

Transparency Study

An initiative of the Ethicarbone Project

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January 15, 2012



Executive Summary

The Transparency Study aims to understand the flow of carbon finance information through the value chain and the resulting effects on maximizing carbon revenues and creating an equitable carbon market for local project developers in West Africa. Research data was gathered through semi-structured interviews from actors and intermediaries in the carbon finance value chain for three successfully registered improved cookstove (ICS) projects in West Africa. The analysis focused on the flow of transaction costs and credit sales information in the carbon finance value chain.

Preliminary research indicates that non-transparency in the carbon market creates ethical, operational, and financial challenges for project developers. Although more research is required in each of these areas to establish causal relationships between transparency and the aforementioned challenges, the research indicates there are areas worthy of future investigation to ensure an equitable market for local project developers in West Africa. Key findings include:

- **Intermediaries limit credit sales information flow** – Local project developers cannot negotiate directly with credit buyers and have limited knowledge as to who is buying credits originating from their project activity.
- **ERPA confidentiality may create an imbalance in negotiating power** – There is an imbalance of negotiating power between project developers and credit buyers due to lack of transparency on prices paid by buyers for carbon credits in the voluntary market.
- **Unpredictable timeframes for validation and verification has negative financial impacts** – There is a loss of revenues due to lack of transparency on the time it takes during the validation and verification of projects. DOEs need to be held more accountable for not respecting time commitments in both the voluntary and compliance certification process.
- **The carbon fishbowl** – Actors guard cost and price information due to perceived repercussions in a small carbon community.
- **No price index in the voluntary market makes it difficult to forecast revenues** – No index makes it difficult for project developers to value their activities, therefore making it difficult for projects to forecast revenues, but also makes it difficult for businesses to invest appropriately in purchasing carbon credits.
- **Knowledge sharing among project holders** - Limited information sharing between the local project holder and intermediaries on the carbon finance transaction (costs and sales transactions) can create negative operational and financial impacts on the project activity.

About the Researcher

William Theisen has worked with a number of companies in Europe to develop their marketing strategies for expansion into new territories while maintaining high environmental standards in their corporate social responsibility programs. He entered into the carbon finance domain as a Marketing and Business Development Consultant for The Gold Standard Foundation. He holds a Masters in Business Administration from HEC – Paris and a Bachelor of Science also in Management from Boston University.

Acknowledgements

I would like to thank Anne Calvel from GERES and Marion Verles from Nexus Carbon for Development for their support and confidence during this research project. I would also like to acknowledge and thank Jasmine Hyman from Yale University for her guidance in developing the methodology and advice throughout this research project. In addition, thank you to the ADEME for funding an innovative research project.

Ultimately, I would like to extend my thanks to all of the actors who participated in the research. I strongly appreciated their willingness to contribute and open the door for me to investigate their respective projects in an effort to encourage a more equitable carbon market for West Africa.

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Stakeholders

GERES – Groupe Energies Renouvelables, Environnement et Solidarités (Renewable Energies, Environment and Solidarity Group). A non-profit-making association set up in 1976 following the first oil crisis, GERES now has 180 associates carrying out innovative sustainable development projects in France and eight African and Asian countries. www.geres.eu

Nexus - Carbon for Development. Nexus is an alliance of pro-poor project developers whose shared vision is that the carbon market should tackle both climate change and poverty in a fair and transparent way. As a global alliance of social ventures, Nexus acts as a peer-to-peer services platform, creating synergies between its members and providing awareness rising, capacity building, carbon project documentation, and carbon asset management. www.nexus-c4d.org

Réseau Carbone – Réseau Carbone is a non-profit association under Malian law that was created in January 2006. Its objective is to fight against climate change impacts. Réseau Carbone is expressly mandated by the Ministry of Environment and Sanitation to facilitate access to project financing and innovative technologies in a portfolio of projects, including through voluntary compensation, and to create an investment fund for developing clean energy. www.reseau-carbone.com

ADEME - Agence de l'Environnement et de la Maitrise de l'Energie (French Energy and Energy Management Agency). A public agency under the joint authority of the Ministry for Ecology, Sustainable Development, Transport and Housing, the Ministry for Higher Education and Research, and the Ministry for Economy, Finance and Industry. ADEME's mission is to encourage, supervise, coordinate, facilitate and undertake operations with the aim of protecting the environment and managing energy. www.ademe.fr

Yale University. The Green Markets Lab is a collaborative research network hosted by the Yale Center for Environmental Law & Policy and the Center for Business and the Environment at Yale, which oversaw the methodology development for this study. The Lab provides opportunities for faculty members and graduate students at Yale to collaborate on research projects that focus on the social, development, and environmental performance of market-driven environmental mechanisms and systems. The Lab also organizes events and produces briefs to highlight research findings that are of compelling interest to policy-makers and representatives from industry and civil society.

Abbreviations

| | |
|--------|--|
| CDM | Clean Development Mechanism |
| CER | Certified Emission Reduction |
| COP17 | 17 th Conference of Parties |
| DNA | Designated National Authority |
| DOE | Designated Operational Entity |
| ER | Emission Reduction |
| ERPA | Emissions Reduction Purchase Agreement |
| EU ETS | European Union Emissions Trading Scheme |
| GS | Gold Standard |
| ICS | Improved Cookstove |
| LDC | Least Developed Country |
| LLDC | Landlocked Least Developed Country |
| NGO | Non-governmental organization |
| PDD | Project Design Document |
| PoA | Programme of Activities |
| UNFCCC | United Nation Framework Convention on Climate Change |
| VCS | Verified Carbon Standard |
| VER | Voluntary Emission Reduction |

I. Research Objective and Context

Objective

The Transparency Study aims to understand the flow of carbon finance information in the value chain and the ultimate impact of transparency, or lack thereof, on local project developers in West Africa. Data was gathered in semi-structured interviews to evaluate if West African cookstove project developers understood the carbon finance transaction costs and carbon sales information associated with their project activities. The flow of information is analyzed to see if there is an adequate level of transparency to promote an equitable carbon market for improved efficiency cookstove (ICS) project developers in West Africa. Recommendations are then made on areas that should be explored further and how to ensure a level playing field in carbon markets for local project developers.

William Theisen is the researcher for the Transparency Study on behalf of the EthiCarbone project. Jasmine Hyman who is an Advisor to the Board of Directors of Nexus Carbon for Development and a PhD student at the School of Forestry & Environmental Studies at Yale oversaw the methodology and its implementation for the transparency study.¹

Research Questions:

- What is the actual level of transparency in carbon finance in West Africa?
- What costs are associated with non-transparency in carbon finance in West Africa? Who pays these costs?

Overview of the Carbon Markets

Carbon markets are a means for developing countries to access additional revenues for clean energy development. Carbon mitigating activities, such as improved cookstove projects (ICS), can attract carbon finance in both the compliance and the voluntary markets.

¹ Mr. Theisen and Ms. Hyman had bi-weekly meetings to discuss the progression of the study. Ms. Hyman and Mr. Theisen also met in Durban, South Africa to discuss the research to analyze preliminary results and evaluate steps on moving forward with the study. Preliminary results for the transparency study were also presented during two side events during the 17th Conference of Parties (COP17).

Certified emission reductions (CERs), or carbon credits, are issued through the Clean Development Mechanism (CDM), a scheme originating from the Kyoto Protocol overseen by the United Nations Framework Convention on Climate Change (UNFCCC). Developed countries, or “Annex I,” that have ratified the Kyoto Protocol can purchase credits originating from greenhouse gas reducing activities in developing countries (non-Annex I). Carbon emission reductions (ERs) are translated into carbon credits by following the rules and methodologies specified in the CDM. The credits can then be exchanged in Kyoto Protocol endorsed trading schemes such as the European Union Emission Trading Scheme (EU ETS).

The parallel voluntary market is another means for organizations and individuals to voluntarily offset through the purchase of carbon credits. Since the voluntary market is unregulated, schemes such as the Verified Carbon Standard (VCS) and the Gold Standard (GS) are used to certify credits in order to ensure the quality of the carbon commodity. GS methodologies include renewable energy and energy efficiency project activities. Currently in the voluntary market, GS is the primary certification scheme used for Voluntary Emission Reductions (VERs) originating from ICS projects in West Africa.²

For both GS and the CDM, the project activity must be deemed “additional,” meaning that the activities would not have been viable without carbon finance. In order for a project to be registered by the CDM or by GS, project activities must follow an approved methodology and submit a project design document (PDD) in addition to validation and verification reports completed by independent auditors. These documents are made public on registries accessible on the Internet.

Certifications schemes themselves also use registries to track credits sales to ensure that credits are appropriately retired and that no double counting ensues. According to the UNFCCC site, the CDM registry “develops and maintains a publicly available database of CDM project activities containing information on registered project design documents, comments received, verification reports, its decisions as well as information on all CERs issued.”

Similarly, all registered GS projects are obliged to provide the same documentation on the public registry using “NYSE Blue environmental infrastructure,”³ which is used for GS certified carbon credits in the compliance and voluntary markets. Project developers, brokers, credit retailers and buyers can have accounts on registries with varying levels of access to project information. Access to project information is dependent on the user’s role in the project (e.g. official project holder, buyer). Not all of the carbon finance activity information is available for all users, even original project holders.

² Two out of the three projects selected for the study were voluntary projects and both were certified Gold Standard (there are currently no VCS certified voluntary projects in West Africa)

³ According to the Gold Standard website (<http://www.cdmgoldstandard.org/our-projects/project-registry>). NYSE has joined forces with APX, which actually manages the GS registry.

The EthiCarbone Project

As of January 2012, Africa is host to only 214 out of 7684 registered projects, which represents 2.8% of the global compliance market.⁴ At the time of writing, South Africa currently hosts 20 registered projects, the highest in the region, which leaves the rest of Sub-Saharan Africa as host to an even smaller fraction of the market. Most countries host only one or two projects if any. In the voluntary carbon market, African-based projects made up only 4% of over-the-counter (OTC) transactions for Voluntary Emission Reductions (VERs) in 2010.⁵

The Transparency Study is an initiative of the EthiCarbone project. The EthiCarbone project originates from three organizations: Groupe Energies Renouvelables, Environnement, et Solidarité (GERES), Nexus Carbon for Development (Nexus), and a Malian association Réseau Carbone. Nexus, GERES and Réseau Carbone pooled their technical, commercial, and financial expertise to form an alliance. The EthiCarbone project aims to identify and minimize the barriers for local project developers to access carbon finance and to encourage the emergence of a regional market of “ethical carbon credits” in West Africa. Through research and on-site capacity development, the ultimate goal is to encourage West African project developers to effectively engage in carbon finance.

The Transparency Study allows for a greater understanding of how the carbon market currently functions from the local project developer’s perspective in West Africa.

Transparency and West African Project Developers

“Transparency promotes markets well-functioning by ensuring that operators have an adequate understanding of the market and that the available data (prices and quantities) provide them the right signals. Moreover, transparency enhances competition. Operators holding greater market power enjoy an information advantage, which they can use to deter entry and limit fair competition. Thus, information disclosure represents a useful instrument to create a level playing field for market participants, favour market oversight and detect abusive behaviours.” (Michetti, 2011)⁶

Assuming that transparency allows for an equitable marketplace and a “level playing field,” it is necessary to examine what information each actor holds in the value chain and subsequently, how information is exchanged among actors. If information is not

⁴ UNEP Risoe CDM/JI Pipeline Analysis and Database, January 2012. <http://www.cdmpipeline.org/cdm-projects-region.htm#6>

⁵ Peters-Stanley, Molly, et al. “Back to the future: State of the Voluntary Carbon Market 2011” Ecosystem Marketplace.

⁶ Michetti, Emanuela. “Transparency in the European Wholesale Energy Markets: Filling the Regulatory Gaps” Policy Brief. European University Institute & Florence School of Regulation. Issue 2011/3. June 2011

available or exchanged, then why and how does this affect West African project developers in terms of maximizing carbon revenues?

Generally speaking, a local West African business owner who manages an ICS project will use less wood or charcoal, while also reducing air pollution by decreasing the amount of smoke emitted compared to traditional cooking methods. Local banks may lack an understanding of ICS technology and deem the business not viable or credit worthy of a loan. In any case, the interest on a loan in Mali, a French speaking “land-locked least developed country” (LLDC) in West Africa⁷, ranges between 13% and 20%. Grants or loans may be sufficient for setting up shop, but after taking into account manufacturing and distribution costs, even locally produced stoves are prohibitively expensive for the target market, low-income West African families. It is even more challenging to scale up activity. Carbon finance can provide project developers long term financing as crediting periods are either seven years twice renewable or ten year fixed.

However, it is costly for the local ICS business to provide the necessary elements and evidence to access carbon finance. In addition, procedures, methodologies, and the documentation necessary are not available in the local language, but only in English. Thus, the local project developer will most likely partner with an organization that is proficient in the intricacies of carbon finance. So how much information is available to the local organization to effectively maximize potential revenues due to carbon finance? How much does the local organization learn during the process to implement subsequent projects or to aid other local entities to profit from carbon finance?

Publicly available data on the internet is accessible to local project developers on some carbon finance transaction costs. Certification, registration, and issuance fee schedules are publicly available for schemes (CDM, GS and VCS) on their respective websites. It is noteworthy that Designated Operational Entities (DOE) costs, which can be the most substantial transaction cost, are not publically available. This cost can range between \$10,000 - \$40,000 USD for validation and each verification depending on the project activity and the DOE chosen to perform the audits.

⁷ The full list of Least Developed Countries (LDC) can be found on the United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and the Small Island Developing States (UN-OHRLS). <http://www.unohrlls.org>

Selling Credits

Sales information is opaque. There is an index available for CERs, but actual prices paid for credits are not publicly disclosed for each registered project. The CER price index is calculated as a volume weighted average of trades made during a settlement period. In the voluntary market, there is no existing index, thus no official benchmark price for any voluntary credits certified by any scheme. While this may allow wider range of prices and a less predictable market for VERs, some project developers prefer this as having no index allows charismatic voluntary projects to fetch a higher price in the market.

Credit sales are detailed in Emission Reductions Purchasing Agreements (ERPA), a binding contract between the buyer and seller of carbon credits. There is no requirement to make ERPAs public. The number of credits issued is publicly available on the CDM registry, but not in which buyer's portfolio they end up and the price per credit paid. An ERPA can be put in place during any phase of the project activity. In addition to region, technology used, or social and economic benefits, buyers take into account the level of risk that the project will succeed in issuing credits when negotiating an ERPA. Generally speaking, the closer the project is to issuance, the higher the price of the credits.

ERPAs detail the terms of the financial transactions that take place upon credit issuance, but also may allow for project developers to receive upfront finance from buyers. A *spot agreement* is when “emission reductions have been issued to the seller and are ready for delivery to the buyer.” In this case, there is no risk of whether the project activity will issue credits and the price is likely higher than in a forward delivery agreement. Whereas a *forward delivery agreement* allows for the negotiation of the price per credit to happen prior to credit issuance and payments may be made in advance. If payments are made in advance of issuance, there is a higher amount of risk of whether the project activity will satisfy the respective schemes, CDM or voluntary, to issue credits.⁸

In addition, there are a number of ways that carbon revenues can be provided to local project developers. A few examples include a percentage of net carbon revenues, up front lump sum payments, or dollar per stove sold payments.⁹

II. Methodology

The research focus is on whether the local project developer has access to pertinent information on carbon finance as it flows through the carbon finance value chain. The

⁸ “What is an Emission Reduction Purchase Agreement (ERPA)” Overseas Development Institute:
<http://www.odi.org.uk/>

⁹ PCIA Webinar. “Distributing Carbon Revenues” December 15, 2011: www.PCIAonline.org

study pinpoints carbon finance transaction costs and credit sales, as this is relevant on a global level for all carbon finance projects. Accordingly, if the local project holder gains information on transaction costs and credits sales, the cycle is therefore deemed transparent with an efficient information flow down locally.

Further details on how data was gathered are detailed in Annex II.

Project Selection Criteria

Number of projects: 3
Geographic Region: West Africa
Technology held constant: Improved Cookstoves
Certification schemes: CDM / GS VER / VCS
Stage in certification: Registered

The Transparency Study focuses on ICS projects since there are multiple, although few, voluntary and compliance ICS projects already registered in West Africa. The study allows for more interesting comparisons between projects because the technology is held constant (although the argument can be made that pre-fabricated to locally produced cookstoves provide two very different approaches).

ICS dissemination is eligible for carbon finance and is deemed the way forward for West Africa to mitigate pollution, to decrease deforestation, and to improve the livelihood and health of the West African population. Emission reductions from ICS projects can be credited in the compliance and voluntary carbon markets. GS and VCS use either their own or applicable CDM methodologies.¹⁰

Registration was a criterion to ensure a minimum level of carbon finance experience to make comparisons between projects. This also ensured a full value chain associated for each project, as registration requires a complete audit by the DOE.

Voluntary projects were included if they were registered GS or VCS as the two schemes are widely considered at least as rigorous as CDM in their certification process. Although the study was open to include VCS certified projects, the only registered ICS voluntary projects in West Africa are certified GS.

¹⁰ As of March 1, 2011, the CDM had three registered ICS projects, with 16 in the pipeline, plus another 11 under the program of activities (PoA). The Gold Standard program had seven registered ICS projects: Three of which are currently issuing GS VERs and four that are registered. There are 19 others in the pipeline. "Household Cookstoves, Environment, Health, and Climate Change". Source: The International Bank for Reconstruction and Development / THE WORLD BANK. 2011

Following the above-mentioned criteria, the three projects were selected to participate in the study. Basic descriptions of a project, such as the host country where the project takes place, can give reveal the project's identity. In order to respect requests from participants not to be directly attributed in the study, there is a minimum amount of descriptive details used to refer to each of the three projects in the public report (e.g. "Project A" instead of a specific title). Hereafter, these projects will be referred to respectively as Projects A, Project B, and Project C.

An overview of actor/intermediary participation for each project is detailed in Annex I.

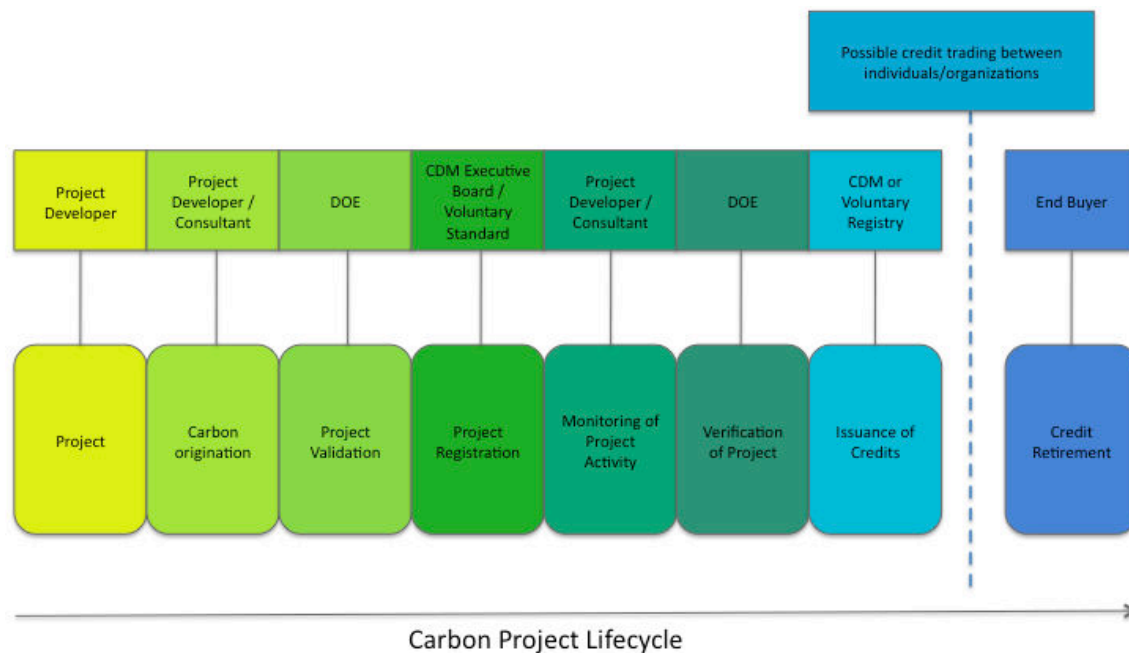
Value Chain Analysis of the Carbon Commodity

Efforts were made to contact the maximum number of actors in order to evaluate the level of transparency in the carbon finance value chain. However, due to certain circumstances, it was not possible to contact all of them (see the "Difficulties Encountered" section for a full explanation).

The study focuses on carbon finance transaction costs and carbon credit sales. Transaction costs include certification, DOE validation and verification, registration and issuance fees. Sales data is comprised of the price per credit and the identities of the credit buyers.

The study aims to understand the nature of the flow of information within the carbon project lifecycle. For example, the amount paid for transactions costs and for carbon credits is less important than learning what information each actor has and if they are willing to divulge the information or not.

Nodes in the carbon finance value chain



Actors in Carbon Credit Development

Local project developer: The local project developer is the entity that typically manufactures or disseminates the ICS on the local level. Generally they are also in charge of monitoring sales of the stoves (this includes who is actually using the stove). Theoretically the stove users are the actual credit owners as they are the ones implementing the carbon reduction activity, but credit ownerships goes to the local project developer as long as it is clear the stove users knowingly renounce their rights to the credit upon purchasing the stove. In all three projects in the study, the local project developer is also specified as a project holder in the PDD.

Carbon Originators / Consultants: Carbon originators develop emissions reduction projects to sell to resellers or final customers. Carbon originators are commonly in charge of creating the documentation required in order to be eligible to issue carbon credits (e.g. Project Design Document, Monitoring Reports, etc.). The carbon originators could be considered consultants and are frequently listed as project holders along with the local project developer in the PDDs.

Monitoring Consultants: Independent organizations that are hired for baseline and monitoring activities. The baseline is the level of emissions that would be emitted in the absence of the project activity. Monitoring is required to ensure that forecasted activity

is actually being implemented. For an ICS project, sufficient monitoring is required to prove that emission reductions are realized.

Designated Operational Entities (DOE): An independent auditor accredited by the CDM Executive Board (CDM EB) to validate project proposals or verify whether implemented projects have achieved planned greenhouse gas emission reductions.¹¹ CDM accredited auditors are automatically eligible to certify GS and VCS projects in the voluntary market.

Certification Schemes: The entity that reviews project documentation and determines if the project activity qualifies for the issuance of carbon credits. Examples include the CDM Executive Board for the compliance market, and GS or VCS for the voluntary market.

Designated National Authority (DNA) / Relevant government agencies: The DNA assesses potential CDM projects to determine whether they will assist the host country in achieving its sustainable development goals. It is required that the DNA provides a letter of approval (LoA) of the activity for CDM projects. The LoA is submitted to the CDM Executive Board to support the registration of the project. Host country DNA approval or LoA is not required for voluntary certification schemes such as the GS and VCS.

Brokers: Companies that do not own credits, but facilitate transactions between sellers and buyers (none of these projects specified that brokers were used in selling the credits).

Carbon credit buyers/retailers: Organizations or private companies that own and sell volumes of credits to individuals or organizations.

End buyers: Organizations or individuals that are retiring credits to offset their respective carbon footprints.

Multiple Roles

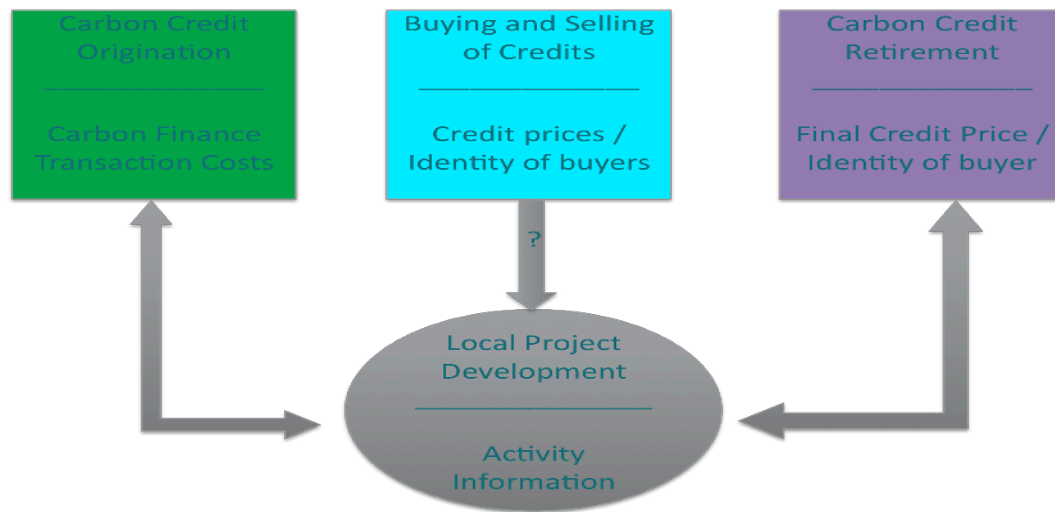
It is important to note that frequently an actor fills multiple roles or nodes of the value chain. For example, “a carbon asset originator” could be managing the carbon finance documentation, monitoring, and brokering deals for credit sales. Therefore, in the projects selected, comparisons for actor-to-actor are not always precise.

¹¹ Descriptions taken from the UNFCCC website

III. Preliminary Results

The interviews for the study allow a comparison between projects in terms of the transaction costs and credits sales information available to the local project developer, the general public, and the researcher.

Is carbon finance information being communicated to the local project developers?



The tables below show the transparency rating from the perspective of each audience: local project developer, public, and researcher.

| | |
|---|---|
| Key to color code: | |
| 2 = Information very accessible | <div style="background-color: yellow; width: 100px; height: 15px;"></div> |
| 1 = Some information accessible | <div style="background-color: orange; width: 100px; height: 15px;"></div> |
| 0 = Little to no information accessible | <div style="background-color: pink; width: 100px; height: 15px;"></div> |

Table 1 - Transparency: Transaction Costs

| Transaction Costs | Project A | | | Project B | | | Project C | | |
|------------------------|-----------|--------|----------|-----------|--------|----------|-----------|--------|----------|
| | Local PD | Public | Research | Local PD | Public | Research | Local PD | Public | Research |
| Monitoring Costs* | 2 | 0 | 2 | 0 | 0 | 1 | 2 | 0 | 2 |
| DOE Fee - Validation | 1 | 0 | 2 | 0 | 0 | 1 | 2 | 0 | 2 |
| DOE Fee – Verification | 1 | 0 | 2 | 0 | 0 | 1 | 2 | 0 | 2 |
| Certification fees** | 0 | 1 | 1 | 0 | 1 | 1 | 2 | 1 | 2 |
| Registry Fees | 0 | 1 | 1 | 0 | 1 | 1 | 2 | 1 | 2 |
| Subtotals | 4 | 2 | 8 | 0 | 2 | 5 | 10 | 2 | 10 |
| Overall Scores | 14 | | | 7 | | | 22 | | |

* May be a consultant fee for monitoring services if applicable

** Gold Standard / CDM

Project C had the highest level of transparency related to transaction costs and the Project B had the lowest.

Since the fee schedules are available on each scheme's respective website, actors were willing to disclose amounts paid to registry and certification fees. There was a resistance to disclosing the fees paid to DOEs for 2 out of 3 of the projects. However, for research purposes, two carbon originators provided exact prices paid to DOEs and one carbon originator provided estimates. Only one local project developer knew the actual price paid for the DOE. The validation and verification audits are required to issue credits for CDM and for GS. However, the prices paid for the DOE both at verification and validation for each of the various projects ranged from 15,000 to 30,000 USD.

From the perspective of the relevant actor actually incurring the cost of DOE fees, interviewees would express strong concern on divulging information that could become publicly accessible. Reasons for this could be to have a competitive advantage or originators may not want to disclosed negotiated prices with DOEs as prices may be lower than that of other similar projects.

More concretely, carbon originators gave DOE fee cost estimations to the local partner project holders when negotiating ERPAs. For Project A, the actual price paid differed from the "prix d'ami" or "special discounted price" specified in the ERPA. Therefore, the project originator was willing to divulge the DOE price for research purposes, but did not want the exact amount in the report. For Project C, an estimation was given to the local project developer, and then the actual amount paid was provided after the audit was performed due to a requirement in the ERPA to divide revenues with the local project holder after taking into account transaction costs.

In Project B, the project originators provided a global carbon finance cost estimate when negotiating the ERPA with the local project developer. Therefore, there is no requirement to share information on the actual prices paid, and consequently the originator did not divulge the information for the study.

Table 2 - Transparency: Credit Sales

| Carbon Credits Sales | Project A | | | Project B | | | Project C | | |
|----------------------|-----------|--------|-------|-----------|--------|-------|-----------|--------|-------|
| | Local PD | Public | Study | Local PD | Public | Study | Local PD | Public | Study |
| Credit Buyers | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| Credit Prices | 2 | 2 | 2 | 0 | 0 | 0 | 1 | 0 | 0 |
| End user price | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotals | 6 | 6 | 6 | 1 | 1 | 1 | 2 | 1 | 1 |
| Overall Scores | 18 | | | 3 | | | 4 | | |

The focus is on who bought the credits originating from the respective project and at what price. Project A had by far the most transparency for carbon credit sales. Project C, which had the highest rating for transaction cost transparency, had a much lower score for carbon credit sales transparency.

Disintermediation, or the removal of middlemen in a supply chain, was the primary reason the Project A sales information was fully disclosed. Project A directly retires the credits on behalf of sponsors, which minimizes the number of intermediaries. Therefore, there is a limited chance for the loss of information. The clients have already agreed to pay a price per credit, the credits issue, and then credits are retired.

There were instances where project developers heard rumors of organizations that bought carbon credits originating from their project. When the project developers then contacted these organizations, they were blocked by confidentiality agreements or just an unwillingness to divulge price information, so the information flow of credits sales did not reach the local project developer.

Project developers are unable to be in direct contact with the entities interested in their project activities, thus limiting understanding of the demand for their respective credits. One project developer who participated in the study could not identify buyers after ownership of the credits went to the originator. Intermediaries buying and selling credits originating from a project activity do not want to divulge sales information most likely because this would show how much profit they are making on the credit, which may compromise future negotiations.

One buyer had a positive effect on the project activity where there was a direct relationship with the local project developer. A buyer had sent independent consultants to perform due diligence on one of the ICS projects. As a result, the buyer made recommendations on how to continually improve on the already high standard of safety conditions required in the manufacturing facility.

Transparency between Project Holders

There were at least two official project holders for each project selected for the study. The project holder roles were divided into one organization responsible for the manufacturing or distribution, or the “implementing entity” of the ICS activities, and another that is responsible for the carbon finance aspect or the “carbon finance origination.” In all three projects it is the carbon finance originator that manages the payment of the transaction fees (certification, DOE fees, etc.) and the documentation necessary for certification (PDD, validation and verification reports, etc.).

There were two distinct types of relationships that are then created between these two participants among the three projects in the study: **patronage** and **partnership**.

The **patronage** relationship is created when the carbon originator negotiates a price per credit with the local project developer, and takes on the burden of transactions costs and the risk that the project may not issue credits. In patronage, the originator takes on risk that carbon finance transaction costs will not be offset by the revenues if the project is not successfully registered.

Individual transaction costs are not communicated to the local project developer by the carbon originator in a patronage relationship. Consequently, minimal carbon finance knowledge sharing occurred between the participants in the patronage relationship. The local project developer may actually prefer this, as their ultimate goal is only to ensure the amount of carbon finance revenues for budgeting purposes. However, the lack of communication between the two entities in a patronage relationship may instigate frustrations if the process does not go as intended.

Negative operational impacts were seen as a result of not sharing carbon finance information between the project holders in Project B. The local project developer did not understand the reasons for delays in issuing credits and could not effectively assist in speeding up the process since the local project developer did not understand the validation and verification processes. As a result, the local project developer budgeted for operations with expectations that carbon finance revenues were going to be realized at a certain time, and the project activities were strained, as the process did not go as forecasted.

The **partnership** relationship is created when carbon revenues are divided between the project developer and the carbon originator after transaction costs are taken into account. Therefore, even if the carbon originators paid for the transaction costs up front, they are required to communicate actual costs to the local project developer to divide up revenues. Evidently, this promotes more knowledge sharing and the more local project developers learn more about carbon finance.

A partnership encourages knowledge sharing beyond the obligations specified in the ERPA. If one partner learned where the credits were purchased, the participants would notify each other. The partnership relationship also allowed the local project developer to learn about carbon finance and to explain the intricacies of carbon finance process more clearly. These local developers had a clear vision of “lessons learned” and how to mitigate risk and felt they “understood how to negotiate ERPAs” with other carbon finance originators for future carbon finance projects.

The non-transparency of credit buyers may cause mistrust between the local project developer and the carbon originator. For example, if there are rumors that the credits have been sold in the market by the originator and credit revenues are delayed due to carbon finance bottlenecks, the lack of transparency can create a perceived imbalance of power among project holders. If ERPAs were made public information, the risk of even a perceived imbalance of power is minimized.

This study was limited to only three projects; therefore it is not possible to make a conclusion if this is an overall theme in the carbon markets for ICS projects. More research is necessary to see the effects the patronage and partnership relationships have on the technology producer.

Unpredictable time frames and financial impacts

Price and costs are one aspect of transparency; however, a reoccurring theme throughout the interviews was that of time predictability. Intermediaries may not be transparent with respect to the time required to successfully register and issue credits since these processes are not fixed. Carbon finance revenues were essential to either keep cookstove prices low enough for customers to afford or to cover overhead costs to maintain ICS manufacturing or monitoring activities. As a result, the time it takes to realize carbon revenues is a major factor in keeping ICS project activity sustainable.

According to GS rules, project activity from more than two years prior to registration cannot be included in the crediting period. Unaccounted time delays that are not forecasted in the planning can result in losses in the number of credits issued, and thus a loss in carbon revenues budgeted for operations. Therefore, significant revenues are lost if time delays are too long.

In interviews, carbon originators commented that DOEs did not respect the time commitments agreed upon when the project developer contracted the DOE to audit for the validation and the verification of the projects. One actor had even agreed to provide a monetary bonus to the DOE if they respected the time commitment to audit a project. This project's verification was delayed by eight months over the originally agreed upon timeline with the DOE. This was a theme throughout all three projects.

Verification involves a DOE audit to ensure monitoring of project activities is appropriately in place. When the first verification is complete, the project begins issuing credits. Time delays can result in revenues being delayed, which had financial and operational impacts on the project activity. Again, additionality needs to be proven to show the activity would not be viable without carbon finance, thus the carbon finance revenues are essential to maintain project activity.

Explications given for delays included "DOEs are all overworked" and "voluntary projects are put on the backburner and compliance projects are given priority by DOEs." Other project developers pointed to "overcomplicated contracts with numerous annexes providing ways for DOEs to not be held accountable time agreements." Should DOEs be held accountable and had more transparent for time commitments? Should there be overall guidelines that DOEs are required to adhere to when auditing projects in terms of timeframe transparency?

ERPA Confidentiality creates an imbalance in negotiating power

During interviews project developers, originators, or buyers were asked: “Can you send me the ERPA?” The response was always negative. Even if the relevant actor wanted to send the ERPA, confidentiality agreements restrict access to ERPAs to only the parties contractually involved.

ERPA confidentiality limits knowledge sharing in multiple ways. There is no benchmark in the voluntary market for price per credit. Thus, both the buyer and seller of credits have their own independent methods for estimating what the carbon credit is worth. If an ERPA is confidential, both buyers and sellers are prohibited from exchanging information within their respective communities. So there is a limited means to understand at what price other project developers or buyers negotiated. In West Africa, where there are few carbon projects taking place, thus local project developers are there limited in understanding how to appropriately price the credit for buyers.

For each project, the credit sale price was negotiated prior to project registration, so there is the burden of risk taken on behalf of the buyer of credits. Tom Morton of ClimateCare specified the risks in a PCIA webinar to include “market risk, country risk, and counterparty risk” taken into account for whether the activity will be successful in issuing credits when buyers negotiate ERPAs.¹²

A local ICS project developer in West Africa may not have access to advice due to the lack of carbon finance taking place in the region. Even if there were other project developers, they would be also bound by confidentiality agreements. So the project developers, eager to be sure that adequate revenues will arrive to cover operational costs or the subsidies made to sell the stove to the local community, have limited means to know what the ICS project is worth in the carbon market.

Buyers may estimate the perceived risk of non-issuance as being greater the actual risk. If there is no benchmark for credit prices and confidentiality agreements prohibit knowledge sharing, buyers may have the upper hand. Buyers with financial backing to take on risk wield more power in the negotiating process. If the buyer is a reseller, it is in their interest to negotiate the price per credit as low as possible in order to gain more profits.

“Additionality,” or proof that the project is viable only with carbon finance, is a requirement for both GS and CDM. Local project developers aim to have financial security, which means a buyer has the sufficient financial resources to pay for the credits either upon credit delivery or on pre-financing on a forward contract. Money on

¹²http://pciaonline.org/files/December_15_Webinar_Final_Sync_122011/December_15_Webinar_Final_Sync_122011_controller.swf

the table is enticing for local project developers who are relying on carbon finance to cover operational costs. Local project developers, most likely not fluent in the intricacies of carbon finance, may take on too much of the burden of risk to secure cash flows to sustain business operations.

Price Index in the voluntary market: “Is a voluntary tonne a tonne?”

There is an index for CERs but there is no index for VERs. Even for CERs, if there is an additional GS certification, the price more difficult to forecast and to negotiate, due to the inherent added value the market places on GS certification. Currently there is no index for GS VERs or GS CERS. According to the project developers interviewed, prices for Sub-Saharan African GS VERs can range from \$4-\$25 USD per credit in the market.

There is debate among originators and local project developers over the value of creating an index in the voluntary market. Would it help or hinder maximizing revenues for their ICS carbon finance projects? Proponents argue that an index would encourage private sector involvement, as it would be easier to budget for investment. New project developers could estimate and forecast carbon finance revenues with an index and determine whether revenues would offset costs.

However, the movement of commoditizing a market with credits derived from projects that are difficult to compare makes an index difficult to put in place. The index would “level” the playing field, but at the same time make charismatic projects worth less than their intrinsic value. Each project is unique, which in turn make the credits derived from each project unique. Should a GS certified Turkish wind voluntary project be priced the same as a Sub-Saharan ICS voluntary project?

The region where the project activity takes place, technology used, and certification scheme are characteristics that can aid in selling the credit at a higher price. There is the possibility of having a hierarchal system of voluntary credits, which, if implemented appropriately, could provide various indexes taking into account these types of characteristics.¹³

A hierarchy of indexes may be an appropriate solution according to some project developers. During a PCIA webinar focused on the distribution of carbon revenues that took place on December 15, 2011, Erik Wurster of UP Energy, who has developed ICS multiple projects in Sub-Saharan Africa, stated: “Lack of price transparency in the voluntary carbon markets leads to unjustifiably high margins for market intermediaries, resulting in less revenues to local actors. Consolidated exchange for all GS VERs where prices are indexed would solve this problem.” Mr. Wurster continued, “The lack of price transparency contributes to the market functioning less efficiently.”

¹³ PCIA webinar “Perspective: Allocating Carbon Revenue”, December 15, 2011

Confidentiality concerns within carbon community

Since the carbon community is relatively small, concern about sensitive data given to the researcher was widespread. Although the consent form (see Annex III for the consent form) provided to participants confirms that no information would be attributed to any source in the report without explicit consent, there were requests by certain actors to not provide exact figures for transaction costs.

The Transparency Study is part of the EthiCarbone project, which is overseen by Nexus, GERES, and Réseau Carbone so there was concern that data gained by the research would be used to gain a competitive advantage and the study was just a means to gain inside information.

There were a few “off the record” interviews where actors wanted to participate so that information could be used to make overall conclusions. Why were the participants providing “off the record” information? There may have been fear of providing information that would be made public that could damage the reputations of the other organizations they were working with.

So then why participate at all? Actors wanted to express their concerns and frustrations in terms of transparency, but without the risk of repercussions later. Since local project developers are working on shoestring budgets, there is also the fear that if information was to be “on the record,” then the intermediaries they are relying on may damage the chances of actually reaping carbon revenues. Credit buyers look for projects with minimal risk. Many times buyers purchase credits on forward contracts, thus any bad publicity could make potential buyers think twice before purchasing.

Participants were ensured that research data was guarded in confidence by the researcher, and that requests for how data would appear in the report were respected. Data gained by the researcher has been gathered on a password protected laptop with the relevant files and data also password protected. Even the managing entities (GERES, Nexus and Réseau Carbone) did not have direct access to the data.

“Talk to us when everything is better!”

While data gathering, some projects were at critical stages in the carbon finance process and problems were occurring. There were instances when these actors did not want to participate until the problems were resolved and thus delayed their contribution by weeks or possibly months. Insistence proved useful, and overall interviews occurred with all necessary project developers, although some consent forms will only be signed at a later date.

Interviewees were happy to be transparent if they were at a stage where validation and verification had already been completed in the carbon finance process. There was less perceived risk in providing information to a study that could be public knowledge when credits had already started to be issued. However, for a study useful information to better the market place could be used when processes are not working as anticipated. Thus there was an information bias inherent in the project whereby only successful projects, at successful stages of the project life cycle, were reported upon.

Host Country Transparency

Project holders are obligated to obtain approval of the local DNA for CDM projects in order to be registered. No such approval is necessary for voluntary projects. Each of the project holders voluntarily contacted the host country DNA for letter of approval or letter of non-objection. The local DNA varied from participating in the local stakeholder consultation to merely validation of a project description.

The fact that project holders voluntarily contacted the DNA is evidence that there is value in creating a relationship between host country officials and the project activity. There is increased transparency from the perspective of the project developer, showing that they adhering to a country's development goals.

Should voluntary standard require that host country DNA approval be given for project activities? More research is required from other projects that did not inform the DNA of project activities and what affects this has in terms of project design.

IV. Difficulties Encountered

Security risks for scoping missions

Security concerns in West Africa limited the number of scoping missions for research. According to the French Embassy website, there are a number of areas in West Africa deemed too dangerous for travel. In these cases, the researcher adhered to guidelines

provided by GERES, who have extensive experience in developing countries. Examples include Northern Mali, where five kidnappings of Europeans took place, and Nigeria where a rebel group threatened to bomb American Hotels in Abuja. In cases such as these, site visits could not be made.¹⁴

Personnel changes (DNAs, DOEs, mergers) and multiple roles

Requiring only projects that have been “registered” can mean that some of the intermediaries took part in the project before the study was being conducted. Therefore, there have been personnel changes, mergers, company buy-outs, and even various organizations or companies that no longer exist, which means that the relevant individuals could not be contacted.

For example, a member of the DOE that took part in the validation from a project in 2009 may have left the organization. Gaining first hand insight to how the validation was conducted is not possible and the replacement resists providing data when he or she did not actually participate.

In the case of a merger, the person managing an activity presently may not be the same individual who managed the project presently, which then limits data gained on the activities occurring during initial stages of the project.

Contacting local DNAs is particularly challenging; they frequently ignored emails (or they were undeliverable) and outdated contact information on websites is the rule not the exception. The DNA focal points can also change, and when the contact relevant to a project has left, there are limited means to locate where the individual is. This is noted in the transparency results.

Delays in project developer participation

Due to concerns that data originating from the project would be published in a public report, some actors could not participate due to circumstances such as internal legal processes reviewing the questions that were to be posed by the researcher or headquarters prohibiting participation by their local entity.

Although a majority of the actors agreed to participate eventually, delays from project developers committing to participate in the study pushed timelines back significantly. If the project developer does not participate, this limits other actors in the value chain from participation as well. Some project developers finally agreed to participate three to four months after the research began.

Other actors could not participate in the study because of other priorities. The reality is many of these organizations have a lot on their plate, so finding convenient times to have a comprehensive interview as opposed to completing a simple survey delayed data gathering.

Time constraint due to participation delays

The research and report has been planned to take place over six months. Due to the aforementioned delays, significant portions of the research could not take place until three to four months after the research start date. Although participation is high and the majority of the actors for each project have been interviewed, analysis of the data and writing of the report is restricted by the agreed timeframe for the research project.

Challenge of working with human beings: need for triangulation

The risk in having human subjects provide a significant amount of data is that there are many versions of histories that needed to be questioned as fact. One person's story may be vastly different from another's description of the exact same data point. It was necessary to compare information from multiple sources to ensure accuracy and the level of transparency.

V. Recommendations

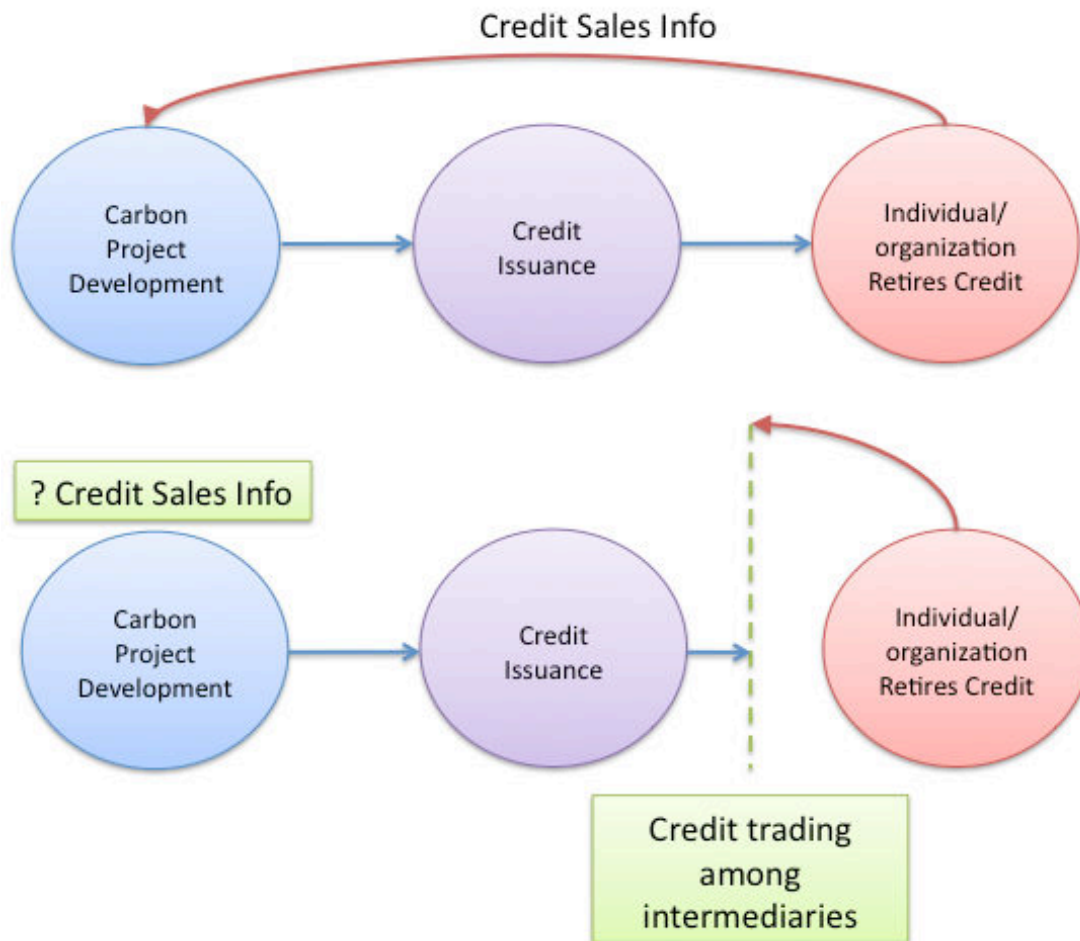
Although the study assumes that transparency puts everyone on an “even playing field,” there is evidence that full transparency in all aspects of carbon finance may not be advantageous for local ICS project developers in West Africa. However, there are aspects of transparency that should be explored further in order to create a more equitable carbon market for local project developers and to encourage more carbon finance project in West Africa overall.

A “Fairtrade carbon credit”

Fairtrade as defined by the Fairtrade Foundation covers social, economic, and environmental development for small-scale producers. These triple line benefits are, in essence, what the Gold Standard aims to promote in certifying renewable energy and energy efficiency projects. The Fairtrade element of carbon credits could be reinforced through the disintermediation of the carbon finance value chain.

Local project developers form a type of “cooperative” or network and then credits are retired on behalf of supporters of the network. An agreed upon price could be negotiated on half of the “cooperative” with the “sponsors” who are, in essence, the

credit buyers. Therefore disintermediation in the carbon finance value chain has taken place.



Examples of disintermediation are already evident in the market. According to atmosfair's website, the organization uses a calculator "to determine a monetary amount that can be voluntarily paid in order to compensate for the greenhouse gases that he or she created by flying." In turn, atmosfair then retires the GS certified CERs on behalf of the sponsoring individuals or companies directly on its account at the German Emissions Trading Scheme (DEHst) at 23 Euros per credit. This eliminates the necessity of intermediaries and ensures that the majority of the carbon revenues go directly to supporting the project activities themselves.

Index vs. floor price in the voluntary market

The idea that every project activity should be priced according to an index in the voluntary market may be detrimental to the charismatic projects, such as ICS or Sub-Saharan African projects that tend to command higher prices in the market than other

projects. In order to assure local project developers are reaping a minimum amount of carbon revenues and at the same time not limiting the credit price, the solution could be the inclusion of a recommended floor price.

Generally floor prices risk reducing the amount that consumers purchase or pushing consumers out of the market completely. However, a hierarchy of floor prices for various projects could be a way of still including companies who are looking to engage at different price points.

There could even be a regional or technology specific floor prices. For example, a Turkish Wind Project has a floor price of X and a Sub-Saharan African ICS project could have a floor price of Y. There should be a way to decipher floor prices for community-based projects, such as ICS, or bigger industry projects such as landfill projects. If the goal is to give local project developers an idea of how to budget and also to aid actors in negotiations, the floor price may be the answer. Projects are therefore not homogenized and there is no ceiling on the price, as the tendency would be in establishing an index, but the playing field becomes more level with a floor price. The carbon markets are still in development and the potential is inherent in the design.

Transparent Time Frames

Holding DOEs and standards accountable for respecting timelines can only really be a directive from CDM Executive Board or from the voluntary standards such as GS. Project developers restrain from publicly criticizing DOEs fearing repercussions from DOEs not wanting to audit projects. For this reason only independent organizations, such as the standards themselves, can encourage accountability for forecasted timeframes for validation and verification.

There needs to be further examination of whether DOEs are causing bottlenecks in the carbon finance process or if it is due to logistics from the certification schemes themselves. Accountability to respect time frames needs to be put in place in order for local project developers and carbon originators to plan accordingly. Carbon revenues are needed to sustain project activities and to offset the DOE transaction costs in carbon credit origination. This is evident for ICS projects in West Africa. If auditors do not adhere to agreed timeframes, this should be reportable to UNFCCC or the Gold Standard.

However, the responsibility may lie more with the standards themselves. In response to prolonged timelines for pre-feasibility assessments of program activities, the Gold Standard currently has a list of Fast Track Eligible DOEs for voluntary projects. In order to qualify as a “fast track” DOE, auditors are required to attend a webinar on GS rules to prove GS fluency so as to provide more efficient auditing. Auditors are required to attend beginning and advanced trainings, then refresher webinars every six months to remain on the “fast track” list. There is no information regarding specific validation and

verification trainings for GS. There is also no information on project developers signaling significant delays due to the validation or verification.

One auditor interviewed during the study commented that there were 28 trainings with the CDM Executive Board in 2011 whereas he could only recall one or two webinars that he attended with GS.¹⁵ The GS may have to provide a more proactive role in DOE training, especially for GS specific methodologies in order to speed up timelines for projects.

Knowledge Sharing Networks

Knowledge sharing is the key to making the carbon market more equitable. Local project developers in West Africa are few, but the potential impact that these developers can have in sharing information and experiences is large. Knowledge sharing cannot occur only between local project developers, but there is a need for more information sharing between actors throughout the value chain.

Currently there are a number of networks that promote knowledge sharing for local project developers for carbon finance. A good example of knowledge sharing for ICS projects is the Partnership for Clean Indoor Air, created in 2002 at the World Summit for Sustainable Development. In 2011, PCIA partnered with GS to host a series of webinars focused on carbon finance and ICS.

Various organizations that were developing ICS projects or specialized in various aspects of the monitoring activities participated to provide their perspective and respond to questions from the audience. Initiatives such as PCIA are essential to ensure an equitable marketplace for local project developers. The webinars are in English and as West Africa has a number of French speaking countries, adapting this model in respective languages should be encouraged to ensure equal access to information.

The Fair Climate Network (FCN) is another initiative promoting carbon finance knowledge sharing. In a participatory process, FCN aims to “develop a minimum of 20 pro-poor CDM projects by grassroots NGOs so that they access carbon revenues...”¹⁶ FCN is comprised of development workers, climate change activists, environmentalists, scientists and other professionals from India. In short, they work with 28 NGOs to “assist” project activities in issuing CERs. In their participatory approach, FCN succeeds in bringing carbon finance knowledge to the project developers themselves as opposed to making the two roles, carbon originator and local project developer, completely independent of each other.

¹⁵ <http://www.cdmgoldstandard.org/project-certification/doe-corner>

¹⁶ <http://www.fairclimate.com/tech/team/roles.aspx>

VI. Conclusion

The Transparency Study provides evidence that carbon finance limits information flow in the carbon value chain. As such, the production chain is not economically efficient and creates an unlevel playing field for local project developers in West Africa. The goal of the EthiCarbone Project is to identify areas in the carbon finance value chain to ensure local project developers have the necessary information to effectively negotiate and maximize revenues as the carbon markets evolve.

This is not a one type of relationship fits all situation. Project originators may not be “hiding information” and local project developers may just want an agreement that ensures a minimum price per credit will be gained if they succeed to issue credits. However, as more local project developers use carbon finance, their role in carbon origination needs to be more substantial in order to maximize revenues. Therefore, it should be encouraged that local project developers in West Africa become partners with carbon originators, and that knowledge sharing networks for local project developers emerge and mature.

This is especially important for West African ICS projects, where ICS activities are growing and stand-alone projects are now being incorporated into larger programmes of activities (PoA).¹⁷ The PoA is managed by a public or private entity, but may have different local project holders involved in multiple CPAs. PoAs, involve higher transaction costs in the beginning, but normally decrease overall transaction costs in the long term. PoAs are also more complex to put in place.

Therefore, local project developers should be encouraged to become partners to maximize the benefits for their efforts. The market is moving towards bigger actions to provide create more carbon offsets, as in PoAs, and efforts need to be made to establish guidelines to standardize both the carbon finance process and potential revenues that local project developers can expect to even the playing field.

Increased transparency may allow for a fair and equitable market place and also allows for more project activities in the carbon market to take place. If there were fewer variables in the equation, such as transaction costs, time frames, and credit prices to put in place project activities, there would be more actors engaging in carbon finance.

¹⁷ As described in Southpole’s “Developing CDM Programmes of Activities: A Guidebook”: a “PoA is the framework that defines broad parameters for project activities (CPA) that are eligible for inclusion in the PoA”.

Annex I. Overview of Actor/Intermediary participation for projects in the research

| Node in Value Chain | Project A | Project B | Project C |
|--|-----------|-----------|-----------|
| Local Technology Developer | Yes | Yes | Yes |
| Carbon Asset Originator | Yes | Yes | Yes |
| Monitoring / Baseline Study Consultant (if applicable) | Yes | N/A | Yes |
| DOE – Validation | Yes | Yes | Yes |
| DOE – Verification | Yes | N/A | Yes |
| DNA | Yes | No | Yes |
| Buyer | Yes | Yes | Yes |
| Certification Scheme | Yes | Yes | Yes |

Annex II. Data Gathering

The research uses data from both primary and secondary sources. In addition to the analysis of project documents provided on public registries¹⁸ (e.g. APX for GS, UNFCCC website), historical price info, and news articles, the research methodology includes semi-structured interviews with each actor in the value chain. The methodology outlines key areas that need to be focused on during the interview and also includes a scoping mission to project activity sites.

Stratified sampling is used so that at least one actor from each node in the value chain contributes with their perspective in an interview conducted by the researcher. A questionnaire was sent in circumstances where the participating party could not or did not want to respond in a telephone, Skype, or in person interview.

The key areas discussed in each interview are as follows:

- Actor's role in the carbon finance process (and whether they had multiple roles)
- At what stage the actor became involved in the project
- Knowledge of transactions costs and credit sales realized due to carbon finance
- Level of innovation in carbon finance (are they encouraging West African project development, transparency, and "leveling the playing field")
- The contribution to knowledge sharing within the value chain

Organizations were sent a consent form to participate. The consent form acknowledges that participation is voluntary and that no information in the report will be attributed to the interviewee's name without explicit consent (see Annex III for consent form).

Process tracing works by extracting all of the observable implications of a theory, rather than merely the observable implications regarding the dependent variable. Once these observable implications are extracted new questions are posed and theories evolve.

It is often used to complement comparative case study methods. By tracing the causal process from the independent variable of interest to the dependent variable, it may be possible to rule out potentially intervening variables in imperfectly matched cases. This can create a stronger basis for attributing causal significance to the remaining independent variables.

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Annex III. Consent Form

Research Informed Consent

Carbon Asset Flows in Carbon Markets

Jasmine Hyman, PhD student

Marion Verles, Executive Director Nexus

Purpose: We are conducting a research study to examine how and in what manner assets flows from carbon emission reduction projects are distributed among local landowners, service providers, and buyers.

Procedures: Participation in this study will involve your participation in a semi-structured interview, which may be audio recorded. You will be formally thanked for your participation in the acknowledgements section unless you request to remain anonymous.

Risks and Benefits: Although this study will not benefit you personally, we hope that our results will add to the knowledge about the effectiveness of carbon markets.

Confidentiality: We will not directly attribute information to your name without your explicit consent. This document serves as a non-disclosure agreement unless the interviewee gives explicit and active consent to be quoted.

Voluntary Participation: Participation in this study is completely voluntary. You are free to decline to participate, to end participation at any time for any reason, or to refuse to answer any individual question.

Questions: If you have any questions about this study, you may contact the investigator, jasmine.hyman@yale.edu, m.verles@nexus-c4d.org.

If you would like to talk with someone other than the researchers to discuss problems or concerns, to discuss situations in the event that a member of the research team is not available, or to discuss your rights as a research participant, you may contact the Yale University Human Subjects Committee, Box 208010, New Haven, CT 06520-8010, 203-785-4688, human.subjects@yale.edu. Additional information is available at <http://www.yale.edu/hrpp/participants/index.html>

Agreement to Participate: I have read the above information, have had the opportunity to have any questions about this study answered and agree to participate in this study.

(printed name)

(date)

(electronic signature)

(name of organization)

