CARBON MECHANISMS REVIEW

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Ready for Action

Reports and analyses on implementing Article 6 activities

From Bonn to Baku

Article 6 negotiations with a successful fresh start at SB 60

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Dear Reader!

Welcome to the summer issue of the Carbon Mechanisms Review. Signs of relief could be felt in Bonn's World Conference Center when the Article 6 negotiations made a successful fresh start at the recent UNFCCC intersessional. While there are still knots to be cut through on the road to Baku, we decided to look at implementation in this issue and present ways to develop robust Article 6 activities: we begin with an analysis on ensuring quality carbon credits that incentivize climate action and present the work of the Carbon Credit Quality Initiative in this regard. We then feature a report on innovative ways to develop robust cookstove programmes with a high degree of integrity, using a pioneering sectoral approach. This is followed by insights and take-aways from the capacity building activities taking place in the context of the SPAR6C program, set to improve readiness for engagement in international carbon markets. All this is rounded off by an analysis of the state of the UNFCCC negotiations after the successful reset in Bonn.

On behalf of the editorial team, I wish you an inspiring read!

Christof Arens, Editor-in-Chief

Wuppertal Institut

Carbon Mechanisms Review (CMR) is a specialist magazine on cooperative market-based climate action. CMR covers mainly the cooperative approaches under the Paris Agreement's Article 6, but also the broader carbon pricing debate worldwide. This includes, for example, emission trading schemes worldwide and their linkages, or project-based approaches such as Japan's bilateral offsetting mechanism, and the Kyoto Protocol's flexible mechanisms CDM/JI. CMR appears quarterly in electronic form. All articles undergo an editorial review process. The editors are pleased to receive suggestions for topics or articles.

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SB 60 sent positive signals for COP29

Crunch issues getting clearer, text cleaner, intersessional work agreed, but Bonn was not the place for bridging proposals

by Thomas Forth, Advisor to the Federal Ministry for Economic Affairs and Climate Action

Article 6 did not progress at the last COP in Dubai. One of the main reasons was the lack of political attention on what is referred to as the technical work. There is still a misperception today regarding the nature of technical work, which assumes that the political hierarchy must wait for the technical experts trying hard to uncover hidden solutions that have long remained invisible. No. After years of intense debate regarding all of these topics, it is more about readiness to reach an agreement that also takes into consideration the recent developments outside the Article 6 negotiations.

Where we are outside the negotiation rooms

There is a real world outside the negotiation rooms that is of great relevance to a new carbon market taking off: (I) a growing willingness by companies to take steps toward carbon neutrality; (II) clear court decisions on the criteria and requirements for claiming carbon neutrality; (III) guidance documents, such as the Joint Statement issued by seven EU member states in Dubai and the VCM principles recently published by the US intended to guide companies so as to avoid buying worthless carbon credits, (IV) consolidation efforts on the voluntary carbon market by the IC-VCM and other initiatives; and, last but not least, (V) the media identifying incorrect information, greenwashing and fraud, and making the public aware of these.

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All this might hopefully trigger the aligning of the voluntary carbon market with the Paris Agreement as encouraged by the G7 Principles of High Integrity Carbon Markets and the Call to Action on Paris-aligned Carbon Markets, both dating back to just one year ago, in mid-2023.

On the one hand, public criticism of greenwashing and fraud has possibly led to green hushing and restrained company engagement with a considerable drop in activities and value being reported over the year, the consequence of which is a market value drop to 40%. On the other hand, court decisions against falsely claiming carbon neutrality and misleading consumer perceptions of emissions-free products are becoming quite substantial in their explanations as to what carbon neutrality claims are missing. Companies and VCM standards should take advantage of the legal feedback. They should take into consideration the court's call to provide more clarity about the mitigation measures supported through the purchase of carbon credits, how these activities relate to the host country's ambition and, not least, what climate action companies have taken themselves on their way towards net zero and how the acquisition of carbon credits supplements these actions.

However, there will never be sufficient self-regulation of private actors. Governments should play their intended role and seek legitimation by making publicly binding decisions regarding the domestic institutional framework, minimal standards and criteria for the different claims companies and organisation may make. Furthermore, governments also have a role to play which they cannot neglect in providing information and recommendations to private actors, including bi- and multilateral arrangements enabling cooperative approaches in a broad sense under Article 6 as well as Paris-aligned voluntary carbon market standards.

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One simple conclusion that can be drawn is that the current reluctance of private actors to engage in the carbon market might turn out to be a temporary artefact when companies are provided with public guidance they can rely on. They could avoid public allegations by using VCM programmes that are aligned with the Paris Agreement or even use Article 6 directly – both of which were possible if such substantial progress is made in Baku on Article 6.

Governments have a responsibility to do something about this on both levels: At the international level, they hold the key to the lock that is COP29 in Baku, while domestically they can (continue to) create enabling environments at home. In doing so, a narrow perspective on the financial benefits of trading carbon credits should be avoided. Article 6 is not an end in itself. It has a clear role in the ambition architecture of the Paris Agreement, namely to mobilise investments and accelerate the transformational progress to net zero in host countries.

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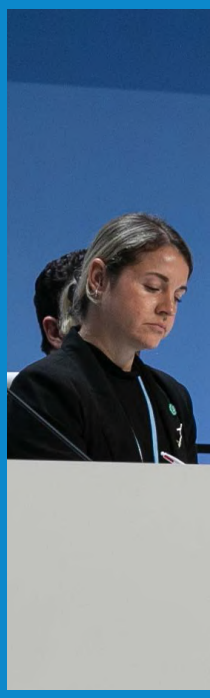

Inside the negotiations

On informal processes

This time, the negotiators discussed controversial topics in a better mood than in Dubai last year. It is mainly Article 6.2 that has come to the fore as the next iteration of the Article 6.4 removal guidance will be published later on. A potential landing ground has become visible but is still not clear and controversies still persist. In general, however, flexibility has been promised. Technical solutions must be found so that higher ranking people such as Heads of Delegation (HoD) can manage compromise lines on the Article 6 crunch issues. Hopefully, this is not wishful thinking. Many informal exchanges amongst negotiator groups and parties agree on the necessity of higher level dialogue at the HoD level. Several such higher level discussions took place during SB60, but no systematic, informal process has been set up. Therefore, opportunities to organise informal meetings at the technical and HoD levels must be taken as they arise. Globally, we will have the Innovate for Climate (I4C) on 10 – 12 September in Berlin and a few weeks later the intersessional work (no date set at the time of writing but probably at the end of September or beginning of October) agreed on the SB60 for Article 6.2 and Article 6.4, which are to be held back to back. These are to be followed by preCOP in October and regional events ahead of COP29 in Baku. The role of the Azerbaijan presidency, which has set Article 6 as a key deliverable in terms of negotiation outputs, is extremely important for achieving streamlined and well-focused negotiations.

One of the critical moments in informal meetings is the challenge of inclusivity. With broad consent in Bonn to engage at the HoD level too, inclusivity is a prerequisite for a successful COP29 outcome. Looking back at the less successful Article 6 negotiations at COP28 in Dubai, it is clear that inclusive meetings such

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as those organised by the European Roundtable on Climate Change and Sustainable Transition (ERCST) can reinvigorate the negotiations and provide an opportunity to get the process back on track. Looking ahead to one of the next meetings which will take place back to back with the I4C on 11 September in Berlin by invitation of the German Federal Ministry for Economic Affairs and Climate Action (BMWK), we see an opportunity for early discussions on the intersessional work at the technical level. These will include timing and the option to revoke authorisation elements, the consequences regarding reliable cooperation on the international carbon market, the content of reporting formats, the technical expert review and the potential need for corrections before transferring mitigation outcomes, application of the first transfer by parties or a party, the Agreed Electronic Format (AEF), i.e., the permanent memory required to store all of the information needed for the emission balances at the end of the NDC period, and the functionality of UNFCCC-led registry operations and decentralised operations driven by VCM standards. Hopefully, this meeting and others at regional opportunities will contribute to growing consensus on such options which build bridges between parties or allow for both when their positions are at odds. The most contentious example is the different registry concepts which can exist in parallel but are still contested. We will see how many Article 6 negotiators will be able to attend the Berlin meeting in-person and how many participate virtually. This might not guarantee sufficient inclusivity. Perhaps additional formats will have to be created, not only for the Berlin meeting but also in principle, where deliberations can be shared with those who are unable to attend and their feedback taken into consideration in further course.

Procedural arrangements in the SB60 conclusions

The conclusions suggest prioritising certain topics. There is a clear consensus on topics that should be on the agenda at COP29 because these are more or less clear already and take up precious negotiation time during official UNFCCC meetings. Delegating common nomenclature (ensuring consistent reporting) and procedures for reviewing confidential information to the UNFCCC secretariat falls under this category. Another area is avoidance and enhanced conservation (allowing credits for avoided deforestation), which is yet to be sufficiently prepared for immediate negotiations. The term covers a wide range of aspects for which there is no common understanding as yet. Postponing the review of Article 6 would be pragmatic and could help to reduce the risks for COP29, but this does not mean that we need to wait until 2028 to start working on the key issues. Analytical work by academic consultants might be a good starting point before coming to carbon market-related work processes within the UNFCCC.

On the road to Baku: From technicalities to political solutions

After years of intense negotiations on numer ous crunch issues, the success of Baku will largely depend on the parties' readiness to agree; creating bridging proposals, building packages, knowing what one wants when making concessions. Technical experts must develop precise, clearly defined proposals that reflect the interests of other negotiator groups and – by doing so – enable the Heads of Dele gations to negotiate. It is high time to move in the direction of bargaining, building blocks and packages.

Escaping the market for lemons

Ensuring quality carbon credits that incentivize climate action

By Felix Fallasch, Lambert Schneider, Nora Wissner, Isabel Haase, Cristina Urrutia, Hannes Boettcher, Sophia Lauer, Oeko-Institut

Carbon crediting continues to be a popular policy instrument in the international community's response to global warming. Public and private actors alike count on carbon credits to incentivize accelerated climate action as well as for complying with voluntary and mandatory climate targets. With the Paris Agreement Crediting Mechanism[1] and the European Union's Carbon Removal Certification Framework (CRCF)[2] new mechanisms are set to complement existing ones mainly operated by non-governmental actors and encompassed in the so-called voluntary carbon markets. Recently, several U.S. government agencies underscored that they believe that voluntary carbon markets should play a meaningful role in facilitating global greenhouse gas reductions and removals.[3]

At the same time, a series of scientific reports have questioned the environmental integrity of many of the carbon credits traded on voluntary carbon markets (Haya et al. 2023; West et al. 2023; Gill-Wiehl et al. 2024), leading to an erosion of confidence in the instrument's ability to deliver real impacts on atmospheric greenhouse gas emission levels. After a three-year long growth spurt, the volume of issuances has been declining in 2022 and 2023[4], and several companies and institutional investors started to explore alternatives to offsetting, such as contribution claims[5].

Lack of confidence in carbon credit quality is becoming a serious problem for carbon credit markets, which are already plagued by severe information asymmetries between buyers and sellers, making it particularly challenging for buyers to distinguish good quality from bad. The challenges that afflict markets characterized by asymmetric information are today well understood in economic theory. In his classic 1970 treatise "*The Market for ‚Lemons': Quality Uncertainty and the Market Mechanism*", George Akerlof showed that asymmetric information on product quality ultimately can lead to market failure or collapse, as bad quality drives out the good (Akerlof 1970).

1 https://unfccc.int/process-and-meetings/the-paris-agreement/article-64-mechanism
2 https://climate.ec.europa.eu/eu-action/carbon-removals-and-carbon-farming_en
3 Voluntary Carbon Markets Joint Policy Statement and Principles. https://www.whitehouse.gov/wp-content/uploads/2024/05/VCM-Joint-Policy-Statement-and-Principles.pdf
4 MSCI (2024) Annual Carbon Credit Issuances (tCO_{2e}) https://www.msci.com/our-solutions/climate-investing/carbon-markets
5 See e.g. Klarna https://www.klarna.com/international/sustainability/climate-solutions/

He illustrates this, using the example of the market for used cars, in which consumers often lack the information to distinguish poor quality cars (lemons) from high quality cars. They only know the average quality of all used cars and cannot judge the quality of each individual car or the cost to obtain the required information is too high. Therefore, consumers will only be willing to pay for average quality. They undervalue cars of above-average quality and vice versa. As a result, only those who own a car of below-average quality will make a sell. Cars of above-average quality are no longer traded, as only the price for average quality can be achieved. Both the average quality, and the number of cars traded will therefore decrease over time.

Information asymmetry in carbon markets is much more pronounced than in markets for used cars. Unlike buying a car, you cannot go to your local carbon credit dealer and look at different types of credits. Instead you rely on sometimes sparse project information made available in program registries. While you will be able to communicate with project owners, only institutional investors might have the resources to visit a project on-site to get a first-hand impression about its set-up and implementation progress.

To be clear, there is little doubt that there are good quality carbon credits in the market, but it is very difficult for an average buyer to know how to make the distinction. As shown by Akerlof, in such a situation there is a real risk that bad quality becomes prevalent in a market and drives out good quality.

Actors on the voluntary carbon market are becoming increasingly aware about the systemic risk of information asymmetry for the functionality of carbon crediting markets. This awareness is manifested in several initiatives aiming at creating better transparency on carbon credit quality. The Integrity Council for the Voluntary Carbon Market (IC-VCM), a large multi-stakeholder initiative comprised by industry actors, civil society and academia for example has developed a threshold benchmark[6] that carbon credits must comply with to be considered good quality. Further, specialized rating agencies have emerged that offer fee-based services for buyers to validate the quality of individual projects[7].

In 2021, Oeko-Institut, together with Environmental Defense Fund and WWF-US, founded the *Carbon Credit Quality Initiative*[8] as an independent and civil-society led effort to increase science-based, independent information on carbon credit quality.

6 ICVCM Core Carbon Principles https://icvcm.org/core-carbon-principles/
7 See for example services offered by Calyx Global, Sylverra, MSCI and BeZero
8 https://carboncreditquality.org/index.html

Defining good carbon credit quality

The first step to distinguish good from bad quality is to define what good quality looks like. Until recently, there was little shared understanding among market participants about this. This is now changing. All the actors and initiatives mentioned above have defined frameworks that define good quality for carbon credits.

In the CCQI, we use seven quality objectives that in our view determine good quality, as outlined in Figure 1 below.

Building a methodological framework to assess carbon credit quality

The first quality objective *"Robust Determination of GHG Emissions Impact"* includes the two important sub-criteria "Additionality" and "Robustness of the quantification methodologies applied to determine the emission reductions or removals". They assess the degree to which the GHG emissions impact of a project is robustly determined, i.e., whether a project reduces emissions or maintains or enhances removals by at least one tonne of CO_2 equivalent

Figure 1: CCQI Quality objectives for carbon credit quality

Source: Schneider et al. (2020).

for each carbon credit issued. Other quality objectives such as "Addressing Non-Permanence" and "Environmental and Social Impacts" play an important role for nature-based carbon credits.

To assess performance of different types of carbon credits against each of the seven quality objectives, CCQI has developed a comprehensive methodology that consist of more than 100 criteria, sub-criteria and indicators (CCQI 2022). For each, the methodology provides a step-by-step approach on how to evaluate whether the assessed subject meets the quality objectives.

CCQI uses four main features that define a carbon credit type for performing the quality assessments. These include:

- The type of project (e.g., landfill gas utilization)
- The carbon crediting program (e.g., Verified Carbon Standard)
- The quantification methodology used to estimate emission reductions for the project activity
- The country in which the activity takes place

Assessing whether a carbon credit type meets good quality for a specific criterion or sub-criterion requires looking at one or more of these features. For example, to assess the likelihood of additionality our methodology looks at the following four indicators:

1. Eligibility of mitigation activities that are triggered by legal requirements
2. Consideration of carbon credits before the decision to proceed with the project and restrictions on the eligibility of existing projects
3. Financial attractiveness
4. Barriers

Whether or not a carbon credit type performs well on the first two sub-criteria requires looking at the rules of the carbon crediting program under which the carbon credits are issued. All programs contain provisions that restrict eligibility of mitigation activities to those that are not required by legal mandates. The stringency of these rules, however, differs. Some programs, for example, allow registration of activities mandated by legal requirements if these requirements are not systematically enforced.

The third and fourth indicator require looking at the type of project, more specifically if the mitigation activities typically implemented under the project type really require additional revenues from monetization of carbon credits to be financially attractive or whether the activities face non-financial barriers that carbon crediting can help to overcome.

Looking at these features allows assessing typical quality performance of carbon credit types. While this may be considered a second-best option to assessing the performance of thousands of individual projects operating on the voluntary carbon market, in the context of limited resources, carbon credit type assessments can provide important starting points for further due diligence. In principle, users can also apply the CCQI assessment methodology to analyze the quality of individual carbon market projects.

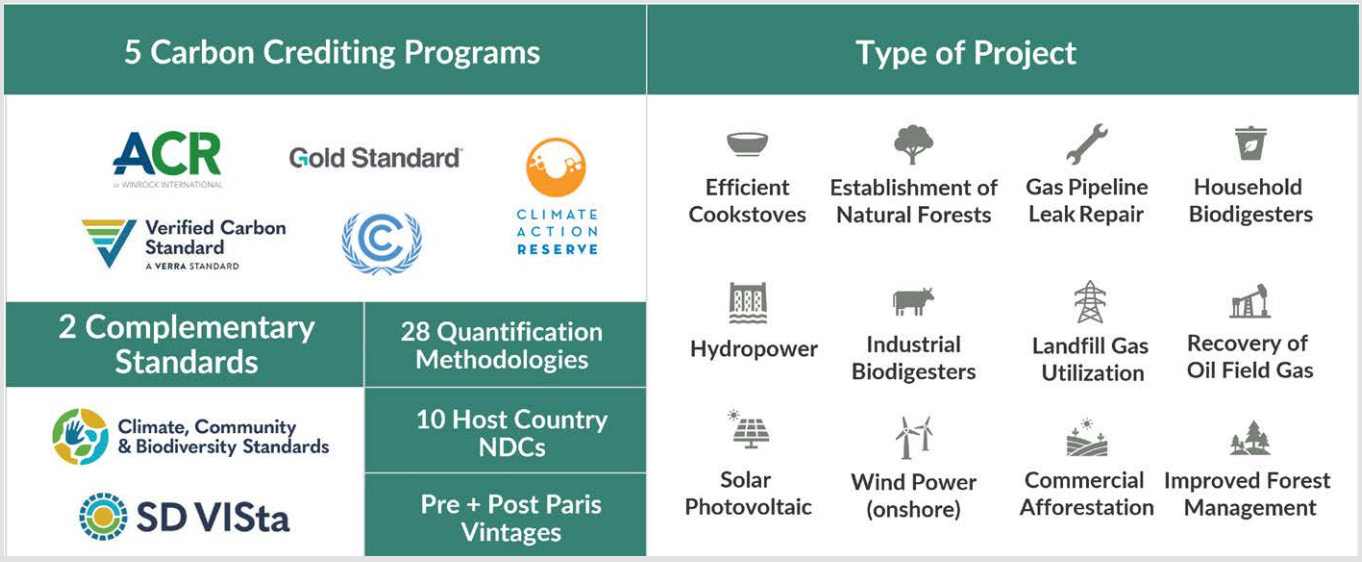
To allow for a nuanced assessment of quality, CCQI does not provide a threshold benchmark separating good from bad quality but provides a score range from 1-5 with a score of 5 signaling very high confidence that the assessment subject meets the criterion or quality objective.

Assessing carbon credit quality – where do we stand now?

Since 2022, CCQI has assessed the quality of a large share of carbon credit types traded on the voluntary carbon market. As of 21 February 2024, this includes the five largest carbon crediting programs – ACR, Clean Development Mechanism, Climate Action Reserve, Gold Standard and Verified Carbon Standard as well as the most popular project types (see Figure 2). Assessments of further project types are in the making.

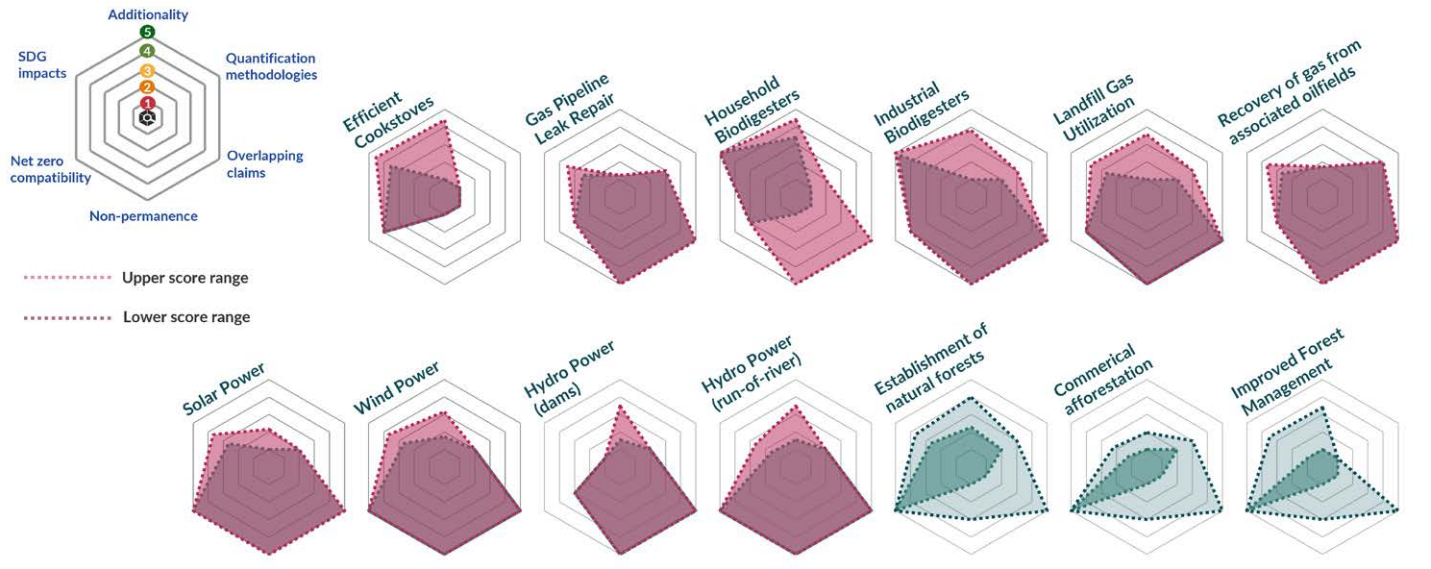
In the following Figure 3, we have mapped the score ranges of thirteen project types assessed by CCQI, using hexagon-shaped grid charts. Each corner of the hexagon shows the score range for six selected criteria that are particularly dependent on the type of mitigation activity implemented by a project. The outer line of the hexagon represents a score of 5 (high quality) and the inner line a score of 1 (low quality). The dark shaded area shows the lower end of the score range and the light shaded area the upper range. For most criteria there is not a single score, because as explained above, our scores sometimes hinge on factors such as carbon crediting program rules or the country in which the project is implemented in. The scores shown here for the additionality criterion e.g. depend on the rules of the carbon crediting program that differ in their stringency. Hence, for additionality a range of scores applies, reflecting that carbon credits can be issued under different programs. The score on the criterion "net zero compatibility" on the other hand only depends on the type of mitigation activity that is implemented; hence there is only a single score for this criterion per project type.

Figure 2: Carbon credit types assessed by CCQI



Source: CCQI as of 21 February 2024.

Figure 3: Performance of different project types against key CCQI criteria



Source: CCQI as of 21 February 2024.

The shapes for each project type look quite different. What this illustrates quite strikingly is that there is no project type that performs well across all the six selected quality criteria.

For example, wind and solar power face additionality and quantification issues. They however do not have any non-permanence risk and both are an indispensable technology for achieving a world with net-zero emissions. Efficient cookstoves projects on the other hand have high quantification and non-permanence risks while providing many SDG benefits to local communities.

What is important to understand is that these scores represent the typical risks that CCQI identified for a project type. Individual projects might outperform these scores by taking design measures that mitigate risks identified for the project type. Also, the scores do not yet reflect some recent efforts to improve integrity. For example, CCQI did not yet evaluate some recently published or revised cookstove methodologies.

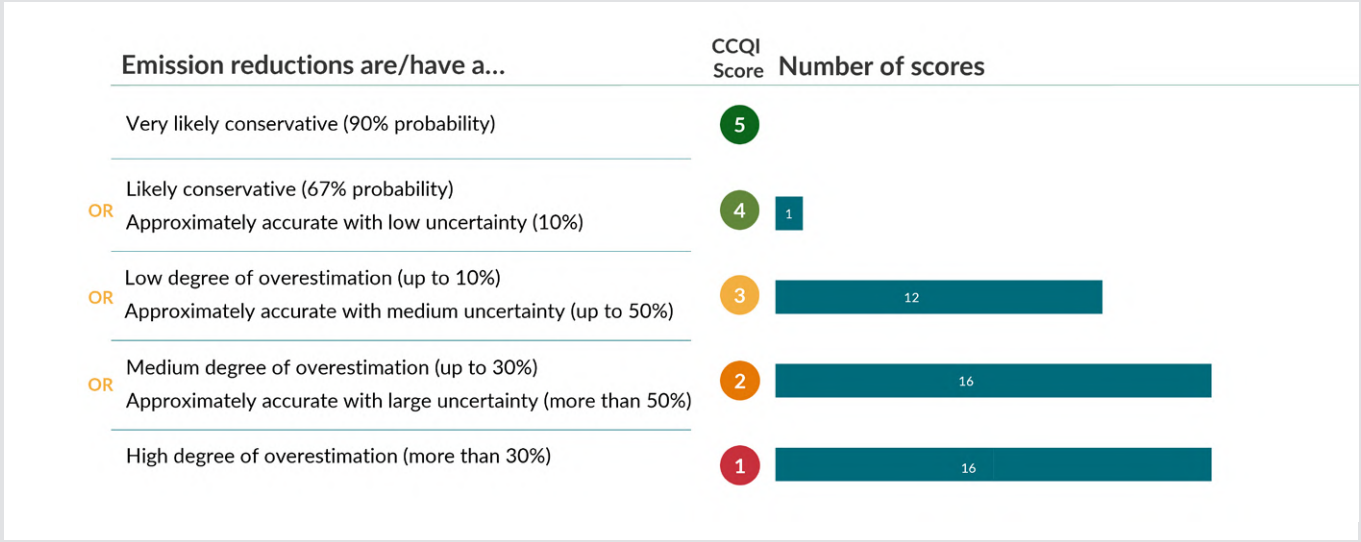
Spotlight: Quality of quantification methodologies

Quantification methodologies are a key feature for the quality of carbon credit types as they determine whether emission reductions are estimated in a conservative manner. This means that the approach should err on the side of underestimating emission reductions or removals resulting from the project. Furthermore, the degree to which emission reductions or removals are underestimated should depend on the uncertainty of the emission reductions or removal. CCQI has put special attention to assessing the robustness of the most widely used quantification methodologies for each project type. Figure 4 shows how CCQI has scored methodologies so far.

On the left-hand side, you can see what each CCQI score means: A score of 5 expresses that a methodology is very likely to be conservative. A score of 1 means that the methodology will likely overestimate emission reductions by more than 30%. In scoring methodologies, we also consider the uncertainty in the quantification. The larger the uncertainty, the lower is the CCQI score. This approach is very similar to other initiatives such as the IC-VCM which also considers conservativeness and uncertainty.

So far, none of the methodologies assessed by CCQI qualifies for a score of 5. Many methodologies either overestimate emission reductions or there is large uncertainty in the estimates. Most methodologies receive a score of 1 or 2. This shows that current quantification methodologies constitute a real quality risk for carbon markets and that carbon crediting programs urgently need to revise their approaches to determining emission reductions of project activities. Revising quantification methodologies in a way so that they prescribe a more conservative approach to determining emission reductions is one of the most important adjustments for quality that can be made in carbon markets today.

Figure 4: CCQI score distribution for assessed quantification methodologies



Source: CCQI as of 21 February 2024.

Conclusion: Can we escape the market for lemons?

CCQI assessments show that the quality of carbon credits is currently mixed at best. These findings converge with those of specialized rating agencies that have assessed the quality of individual carbon crediting projects. Calyx Global for example concluded that higher-quality credits are currently in low supply, with less than 10% of the assessed credits receiving the top two scores of their 5-score scale (Calyx Global 2024). These findings suggest that the carbon crediting market indeed is facing a lemon problem.

In discussions about carbon credit quality, an argument that is often brought forward is that high standards would be an impediment to market growth. But the economic theory of lemon markets strongly suggests otherwise. If we are serious about growing the voluntary carbon crediting market, we urgently need to fix its quality problems, drive out the lemons, and ensure that carbon crediting makes a real impact on atmospheric greenhouse gas emission levels. This will be the only way to regain sustained trust by consumers and for allowing suppliers of high-quality carbon credits to fetch the prices that they need.

A silver lining is that remedies for fixing markets with strong information asymmetries are equally well understood as the problem itself. Next to regulation, it is critical that consumers are better informed, inter alia by building independent institutions, which can provide objective information on product quality as a public good.

Rating agencies can play an important role in that regard, however their fee-based business model might restrict access to such information to a few large institutional investors. Another institution that holds a golden key in that regard is the IC-VCM. Its science-based core-carbon principles set out a quality threshold that – if strictly applied – has the potential to drive out many of the lemons. To achieve its goals, it will be critical that the IC-VCM lives up to its own core carbon principles. If the IC-VCM were to label poor quality as good, we would likely be stuck with the lemons market for a considerable time to come.

Finally, a huge lever for increasing carbon credit quality are quantification methodologies. The CCQI assessments suggest that approaches in many quantification methodologies likely lead to substantial overestimation of emission reductions. Many of the methodologies have been developed over a decade ago and despite undergoing updates, some do not reflect the latest scientific knowledge. This is not the fault of their developers who did not have access to empirical information about the performance of carbon credit projects in a way that we have today. Now that we possess this knowledge it is however imperative that carbon crediting programs make use of it and revise quantification methodologies in a way that ensures a conservative approach to estimating emission reductions of a project.

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Cookstoves 2.0

Using sectoral approaches to ensure high-quality cookstove programs

by Martin Burian, SPAR6C, GFA Consulting Group; Mattias Ohlson, Emerging Cooking Solutions Group; Shaun Conway, IXO

Approximately 2.8 billion people globally rely on fuelwood, charcoal, or coal for cooking (Stoner et al., 2021). Traditional open fire sites are highly inefficient (IPCC default 10%), leading to substantial fuel consumption. The FAO estimates global fuelwood consumption at 2.1 billion cubic meters in 2020 (FAO, 2022).

Given wood densities ranging from 0.5 to 0.8 t/m³ (Reyes et al., 1992) and a carbon fraction of 0.47 (McGroddy et al., 2004), this translates to carbon emissions of 0.49 to 0.79 billion tons of carbon or 1.81 to 2.9 billion tons of CO_2, partially from renewable and non-renewable biomass sources. This accounts for 4.9% to 7.9% of global CO_2 emissions.

Sub-Saharan Africa has the largest share of conventional cooking (44%, Stoner et al., 2021). The high reliance on firewood and charcoal is linked to low electrification and economic constraints. The IEA (2024) estimates that 600 million people in Sub-Saharan Africa lacked access to electricity in 2022, representing 52.7% of the population. Electrification in rural areas is particularly challenging due to high costs and long distances. Even where power lines exist, electricity is often too expensive or in short supply. Considering two hours of cooking per day, a typical 1,500 W electric stove will use 3 kWh/day and 90 kWh/month. This may easily translate into an average monthly cost of 9 EUR in many sub-Saharan countries[1], which most households find prohibitively expensive. UNSTATS (2019) estimated that 38% of employed workers in sub-Saharan Africa earned less than 1.8 EUR per day.

1 Electricity tariffs in Sub-Saharan Africa vary significantly and range from 6.1 cEUR/kWh in Zambia, 7.1 cEUR/kWh in Mozambique, .12.7 cEUR/KWH in Uganda to e.g. 0.23 cEUR/kWh in RSA or 26 cEUR/kWh in Zimbabwe.

Air pollution from traditional indoor cooking contributes significantly to premature deaths (GBD 2019 Risk Factors Collaborators, 2020). Using traditional fuels adds significant time to the task of cooking, which disproportionately impacts the lives of women and children, who miss opportunities for education and employment while also being exposed to greater health risks. The African Energy Commission estimates the social cost of maintaining the current state of cooking in Sub-Saharan Africa is 791.4 billion USD annually (AFREC, 2024).

Improved cookstove programs have faced criticism for low stove quality, overestimations of usage, and over-optimistic estimations of the fraction of non-renewable biomass (fNRB) leading to a potential overestimation of emission reduction certificates (cf. Gill-Wiehl et al., 2024). However, if these challenges are overcome, clean cooking programs can address significant challenges in developing countries and offer opportunities for green economic growth.

The recent market analysis by Gill-Wiehl et al. (2024), under the Berkeley Carbon Trading Project, reported that the established Voluntary Carbon Market (VCM) lacks prescriptive methodology guidelines from registries. For example, two identical projects implementing the same technology in the same location could produce significantly different levels of carbon credits as a result of differences in the parameters used and claims that get approved by the same registry.

This approach of looking at each project in isolation not only creates an uneven playing field and contributes to inaccuracies but also makes it harder to account for the subtle yet significant nuances of attribution. For instance, the measured impacts of a REDD+ certified project that is protecting forests could become conflated with the impacts of a clean cooking project that reduces the demand for wood fuel harvested from forests, which can lead to double-counting.

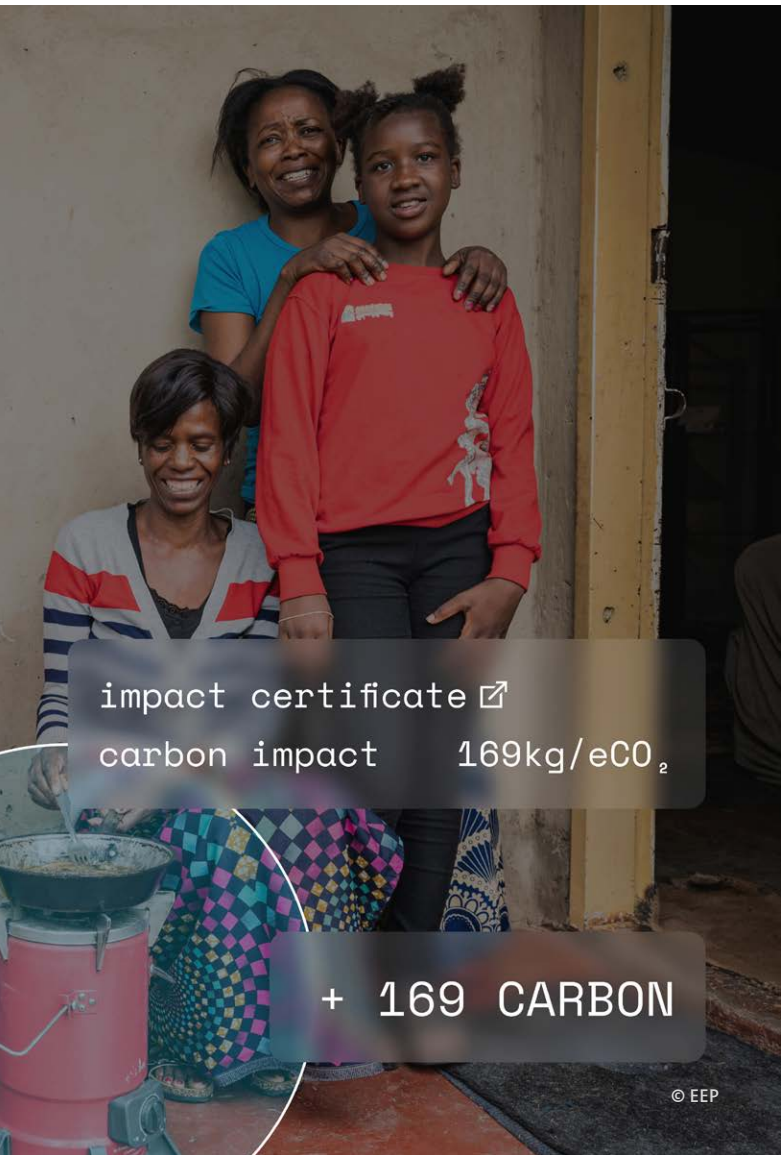
To rectify this, we propose a sectoral approach that includes all relevant sectors contributing to GHG emission reductions within an ecosystem. This requires more sophisticated approaches to measurement, reporting, and verification. Fundamentally, this is about the quality and type of data that gets collected and how this is used. Significant advances have been made in digital measurement, reporting, and verification that should enable whole-system evaluations of the impacts of various mitigation activities at regional, national, and local levels.

Overview of problems for carbon cookstove programs and their implications under Article 6 of the Paris Agreement

This section provides an overview of three prominent issues relevant to the integrity of improved cookstove programs and their implications for carbon accounting.

The problem of low quality stoves

The problems with "lower-tier" cookstoves that burn fuels such as wood or charcoal are well-documented, with scientific evidence that it is one of the leading causes of premature death (AFREC, 2024).



The solution is to distribute healthy stoves. The Berkeley Carbon Trading Project advises buyers of cookstove offsets to: "Look for projects that distribute stoves with substantial health benefits. While all efficient cookstoves projects should reduce smoke, only some reduce smoke enough to significantly improve respiratory health and save lives."

The Multi-Tier Framework (MTF) for cooking, developed by the World Bank's Energy Sector Management Assistance Program (ESMAP), classifies modern energy cooking solutions based on measures of affordability, health, safety, convenience, and environmental impact. MTF categorizes "modern cooking" as Tier 4 and Tier 5, and "Transitionary Cooking" is considered Tier 3. To qualify for the higher tiers generally requires switching from cooking with fuels such as firewood and charcoal to clean energy fuel sources such as LPG, electricity, biogas, ethanol, and biomass pellets.

Implementing modern energy cooking solutions requires different financing and business models compared with transitionary cooking, as the hardware costs of modern energy stoves are typically higher, and the logistics of sourcing and distributing clean fuels such as ethanol, biomass pellets, and biogas are a lot more complex, especially when projects scale up or try to reach more rural households. However, buyers of cookstove offsets have in the past not paid much of a premium for higher-tier cookstove projects (Abatable, 2024). The financial incentives for implementing higher-quality solutions have therefore not been favourable to project developers, which has undermined the broader economic and social benefits that could be generated.

Purchase agreements for offsets under Article 6 of the Paris Agreement (Art. 6) are expected to be led by discerning buyers – typically governments looking for premium quality and greater appreciation for their associated Sustainable Development Goal (SDG) impacts. This should help accelerate a flight to quality, and to higher tier cooking solutions.

Problem 2: Uncertainty in stove usage

In the Berkeley study, the researchers found that there is a lot of uncertainty about whether people are actually using the stoves that have been distributed to them. The study reported an 86% adoption rate and 98% usage rate in surveyed projects, compared to 58% and 52% in literature reviews.

Stacking rates were also much lower (2% reported by the projects compared to 68% based on literature review). This refers to the practice of using multiple types of stoves or cooking methods simultaneously. For instance, a household might use both a traditional wood-burning stove and a modern, cleaner stove. Underestimating the stacking leads to over-crediting as well.

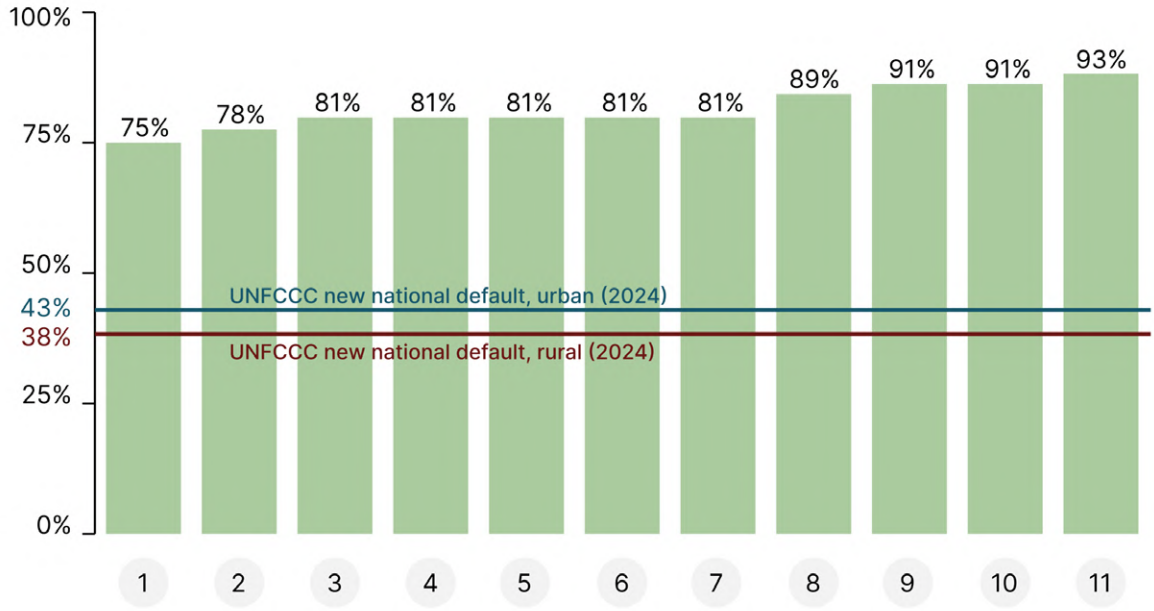
To address this issue, moving towards Tier 4 and Tier 5 projects is essential. Companies that sell both stoves and fuels can more accurately estimate usage because they can track fuel sales. Another effective approach is to equip stoves with usage monitors. However, on lower-cost stoves (Tier 2 and Tier 3), the cost of adding these monitors is proportionately higher than for the higher-tier stoves. Both methods – tracking fuel sales data and monitoring stove usage – are integral to the Gold Standard's "Methodology for Metered and Measured Energy Cooking Devices" (GS-METERED), which Gill-Wiehl et al. describe as the only robust method for accurate measurement.

Shifting to modern cooking solutions can address two of the three main critiques raised by Gill-Wiehl et al. This involves ensuring accurate tracking of stove usage and adoption rates, ultimately leading to more reliable and effective implementation of cooking projects.

Problem 3: Fraction of non-renewable biomass

The fraction of non-renewable biomass (fNRB) is a measure used to estimate the proportion of biomass that is harvested in an unsustainable manner, contributing to deforestation and carbon emissions. Historically, registries have approved fNRB values in the range of 80-90%, but these figures often lack a solid scientific foundation. Recently, UNFCCC commissioned a

Figure 1: fNRB values used by projects and new default values proposed by UNFCCC (2024)



Nr	Project Id
1	GS11508 VPA1: CLEAN COOKING WITH BIOMASS GASIFICATION IN ZAMBIA (Emerging Cooking Solutions)
2	UPENERGY-SOCIAL AND CLIMATE IMPACT PROGRAMME- COOKING DEVICES VPA-6 BY UPENERGY GROUP
3	Distribution of Improved Cook Stoves in Sub-Saharan Africa Zambia-CPA-005
4	FUEL EFFICIENT STOVES IN ZAMBIA – KOREA CARBON MANAGEMENT LTD. CPA NO.1
5	Fuel Efficient Stoves in Zambia (Korea Carbon Management Ltd. CPA No.02)
6	INSTALLATION OF HIGH EFFICIENCY WOOD BURNING COOKSTOVES IN ZAMBIA - PROJECT 2
7	FUEL EFFICIENT STOVES IN ZAMBIA CPA 3
8	INSTALLATION OF HIGH EFFICIENCY WOOD BURNING COOKSTOVES IN ZAMBIA
9	TASC CLEAN COOKING POA – VPA 1 (ZAMBIA)
10	COMMONLAND AFRICAN IMPROVED COOKSTOVE PROGRAMME – VPA 01 (PEACE PARKS AND SIMALAHA COMMUNITY CONSERVANCY)"
11	GS11596 TASC Clean Cooking PoA – VPA 3

Source: Own illustration based on data from UNFCCC, Gold Standard and Verified Carbon Standard.

study to provide updated fNRB values based on a dynamic landscape model called MoFuSS (Modeling Fuelwood Sustainability Scenarios). New proposed values are significantly more conservative than what generally has been used in the past. For example, this study proposes a new default fNRB value for Zambia, 38% for rural areas and 43% for urban areas (UNFCCC, 2024). Other countries have 30% or even less. However, this significant reduction has received substantial pushback from the cooking sector (see open letter by Sajoma et al., 2023). For instance, a project that previously used a 90% fNRB value would receive only one-third of the carbon credits under the new 30% value. To maintain the same revenue, carbon credits would need to be sold at three times the price.

Applying more conservative fNRB values means buyers must pay higher prices for carbon credits to provide the same revenue to project developers. This shift has significant implications for the financial viability of carbon projects and their ability to attract investment.

Another critical issue, which has hardly been debated at all, is the difference in fNRB values for replacing charcoal versus firewood. The source of biomass significantly impacts its renewability. For example, if firewood comes from dead branches, its fNRB value should be lower than that of charcoal derived from mature hardwood trees, perhaps even drastically so. However, in practice, some firewood also comes from freshly cut trees, which complicates the assessment. Without distinguishing between these sources, carbon finance may not be optimally deployed, potentially reducing the effectiveness of interventions aimed at reducing deforestation and carbon emissions.

The estimation and application of realistic fNRB values are essential for the credibility and financial sustainability of carbon projects. Moving towards scientifically grounded, conservative fNRB values requires higher carbon credit prices to sustain project revenue and necessitates careful differentiation between biomass sources to ensure optimal use of carbon finance.

Implications and issues in moving to Art. 6

The above three main issues lead to over-crediting. Gill-Wiehl et al. even pointed out that many cookstove projects may be over-credited by a massive factor of 9.2. Moving towards Art. 6, this may create problems for host countries. To provide an example from Zambia: Overall, there are 26 projects or programs in Zambia addressing emissions from deforestation and forest degradation (20 cookstove programs, 6 'Reducing Emissions from Deforestation' programs), which are either registered or under validation. The total emission reductions of these projects amount to 25.4 M tCO_2e/yr (data from VCS, CDM GS, and CAR databases).

Zambia's forest reference emission level (FREL), as submitted by Zambia's Ministry of Green Economy and Environment, and as assessed by UNFCCC, estimates the annual emissions from deforestation and degradation to 23.52 $MtCO_2e$ (MGEE, 2021a).

We note that the emission reduction estimates of all cookstove and REDD+ programs exceed the actual baseline emissions. There are significant methodological differences in how the FREL and the cookstove baselines are being conceived. Some considerations on differences:

- Typically cookstove baselines are assumed to contribute to a reduction of forest degradation. This is linked to how FRELs detect change. The FREL reports emissions over a historic reference period, in Zambia's case 2009-18. While many high- and very high resolution sensors exists, they do not take pictures systematically (i.e. a scene needs to be ordered). Consequently the only consistently available data sources are Landsat imagery. With a pixel having a size of 30 x 30 m and minimum mapping units typically being 3 x 3 pixels, FRELs map the deforestation on areas of 0.81 ha. Charcoal, however, is produced by choosing a suitable tree in terms of size, accessibility and tree species, i.e. on a single stem basis. Consequently, Zambia's FREL does not map the charcoal and fuelwood production under deforestation.

- Some countries (including Zambia) have expanded their FREL from mapping only deforestation to capturing deforestation and forest degradation. So, in principle the FREL should cover emissions included in cookstove baselines. However, degradation estimates exhibit significantly higher uncertainties and related standard deviations compared to deforestation estimates.

- FRELs are conceived in a top-down approach with activity data (e.g. changes from forest to non-forest) being multiplied with emission factors (e.g. carbon stock of forest minus carbon stock of non-forest). Cookstove baselines, in turn, are conceived in a bottom-up approach inquiring from communities their biomass consumption for cooking as well as time for wood collection and its change over time.

While there may be good reasons for differences in baseline emission estimates, when comparing cookstove programs with national FRELs, the resulting difference remains an area of concern. Many of these projects and programs aim to transition to Article 6, where they may be allowed to generate Internationally Transferred Mitigation Outcomes (ITMOs), backed by a Corresponding Adjustment of the Government. In such a case, the government would jeopardize achieving its Nationally Determined Contribution (NDC), which is based on the national GHG inventory and the underlying FREL estimates.

Implications for policy and practice

To mitigate these risks, it is crucial to adopt more accurate and conservative estimates for project baselines and emission reductions of cookstoves projects. This includes using scientifically validated fNRB values and improving the monitoring of stove usage (which will then also address the issue of stacking). Ensuring robust and transparent methodologies for estimating and reporting emissions reductions is essential for maintaining the integrity of carbon offset projects and supporting the global effort to reduce emissions.

In conclusion, addressing the identified issues is critical for ensuring that carbon offset projects contribute meaningfully to emission reductions and do not undermine global climate goals. The transition to Article 6 offers an opportunity to enhance the rigor and credibility of these projects, provided that accurate accounting and verification processes are rigorously implemented.

Approach for sectoral crediting under Article 6

Moving to Article 6 offers opportunities to address existing problems by assuring accuracy and improving integrity. This section discusses Zambia's strategy to use sectoral crediting to tackle these issues in the cookstove sector.

Zambia's strategy for sectoral crediting

Zambia's Ministry of Green Economy and Environment, acting as the climate change focal point, and the Zambian Mitigation Committee, responsible for approving or rejecting Article 6 projects, are working with technical support from the "Supporting Preparedness on Article 6 cooperation" (SPAR6C) project to develop a national Article 6 cookstove program. This program will serve as an umbrella for cookstove projects in Zambia to access carbon finance under Article 6. Participation requirements for this program will address key issues, ensuring higher standards and more reliable data. Cookstove programs in Zambia wishing to participate must:

- Employ Tier 4 or Tier 5 stoves
- Measure fuel usage (e.g. through sales records) or stove usage, or both
- Use a conservative fNRB aligned with Zambia's unconditional NDC target. Zambia's Carbon Market Framework (MGEE, 2023) requires projects to have a baseline aligned with Zambia's NDC, which commits to reducing national emissions (including forestry) by 25% by 2030 (MGEE, 2021b). This baseline could be operationalized by annually reducing the fNRB to achieve a 25% reduction by 2030
- Employ a digital Monitoring, Reporting and Verification (MRV) system to efficiently and transparently monitor the project activities and estimate accurately emission reductions

Digital monitoring, reporting, and verification

The GS-METERED methodology will be used as a basis. This allows for direct issuance of emission reduction credits using blockchain technology. For example, if a household participating in an improved cookstove program purchases pellets as fuel using mobile money, the program can automatically and instantaneously issue emission reduction credits. The national cookstove program will explore the implementation of such approaches under Zambia's carbon project registry.

Benefits of this approach:

- **Enhanced Accuracy and Integrity:**
  Digital MRV ensures high-quality data and real-time automated claims processing, significantly improving the accuracy and integrity of emissions reductions reporting.

- **Improved Financing and Scalability:**
  Digitizing carbon markets can transform the financing and scaling of green technology infrastructure, such as modern energy cookstoves, in Africa. ITMOs play a crucial role in this innovation, enabling results-based financing instruments that can extend to other areas of sustainable development, such as healthcare and education.

- **Premium Valuation and Quality Support:**
  As acquiring parties pay a premium for quality, carbon finance will support the emergence of modern, metered, or measured cooking solutions, ensuring more reliable and sustainable outcomes.

- **Level Playing Field:**
  With host and acquiring countries agreeing on program design parameters, such as fNRB, this prescriptive approach contrasts with the current Voluntary Carbon Market, where parameters are largely driven by project developers. This creates a level playing field, ensuring that identical projects use the same parameters.

- **Reduced Financing Risks:**
  As acquiring parties demand higher quality and predictability of mitigation outcomes, financing risks for private capital investment are significantly reduced. Modern cooking solutions, using digital MRV, provide real-time visibility of project performance, reducing execution risks and increasing capital velocity and liquidity in carbon credit markets. Project finance can now be structured using innovative instruments linked to MOPAs and forward contracts for digitally certified ITMOs and Carbon Credits.

- **Enhanced Data Utilization:**
  The digital measurement and reporting system generates valuable data that can be used for planning, customer support, and business intelligence. This data enables better decision-making and strategic planning for both project developers and policymakers, enhancing overall project efficiency and effectiveness.

- **Integrated Reporting on Climate and SDG Indicators:**
  The use of digital MRV supports enhanced integrated reporting on climate and SDG indicators under both national and international frameworks. This ensures that projects not only contribute to emission reductions but also align with broader sustainable development objectives, providing comprehensive reporting that reflects their multi-faceted impacts.

Conclusions

With 2.8 billion, more than 1/3 of our world population is living in rural areas and depends on fuelwood, charcoal or similar resources for cooking. This not only leads to a global fuelwood demand of 2.1 billion cubic meters per year, it also creates serious health issues and contributes to premature deaths. Cookstove programs distribute energy efficient stoves offering alternatives in areas, which, also over decades to come, may be without electricity access. Carbon finance has proven to be a suitable financing instrument for cookstove programs.

Latest research indicates that some cookstove programs may overestimate the usage ratios, operating hours and fraction of non-renewable biomass leading to a possible over-crediting. In the case of Zambia, the aggregated baseline emissions of cookstove and REDD+ projects (operating under various voluntary carbon programmes, sometimes without governmental approval) exceed the total emissions of the forest reference emission level (as communicated by governments to UNFCCC). These projects transitioning to Art. 6 would increase the risk of host countries to fail their NDC target.

The migration to Art. 6 bears also opportunities to assure a conservative and transparent accounting framework. Zambia pro-actively embarks on this pathway by creating a national Art. 6 cookstove program, inviting cookstove programs to participate (and generate emission reductions with a corresponding adjustment), if they comply with high quality criteria of i) distributing tier 4 or 5 stoves, ii) using a conservative fNRB value and iii) measuring operating hours and/or distribution of fuel of their cookstoves. This will be done exploring the use of digital MRV and integrating it into Zambia's carbon registry.

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Navigating the market

New SPAR6C resources empower countries to participate in Article 6

by Marshall Brown, GGGI; Benjamin Heras, Carbon Limits; Yliana Rios, GGGI

As the negotiation rooms continue to debate the finer details of Article 6 implementation, potential host (seller) governments are increasingly seeking to improve their readiness for engagement in international carbon markets.

Since 2022, the Supporting Preparedness for Article 6 Cooperation (SPAR6C) program has been supporting its partner countries to achieve such ends, adopting the mission statement "Making Article 6 implementation easier

together." The expression is not just a motivating mantra for its consortium of experts, but a call to action for the global community to respond to the needs of seller governments, many of which have expressed reluctance to engage in carbon transactions due to their dizzying complexity. A Global Green Growth Institute (GGGI) survey from 2022, for example, found that 86% of the respondents from its member and partner countries did not believe that buyers and sellers had equal opportunity to benefit from the market. Nearly 50% felt they may be at risk of being taken advantage of by buyers because of gaps in their capacity. This reluctance may be part of the reason market activity has yet to truly accelerate.

Over the past few years, there has been a proliferation of Article 6 analysis, reports and explainers, primarily from international organizations in the climate and carbon markets sector. These cover topics from digesting and sharing rules coming out of the UNFCCC negotiations, economic models on the benefits of global carbon trading, to debates on the best way to set conservative, realistic baselines. Still, few of the key decision makers on carbon markets in potential host countries – including those in the climate finance space – have more than a superficial familiarity with Article 6. The frequent discussion on Article 6 implementation challenges and approaches at global events do not tend to offer the type of detailed support decision makers or investors need to get started, and often the most helpful guidance can struggle to reach the right audiences. To address these gaps, SPAR6C has published guidance that can be used to inform market participation, known as the "Article 6 Implementation Toolbox".

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Focus on implementation

The first publications of the SPAR6C toolbox include six guides (see Box 1 below), an effort led by SPAR6C consortium partner Carbon Limits. In these guides, the authors make great effort to respond to stakeholder demands for support with designing policies and processes or originating investments. They avoid overly theoretical or abstract content and instead opt for practicality and user friendliness. Each guide presents key terms that break down carbon jargon and concepts into plain language, easy-to-follow graphics and visuals aids, and, where possible, how-to instruction. For example, government stakeholders building their Article 6 strategies may be struggling to select their authorization criteria in the absence of clear rules from UNFCCC. These stakeholders can use Guide 2 "Developing an Article 6 Host Party Strategy" to understand the risks and opportunities, and learn how to prioritize sectors or technologies to create a negative list, positive list or identify other actions to mitigate risk (see Figure 1).

Box 1: Overview of the SPAR6C Toolbox Guides

The SPAR6C Toolbox comprises six guides designed to help stakeholders navigate the intricacies of Article 6. These guides provide detailed frameworks, strategies, and best practices to ensure effective and efficient implementation of Article 6 activities.

1. **Promoting Ambition and Transformational Change.** This guide explains how carbon markets can drive the transition to net-zero emissions, transforming entire economies. It emphasizes the role of high-integrity carbon credits in raising climate ambition.

2. **Developing an Article 6 Host Party Strategy.** This guide helps host countries strategically navigate the complexities of Article 6 to maximize impact. It provides a framework for identifying opportunities, managing risks, and meeting Article 6 requirements.

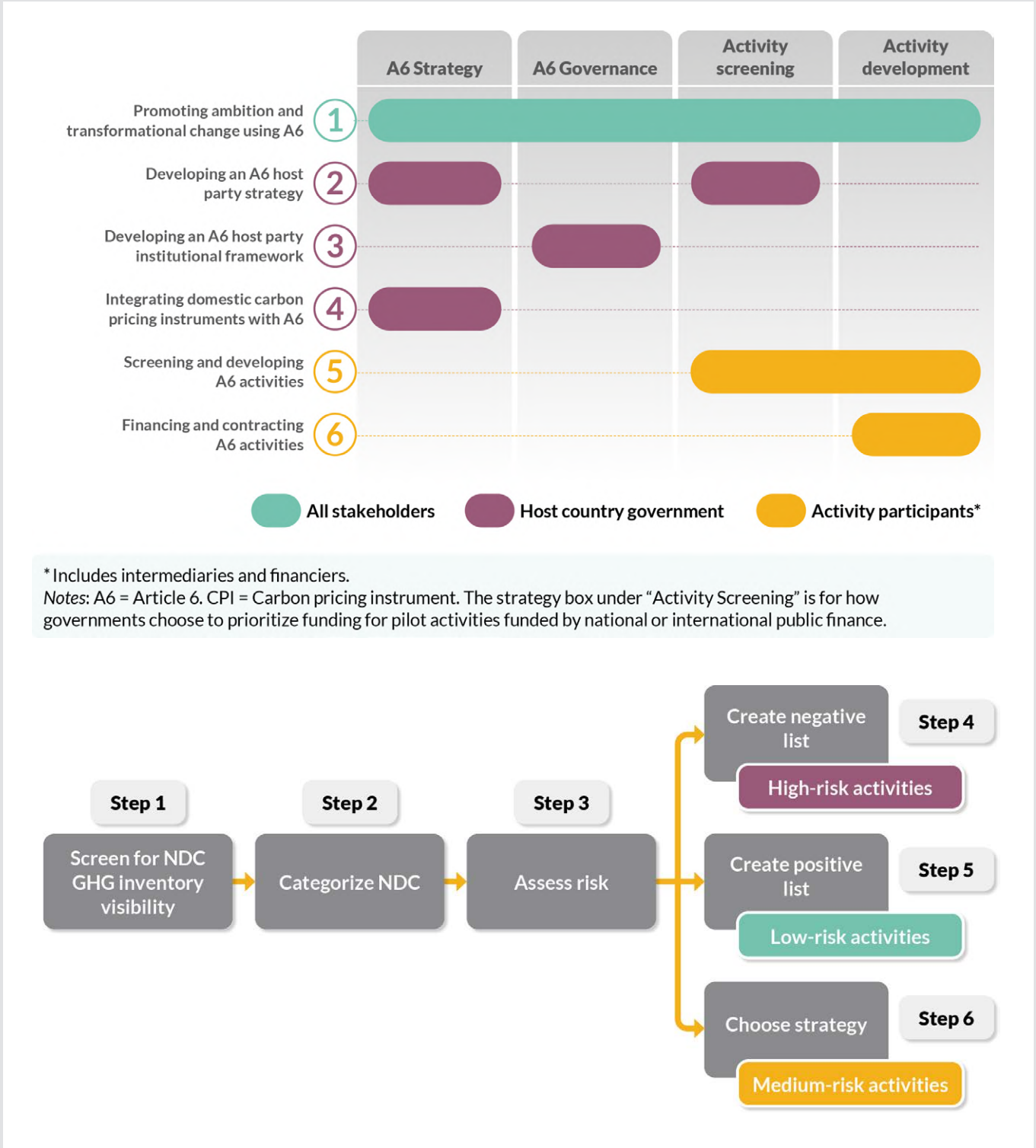
3. **Developing an Article 6 Host Party Institutional Framework.** This guide offers tips for designing robust decision-making processes for Article 6 engagement, building on existing governmental capacity while applying international best practices.

4. **Integrating Domestic Carbon Pricing Instruments with Article 6.** This guide assists governments in managing the synergies and potential conflicts between their engagement in Article 6 and the use of domestic carbon pricing instruments.

5. **Screening and Developing Article 6 Activities.** This guide supports activity participants in developing new emissions-reducing investments, offering advice from conceptualization to issuance and transfer of credits.

6. **Financing and Contracting Article 6 Activities.** This guide bridges project finance principles and contractual issues, providing guidance to the private sector on all facets of carbon market transactions under Article 6.

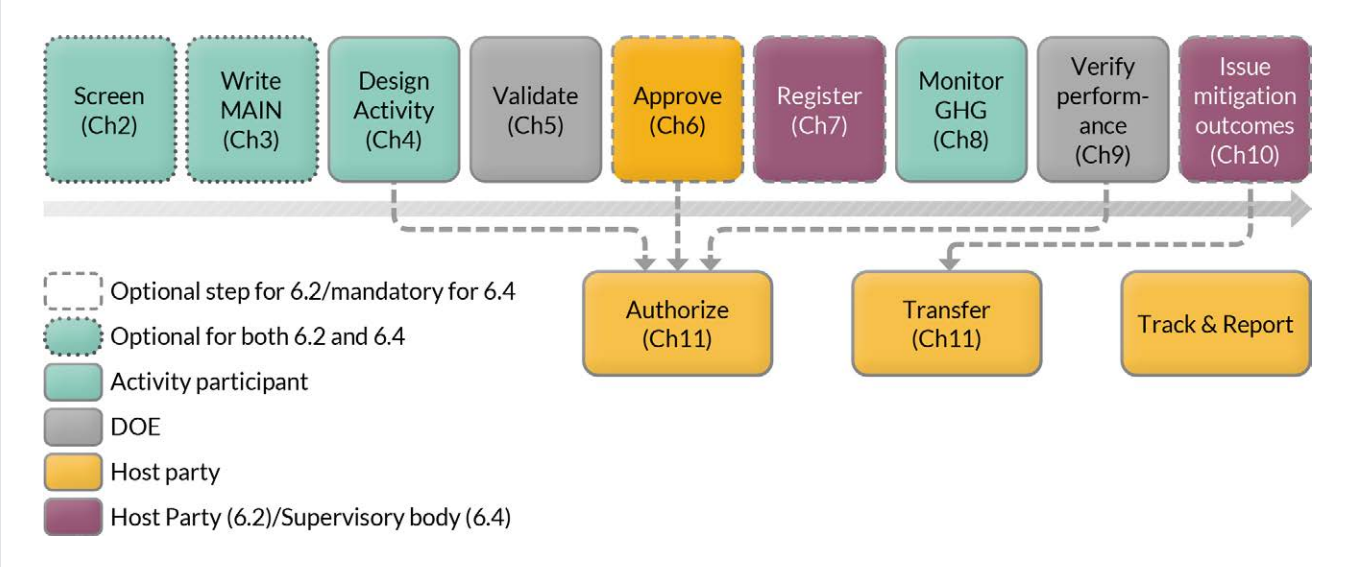
Figure 1: Step-by-step guidance on how to screen Article 6 activities for overselling risks and strategies to address them.



Source: Guide 2: Developing an Article 6 Host Party Strategy.

Beyond their structure and composition, the guides also provide unique insights into those elements of the Article 6 engagement process that are not usually made publicly available. Because most of SPAR6C's consortium – with experts from GGGI, Carbon Limits, GFA Consulting, UNEP Copenhagen Climate Centre and Kommunalkredit Public Consulting – support Article 6 capacity building in a broad range of global contexts, the authors have built in lessons learned from real-world decision making and investment preparation they are involved in. In Guide 5 "Screening and Developing Article 6 Activities" and Guide 6 "Financing and Contracting Article 6 Activities" (forthcoming), for example, private sector project developers and financiers will find insight into how to identify project opportunities, details on what a mitigation outcome purchase agreement (MOPA) looks like and explanation of various terms and other details of steps along the mitigation activity cycle (see Figure 2 below).

Figure 2: Guide 5 lays out a typical mitigation activity cycle to help developers navigate the process from start to finish.



Source: Guide 5, "Screening and developing Article 6 mitigation activities".

Application of the toolbox guides

The guidance in the toolbox is only worth publishing if it is useful for stakeholders in their decision making and transaction preparation activities. To this end, the SPAR6C project has an explicit goal of widely disseminating the guides, tracking their use, and collecting feedback for constant improvement.

To increase awareness about the toolbox, a comprehensive awareness campaign has been implemented. At its core is a webinar series, including two sessions for each of the three published guides delivered up to July 2024. Each webinar presents the contents of a single guide in an abridged format and features experiences of special guest speakers to highlight relevant examples related to the guide's content for the participating audience. The webinar series have attracted over 750 stakeholders from more than 80 countries, including host country partner governments and mitigation activity developers. Participants have found the webinars useful. For example, during the webinars on Guide 3 "Developing an Article 6 host party institutional framework," participants were asked "What new information have you learned in this webinar?" after having been presented with the guidebook content. Nearly 95% of respondents responded that some portion of the content was new, demonstrating some usefulness of the content (see Figure 3 below). Participants are then given more information about how to access the guidebooks and encouraged to engage in further discussion on the topics in the webinar chat.

Figure 3: Participants report learning new and useful content during the SPAR6C toolbox guide webinar series

Answer	Total (108 respondents)	%
The Key Article 6 Procedures	43	39.8%
How to identify key institutional roles	64	59.2%
How to choose an A6 registry	47	43.5%
Nothing, I am a pro!	6	5.6%

Source: GGGI

The guides have also played an important role in shaping the technical assistance and capacity building provided to SPAR6C partner governments. In Thailand, for example, the explanation of corresponding adjustments shaped the basis for a capacity building workshop for the Ministry of Environment and Natural Resources (MONRE) and other sector stakeholders which focused on tracking greenhouse gas emissions, and demonstrated how the double-entry accounting approach would be implemented in the context of their upcoming transfer of mitigation outcomes to the government of Switzerland as part of the Bangkok e-Bus Project (see picture below).

Outside of SPAR6C focal countries, the toolbox has been one of the useful reference materials. According to Umamaheswaran Krishnan, Article 6 and Carbon Pricing Regional Expert with the RCC, "The SPAR6C toolbox guides have been a useful reference, among many others, in the development of training materials. In particular, we appreciate the terminology and the easy-to-understand, step-by-step approach." The guides were also used as the basis for training on key concepts of Article 6 to the Ministry of Finance and other national stakeholders in Sri Lanka in a workshop hosted by GGGI in May, 2024 (see picture on the right).

Feedback and lessons learned

Collecting feedback on the guidebooks will help to improve their utility as capacity building tools. To encourage frequent inputs, an e-mail address has been established (SPAR6C-Toolbox@gggi.org) as as an open channel for follow-up and communication with stakeholders, particularly outside of SPAR6C partner countries. SPAR6C makes substantial effort to measure stakeholder learning and identify gaps and areas for improvement. For example, over 80% of attendees in the first three SPAR6C webinars found the content "useful" or "extremely useful". The Guide 3 webinar on governance frameworks had an exceptional reception, with 100% of respondents indicating they would apply the knowledge in their work. However, the third webinar, which focused on investment and was targeted at the private sector, presented more challenges. While still deemed useful, it was perceived by attendees as less accessible than the strategy and governance content aimed at host party countries. This suggests that while basic understanding of governance and strategy is improving, the investment aspects are newer and require additional support. This highlights the private sector's need for further guidance in navigating investment-related topics within the carbon market under Article 6.

Throughout webinars, but also in the program's capacity building and training events, feedback is collected on the quality of content delivery, ease of understanding, and usefulness to pinpoint areas for improvement and new opportunities for content development. Some stakeholders have requested that SPAR6C produce more case studies to use as benchmarks, allowing them to integrate lessons learned into their own decision-making processes and Article 6 mitigation activity designs. As a result, case studies are under development and a survey is being sent to the growing SPAR6C community to better understand the topics that should be covered.

Stakeholders have also provided feedback about how the information can be more tailored and presented to better meet their needs. For example, translation into local languages, the development of shorter guidance documents with even less complexity (e.g. fact sheets or basic jargon explainers) continue to be requested. As the program continues into 2027, the toolbox guides will remain living documents, with updates to be included as UNFCCC rules and international best practice progress. Capacity building modules for each guide are being developed so the content of the guides can be delivered to wider audiences in an engaging way through workshops and training events. These modules will be made publicly available. The webinar series will continue throughout 2024, as the project continues to share knowledge for Guides 1, 4, and 6.

For capacity to truly grow, it is critical that experts providing support to market participants carefully consider the needs of their audience. Frequent engagement with stakeholders about their needs and innovation in training approaches are important if their understanding and confidence to engage in Article 6 is to improve.

The VCM host country perspective

A new Carbon Mechanisms Research paper explores the challenges, risks and benefits for host countries willing to engage on the voluntary carbon market. The paper can be downloaded here:
www.carbon-mechanisms.de//VCM_Host_Country_Perspective

Activity development webinar documentation

A report on the recent SPAR6C webinar ‚Screening and Developing Art. 6 Activities' is now available. Find out more at:
carbon-mechanisms.de/en/SPAR6C_Webinar_Art6

Glossary

All Carbon Market terms and abbreviations are explained in detail in our online glossary. View it here:
www.carbon-mechanisms.de/en/glossary