this money overseas?" if internal emissions reductions measure might lead to a more significant positive climate impact than carbon offsets.

The uncertainty around Article 6 of the Paris Agreement is a limiting factor to market growth. Interviewee R5 states, "Much depends on Article 6.; how these markets work together going forward or do not work together." In addition, "[t]he fact that you are not allowed to link the VCM and the CCM represents a problem," argues Interviewee C2. Interviewee R6 even assumes there will be no future for the current business-as-usual scenario under Article 6 because "CC

[6] At 15th Conference of Parties of the UNFCCC in Copenhagen in 2009, developed countries committed to a collective goal of mobilising USD 100 billion per year by 2020 for climate action in developing countries. For more information see https://www.oecd.org/climate-change/finance-usd-100-billion-goal/

with corresponding adjustment [to avoid double counting] will be scarce and quite expensive." The 'no future scenario' is also supported by interviewee C3, who even believes that the "[VCM] will be squeezed on the one side by the CCM and on the other side by the government's interest in ensuring that their activities are not tainted by problematic voluntary CC."

Lastly, interviewee R5 remarks that not only quality and use issues and negative press play an important role but also other factors. External factors such as macroeconomic circumstances, interest rates and inflation should be considered. They can also affect the growth of the VCM in both ways, positively and negatively.

Theoretical potential vs. real growth - While most interviewees believe the VCM will grow, see Figure 4.2, the discourse analysis found that none believe it will 'explode' as projected by, for example, (Blaufelder et al., 2021; IETA, 2022; TSVCM, 2021a). It seems there is a case of '*fantasy versus reality*,' defined by many as the '*theoretical potential versus real growth*' of the VCM. These growth projections appear to rely on three weak assumptions. First, it is assumed that "the VCM [will] be a main lever for climate action" (R2). Second, there is and will be a massive market for offsetting helping the VCM "reach USD 1 trillion by the mid-2030s" (R5). Third, most "growth projections assume inelastic demand for CCs" (R4).

Most interviewees express significant concerns about these projections. They describe them as "out of the blue" (R3), "just guesswork" (R4), "pretty speculative" (R5), "no real solid evidence behind it" (C4) or "not worth the paper they are written on" (C5). Furthermore, most projections are simple extrapolations "without any substantiated analysis behind it" (R3).

In addition, several interviewees believe that growth projections are based on many assumptions with "political" (R3) or "financial" (C4) motivations behind them. For example, "[the] TSVCM pushed projections laying at the upper end of the growth spectrum [which] draws the attention from financial actors." (R3). Similarly, interviewee C4 called it a classic McKinsey tactic to attract finance "where you try and scratch the surface and figure out that the number […] does not mean a great deal."

Consequently, it is crucial to understand that "market studies often show the theoretical potential rather than market growth" (C7). Moreover, they often rely on vague or unsubstantiated assumptions. For instance, "that a big chunk of what needs to happen on climate change will just happen voluntarily rather than being driven by policy." (R5). Various interviewees reject this, stating that market size depends primarily on policy decisions, regulations, and global agreements rather than on "the potential for mitigation or the desire of some companies to offset their emissions" (C7).

Some interviewees even "hope [that] it does not explode" because if market growth "comes at a time where you also have to renovate the instrument itself, then it is very difficult" (R3). And one thing is clear, growth or decline is "a matter of trust and narrative" (C1) and "[c]redibility is the basis of this market to grow in the long term" (R3).

4.4 Position #4: Systems Change

A fourth discursive position, closely related to the future of the VCM, is not about the market's future, but the system behind it. The storyline about the system results in two competing 'truths'. One focuses on a *business-as-usual scenario: "*we cannot afford to resist or not use every instrument that is at reach" (C5) to solve this climate crisis. The other opposes this and demands a *different but functioning system*. The underlying reasoning is there will be "no future for the current business-as-usual scenario with its focus on offsetting and compensation [since] the weaknesses are so obvious and fundamental that we should take another path" (R6). Interviewee R2 argues that

"offsetting schemes are not appropriate in a time when we have to rush into a zero-carbon world [because] offsetting is always a zero-sum game." Interviewee R1 supports this by providing the following rationale:

> "[If the VCM] continues to exist as of today and does not manage to evolve […], it will continue to be undermined by its quality and reputational problems. Companies will be hesitant to invest money in it. Consumers will be skeptical about the impacts that companies deliver and claim. Regulators will also try to put a brake on false and misleading advertisements" (R1).

In response, alternative approaches to offsetting are currently being developed and have started gaining traction. According to advocates of a *different but functioning system*, alternatives should not be focused on "tonne-for-tonne compensation, […] delivering the cheapest abatement options" (R1), aka low-hanging fruits, and not "create lock-in effects" (R2). The *climate contribution approach* is the most widely recognized and promising alternative (R1, R5, R6, R7). While there is no universally accepted definition, it generally means that companies can support climate change mitigation beyond their value chain but cannot claim compensation to reduce their environmental footprint.

Climate contributions have various advantages. First, it would allow "focusing on quality instead of quantity" (R3) by financing activities with so-called 'high-hanging fruit mitigation potential.' Second, financing activities will not deliver short-term benefits but function "as an R&D financing channel to develop immature, nascent and maybe expensive activities which are not accessible to developing countries" (R1). Third, it is less risky to invest in climate contributions because "it would mitigate the issues of offsetting as you cannot harm the climate" (R7) as entities cannot deduct reduced emissions from the company's GHG inventory. Large brokers like MyClimate and leading sustainability consulting firms like Southpole are adopting this approach "to have future-proof business models" (R2).

However, a climate contribution approach "is not a remedy for everything" (R7) and should still adhere to the same quality and integrity criteria as offsetting because "what you claim as contribution should not be part of what you would have done anyway" (R7). Furthermore, it is essential to clarify "how it is designed, set up, and applied; otherwise, it will continue to proliferate as it happened to the standards [for CC-generating projects]" (R6).

4.5 Position #5: Policy-market Interactions

With the emergence of the climate crisis, voluntary compliance and regulatory enforcement are often perceived as "two lines that tend to go opposite" (R4), as illustrated in Figure 4.3. This means that if the government pays more attention to regulating corporate climate action, the private sector assumes the issues are handled through government action. In other words, private actors in the VCM function as a reaction force acting in the opposite direction to the action force, which is the regulatory enforcement of climate change legislation. Regarding the VCM, "[t]hey are kind of substitutes for each other" (R4).

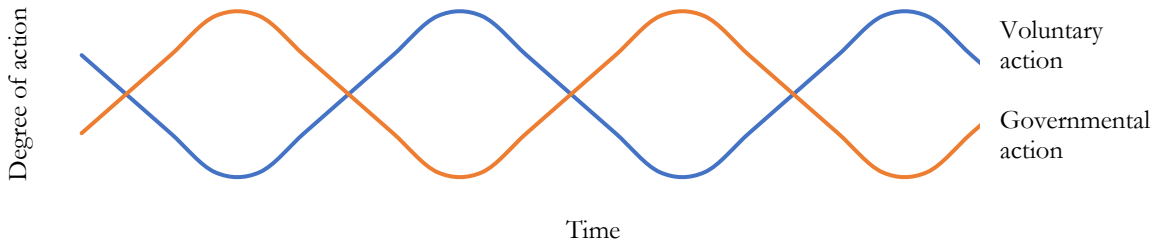

Figure 4.3 Perceived interaction between voluntary and governmental action

The anecdote of interviewee V3 perfectly illustrates how this phenomenon is perceived to play out in reality.

> "[First], we thought governments are going to set up regulation. Obama is coming to town. He is going to clean things up, and we are going to be able to turn lights out, close the door, be done, declare victory, move on, and things will be great. Climate change will be under control. [However], [t]hat did not happen. And we now have in front of us a real serious existential crisis in terms of climate. And governments are not stepping up. They're not regulating climate as much as I would like and probably as much as a lot of people would like. So what do you do then? So now, because climate is a problem, now there are all these [international standard-setting initiatives] that are being built, VCMI, ICVCM, SBTI, that are […] enabling companies to take action. And if they turn a blind eye to that and stick their head in the sand, they are going to be called out at some point" (V3).

In stark contrast to the anecdote, interviewee R4 advises caution should voluntary corporate action be seen as being effective or increasingly sufficient. If the general public perceives that the problem is adequately addressed by the corporate world that "tries to do the right thing, [then it pulls] a lot of political pressure off of government action" (R4). Interviewee R3 also expresses doubts because he regards voluntary self-regulation as a tool to delay regulation and "an invitation for greenwashing." He continues that "[Offsetting in the VCM] is a very cheap instrument to buy themselves time and delay the discussion about shutting down companies" (R3) that cling to unsustainable business models. Finally, interviewee R4 declares that "voluntary action is not a good substitute for government policy and regulation."

4.6 Position #6: Expectations of the ICVCM

Within this quickly evolving market, the ICVCM attempts to form another quality assurance layer in the VCM – one above all the others, by developing a voluntary meta-standard. The motivating driver of this 'independent, stakeholder-led, and self-regulated' effort is that, in plain language, *the VCM in its current condition is bad, and many CCs are of lousy quality*. The "[t]rust in the market has been lost; therefore, we need something else than the crediting organizations" (R7). In response, the ICVCM aims to deliver, as described in Section 2.5, two types of assessment framework based on the CCPs: (i) for crediting organizations and (ii) for methodologies/ categories of different project types. The interviewees' opinions on the ICVCM's mission and vision cover a broad spectrum of views, ranging from "it is just another bunch of people that issues another bunch of rules" (C1) to "the most promising initiative […] in the market" (C8).

It becomes evident that the ICVCM "offers great chances but also big risks" (R7). As interviewee R5 frames it, "Will it be perceived to be a rubber stamp of the existing market, or will it move the market in a substantial way?" There is no clear tendency among the

interviewees, and the following sections make clear that there is potential for it to be either. The key findings of this section are summarized in Table 4.2.

Table 4.2 Perceived opportunities and risks regarding the ICVCM

Opportunities	Risks
Good set-up and structure in terms of expertise, stakeholder involvement	Lacking authority and regulatory power and depending on willingness of market player
Pulling the market towards a higher quality standard	Whether the ship steers towards integrity or scale depends on who is behind the steering wheel
Building confidence among buyers and regain trust in the market	Underestimating the scale and impact of its vision and mission
Fixing the failures of the crediting organizations	Clinging to old, flawed business models from the past
Standardization reduces barriers to entry and information asymmetries	Lack of knowledge among market entrants
	Standardization may lead to increased speculation
	Legitimization effect of low-quality CC owing to high reputation

4.6.1 The Opportunities

First, various interviewees argue that "how [the ICVCM] is set up and structured is good" (C7). It, on the one hand, relates to long-standing experience and expertise since "organizations and people [being part of the ICVCM] have been involved [in the VCM] for a long time" (C2). On the other hand, it also refers to a diverse involvement of different stakeholders, as it is seen as a "platform trying to balance out different opinions and interests and find a compromise to shape the market but also give a basic orientation to […] supply and demand side" (R3). Interviewee V2 remarks that it will provide the market with a standardized understanding of what a high-integrity or credible CC and credible organizations that issue them [should] look like" (V2).

Second, even though "the ICVCM enjoys a good reputation, […] the expectations of stakeholders are high" (R6) because it is expected that the ICVCM will push the market to higher quality standards. In terms of improving the quality of CC, many interviewees believe that the ICVCM can play a positive role. However, this can only be achieved "if criteria and assessment frameworks are sufficiently stringent and go beyond what is actually already being done" (R1). Interviewee C6 supports this view: "[the ICVCM] needs to strike a high balance of high quality. Otherwise, the market should not be there, at least for offsetting purposes." This implies that if the ICVCM raises the bar of CC quality and integrity substantially, it has the opportunity to rectify the CM, […] help the [crediting organizations] to align, and reach an integrity level that allows for a fluent and healthy market" (C5)

Third, a fluent and healthy market under the umbrella of the ICVCM's meta-standard could build confidence on the demand side and help regain trust in the market. The meta-standard "provides an additional layer of oversight that gives buyers confidence that CCs are real" (V3). Further, should the meta-standard go beyond the current standards' level of quality, it could "de-risk CC purchases" (R5) and provide a significant incentive for buyers. This implies that "[if companies] buy an ICVCM-compliant CC, they do not have to worry about reputational

risks' (R5). From an economic perspective, a meta-standard would standardize the quality of CC sold in the VCM, which [is good for increasing comparability, lowering the barriers to entry, and reducing information asymmetries" (R6). More standardization would inherently lead to increased fungibility which "makes it easier for exchanges [of CC] and to be transparent about it." As the VCM seems to shift toward a commoditized market, "exchange-based trading is the basis for a much more liquid market" (V2).

Fourth, by providing a consistent level of quality, the ICVCM "is fixing the failure of the [other] standards" (C6). Most standards are "quite technical and complicated, and no one else [apart from the standards themselves] understands well that this pack of potatoes is actually half-empty" (C5), implying that one CC may not represent a genuine emission reduction or removal equivalent to one tonne of CO2e. Crediting organizations have had little incentive to improve their methodologies for two reasons. First, the funding mechanism of these initiatives represents a perverse incentive since they "get paid per credit issued" (C5). Second, there is intense competition between crediting organizations in the VCM, as explained by interviewee V1:

> "We [the Gold Standard] tighten things up as science improves, only to find the other standards haven't done anything. Consequently, all the projects just go to the other standards because they can get more CC" (V1).

4.6.2 The Risks

One particular risk is that "they are not a regulator" (V1), meaning "nothing is forcing the offset programs to follow the ICVCM." (R4). Without any regulatory power or authority, a "lack of support of the standards" (C1) could be fatal for this voluntary governance body because "it can only be as strong as the willingness of the VCM players to listen to it." (C3). For example, interviewee V2 argues that owing to the voluntary nature of the VCM, "people could bring up new standards because the ICVCM is too weak or too strong" (V2).

Second, the ICVCM is a "voluntarily convened body with representatives from all across the market" (R5). Hence, the question is, who is steering the ship? Interviewee V1 is concerned because the initiative was "born out of banks and oil and gas [companies] coming together to form a task force [the TSVCM]." And Interviewee comments that "the vision of the task force was not about quality. It was about scale" (C4). Depending on "who is running the show" (R5), rules could be both too lenient and market-friendly or "very academic and not implementable on the ground" (V3).

A third risk is that several interviewees assume that the "[ICVCM] underestimates [the scale and] impact of what they are proposing" (C1). This begins with setting up the organization, committees, quality insurance systems, and guardrails against bribery and external influences. Then, during the steady state phase, it continues implementing what they have developed in theory. Interviewee (C1) argues that the ICVCM's undertaking involves an "enormous cost of implementation." In addition, interviewee (V1) comments that "the volume of work of the category-level assessment is vast." For example, only the Gold Standard has already around 7 to 8 versions of the cook stove standards. Notably, ecological cook stoves are only one project type, and the Gold Standard is only one crediting organization among many. It is noteworthy that interviewee C7 acknowledges that "[t]he final outcome will not be perfect."

Another substantial risk is that various interviewees associate the ICVCM with the business-as-usual scenario, which has already proven unreliable regarding genuine emission reductions. Interviewee R2 even accuses it of 'window dressing' by "scratching the surface of the problem [while holding] on to the old business model, which presents a very contested track record." Interviewee R5 also suspects that history is repeating itself as "all debates feel so familiar because

they argue about the same issues as they did 15 years ago." Finally, while several interviewees advocate that the ICVCM has learned from mistakes made earlier, interviewee V1 believes that "we have not seen everything that can go wrong." He argues that "a new policy regime, activity types, MRV technology, stakeholder groups, and scrutiny" (V1) all come with mistakes that have not been made yet.

Fifth, increasing the fungibility of CC units is perceived as an opportunity by several interviewees but, at the same time, also as a big risk. Interviewee R1 perceives it as critical because it seems to be a "self-serving mission from the finance industry [but] not useful for buyers." He believes that "companies care about what they are buying" (R1) and do not want indistinguishable or 'a-typical' CC. His skepticism derives from the suspicion that it will be used as a speculatory tool – for example, CC are traded back and forth without being retired – which "is not helping the climate" (R1).

The least well-known but potentially most important risk is the legitimization effect that the ICVCM could have owing to its high reputation. Interviewee C2 assumes that the meta-standard of the ICVCM will merely "provide some sort of comfort but […] will be just another stamp somewhere." It offers an extra layer of quality assurance. In contrast, interviewee R3 believes it could have substantially more far-reaching consequences, as it "provides a lot of legitimacy to a market that generates much profit for certain actors, [that] further delays regulation of this market," which would otherwise reduce its profitability drastically. Interviewee R1 also cautions that "[the final outcome] will be regarded by some actors as a set of high-quality criteria *regardless* of what the criteria actually say." For instance, with weak rules and low-quality criteria, the bar will be set very low, and most CC will meet the requirements of the ICVCM and be seen as high-integrity, even though they are not. This is because "the initiative has gained quite a bit of legitimacy even before it has even published the rules" (R1). The main implication is that it is perceived as high integrity, although it is not clear yet what the final outcome will be.

5 Findings and Analysis Part II: ICVCM's Credibility Assessment

This chapter is divided into four sections and aims to answer RQ1 and RQ3. While the previous chapter explored RQ2 concerning positions that dominate stakeholders' perceptions regarding the VCM and ICVCM, this chapter pivots on the following aspects. First, it presents a theoretical definition of credibility based on the principle-based concept analysis performed in Section 3.2. Second, it outlines criteria associated with credibility and identified during the content analysis. The third section shows how the interviewed stakeholders perceive the credibility of the ICVCM by deploying discourse analysis again. The final section presents the developed assessment framework and its result obtained from applying it to the ICVCM. The analysis and findings rest on the research case description in Section 2.5, the theoretical framework in Chapter 3, and the results of the analyzed interviews outlined in Chapters 4 and 5.

5.1 Defining the Concept of Credibility

Based on the results of the principle-based concept analysis introduced Section 2.4.2 and situated in Section 3.2, this study defines and conceptualizes credibility as follows:

> Credibility is a multidimensional and complex concept that describes an attitude within a continuum towards an institution held at a given time, space, and context by a particular receiver.

The concept relies on a set of multidimensional characteristics because credibility cannot be directly measured. Instead, it is defined and shaped by normative belief systems and determined by a receiver's background, discursive position, and experiences. The concept is complex because individuals tend to interpret the meaning of credibility differently, using different criteria and weighing them differently. The attitude is best conceptualized as a continuum representing the perceived support at a given time, space, and context. Credibility assessments are context-bound and should not be directly transferred to other contexts.

Further, the continuum is spatially and temporally determined. This implies the assessed institution could be non-credible at a given place or time but credible at another time or location and vice versa. As an institution's function evolves, so do narratives and discursive positions of receivers. Finally, receivers are all individuals, groups, and institutions willing and have the cognitive abilities to make such a believability judgement.

5.1.1 Criteria associated with Credibility

In the context of the VCM, numerous credibility criteria were identified to play an important role in assessing the credibility of international standard-setting initiatives. Figure 5.1 displays essential criteria that are associated with credibility. Each criterion belongs to one of the three dimensions determined during the concept analysis in Section 3.2. The three dimensions include *competence, character, and goodwill.* All criteria were identified during the content analysis of the interview transcriptions. The figure presents all criteria in relation to the frequency with which the interviewees mentioned them. The listed elements are by no means exhaustive and might vary strongly if different respondents were selected.

Figure 5.1 Criteria associated with credibility

In total, 32 criteria were identified, which were mentioned a total of 85 times among all 18 interviewees. The coding pattern led to the following distribution of criteria across the three dimensions; competence (n=9), character (n=13), and goodwill (n=10). The criteria belonging to the dimension of character (n=40) were mentioned most frequently, while interviewees referred to the criteria of goodwill (n=26) and competence (n=19) significantly less often.

Among the most frequently mentioned criteria are transparency (10), expertise (7), and trustworthiness (7). While the latter two also present key attributes in many other credibility assessments across different disciplines, transparency is considered indistinctively the most important. Additionally, there is a large number of other criteria that also shape the interviewees' understanding of a credible ISS initiative. Some of them can be used interchangeably or have similar meanings. For example, expertise and knowledge cannot be clearly distinguished. And independence, no conflicts of interest, and impartiality are all associated with a similar understanding of good governance.

Out of all criteria, nine fundamental credibility principles were determined following the coding schemes explained in Section 2.4.3. To organize the larger number of subcategories into a

smaller number of main categories – the so-called credibility principles –a coding tree was developed based on Morse & Field (1995) to merge similar or comparable criteria. The coding tree is depicted in Appendix G.

The nine principles form the foundation of the assessment framework in Section 5.3. The dimension of competence includes *(i) expertise, (ii) continuous improvement, and (iii) consistency*. The dimension of character consists of *(i) truthfulness, (ii) transparency, and (iii) authenticity*. The last dimension of goodwill involves *(i) fairness, (ii) engagement, and (iii) impartiality*.

5.2 The Perceived Credibility of the ICVCM

Stakeholders perceive the credibility of the ICVCM very differently. Their judgements can be divided into three tendencies: *low credibility, high credibility, and middle ground*. These tendencies are derived from analyzing each stakeholder's discursive position. Figure 5.2 shows that numerous interviewees (n=7) consider the ICVCM's credibility neither high nor low for various reasons. In comparison, six interviewees deem the initiative as credible. In contrast, two individuals state the opposite. Lastly, three individuals have no clear stance on it or did not answer the question.

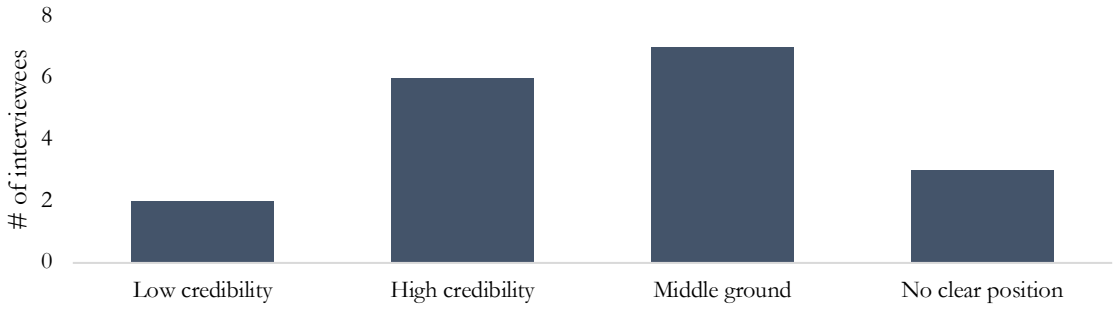

Figure 5.2 Stakeholder perceptions regarding the credibility of the ICVCM

Low credibility - Tendency one represents the opinion that the ICVCM is not credible for several reasons. First, the initiative's effort seems to be "inadequate […] in light of the climate crisis we are facing" (R2), as certain quality and permanence issues continue to remain unresolved. Second, the governing board is associated with low credibility because the "leading members have no higher connection to the subject" (C1). Therefore, several civil society agents do not believe the persons representing the initiative are credible. Instead, it is assumed that it is run by the financial and corporate world "to protect the interests of those making money from CM" (C1). Third, Interviewee C1 does not perceive the governing board as diverse and representative because "most board members have a finance background, [and] 75% of them were Anglo-Saxons", although the initiative claims to serve the entire value chain of the CM. Lastly, several interviews have less confidence in "how t[he standards] get applied, rolled out, and adopted" (R4) because there are incentives for "not putting more burden on the process, not making things more expensive, and putting into question what [they are] already doing (R4).

High credibility - Tendency two is positioned on the other side of the spectrum. The ICVCM has "done a decent job" (C3), "a good process" (V3) and, therefore, has gained credibility. The first reason is that "the credibility of the expert panel is really high" (C5) because "the expert panel is very reputable with longstanding experience in the CM" (R7). This implies a high confidence "that the technical work is credible" (R4). Second, the ICVCM has "a positive track record of having things said that have turned out to be accurate" (R1). Interviewee C3 also remarks that the initiative tried to be credible in all its communication, [and] its level of transparency is good." Third, there has been a high level of inclusivity and thoughtfulness as "[the ICVCM has] done a good job at getting people in and consulting widely" (C4). In stark

contrast to tendency one, interviewee C7 comments that "there is a good representation of indigenous people groups which we have never really had in the past." Lastly, interviewee C5 argues that "having non-experts as board members is good" because they are less attached to the topic of CM. These board members bring in experiences from other regulatory bodies which makes "the ICVCM's governance stronger than that of the TSVCM" (C4).

Middle ground - Tendency three combines the majority of interviewees' opinions. It orbits around statements like "mixed feelings" (R5), "it is hard to tell" (C5), or "the jury is still out" (C7), implying that interviewees are reluctant to make a clear credibility judgement. Here, several reasons can come into play. One reason might be that it is difficult to predict the future, and interviewees do not want to make hasty or premature judgements because "it is not fixed where it goes in the future" (R5). Another reason for interviewees' reluctance could be that "no one wants to burn himself" (C3) should a judgement, at a later stage, turn out to be incorrect or based on wrong presumptions. A third one might be that "they have not published anything hard yet." (R1), meaning "the ultimate judge" (C6) is still to come with the second release of the ICVCM's assessments framework.

The analysis findings of the perceived credibility of the ICVCM show that stakeholders' perceptions deviate significantly from each other for various reasons, which are discussed in Chapter 6. The mixed results demonstrate the need for a systematic and functional framework which delivers credibility assessments in a more objective and nuanced manner. Hence, the study's findings from the assessment of the ICVCM are presented in the following section.

5.3 Findings from the Assessment of the ICVCM

This section deals with the results from the assessment framework, which was first developed and then applied in the field by assessing the credibility of the ICVCM. As described in Section 5.1.1, the credibility assessment rests on nine principles and a range of qualitative indicators for each principle. Each of Figure 5.3 to Figure 5.11 presents one principle, including its meaning, measurement, best-practice examples, and an overall rating based on the results of the indicators. Below each figure, a rationale, based on previous sections' findings and analyses, explains and justifies the assessment. It is acknowledged that principles or indicators partially overlap, and the causes are discussed in Chapter 6.

The score ranges between *low, medium, and high*. The calculation of scores is explained in Section 2.2.1, and scores are derived from the extent to which the ICVCM aligns with the indicators. All indicators – whose performance can range between *not, partially, and fully*– are listed in Appendix A. Indicator performance was evaluated based on two main inputs. These include the researcher's investigation as outlined in the research case description in Section 2.5 and the findings obtained from the analyzed interviews outlined in Chapters 4 and 5.

Principle 1	**What does it mean?**	**How can it be assessed?**	**What does it look like in practice?**	**Overall rating**
Expertise	The initiative has the necessary knowledge, skills and experience to effectively achieve their near-term and long-term goals and targets.	Expertise can be assessed by evaluating the qualifictions, credentials and track records of the indiviudals and organizations involved in the initiative.	Being a diverse and experienced team of experts. Having a long-standing track record demonstrating experts' skills and expertise. Staying up-to-date with the latest developments and best practices.	**High**
Similar criteria				
Knowledge, Professionalism				

Figure 5.3 Credibility principle 1: Expertise

The initiative scores a high rating in the principle of expertise based on the indicator performance. First, the initiative involves a wide range of experts[7] with relevant qualifications and experiences (ICVCM, 2023e). The group of experts demonstrates extensive knowledge of CM and fundamental technical and practical expertise. They also have an excellent track record in demonstrating their understanding of supply and demand issues. Further, experts have been involved in academia and research and worked on projects in developing countries. Lastly, various experts have already designed, implemented, and evaluated comparable or similar initiatives. For example, the Carbon Credit Quality Initiative (CCQI), led by several members of the Expert Panel, aims to enhance the quality of CC and develop a methodology to assess different types of CC-generating projects (CCQI, 2023). One shortcoming is that the group of experts only fulfils two out of three diversity aspects, including geographical representation, areas of expertise and gender. Only two out of 12 Expert Panel members are non-male (ICVCM, 2023e).

Principle 2	What does it mean?	How can it be assessed?	What does it look like in practice?	Overall rating
Improvement	The initiative seeks to understand their impacts, measures and demonstrates progress towards their intended outcomes, and engages in ongoing learning and adaptation.	Continuous improvement can be assessed by determining the extent to which the initiative reviews, updates, and revises its standards and internal structures based on consultation, collaboration, and feedback.	Performing regular audits and revisions of internal processes and standards. Establishing a feedback loop with stakeholders to identify areas for improvement. Setting up a monitoring and evaluation system to track progress and performance.	**Medium**
Similar criteria				
Regular audits & revisions				

Figure 5.4 Credibility principle 2: Continuous improvement

The initiative scores a medium rating in the principle of continuous improvement based on the indicator performance. First, the initiative demonstrates clear efforts to incorporate stakeholder feedback and lessons learned. For example, it held a 60-day open public consultation on the draft CCPs, Assessment Framework and Procedure with more than 5000 responses which were evaluated according to the ICVCM's feedback statement (ICVCM, 2023g). The initiative also declared to carry out independent reviews of its effectiveness, transparency, advancement, and success (ICVCM, 2023f).

However, there are no eligibility criteria or definitions for what is meant by a third-party organization commissioned to conduct the review process (ICVCM, 2023f). Moreover, reviews shall take place 'from time to time,' but the exact review frequency is not determined. Even more concerning is that the initiative has not yet established a robust and transparent monitoring and evaluation system to track performance and 'measure the success.' KPIs should have been in place three to six months after the establishment of the ICVCM, but no information could be found on how the ICVCM intends to measure its effectiveness and how success is defined (TSVCM, 2021b).

[7] See website for more information: https://icvcm.org/who-we-are-all/

Principle 3	What does it mean?	How can it be assessed?	What does it look like in practice?	Overall rating
Consistency **Similar criteria** Persistence, effective enforcement, authority	The initiative incorporates the best and most current scientific understanding about good practices and relevant international norms while being consistent in their approach, application, and decision-making.	Consistency can be assessed by evaluating insofar as the initiative is able to demonstrate coherence, effective enforcement, and predictability in its standards and processes.	Applying standards and processes consistently across different projects, regions, and time periods. Establishing clear rules and guidelines for communication, reporting, and documentation.	?

Figure 5.5 Credibility principle 3: Consistency

The initiative receives no rating in the principle of consistency based on the indicator performance. First, the initiative is still in its set-up phase, developing the Assessment Frameworks for crediting programs and methodologies of project types. While the first Assessment Framework was released at the end of March 2023, the more complex and complicated second will only be released later this year (ICVCM, 2023b). Consequently, consistency and effective enforcement can, at the current stage, not adequately be evaluated based on the performance indicators developed.

Principle 4	What does it mean?	How can it be assessed?	What does it look like in practice?	Overall rating
Truthfulness **Similar criteria** Accuracy, Quality, Reliability	The initiative's claims and communications are verifiable, not misleading, and enable an informed choice. It ensures the quality, accuracy, reliablity and integrity of the information provided by the initiative.	Truthfulness can be assessed by reviewing reports, documentation, press releases, etc. and evaluating the degree to which the information fulfils the following aspects: usefulness, goodness, accuracy, currency, and importance.	Publishing information based on robust scientific evidence and verifiable data. Requiring third-party verification and audits to ensure accuracy and truthfulness. Discloses any limitations, assumptions, and uncertainties to avoid misrepresentation or misleading information.	**Medium**

Figure 5.6 Credibility principle 4: Truthfulness

The initiative scores a medium rating in the principle of truthfulness based on the indicator performance. The initiative's publications developed by the Expert Panel are based on robust scientific evidence and verifiable data. The initiative's claims and communication are largely accurate and often enable an informed choice. However, the initiative does not transparently disclose all limitations, assumptions, and uncertainties to avoid misrepresentation or misleading information. For example, one of the initiative's fundamental assumptions is 'that the market will grow by "a factor of 6-7 between 2020 and 2024" (TSVCM, 2021b, p. 24) and "could grow to around 15-fold [from 0.1] to 1.5 to 2 GtCO2 of [CCs] per year in 2030" (TSVCM, 2021a, p. 58), following the market size analysis of the TSVCM. Based on the results of Section 4.3, one could argue that the projection represents theoretical potential rather than real growth. Furthermore, these predictions are based neither on scientific evidence nor robust modelling. Hence, selling the theoretical potential of the VCM as real growth could deliver a misleading or even false understanding of the future size and value of the VCM.

Principle 5	What does it mean?	How can it be assessed?	What does it look like in practice?	Overall rating
Transparency **Similar criteria** Communication, Accessibility, Funding	The initiative is transparent in its processes, decision-making, funding, and communication and makes relevant information publicly available and easily accessible.	Transparency can be assessed by determining the degree to which the initiative provides clear and accessible information about decisions, governance structure, funding, and development stages of standards including meaningful stakeholder communication.	Making information regarding processes, decisions, and performance data publicly available and easily accessible. Disclosing its funding sources and mechanisms, governance structure, and decision-making processes. Reporting on achievements, challenges and progress towards goals.	**Low**

Figure 5.7 Credibility principle 5: Transparency

The initiative scores a low rating e in the principle of transparency based on the indicator performance. First, although the initiative partially discloses relevant information regarding funding sources, governance structure, and decision-making processes, various aspects remain unclear and unambiguous. For example, only one press release from 2021 contains information about the funding strategy, explaining that 'funding will be provided, in part, by the Founding Sponsors' and subsequently listing all Founding Sponsors (ICVCM, 2021). However, it lacks any further information about the funding structure. The governance documents only disclose that funding is provided by third parties, including corporates, philanthropic institutions, governments, and public institutions (TSVCM, 2021b). This raises the question of which entities provide the *other part* and how much they contribute compared to the Founding Sponsors. In addition, funding is secured for the set-up phase, but no clear roadmap has been released explaining how the initiative attempts to secure funding in the long term.

More concerningly, although the initiative documents and publishes information regarding processes, decisions, and meeting minutes, they are barely accessible (ICVCM, 2023b). The file can only be downloaded if one knows the exact link to the website, but it cannot be found on the initiative's website itself. The file[8], a slide deck with more than 200 slides, is also not very comprehensible and easy to understand. Its outline is unclear and vague, and the content is badly structured and lacks basic formatting to increase the readability for the reader. Lastly, although the ICVCM declares to disclose its financial information and annual reports of its activities in its governance materials, no information or material could confirm this declaration (ICVCM, 2023f).

Principle 6	What does it mean?	How can it be assessed?	What does it look like in practice?	Overall rating
Authenticity **Similar criteria** Honesty, Commitment, Track-record, Trustworthiness	The initiative is honest and commited to reaching its long-term goal while not trying to whitewash its reputation or be sensationalist. Its actions and communication are aligned with its values and vision.	Authenticity can be assessed by evaluating the extent to which track records of individuals or organizations involved in the initiative are percevied as being trustworthy, authentic and genuine.	Having a clear mission, vision, and values that align with the principles of international climate action and sustainability. Having a track record demonstrating a genuine commitment towards climate change mitigation and sustainable transition.	**Medium**

Figure 5.8 Credibility principle 6: Authenticity

The initiative scores a medium rating in the principle of authenticity based on the indicator performance. First, the initiative engages in meaningful consultation processes with a wide range of stakeholders along the CC value chain for the development and implementation of standards and procedures (TSVCM, 2021c). Moreover, the initiative clearly articulates its mission, vision, and values and has a strategy for reaching its goals and objectives (ICVCM, 2023a). However, the initiative does not demonstrate a genuine commitment towards climate change mitigation and sustainable transition, as the underlying motif of building integrity does not appear to fight against climate change but scale a potentially profitable market.

Notably, environmental and social safeguards, the so-called minimum threshold of do-no-harm, are established (ICVCM, 2023b). Yet, there is no indication that the initiative seeks to generate environmental and social benefits beyond the do-no-harm rule. Lastly, the individuals with decision-making power and organizations involved in the initiative are not equipped with a track record perceived as trustworthy and authentic by most interviewees due to their close ties to the corporate world (Corporate Accountability, 2022).

[8] URL Link: https://icvcm.org/wp-content/uploads/2023/03/edited_edited_edited_IC-VCM_EP_SOC_Board_combined_file_-_20230328_SD__Safeguards_Sli-1.pdf

Principle 7	What does it mean?	How can it be assessed?	What does it look like in practice?	Overall rating
Fairness	The initiative engages a balanced and representative group of stakeholders that is impartial, diverse and equitable, and it empowers stakeholders to resolve complaints with fair mechanisms.	Fairness can be assessed by evaluating the degree to which all relevant stakeholders have equal opportunities to participate, provide input, and influence processes and decisions.	Ensuring fair, equitable, and non-discriminatory processes and decisions. Considering marginalized or vulnerable groups in decision-making processes. Establishing mechanisms to respond to concerns and complaints.	**Medium**
Similar criteria				
Equal representation, Grievance mechanism				

Figure 5.9 Credibility principle 7: Fairness

The initiative scores a medium rating in the principle of fairness based on the indicator performance. First, the initiative has established a governance system that ensures fair, equitable and non-discriminatory processes and decisions (ICVCM, 2023f). Moreover, it includes marginalized and vulnerable groups in decision-making processes (ICVCM, 2023e). For example, three board members represent indigenous and local communities. This group was added after the ICVCM faced harsh criticism for neglecting the importance of those voices in whose territories many offsetting projects take place (Bloomberg, 2022). However, the initiative only partially engages a balanced, representative, and diverse group of stakeholders. Although 90% of all CC-generating projects are in the global south (TSVCM, 2021a), the Governing Board and consultation processes continue to be dominated by actors from the global north (ICVCM, 2023e). Finally, although the initiative intended to operationalize grievance mechanisms within three to six months after its launch, no information is available on whether and how this mechanism was implemented (TSVCM, 2021b).

Principle 8	What does it mean?	How can it be assessed?	What does it look like in practice?	Overall rating
Engagement	The initiative provides meaningful and accessible opportunities for active involvement, participation, and consultation of stakeholders.	Stakeholder engagement can be assessed by evaluating the extent to which the initiative actively seeks, contemplates, and respond to stakeholder input, feedback, and concerns.	Engaging actively with all stakeholders along the CC value chain. Promoting public consultations, workshops, and virtual events to gather input, feedback, and suggestions.	**High**
Similar criteria				
Collaboration, Consultations				

Figure 5.10 Credibility principle 8: Stakeholder engagement

The initiative scores a medium rating in the principle of stakeholder engagement based on the indicator performance. First, the initiative engages actively, regularly, and meaningfully with apparently all stakeholders along the CC value chain. Also, the initiative promotes public consultations, workshops, or virtual events to gather input, feedback, and suggestions. For example, during the first release of the Assessment Framework in March 2023, a webinar was held to present the final version of the CCPs. Participants could pose questions and make comments that members of the initiative answered. Finally, the initiative seeks, considers, and responds to stakeholder feedback and concerns. For instance, during the public consultation period, stakeholders were asked to provide comments and suggestions for improvements to the proposals, which were partially updated and revised in response to feedback (ICVCM, 2023b).

Principle 9	What does it mean?	How can it be assessed?	What does it look like in practice?	Overall rating
Impartiality	The initiative identifies and mitigates conflicts of interest throughout their operations, particularly in decision-making and governance. Transparency, accessibility, and balanced representation contribute to impartiality.	Impartiality can be assessed by evaluating the degree to which individuals and organizations involved in the initiative demonstrate independence, absence of financial, reputational or organizational conflicts of interest.	Establishing clear and transparent governance structure. Ensuring a balanced distribution of decision-making power. Setting up strict and transparent no conflict of interest policies. Taking measures to mitigate and eliminate potential conflicts of interest.	**Low**
Similar criteria				
Independence, No conflict of interest, Governance structures				

Figure 5.11 Credibility principle 9: Impartiality

The initiative scores a low rating in the principle of impartiality for the following reasons. First, the initiative has no clear and transparent governance structure that guarantees independence and the absence of conflicts of interest. For instance, the initiatives claim to be independent, although only the bare majority of board members, in numbers 12 out of 22, must be independent (ICVCM, 2023f). Yet, decisions can only be made by at least two-thirds of the members, implying that the independent governance body must always rely on the vote of non-independent board members (ICVCM, 2023f). Furthermore, the independence of board members is already achieved if they have had a two-year cooling-off period since their last employment for an organization that generates revenue in the VCM (ICVCM, 2023c). Further, although a set of guardrails was set up to 'avoid significant conflicts of interest,' there is no definition of which conflicts of interest fall into the category of 'significant' and which do not (ICVCM, 2023c).

Lastly, the initiative considers securing funding by introducing either a membership fee or a service-based user fee linked to CC issuance or retirement (TSVCM, 2021b). Both are problematic. The former might allow fee-paying members to influence the initiative's work and standards if paying members keep the initiative running in financial terms. The latter provides a perverse incentive because the more CCs the initiative issues, the more revenue it generates. Consequently, too strict standards could endanger the financial security of the initiative.

6 Discussion

Prompted by the current 'credibility crisis' of the VCM – a market which is strongly shaped and steered by emerging ISS initiatives – this thesis set out to build a framework for assessing the credibility of these initiatives. Such assessments enable stakeholders to determine objectively the credibility and trustworthiness of the initiative they engage with. In addition, a systematic and functional assessment of an ISS initiative's governance structure and operating model helps identify areas for improvement, raise awareness of the imperfection of the VCM, and distinguish good practices from bad ones. Against this background, four research questions emerged, guiding the three-staged process of developing, testing, and evaluating the framework. These research questions are answered in Chapter 7.

In the following sections, the findings are interpreted, and their relevance is described in consideration of what was already known from the literature review and theoretical framework. Next, additional insights about the underlying meaning of the findings are discussed, and lastly, the significance and contributions of this thesis within the research field are highlighted.

6.1 Conceptualizing Credibility

Credibility in the context of the VCM is a word whose use has been fashionable for a long time. If slang existed in the CM, it could be described as a buzzword. A long time ago, during the first gold rush period of the VCM, Lovell (2010) called for governance changes in the VCM to ensure the credibility of voluntary carbon offsets, voluntary standards and the market in general. Since then, numerous papers have been published, all requesting the same: building, restoring, regaining, maintaining, and improving credibility. However, these requests raise the question: 'The credibility of what?'

Across disciplines, researchers recognize the importance of context in credibility assessments (Rieh & Danielson, 2007). However, this means the understanding of credibility can change if the context changes (Ho, 2014). Consequently, context emerged as an important factor influencing how credibility is frequently conceptualized and measured in the VCM. For example, in terms of conceptualization, some scholars describe credibility by referring to market agents' trust in the VCM (Murun & Takahashi, 2021), while others emphasize the high quality of CCs (Broekhoff et al., 2019; Gillenwater et al., 2007), and others again rather refer to the nature of corporate offsetting claims (New Climate Institute, 2022).

Credibility can also be measured or assessed in various ways owing to deviating and context-specific conceptualizations. For instance, growth numbers can serve as an indicator for market trust (World Economic Forum, 2023), quality criteria such as additionality, permanence, and MRV are used to determine how credible a CC is (EDF et al., 2020), or best-practice guides help determine substantiated and credible environmental claims (Neimane & Simanovska, 2020). However, the literature review revealed that no systematic and functional assessment frameworks exist to evaluate the credibility of IIS initiatives, often a vital link and driving force behind all aspects mentioned above.

The research gap: 'How can the credibility of ISS initiatives be assessed?' can be filled with the findings of this thesis. In this case, *credibility is conceptualized as a multidimensional and complex concept that describes an attitude within a continuum towards an institution held at a given time, space and context by a particular receiver*. The definition fulfils all relevant requirements determined by scientific literature. For instance, credibility should be conceptualized as a theoretical continuum and can shift on that continuum (Ho, 2016). Moreover, 'attitude' is not unidimensional but rather multidimensional (McCroskey & Young, 1981). Therefore, this thesis' framework relies on a set

of principles. This is because science agrees that credibility cannot be directly measured. After all, it is continuously influenced by a receiver's background, discursive position, and experiences.

Under the guise of multidimensionality, (i) competence, (ii) character, and (iii) goodwill represent the dimensions that are deemed most relevant in the thesis context. These also align well with previous studies from other disciplines that assessed credibility by using similar characteristics when examining credibility issues (Fogg, 2003b; Hilligoss & Rieh, 2008; Peters et al., 2006; Renn & Levine, 1991). Further, as postulated by Ho (2014), it becomes evident that all measurements are spatially and temporally determined. This implies that the ICVCM could be perceived as non-credible at a given place, time, or context but credible at another time, location, or context and vice versa. For example, many interviewees stated that their credibility judgement could be influenced substantially by ICVCM's second release of the standard later this year. This means that as an institution's function evolves, so do narratives and discursive positions of receivers.

6.2 Discursive Positioning of the VCM and ICVCM

Discursive positioning in environmental policy refers to how stakeholders position themselves in the overall discourse and justify why they should have a voice (Lang et al., 2019). It is important because the way in which different stakeholders discuss and frame environmental issues can have a significant impact on policy outcomes (Hajer, 1995). As the findings and other research show, it matters even more in voluntary regimes, such as the VCM, owing to the lack of formal regulation and the strong reliance on the credible voluntary action of primarily corporate actors.

In light of the research question, the analysis identified the interplay of various dominant discursive positions and their respective storylines for both the ICVCM and VCM. Five focused on the future of the VCM, and the other on the role of the ICVCM with the VCM. Interestingly, the competing or opposing discursive positions could not be clearly ascribed to common stereotypes like industry vs. NGOs, and opinions also deviated among participants of the same stakeholder groups. A practical explanation could be that various interviewees have experienced the VCM from both practical and academic perspectives. Hajer (1995) provides another plausible explanation, arguing that many factors shape an individual's discursive positioning, and an individual's stakeholder identity is only one. Therefore, the whole thesis refrains from assigning particular roles to stakeholders to live up to common stereotypes. Instead, the following sections focus on uncovering dynamics and underlying reasons between the various agents and existing literature.

6.2.1 Growth: The Dominant Storyline in CM Literature

Compared to the existing literature on CMs, the findings discovered similarities and striking differences. As highlighted in Section 4.3, most interviewees believe that the VCM will continue growing mainly for three reasons, including *(i) companies' growing desire for climate leadership, (ii) insufficient government action, and (iii) the need for any tool at reach to tackle climate change and win the race against time*. Similarly, the scientific literature also commonly refers to these three when promoting the VCM as a mechanism to drive corporate climate action.

For instance, Streck (2021) argues that the "[VCM] has the potential to become a very significant driver of mitigation action." Further, she believes robust standards and rules could overcome the major issues – low CC quality and greenwashing by companies – on the VCM's supply and demand side. Miltenberger et al. (2021) even suggest that the current flaws of the VCM are no barriers to successful climate change action, acknowledging that 'the good is never perfect.'

Within the storyline of growth, these authors believe strongly that the VCM could be *the* mechanism to drive corporate climate change action.

In contrast, the analysis found that even if the VCM grows, many actors exaggerate or overstate the importance of the VCM in reducing emissions on a global scale. Despite the hype of VCMs, they are still extremely small compared to CCMs in terms of size and value. And even all CMs combined cover only around 4% of global GHG emissions (Worldbank, 2022), leading to the conclusion that CMs remain a niche instrument in the overall effort to reduce GHG emissions. Furthermore, the belief that robust voluntary standards could solve the major issues along the CC value chain to foster growth is dangerous, partially misleading. It contradicts the historical development of the VCM. First, voluntary action must not replace or supersede policy action (Broekhoff et al., 2019). Second, due to the unique attributes of CO2 (Newell et al., 2014), some issues, such as additionality or permanence, can never be guaranteed, as the climate regime is inherently associated with high scientific uncertainty (Calel, 2011).

Another example is that various reports (Blaufelder et al., 2021; BloombergNEF, 2023; IETA, 2022; TSVCM, 2021a) and peer-reviewed journal articles (Miltenberger et al., 2021; Taghizadeh-Hesary & Hyun, 2022)interpret the theoretical potential of the VCM as real growth to strengthen the narrative of growth. However, this study's findings demonstrate that most growth predictions are simple extrapolations without substantiated analysis. Still, various agents picture the market's future as glorious and fast-growing. This can distort reality and create a fantasy, as described in more detail by Watt (2021). For example, Miltenberger et al. (2021) simply copied and pasted the TSVCM's speculative growth projections to legitimize their discursive position while, at the same time, not mentioning that first, these projections are highly uncertain and second, the future of the VCM largely depends on policy decisions of (inter)national regulatory systems and not on companies desire to offset their emissions. These findings are also confirmed by Hickmann (2016) and Lang et al. (2019).

6.2.2 The Squishiness Ratio: The Cause of Competing Truths

Whether someone believes in *growth or decline* often depends on his understanding of how good is good enough. This refers to a particular trade-off that the VCM faces. Here, it is described as *perfection vs. efficiency* and is also identified by numerous scholars (Calel, 2011; H. Lovell & Liverman, 2010; Yu et al., 2022). The two conflicting storylines emerged because different agents accept different degrees of certainty that one CC may not always represent one tonne of CO2e reduction or removal. This implies that a low degree of certainty can harm the climate if emissions reductions are not equivalent to offsetting claims made elsewhere (Schneider & La Hoz Theuer, 2019). In contrast, a high level of certainty tends to raise transaction costs and limit the cost-effectiveness of the instrument (T. Tietenberg, 2003).

The divide between the storylines symbolizes agents' understanding of where to set the bar of perfection or imperfection. For example, individuals believing in future growth emphasize the VCM's potential as an effective financing mechanism to channel investment and promote sustainable development in developing countries (V3, C8, C6). In contrast, those who believe in its decline put more weight on its level of perfection, arguing that the instrument's purpose should be the genuine and rapid reduction of global emissions (R2, C3, R6). This trade-off is not irresolvable. It exists because the market instrument is judged against perfection – meaning one CC must represent exactly one tonne of CO2e reduced or removed. This is necessary if companies use offsetting to claim to be net zero or carbon neutral.

The *squishiness ratio* explains why the conflict persists. On the one hand, CMs are an imperfect and squishy instrument because of the economic theory's inability to grasp climate change's long-term impacts and complexity, as described by Calel (2011). But, on the other hand, there

is a very hard claim for carbon neutrality which the market can never live up to (K. Smith, 2007; Sullivan, 2017). For example, suppose the CC is only slightly squishier in terms of additionality or permanence due to the lack of 100% certainty. In that case, the claim loses its validity, but companies would continue to use it because they would locate the failure on the supply side.

To solve and mitigate this conflict, the thesis proposes to make the carbon neutrality claim softer and the CC harder. To soften the claim, the demand side should transition to a climate contribution approach as proposed by numerous scholars and initiatives (Kreibich & Hermwille, 2021; New Climate Institute, 2022). This implies that companies can support climate change mitigation beyond their value chain but cannot claim compensation to reduce their environmental footprint. While this approach has already started gaining traction and has been embraced by several market-leading brokers and consulting firms, it is still in its infancy and not a remedy for all quality issues on the supply side. However, it is less risky to invest in climate contributions because they mitigate the risk of offsetting to cause harm to the climate by making false or misleading claims when purchasing low-quality CCs.

To harden CCs and improve their quality, three types of regulation could mitigate – but never fully solve – inherent quality and use issues. These include hard, soft and voluntary regulation. An example of hard regulation is the development of the new EU Directive on 'Green Claims' to combat greenwashing on the demand side. It provides an incentive for both supply and demand sides to increase the level of quality of sold and purchased CCs. Similarly, soft regulation also comes from state actors who endorse and recommend certain rules but refrain from putting them into law. An example is the Nordic Council of Ministers promoting a code of best practices for the VCM. It was developed in cooperation with various Scandinavian countries to harmonize the quality and use of CCs on a regional level (Nordic Council of Ministers, 2022). Third, voluntary self-regulation can become a type of regulation if various quality assurance systems exist independently from each other. In the case of the VCM, crediting organizations, governance bodies such as the ICVCM and rating agencies can ensure the quality of CCs through multiple independent verification processes along the CC value chain.

6.2.3 ICVCM: Trade-offs and Dilemmas

Stakeholders perceive the ICVCM's mission differently but are generally more hesitant to take a clear stance, as depicted in Figure 5.2. This starkly contrasts with the discursive positions regarding the VCM in which most interviewees expressed strong personal beliefs and judgements. According to R. I. Williams et al. (2022), the underlying reason could be that credibility is often determined by a performance track record. In this case, the ICVCM was launched recently, is still in its development phase, and has not yet built up a meaningful track record. Therefore, the discursive position of expectations of the ICVCM is defined more nuancedly as opportunities and risks rather than using more subjective terms such as success and failure. The stakeholders' hesitancy seems to derive from the ICVCM's slogan: '*build integrity and scale will follow*,' and its mission: *the development of a globally accepted and applied standard* – the so-called meta-standard. In particular, three trade-offs dealing with (i) the rules, (ii) the operating system and (ii) the impact of the ICVCM largely shape the discussion of chances and risks.

The most significant trade-off is about the *stringency vs. applicability* of the ICVCM's rules. It refers to the predicament of striking a balance between pushing for high integrity and ensuring it is deemed relevant for the market. Although this finding is not entirely new and has already been discussed in the field of climate governance (Kollmuss et al., 2008), the novelty is that the ICVCM envisions implementing a meta-standard on a global scale. This is remarkable because it has no regulatory power and depends on the willingness of market players from the demand and supply side, which is described as a significant deficit in voluntary self-regulation (Darby, 2003).

The ICVCM finds itself in a delicate position trying to avoid two extrema: raising the bar too high and raising it too little. Both extrema would result in a waste of time because either no crediting organization could meet the requirements, and the ICVCM risks becoming irrelevant to the market, or companies do not take up the ICVCM label because it would not be perceived as a quality assurance mechanism for high-integrity CCs. Yet, several interviewees and the scientific literature agree that the ICVCM has the potential to pull the market toward a higher quality standard (Aldy & Halem, 2022; M. Williams et al., 2023).

For example, Trove Research, a data analysis firm focused on the VCM, assessed the preliminary CCPs' additionality criteria and found that out of 1175 projects, *zero* would meet all requirements (Trove Research, 2022). Hereby, it raises the question of whether the ICVCM should aim for perfection, resulting in difficult implementation and reduced investment, or strive for less stringent rules to increase the applicability of the standard. While both seem viable options, there is a clear tendency that the latter might be more likely, largely owing to the governance model of the ICVCM. While the Expert Panel strives for stringency, the private sector-led Governing Board seeks to ensure applicability. The outcome of the second release later this year will ultimately reflect the dynamic between an independent expert group that makes best-practice recommendations and a board that makes decisions but represents different interests.

The second trade-off reflects the predicament of a *high-quality system vs. cost*. It refers to the risk of underestimating the scale and impact of the ICVCMs vision and mission. Building integrity is costly because transaction costs will rapidly increase the more one strives for a high-quality CC, as T. Tietenberg (2003) demonstrates. With its meta-standard, the ICVCM adds an extra layer of quality assurance, resulting in another price differentiator for CC buyers. According to the discursive positions of the stakeholders, it is not clear whether buyers are willing to pay more.

On the one hand, higher carbon prices are perceived to restrict the scaling of the market owing to the high price elasticity of CCs. This finding is supported by Rodemeier (2023), stating that consumers of carbon offset are price-elastic. On the other hand, the findings show that stronger public scrutiny from civil society agents seems to increase the willingness of buyers to pay a higher price to avoid reputational risks and damage. Interestingly, a different conclusion was reached by Berger et al. (2022), finding that the willingness to pay dramatically falls short of the current prices of carbon offsets.

The third trade-off deals with *short-term vs. long-term impacts*. Notably, all discursive positions make use of the same argument, 'we are running out of time,' see, for example, Allen et al. (2020), Broekhoff et al. (2020) or Streck (2021). Even this thesis relies on it to symbolize the urgency of real climate action to successfully combat climate change. The race against time argument is like a double-edged sword because it can be interpreted in multiple ways. On the one side, it provides a justification for incremental improvement because if a standard is too high, no one can meet it in the short term. The market requires time to reform and might meet the requirements in the medium or long term, but valuable time would be lost until then, implying that the ICVCM would not achieve anything in terms of impact either. Conversely, global warming calls for drastic global GHG emission reductions and requires leaving old and climate-damaging business models behind.

6.3 Factors Shaping Stakeholders' Credibility Perceptions

The stakeholders' credibility judgements deviate significantly from each other – as observed in Section 5.2 – owing to various factors. First, although each respondent seems to have a strong

sense of credibility, different interviewees focus on different criteria and weigh them differently. For example, interviewees with a science background (e.g., R4, C3, R6) primarily focused on criteria such as expertise, truthfulness, and consistency. In contrast, practitioners perceived transparency, authenticity, and impartiality (e.g., C1, R2, R3) as more important. This implies that most interviewees judge credibility based on a limited number of criteria they deem most relevant. Consequently, depending on whether one largely focuses on the initiative's level of expertise or its authenticity can result in different outcomes. This finding is supported by Heink et al. (2015), stating that credibility can be viewed from different angles, including scientific and political ones.

Second, there is a strong tendency that interviewees' worldviews, experiences, and belief systems strongly influence their judgements. For example, interviewees convinced of the beneficial opportunities that the ICVCM could bring tend to associate it with higher credibility. In contrast, the opposite is the case when interviewees perceive the ICVCM as a risk rather than an opportunity. Rieh & Danielson (2007) also recognizes individual differences in credibility assessments among participants, concluding that assessments are based on an individual's level of knowledge, experiences, and background.

Third, there are noticeable differences between insider and outsider perspectives regarding the ICVCM's credibility. Many interviewees who are not directly involved or do not show a particular interest in the ICVCM tend to judge the initiative's credibility higher than most insiders. In contrast, various insiders, meaning that interviewees are either a member of the initiative or closely examining most published information, appear to have a more nuanced picture of the initiative's credibility and often belong to the middle-ground group described in Section 5.2. However, no scientific literature could be found supporting or disproving the finding. Therefore, it is acknowledged that it should be treated with caution.

Lastly, another critical aspect is potential biases. Two especially powerful biases identified are the representative heuristic and confirmation biases. Regarding the former, credibility is often associated with big names. For example, the ICVCM was initially launched by Marc Carney, former governor of the Bank of England, was supported by Bill Winters, CEO of Standard Chartered, and is currently led by Annette Lazareth, partner attorney at Davis Polk & Wardwell. Interestingly, the effects of big names can unfold either way. While civil society agents argue that these names are not credible because they are closely connected with the financial and fossil fuel sectors (Corporate Accountability, 2022), the private sector argues the opposite. Hence, stakeholders are always influenced by how they perceive the names behind the initiative. The findings are also in accordance with Shockley et al. (2016), explaining that heuristic processes (e.g., biases and cues) can generate different judgements in people with opposing or competing discursive positions.

Regarding the latter, interviewees who believe in a declining VCM tend to interpret the ICVCM's credibility as lower than those who believe in the growth storyline. In other words, participants generally favour information that supports and confirms their own beliefs and values. The observation is also consistent with Heink et al. (2015)' observations that individuals seek or interpret evidence in ways that are consistent with existing beliefs.

Finally, the interviewees' judgements generally rest on the following three questions. Each of them relates to at least one of the three dimensions of credibility.

(i) *'How is the final version of the standard decided upon?'* refers to the power dynamics within the initiative, meaning will the governing board overrule the recommendations made

by the independent expert panel? And if so, to which extent will they be modified or even softened to satisfy market agents?

(ii) *'What do they say and what will they do?'* refers to whether the ICVCM's standards will truly strengthen the integrity of CC, raise the bar for high-quality standards on a global scale, and improve accounting and quantification methods.

(iii) *'What is the initiative's motivation?'* refers to the nagging doubt of civil society actors that questions whether the ICVCM is indeed a valuable contribution to international climate mitigation efforts and whether money is not the primary motivator behind the actors of the ICVCM.

6.4 Evaluation: Reflections and Limitations

This section reflects on methodological choices and limitations that enhance or reduce the suitability and adequacy of the framework. First, the chosen research design, theoretical framework and analysis methods are discussed. Then, following the constructivist approach, the criteria of trustworthiness, coined by Lincoln & Guba (1986), are applied to assess the quality and rigour of qualitative research.

6.4.1 Methodological, Theoretical, and Analytical Choices

Given that not much qualitative research has been carried out on frameworks for assessing the credibility of ISS initiatives, a qualitative research design is a fitting choice to obtain a deeper and more nuanced understanding of the studied subject and to answer the research questions. Still, it is acknowledged that the assessment framework could also be built in a quantitative manner. It would be interesting to extend the framework and develop an exploratory sequential design that includes quantitative indicators to increase its objectivity and representativeness. However, a quantitative approach should, in this case, always constitute the second phase of the research design. This is because the investigated phenomenon had to be explored in-depth before deciding which and how variables needed to be measured quantitatively. Therefore, a qualitative approach was most appropriate given the short project time frame and the constructivist nature of the topic.

The theoretical framework is based on the credibility thesis, which postulates that credibility can explain the success and failure of institutions based on their effectiveness. However, the results show that it is often understood as a relevance rather than an effectiveness criterion. For instance, interviewees who deem the ICVCM credible often believe that the initiative could be a relevant player to substantially move the market towards higher quality. However, fewer believe it will achieve its long-term goal of developing a globally accepted and applied meta-standard. Consequently, researchers like Rieh & Danielson (2007) consider the assessment of credibility to be a part of relevance judgments. This contradicts this thesis' initial assumption that credibility is a key determinant of effectiveness, as Ho (2014) posits. This leads to the conclusion that the assessment framework is better suited to investigate the relevance of an initiative rather than its effectiveness. For assessing the criterion of effectiveness, it would be more adequate to have performance indicators that measure the gap between what the initiative claims and what it really does, meaning the smaller the gap, the more effective the initiative is.

The analytical methods were appropriate for this thesis objective, research questions and context. Each selected method has particular strengths and advantages to contribute to finding answers to the research questions, as demonstrated in the previous Chapters 4 and 5. However, it is acknowledged that the performed principle-based concept analysis might lack transparency, rigour and replicability as most concept analyses in scientific literature follow only indistinct

guidelines, resulting in the lack of empirical examples on how to operationalize this method (S. Smith & Mörelius, 2021). To make the analysis more transparent and rigorous, a phased quality criteria tool like the one developed by S. Smith & Mörelius (2021) should have been deployed to enhance and enable future comparisons of credibility and related concepts.

Regarding the performed content analysis, a qualitative factor analysis could allow for identifying and analyzing more complex patterns and relationships within the data. This relates to the potential contextual overlap of various principles and indicators, which was inevitable owing to the nature of the content analysis. While the content analysis only categorized and counted words, phrases and concepts via coding patterns, the factor analysis is better suited for an in-depth analysis. This is important because these principles are complex concepts which, in most cases, should not be reduced to simple codes. Various scholars recommend factor analyses for discovering and exploring credibility factors (Gaziano & McGrath, 1986; McCroskey & Young, 1981; Rieh & Danielson, 2007).

6.4.2 Limitations of the Trustworthiness Criteria

The developed framework has several limitations that need to be assessed through the lens of the four trustworthiness criteria. These consist of credibility, transferability, dependability, and confirmability.

First, a major limitation is that the selection bias leads to a lack of representativeness of the selected sample. It does not represent the entire CC value chain of the VCM. This is because the CC value chain is so complex and diverse that not all stakeholders could be involved in light of the short project timeframe. Especially those at the very beginning and end of the CC value chain might lack specific expertise and knowledge about the VCM and ICVCM. For example, as mentioned in Section 2.2.4, companies did not meet the inclusion criteria, although they are a driving force in the VCM.

Further selection took place when interview requests were either accepted or rejected. For example, participants, such as scientists or members of the ICVCM, feeling more comfortable with the topic might be more inclined to accept the request than those who are not very familiar with the details, even though they might represent a relevant stakeholder group. At the same time, participants also had biases, agendas, and interests, which naturally affected the qualitative research results.

In response, triangulation, prolonged engagement, and peer debriefing were used to reduce the selection bias and strengthen the credibility of the findings. For triangulation, different types of data collection methods (documentary, interrogative, and observative) and data sources (multiple participants for each stakeholder group) were deployed. Further, the internship at the NewClimate Institute allowed lengthy and intensive contact with the studied phenomena and thus reduced possible sources of distortion and biases. Lastly, weekly meetings with an external professional from the NewClimate Institute helped to continuously evaluate the development and testing of the research design and framework.

A second limitation is the limited generalizability of the results because the framework assessed only one case, namely the ICVCM. Therefore, this thesis' findings are not transferable to other organizations due to the unique characteristics of each ISS initiative. This is certainly a weakness of the research design, which could have been improved if several cases had been assessed. Multiple cases would allow identifying similarities and differences across the ISS initiatives and, consequently, increase the transferability of the findings to other ISS initiatives.

In contrast to the findings, the developed assessment framework possesses a high degree of transferability since it has been tested and refined after its development. In addition, stakeholder involvement improved the quality of the framework substantially, as their knowledge and experiences of ISS initiatives helped to increase the applicability of the credibility principles. Consequently, the framework can be easily applied to further ISS initiatives that fall under the definition described in Section 1.1.3.

A third limitation arises from the theoretical framework, the so-called credibility thesis, presented in Section 3.2.5, assuming that a credibility assessment is only valid at a given place and time. This means the assessment findings could lose their relevance at a certain point as the ICVCM's function evolves and perhaps changes over time. Moreover, the same applies to the narratives and discursive positions of stakeholders in the VCM. This inherently limits dependability, which refers to the degree to which the findings are consistent and reliable over time and across researchers.

In response to this limitation, the dependability of the findings is strengthened through the detailed documentation of the research process and methods employed. This includes the research design shown in Figure 2.1, the data collection and analysis methods, a list of all indicators for each principle in Appendix A, and the list of participants and interview guides in Appendix E and Appendix B, respectively. The efforts undertaken provide strong evidence of the study's rigour and transparency. Furthermore, it helps ensure its replicability over time and across researchers.

The last limitation inherently has the largest influence on the results. The researcher's biases and assumptions have influenced the research process and outcomes. This is because, in the naturalistic paradigm, knowledge, experiences, and beliefs always affect the confirmability of the results. For example, some interviewees were perceived as more knowledgeable than others, and consequently, they might have shaped the results more strongly.

To mitigate this issue, the researcher attempted to use a self-reflective and reflexive approach throughout the process, as described in Section 2.1. As the researcher's positionality is never fixed and is always situational and context-dependent, the research process was accompanied by a competent external auditor from the NewClimate Institute. External auditing helped to ensure that the findings accurately reflected the participant's experiences and positions.

7 Conclusion

Climate change is accelerating at a life-threatening pace, requiring any tool that can contribute to GHG emissions reduction on a global scale. However, one of these tools, the VCM, is facing a 'credibility crisis' owing to various scandals on both sides, demand and supply. This study was prompted by the recent emergence of ISS initiatives, trying to solve quality and use issues of CCs on a global scale while aiming to shape the VCM's future.

Hence, this qualitative thesis aimed to build a framework for assessing the credibility of ISS initiatives. A three-staged process of developing, testing, and evaluating the credibility assessment framework guided the four research questions. For approaching this topic systematically, the development stage rests on various data collection methods, such as an extensive literature review and 18 semi-structured interviews with VCM experts, and several data analysis methods, including concept analysis, discourse analysis, and content analysis. The testing phase consisted of applying the assessment framework to a research case, the ICVCM, and involving various stakeholders to verify and validate the results of the ICVCM's credibility assessment. The final evaluation phase analyzed results obtained from the frameworks' application in the field. The main findings, research implications and opportunities are summarised as follows.

***RQ1**: How can the credibility of ISS initiatives in the context of the VCM be conceptualized and assessed?*

Credibility in the context of the VCM is interpreted in multiple ways and is not yet well-defined. Further, there is no common understanding of what dimensions should be considered when assessing credibility, as scholars focus on different aspects of the VCM. Lastly, the concept is used neither consistently nor appropriately within the context and across stakeholders. In addition, the literature review revealed that no systematic and functional assessment frameworks exist to evaluate the credibility of IIS initiatives.

The research question is answered as follows. *Credibility is a multidimensional and complex concept that describes an attitude within a continuum towards an institution held at a given time, space and context by a particular receiver.* The conceptualization of credibility relies on a set of multidimensional characteristics, including *(i) competence, (ii) character, and (iii) goodwill,* because credibility cannot be directly measured. Instead, it is defined and shaped by normative belief systems and determined by a receiver's background, discursive position, and experiences. The concept is complex because individuals tend to interpret the meaning of credibility differently, using different criteria and weighing them differently. The attitude is best conceptualized as a continuum representing the perceived support at a given time, space, and context. In the thesis context, credibility is assessed by a set of nine principles and performance indicators following the characteristics of the three dimensions.

***RQ2**: What discursive positions dominate stakeholders' perceptions regarding the VCM and ICVCM?*

The research identified five dominant discursive positions regarding the VCM, including (i) purpose, (ii) crisis, (iii) market development, (iv) policy interactions, and (v) systems change and one, (vi) expectations, regarding the ICVCM. (i) Although the VCM, in theory, serves two purposes – the cost-effective reduction of global GHG emissions and the channelling of investment for sustainable development and innovation – the results show that the dominant discursive position focuses on the financial potential rather than the emissions reduction potential of VCMs. This is because two questions remain unclear: *how much finance is the VCM truly channelling to mitigation activities, and do the activities have a significant positive climate impact?*

(ii) The 'credibility crisis' the VCM is facing is due to problems on both sides, supply and demand. The major flaws concern quality and use issues, respectively. While there is consensus that the situation must be solved in order to not undermine climate action on a global scale, the supply and demand sides intend to shift the blame to the other side. This conflict is largely provoked by the squishiness ratio describing the incompatibility of an imperfect and squishy market instrument and a very hard claim for carbon neutrality which the market can never live up to.

(iii) Although competing truths exist, dealing with the VCM's growth or decline, most stakeholders believe in a growing market. However, in contrast to the current hype of VCM, a growth explosion is not likely, and most reports and studies promoting these growth projections are simple extrapolations without any substantiated analysis.

(iv) In response to the 'credibility crisis,' there is a strong discursive position that critically questions not only the market's credibility but also the system behind the VCM. This led to the development of the Climate Contribution Approach. Even though this approach does not solve the inherent quality issues, it eliminates the risks of offsetting, as companies can no longer make a compensation claim.

(v) In climate change regimes, regulatory enforcement and voluntary compliance are often perceived as action and reaction forces that tend to go in opposite directions. Consequently, corporate climate action can take a lot of political pressure off the government, making them sort of substitutes for each other. However, the 'credibility crisis' of the VCM shows that voluntary action is neither a good substitute nor an adequate supersession for government policy and regulation.

(vi) ICVCM attempts to form another quality assurance layer in the VCM – one above all the others, by developing a voluntary meta-standard. The dominant discourse position orbits around expectations associated with opportunities to pull the VCM to higher quality standards and risks of sticking to a business-as-usual scenario that has not functioned well for the past 20 years.

***RQ3**: Using the ICVCM as a case study, what factors contribute to or challenge an initiative's credibility?*

The research identified more than a total of 30 factors that shape an initiative's credibility. The three perceived most important by stakeholders are *transparency, expertise, and trustworthiness*. Notably, individual credibility judgements can deviate significantly from each other for several reasons. First, judgements are often based on a limited number of criteria which can be weighed differently because of someone's background and area of expertise. Second, worldviews, experiences, and belief systems, which constantly evolve over time, strongly influence credibility judgements. Third, heuristic processes, such as the representative and confirmation biases, can generate or even amplify different judgements in people with opposing or competing discursive positions.

The thesis identified nine credibility principles to assess the credibility of ISS initiatives more systematically and in-depth. These form the foundation of the assessment framework and are equipped with qualitative performance indicators to assess relevant aspects of each principle. They are categorized based on the three dimensions. Competence includes *(i) expertise, (ii) continuous improvement, and (iii) consistency*. Character consists of *(i) truthfulness, (ii) transparency, and (iii) authenticity*. Lastly, goodwill involves *(i) fairness, (ii) engagement, and (iii) impartiality*.

***RQ4**: What can be said about the suitability and adequacy of the assessment framework?*

Based on the results, the assessment framework fulfils its twofold purpose. (i) It enables stakeholders to determine the credibility and trustworthiness of the initiative they engage with more objectively. (ii) It helps identify areas for improvement, raise awareness of the imperfection of the VCM, and distinguish good practices from bad ones. Further, its transferability is high since it has been tested and refined after its development. Stakeholder involvement improved the quality of the framework substantially, as their knowledge and experiences of ISS initiatives helped to increase the applicability of the credibility principles.

However, various limitations need to be considered. First, the involvement of stakeholders does not represent the entire CC value chain due to the project's timeframe and selection bias. Second, the findings of credibility assessments could lose their relevance at a certain point as the ICVCM's function evolves and perhaps changes over time. Third, the nine credibility principles were only assessed qualitatively but not measured quantitatively because the thesis followed a qualitative research approach. Lastly, due to the lack of empirical evidence in this research field, the principles and indicators are by no means exhaustive and could vary if different stakeholders were interviewed.

Research implications and opportunities – First, there is a need for standardized and functional credibility assessments in the VCM, which evaluate not only the quality of CCs, the rigour of standards or the truthfulness of environmental claims but also the credibility of ISS initiatives. This is essential because they develop the rulebooks, standards, and guidelines that actors within the VCM must comply with. Thus, stakeholders should jointly put lots of effort into this area to increase the comparability of standards, quality criteria, initiatives, and environmental claims in the diverse and fragmented VCM.

Finally, voluntary action is not a good substitute for government policy and regulation. Policymakers should intend to establish regulatory frameworks to improve the VCM's credibility. Further research is required to better understand the effect of soft and hard regulation on the VCM and its actors. For example, it remains unclear which leverage and opportunities state actors have to advance a functioning but different system, such as the climate contribution approach. Further, it is uncertain how and whether the EU Directive on "Green Claims" would raise the bar to stop greenwashing on the demand side of the VCM.

Third, while policymakers should not refrain from any tool at hand to achieve the goals of the Paris Agreement, VCMs would be better off not existing if they are used to support climate-damaging business models and delay urgent climate action. Therefore, there is a crucial need to shift focus again from the VCM's financing potential to its GHG emission reduction potential. In the case of the ICVCM, the initiative seeks to achieve both build integrity and scale the market. Future studies could compare the initial and final version of the ICVCM's meta-standard, examining the extent to which changes have occurred due to the power dynamics of involved stakeholders and whether and, if so, how this affects the market and public credibility. The balance that the ICVCM will finally strikes between stringency and applicability could provide valuable insights into the direction in which the future of VCM is moving.

From a methodological perspective, the proposed framework is not in the position to overcome or solve the complex issue of credibility. Moreover, further research is required to improve the frameworks' suitability and adequacy. Key areas for improvement are broader stakeholder involvement to represent the entire CC value chain of the VCM better, increasing the accuracy and precision of each principle to avoid overlaps between principles and indicators, improve the degree of the frameworks' objectivity and reliability. In addition, future studies will undoubtedly benefit from a broader and statistically representative sample of interviewees and case studies.

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9 Appendix A – List of Indicators

Principle 1	Indicator	Alignment
Expertise	The initiative involves a wide range of experts with relevant qualifications and experiences.	Fully
	The group of experts demonstrates extensive knowledge of carbon markets and relevant technical and practical expertise.	Fully
	The experts have a track record aligned with the initiative's vision, mission, and values.	Fully
	The group of experts has already designed, implemented, monitored, and evaluated comparable or similar initiatives or projects.	Fully

Principle 2	Indicator	Alignment
Improvement	The initiative publishes regular updates and revisions to the standards and internal processes.	Fully
	The initiative demonstrates clear efforts to incorporate stakeholder feedback and lessons learned.	Fully
	The initiative has established a robust and transparent monitoring and evaluation system to track progress and performance.	Partially
	The initiative gradually raises the quality and good-practice approaches of its standards.	Not

Principle 3	Indicator	Alignment
Consistency	The initiative develops clear, unambiguous, and transparent criteria for project eligibility, monitoring, reporting and verification.	?
	The initiative consistently applies standards and processes across different geographical regions, project types and time periods.	?
	The initiative establishes clear rules and guidelines for communication, reporting and documentation.	?

Principle 4	Indicator	Alignment
Truthfulness	The initiative's publications and information are based on robust scientific evidence and verifiable data.	Fully
	The initiative discloses limitations, assumptions, or uncertainties to avoid misrepresentation or misleading information.	Not
	The initiative's claims and communication are accurate and enable an informed choice.	Partially
	The initiative has clear procedures for third-party audits, revisions, and verification to ensure accuracy and truthfulness of information.	?

Principle 5	Indicator	Alignment
Transparency	The initiative makes information regarding processes, decisions, and meeting minutes publicly available and easily accessible.	Not
	The initiative voluntarily discloses relevant information regarding funding sources, governance structure, and decision-making processes.	Partially
	The initiative reports annually or even more frequently on achievements, challenges, and progress towards goals.	Not

Principle 6	Indicator	Alignment
Authenticity	The initiative clearly formulates its mission, visions, and values and has a strategy in place for reaching its goals and objectives.	Fully
	The initiative's values, vision, and mission align with the principles of international climate mitigation, sustainability, and climate justice.	Partially
	The initiative engages in meaningful consultation processes with various stakeholders for the development and implementation of standards and processes.	Fully
	The initiative demonstrates a genuine commitment towards climate change mitigation and sustainable transition.	Not
	The individuals and organizations involved in the initiative are equipped with a track record that is perceived as being trustworthy and authentic.	Not

Principle 7	Indicator	Alignment
Fairness	The initiative takes measures to ensure fair, equitable and non-discriminatory processes and decisions.	Fully
	The initiative considers and requires marginalized and vulnerable groups in decision-making processes.	Fully
	The initiative engages a balanced, representative, and diverse group of stakeholders.	Partially
	The initiative has a grievance mechanism in place to respond to inquiries, concerns, and complaints of affected stakeholders.	Not

Principle 8	Indicator	Alignment
Engagement	The initiative engages actively, regularly, and meaningfully with all stakeholders along the CC value chain.	Fully
	The initiative promotes public consultations, workshops, or virtual events to gather input, feedback, and suggestions.	Fully
	The initiative seeks, considers, and responds to stakeholder feedback and concerns.	Partially

Principle 9	Indicator	Alignment
Impartiality	The initiative has a clear and transparent governance structure that guarantees independence and absence of conflicts of interest.	Not
	The initiative takes measures to ensure a balanced distribution of decision-making power among the individuals and organizations involved.	Not
	The initiative has strict and transparent no conflict-of-interest policies that ensure the absence of financial, reputational, or organizational conflicts of interest.	Partially
	The initiative has clear measures in place to mitigate or eliminate potential conflicts of interest within the initiative or among stakeholders.	Partially

10 Appendix B – Interview Guide for the Researcher

	Part I
Introduction	Start off with an introduction of the project and our names. Ask about sensitive information. Ask permission for recording.
	Part II
Background	What is your role in your organization? Where do you see your organization within the voluntary carbon market?
VCM	What is the current state of the VCM in your opinion? What do you believe will be the future of VCM under the Paris Agreement? Which international standard-setting initiatives are currently shaping the VCM the most and how do they do so?
ICVCM	What is your view of the ICVCM's role in the VCM? Do you believe that stakeholders exert influence on the ICVCM? If so, how do these stakeholders try to influence the work of the ICVCM? What other risks and uncertainties could undermine the ambition of the ICVCM? Do you believe the ICVCM will reach its goal of developing a carbon credit quality standard which will be globally accepted and applied?
Credibility of the ICVCM	How do you define credibility? Which criteria do you associate with credibility? How do you perceive the credibility of the ICVCM? Which factors could challenge or reduce an initiatives' credibility? Can you think of any current examples of good/ bad practice in the context of the VCM?
Additional questions	Ask optional and spontaneous questions
	Part III
Closure	Check whether the interviewee has questions which have yet remained unanswered. Express your gratitude to the interviewee. Write down any important observations made during the interview.

11 Appendix C – Project Brief for Interviewees

Building a framework for credibility assessments

A study of international standard-setting initiatives in the voluntary carbon market

Thesis Brief

- International standard-setting initiatives, such as the ICVCM, play an increasingly important role in both establishing a trusted voluntary carbon market (VCM) and ensuring that carbon offset credits are of high quality.
- However, the credibility of these initiatives has been called into question in recent years, aggravating the 'credibility crisis' of the VCM.
- Hence, a set of principles and indicators could improve credibility assessment of international standard-setting initiatives that are involved in the VCM.

Project aim

- This thesis aims to develop, test, and evaluate a framework for assessing the credibility of international standard-setting initiatives of the VCM as opposed to other methodological aspects of offsetting projects per se.

Your Involvement

- Your insights, experiences, and perspectives regarding this topic would be highly appreciated.
- An interview would be valuable for my understanding of stakeholders' perceptions regarding the credibility of these initiatives.
    - **Duration**: max. 60 min or less
    - **Date**: between 4th March to 27th April 2023 (click here to book a slot)
    - **Medium**: online video-call via your preferred platform

Topics of interest

- Future of the voluntary carbon market
- Role of international standard-setting initiatives in the VCM
- Key factors contributing to the credibility of these initiatives
- Risks and uncertainties related to credibility issues
- Perceptions concerning the credibility of the ICVCM

Confidentiality considerations

- Participants are free to opt out at any time during the research.
- No personal data will be published to keep participants' anonymity.
- Permission for recording and the disclosure of the thesis' findings will be requested.
- If direct quotations are used in the thesis, they must first be approved by you.
- This piece of research is carried out in collaboration with the New Climate Institute.

12 Appendix D – Interview Consent Form

Interview consent form

I, the undersigned, have read and understood the Project Brief for Interviewees provided.

I have been given the opportunity to ask questions about the study.

I understand that taking part in the study will include being interviewed and audio recorded.

I have been given adequate time to consider my decision and I agree to take part in the study.

I understand that my personal details such as name and employer address will not be revealed to anyone except for the researcher.

I understand that my words may be quoted in publications, reports, and other research outputs but my name will not be used.

I agree to assign the copyright I hold in any material related to this project to Tim Ziegler.

I understand that I can withdraw from the study at any time, and I will not be asked any questions about why I no longer want to take part.

Name of participant: _____ Date: _____

Researcher signature: _____Date: _____

13 Appendix E – List of Interviewees

In text references to the interviews are made by using the abbreviation from the column 'Reference used in text'. 'C' refers to consultancy, 'V' refers to voluntary initiative or standard, and 'R' refers to 'research instituion'.

Reference used in text	Position	Name of the organization	Member of the ICVCM	Date	Duration
C1	Managing Director	Climate Focus	No	24/03/2023	50 min
R1	Lead on Global Carbon Markets	Carbon Market Watch	Yes	24/03/2023	32 min
R2	Head of climate and energy policy	WWF Switzerland	No	25/03/2023	57 min
C2	Associate Director	Guidehouse	No	25/03/2023	51 min
R3	Senior Expert and Scientist	Atmosfair	No	25/03/2023	55 min
R4	Director	GHG Management Institute	Yes	29/03/2023	60 min
V1	Excutive Director	Gold Standard	No	31/03/2023	45 min
R5	Senior Researcher	Swedish Environmental Institute	Yes	31/03/2023	53 min
C3	Senior Founding Partner	Perspectives	No	03/04/2023	54 min
C4	Advisor	Adelphi	No	03/04/2023	55 min
V2	Executive Director	VCMI	Yes	03/04/2023	31 min
R6	Senior Researcher	Wuppertal Institute	No	04/04/2023	45 min
C5	Executive Director	INFRAS	Yes	05/04/2023	54 min
C6	Senior Consultant	Perspectives	No	06/04/2023	55 min
C7	Director	Carbon Limits	Yes	07/04/2023	44 min
R7	Senior Researcher	Öko-Institut	No	11/04/2023	47 min
V3	Executive Director	VERRA	Yes	14/04/2023	52 min
C8	REDD+ Team Leader	UNEP	Yes	14/04/2023	39 min

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14 Appendix F – List of attended webinars

This appendix provides a list of the webinars the author registered for and attended during this research.

Title	Host	Date	Duration
Briefing in ICVCM CCP Launch	ICVCM	March 31, 2023	65 min
Key Criteria for VCM quality credits	Zurich Carbon Market Association	April 5, 2023	120 min
The EU Green Claims Directive – key takeaways	Compensate	April 18, 2023	35 min

15 Appendix G – Coding Tree

The coding tree shows how subcategories and categories were directly derived from the data during the conventional content analysis.