CLIMATE SMART GROUP

Assessing the Insetting Landscape

THE CURRENT STATUS OF INSETTING IN THE SUSTAINABILITY INDUSTRY

CLIMATE SMART GROUP | 1, 724 East Lake Road, NE, Airdrie, AB, T4A 2J5 Canada | www.climatesmartgroup.com

Assessing the Insetting Landscape

Table of Contents

Insetting Overview

Prior to Tipper, Coad, and Burnett (Ecometrica 2009), the term "insetting" was widely unknown and non-descript. Insetting has been commonly described as a similar concept to carbon offsetting (purchasing a carbon emission reduction credit from a verified project) but the reduction occurs within the scope of influence of the company and typically is not part of a cap-and-trade, or regulated scheme. Although many different pathways have been explored for corporate carbon emissions reduction, such as purchasing offsets, the concept of insetting brings many co-benefits to the table that are not integral to offsets nor have been demonstrated with most other pathways to carbon reductions. Insetting also exposes an additional method to achieve carbon neutrality, so that the company does not have to rely heavily on spending and transactional costs for offsets. As an investment, insetting can move the company several steps closer to being carbon neutral, while also improving efficiency, strengthening communication and trust within the value chain and improving community benefits.

Insetting development continues beyond this analysis behind the scenes, with many companies exploring pathways to reducing their carbon footprint. Notably, Climate Smart Group is participating in a USDA Conservation Innovation Grant led by the Soil Health Partnership and Monsanto. The project is developing a Carbon Accounting and Insetting Framework, that will be implemented and tested at grower sites across the Midwest in 2018. Additionally, the Gold Standard will be releasing a set of Scope III Recommendations in summer 2018, providing guidance for groups wishing to implement insetting programs. The insetting space will continue to evolve over coming years as these programs develop and evolve.

Current State of Insetting

Insetting projects are relatively new to the carbon reduction industry but multiple case studies have emerged as initial efforts toward streamlining the value chain for reduced emissions. In a market survey done by Davies et al. 2016, they found that insetting currently has two general definitions:

1. Upstream carbon insetting - where organizations seek to reduce emissions or sequester carbon using upstream suppliers;
2. Broader scope insetting - including upstream and downstream as well as other materials besides carbon (reduced water or electricity usage, community development projects, reduced packaging material, etc.)

Several working groups such as the International Carbon Reduction and Offset Alliance (ICROA) are seeking to come to consensus in partitioning the idea of insetting into these two definitions, identify best practices and ultimately standardized methods for certifying insets. Insetting will also require a standardized protocol or methodology to be developed throughout the industry, which seems to have been increasingly addressed by different associations and standard groups. For example, several groups like the Gold Standard Foundation and Fair Trade are seeking to develop a certification scheme for the practice of insetting.

Agricultural insetting thus far has seemingly been limited to the coffee, chocolate, tobacco and grape industries, as well as other raw ingredients used for other products (such as cosmetics). These projects have included a wide variety of practices to reduce erosion, increase soil nutrient quality, finding uses for biological waste products, and others to increase value within the farming system. Unfortunately, no one from these industries would make themselves available regarding their specific insetting programs when asked to comment (see the appendix for template of the questionnaire).

Methodology and Approach

A comprehensive literature review was conducted to determine the amount of research papers, technical documents, news articles, etc. that exist currently relating to insetting. Although the theoretical merits of insetting have been mentioned in several cases, few give detailed examples of completed projects. Most notably is by Davies et al., 2016 who, in conjunction with International Carbon Reduction & Offset Alliance (ICROA), performed a market survey to assess the industry perception and status of insetting projects. Davies found a lack of consensus across the market as to what insetting is limited to and recommended a broad set of best practices. When interviewed, Davies said that she believed most of these projects were still in planning and development stages at the time of her survey and encouraged further work to be done following up on the outcomes and successes of these projects. Unfortunately, Davies' full thesis was unable to be shared due to proprietary information and lack of disclosure agreements.

We then had a call with the leads of the Academic Working Group of ICROA who commissioned Mary Davies from University of Bristol to do the research for their Insetting report. Arising from this call, it became apparent that contracting companies who assist corporations with their insetting projects may have more detailed webpages, rather than pursuing the corporations directly themselves.

Projects and Procedures

To date, project details and implementation procedures remain the largest knowledge gap for planning an insetting project. Interview and information gathering about insetting project logistics is still a major need within this research. Many companies report significant emissions reductions within their Corporate Social Responsibility and Sustainability reports, but do not divulge specific project details. Additionally, many groups have not begun using the term "insetting" leaving a question of incomplete data gathering, since companies may discuss emissions reduction within the supply chain without using this specific terminology.

Certified Cocoa: Hershey Case Study

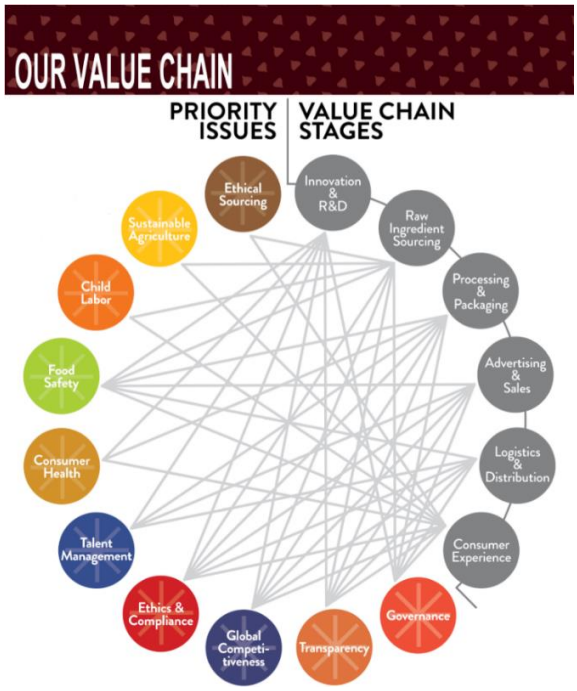

Figure 1 Hershey Value Chain

To jumpstart cocoa sustainability, Hershey was a founding member of the collaborative group CocoaAction, which provide industry-wide access to better planting material and fertilizer, as well as training for farmers as to their correct use, and other community development actions. Hershey uses global certification bodies (UTZ Certified, Fairtrade USA, and Rainforest Alliance) to purchase certified cocoa that meets minimum sustainable farming practices. Their sustainability plan attempts to address all aspects of their value chain (see figure) and includes several other comprehensive programs, such as Learn to Grow, whose main focus is encouraging women and youth cocoa farmers with training but also includes premium payment for certified Learn to Grow cocoa, as well as CocoaLink, which gives farmers cell phones to provide them with better technology, information, and communication leading to yield increases of 45.6% over 3 years.

Sustainable Coffee: Starbucks Case Study

Spearheaded by Conservation International (CI) and the Starbucks Coffee Company, the Chiapas Coffee Project focused on promoting land management practices that would conserve biodiversity and increase productivity for small-scale coffee farmers in Mexico. Outlined within the USAID Microreport, the project, although not specifically designed to reduce emissions or measure soil carbon changes, was successful in creating a market for Conservation Coffee that gave monetary incentive to growers to adopt the project's defined best practices. These practices included using shade trees for protection of the soil as well as providing habitat for local species, and banning the use of all environmentally degrading practices such as dumping coffee waste into local rivers. Although they attempted to hire local cooperatives to provide basic training, CI found these groups to be rather inexperienced. CI began to offer services directly, such as technical training and communication with farmers, while training and leading local cooperatives to eventually take over this role. The Conservation Coffee label did require certification and verification, and farmers were paid a premium after having completed these steps. Starbucks also emphasized the role of the program within the value chain (see Figure 2) and this platform could have been extended to estimate emissions reduction changes within the project scope.

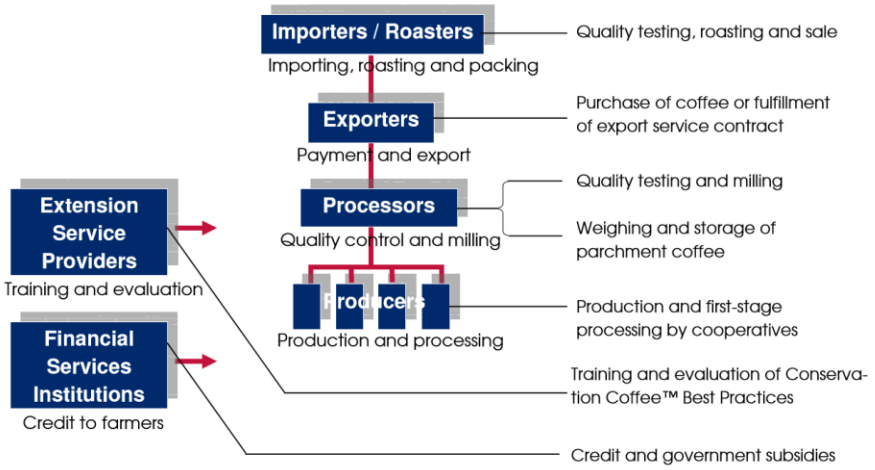

Figure 2 Starbucks Value Chain

Small Scale Producers: Flo-Cert Case Studies

Other groups, such as Flo-Cert, are working in collaboration to advance small scale projects around the world with a variety of companies. Fairtrade and the Gold Standard have been involved with a variety of project addressing different aspects of insetting. R. Fonseca's presentation (2013) identifies 3 of these projects with varying metrics of success and quantification. Case study 1 is a carbon credit project in Nicaragua through 4 separate coops, with 1336 smallholder farmer participants. Their results through vulnerability analysis, baseline assessment, and a feasibility study indicate that the best recommendation is investment in afforestation/reforestation projects around the region. Case study 2 focuses on wine in Argentina for the La Riojana Coop. This project identified the largest leverage points within wine agricultural as well as processing production through LCA of carbon and water. Results

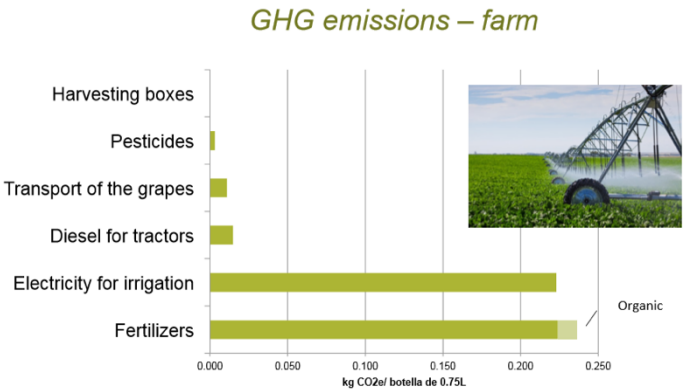

Figure 3 Flo-Cert Presentation Slide 25, Identification of main GHG sources for La Riojana wine production on farm

indicated (see Figure 3) that the largest improvements could be made from using solar powered irrigation, compost and humic acid fertilization, as well as wastewater treatment digesters. Case study 3 from Tanzania analyzed energy efficiency for Kagera Coffee Union. Through the implementation of energy efficient clay stoves for processing, they found a potential reduction of 600 kg CO2/year/stove, with plans to scale to the entire Kagera region.

Raw Materials Sourcing: L'Oreal Case Study

L'Oreal has used its corporate influence to improve sustainability practices in many different countries that provide raw materials used to produce their products. Their focus is concentrated on creating a low-carbon economy for these raw materials and is implemented through three project types: increasing energy efficiency of raw materials production, improving agricultural practices to make raw material production more efficient and sustainable, and using sustainable forest management projects in supply areas to limit the spread of agricultural land. India and Bolivia are highlighted as agricultural projects that implement sustainable farming practices that increase carbon sequestration, but little detail as to project implementation and contents is included within the report. At this time, we were unable to contact anyone at L'Oreal who could shed light on these procedures.

Sustainable Tobacco Farming: British American Tobacco Case Study

Similar to the Starbucks initiative, British American Tobacco (BAT) encourages grower engagement and accountability through their Sustainable Tobacco Programme which requires annual self-assessments and on-site reviews for premium suppliers. All first-tier suppliers must meet minimum standards for good agricultural practices and are reviewed by an independent consultancy at least once every four years. Their approach to best practices is many fold, including training and technical support for farmers as well as a comprehensive list of soil conservation and climate change mitigation effort implementation on the farm. BAT is part of the Global Reporting Initiative and publishes their assessment scores online.

Carbon Accounting

To ensure that the insetting project is will stand up to scrutiny and is complete, all key carbon accounting aspects should be considered, despite the use of 3rd party verification or not. These criteria (additionality, permanence, uncertainty, leakage, and double counting) have well defined measures to meet offset project standards, and while they should be addressed for insetting projects they can be adjusted to suit the needs of the insetting project, with sufficient justification. For instance, the additionality of the project is not paramount since there is no exchange of credits (i.e. purchase of credits by a facility/company with a legal obligation to reduce), and the difference in emissions is more important within the company boundaries. For all factors within carbon accounting, clear documentation is exceedingly important. See Table 1 for an explanation of the differences between offsetting and insetting.

Table 1. Differences between Offsetting and Insetting (adapted from Tipper et al., 2009).

Stage	Offsetting	Insetting
Development	Oversight by a Program/Registry -Policy Rules defined by a protocol or methodology. Could be a regulatory or voluntary emission reductions program. Emissions reduction projects developed by "project developers" not necessarily producers directly.	Emissions reduction potential identified by businesses exploring supply chain, product, and customer GHG footprints. Stakeholder engagement, especially with producers is important. Standardization beginning to emerge
Verification and Certification	Projects verified and certified to meet program requirements[1].	No requirement for verification or certification at this time, although may use independent verifier / auditor to check results. Emerging best practice.
Transaction	Emission reduction credits are traded between two entities, usually a project developer representing producers. Quantities and prices are specified in the contract and normal trading conditions are applied on issues such as timing of delivery.	Agreement between stakeholders on how emission reductions will be achieved through collaborative action and how the resulting benefits will be shared and communicated. Corps have a more direct interaction with producers. Total amount of emissions reductions may be uncertain at point of agreement of inputs.
Monitoring and Reporting	Monitoring and follow-up is normally specified in the contract.	Emissions reductions occur within the boundaries of one or several of the participants and typically captured within the scopes of corporate GHG accounting.
Transparency	Project information and reporting, including serialization of tonnes publicly available on Registries. Ensures no double counting and accountability of the project.	Varying degrees of transparency; Onus is on the Insetting corporation as to how much it wants to share
Relationships	Purchaser and offset provider are normally discrete / non-related entities (essentially a trading relationship) – Bilateral trades	Project is a collaborative activity between stakeholders in one or more businesses, assisting with practice change on the ground
Implementation Assistance	Project developers don't necessarily provide technical assistance and financing for climate smart agriculture practices	Addressing the gaps of a lack of technical assistance and financing for practice change with producers
Carbon Accounting Rules	Typically must address offset criteria of additionality, permanence, leakage, uncertainty, ownership, double counting, etc.	More legitimate projects address all of these criteria to some degree; however varying levels of criteria are addressed

[1] The term 'certification' is typically applied to sustainability standards in the agri-food supply chain space. The term 'verification' is a common term used in Greenhouse Gas markets and programs. The insetting community often represents the cross-over of these two cultures (sustainability and greenhouse gas reductions).

Additionality/Incrementality

Due to the difficulties in defining a baseline (due to seasonal changes in soil carbon, as well as measuring variance) and proving additionality beyond business-as-usual practices in agricultural systems, it has instead been proposed to use the term "incrementality' to describe changes to agricultural carbon. Incrementality focuses on demonstrating that measurable carbon changes are occurring relative to a credible baseline, without the tedious and subjective process of proving that these emissions reductions would not have occurred without the project (a hypothetical situation). This demonstrates that a reduction or removal *did* occur, which is the main goal of the insetting project.

Permanence

Permanence can be significantly difficult to describe in agricultural systems because carbon turnover time within the soil is dependent on the climate, region, soil type, and many other factors. Since the project is within company boundaries, however, it can be assumed that the risk of intentional reversal of the emission reduction is very low, and the project will continue while the land is still under company influence and still investing in sustainable practices. Climate Smart Group's "Considerations for Developing a Permanence Mechanism for Biological Sequestration Projects" gives a full analysis and discussion of permanence. It is very important to approach permanence with caution and recognition that the project will need to be monitored to ensure that unintentional changes do not occur. A full risk assessment of the risk of reversal should be conducted prior to the project start date and include a comprehensive understanding of carbon sequestration within agricultural systems. It may make complete sense for Monsanto to undertake a sliding VCS buffer pool approach, combined with the flexibility of the ACR approach to permanence. These are important precedents that do not tie the land owner or land manager into unmanageable liability periods, legal instruments against the land or other deterrents from participating in the insetting program.

Uncertainty

To complete the most responsible and transparent accounting possible, uncertainty must be reported for all project outcomes and include both the measurable uncertainty (input uncertainty) as well as inherent uncertainty within the method/model (structural uncertainty). Error propagation can drastically increase reported uncertainty but illustrates the variability within all agricultural systems. While it does not reduce the legitimacy of a project, high uncertainty values can expose needs for more rigorous methods or concentration of resources. A tiered approach, involving standardized quantification coefficients or look—up tables and customized farm level quantification approaches can allow for assessment of deviations from the norm, and narrowing of the uncertainty over time. Further, uncertainty sensitivity analysis can look at the scale of implementation that will cause the 'law of averages' to take effect, minimizing the degree and discounts that may need to be applied to the quantification results.

Leakage

Although leakage should not be an issue when applying the ISO 14064:2 standard approach (assuming that the implementation of sustainable practices does not decrease yields/productivity or drastically change inputs), activity shifting outside the region of implementation can occur. Leakage assessments should be analyzed to foresee any potential transfer in emissions. Measures should be taken to avoid leakage if any weaknesses are discovered, since in most situations the company will not have any influence after the leakage has occurred.

Ownership/Double counting

Double counting can be easily avoided by using clear communication with all parties involved as to who has complete ownership over reductions. Adequate record-keeping and reporting of project actions can also help with this issue since all actions are clearly delegated and accounted for. This can be especially important when communicating with growers – prior to any changes, the company and the land owner should come to a clear agreement of who owns any reductions that occur. To avoid double counting, it's strongly recommended that Monsanto consider using a publicly available registry to register Inset project documentation and reports. Several are available and could be assessed for their suitability. Or, if the USDA is interested in taking this on, that would be even better.

Integrity Through Transparency and Accountability

Although perhaps obvious, transparency and accountability when establishing an insetting program cannot be understated. Its importance is two-fold:

1. To secure the integrity and legitimacy of the project; and,
2. To ensure the successful implementation and completion of the project.

As outlined above, all aspects of carbon accounting must be analyzed and considered individually when creating an insetting project as a safeguard against unnecessary error and selection of a less than optimum solution. All of these measures provide a clear and complete view of the project so that the maximum carbon reduction can be achieved. During implementation of the project, transparency is equally as important when communicating with growers so that they have access to the most complete and helpful information possible. For instance, without transparency and adequate communication, the grower may implement a practice that is not the most efficient method due to miscommunication/misunderstanding.

Key Challenges

Many insetting challenges will need to be addressed through trial-and-error throughout the project planning and implementation phases due to the novelty of insetting. Unfortunately, to our knowledge, a solely agriculturally based insetting project with measured carbon stock changes has not been completed previously (or not reported publicly), although many similar projects can be adapted and pieced together to form a rigorous and comprehensive project plan.

Need for Standardization

Perhaps the greatest hurdle facing insetting projects currently is the need for standardization of the insetting framework. Accounting and quantification can be approached in many different ways but the most complete method should be used, and organizations that are currently building insetting projects may be more likely to participate once a draft framework is established. Through discussions with several other groups, it seems to be the consensus that a standardized framework is the first step in gaining legitimacy for insetting projects.

Implementation Unknowns – Grower Engagement

There may be many difficulties within the technical details of project implementation. For instance, best approaches to communicating with growers has arisen as a concern. Other key questions are: Is it more effective to use a third party or should the lead company contact their growers, and what type of compensation is the best motivator for growers to implement the outlined best practices?

Scalability

While insetting may be easily implemented on smaller scales, large scale implementation should be approached realistically and with a complete analysis of the carbon accounting factors discussed previously. Assessing scalability of the project should be completed early on and inform all future project decisions.

Next Steps and Recommendations

Despite the growing collection of insetting literature and documentation, the next best step is gaining access to key people who have high value information related to implementation and success of previous/current insetting projects. Additionally, as time progresses it will be extremely valuable to see if companies begin using the emission quantification from insetting projects to meet their sustainability goals. Through our data collection we found that many other groups are looking into this subject area and trying to find sources of input and leverage. As mentioned, the need for standardization is one of the largest requirements for an insetting framework.

References

Tipper R., Coad N., and Burnett J.. *Is 'Insetting' the New 'Offsetting'?* Tech. no. TP-090413-A. Ecometrica Press, 2009.

Davies M. *Insetting: Developing carbon offset projects within a company's own supply chain and supply chain communities.* International Carbon Reduction & Offset Alliance, 2016.

Millard R. *Sustainable Coffee*. MicroReport No. 45. United States Agency for International Development, 2005.

Sharing Beauty with All: Our "Carbon Balanced" Ambition for 2020. Publication. L'Oreal, 2015.

Haugen-Kozyra K., Schroeder A., and Maynes T.. *Considerations for Developing a Permanence Mechanism for Biological Sequestration Projects*. Working paper. Climate Smart Group, 2016.

Corporate Social Responsibility Report. The Hershey Company, 2014.

Sustainability Summary. Rep. British American Tobacco, 2015.

Fonseca R. "Carbon Insetting: Fixing the Pillars of Sustainable Coffee Agriculture." Presentation. Flo-Cert, November 2014.