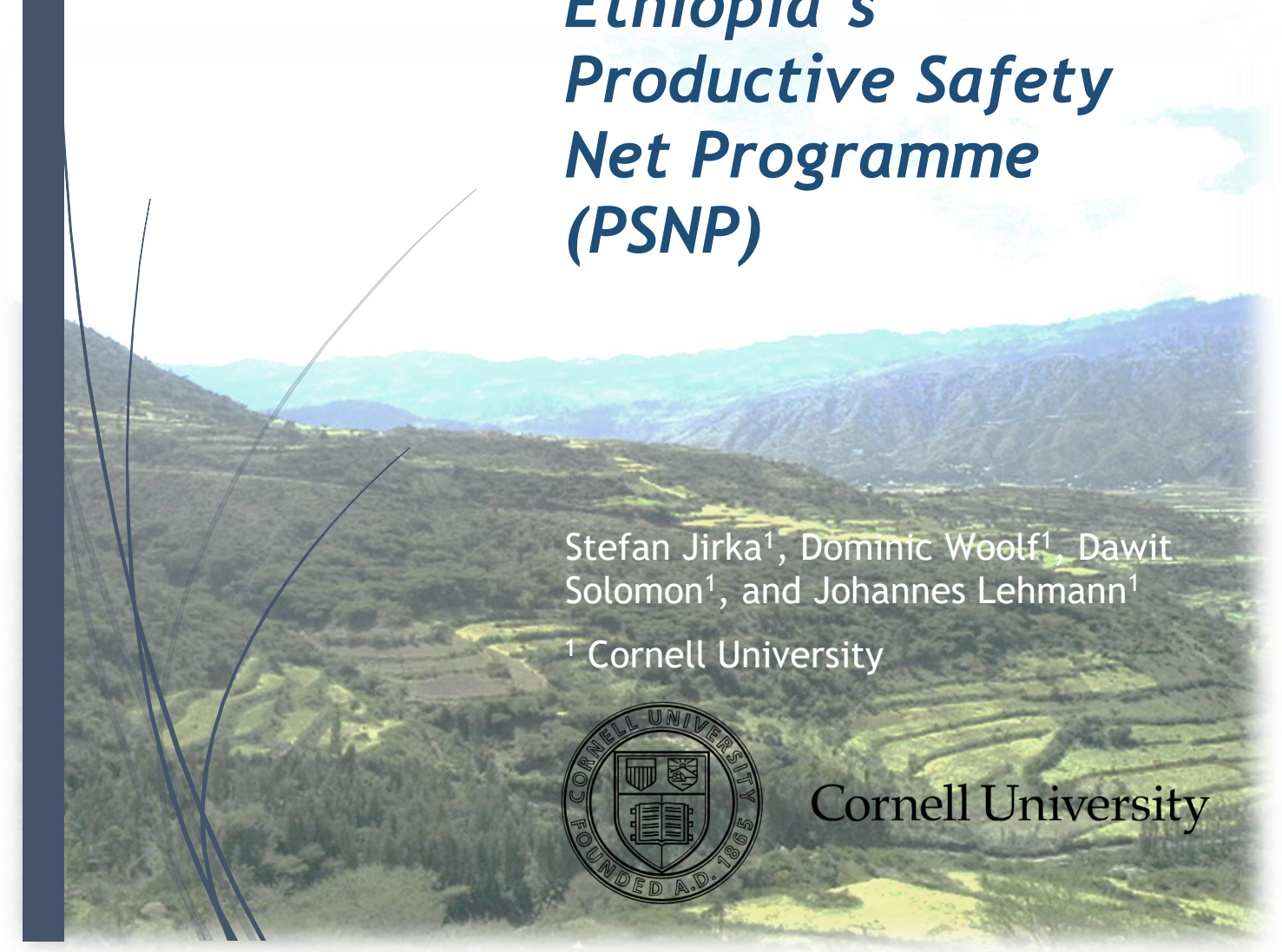
November 2015

# *Guide to Developing Agriculture, Forestry and Other Land-Use (AFOLU) Carbon Market Projects under Ethiopia's Productive Safety Net Programme (PSNP)*




Stefan Jirka[1], Dominic Woolf[1], Dawit Solomon[1], and Johannes Lehmann[1]

[1] Cornell University


Cornell University

# Guide to Developing Agriculture, Forestry and Other Land-Use (AFOLU) Carbon Market Projects under Ethiopia's Productive Safety Net Programme (PSNP)

This report was prepared on behalf of The World Bank by:

Stefan Jirka[1], Dominic Woolf[1], Dawit Solomon[1], Johannes Lehmann[1]

1 Cornell University, USA

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# Acronyms and Abbreviations

| | |
|---|---|
| ACR | American Carbon Registry |
| AFOLU | Agriculture, forestry and other land use |
| BAU | Business-as-usual |
| C | Carbon |
| CAR | Climate Action Reserve |
| CDM | Clean Development Mechanism of the United Nations Framework Convention on Climate Change |
| $CH_4$ | Methane |
| $CO_2$ | Carbon dioxide |
| $CO_2e$ | Carbon dioxide-equivalent |
| COP-21 | 21st Conference of Parties to the United Nations Framework Convention on Climate Change |
| CP2 | 2nd Commitment Period of the Kyoto Protocol |
| ERPA | Emission reduction purchase agreement |
| FPIC | Free, prior, and informed consent |
| ha | Hectare |
| GHG | Greenhouse gas |
| IPCC | International Panel on Climate Change |
| PD | Project Description |
| PDD | Project Design Document |
| PIN | Project Idea Note |
| PSNP | Productive Safety Net Programme |
| MoA | Ethiopian Ministry of Agriculture |
| MoU | Memorandum of Understanding |
| N | Nitrogen |
| $N_2O$ | Nitrous oxide |
| REDD | Reduced emissions from deforestation and degradation |
| REDD+ | Reduced emissions from deforestation and degradation, conservation of forest carbon stocks, sustainable management of forests, and enhancement of forest carbon stocks |
| SSR | Source, sink and reservoir |
| $tCO_2e$ | tonne of carbon dioxide-equivalent |
| UNFCCC | United Nations Framework Convention on Climate Change |
| US | United States |
| VCS | Verified Carbon Standard |
| yr | Year |

# 1 Overview

The development of a carbon project intended for sale of carbon credits via a carbon offset program, whether compliance or voluntary, follows the general steps outlined in Figure 1. While there are differences amongst the numerous offset programs, the major components are generally the same and any carbon project originating from Ethiopia's Productive Safety Net Programme (PSNP) will follow these steps.

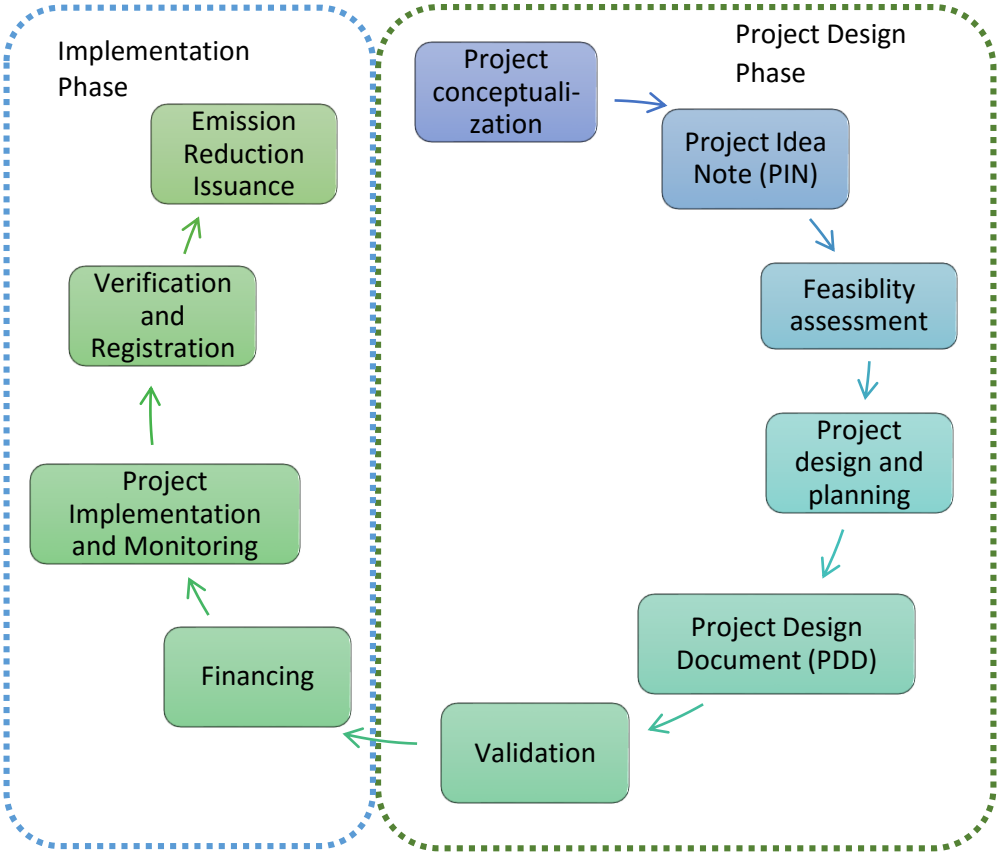


*Figure 1. The carbon project development process beginning with project conceptualization and moving clockwise through to emission reduction issuance. Note that the process is split into two phases: project design and implementation.*

The details of each of these steps are discussed in the following sections[1].

# 2 Preliminary project assessment and conceptualization

Any carbon project emerging from Ethiopia's PSNP will have the ultimate goal of creating salable carbon credits generated by implementation of an activity or set of activities that will reduce greenhouse gas (GHG) emissions or sequester carbon as compared to business-as-usual (BAU) scenarios. The first step to

[1] The structure of this "Guide to Developing Agriculture, Forestry and Other Land-Use (AFOLU) Carbon Market Projects under Ethiopia's Productive Safety Net Programme (PSNP)" builds on the sequence of activities depicted in Fig. 1, which is based on the categorization of stages in "Olander, J., and J. Ebeling. Building Forest Carbon Projects: Step-by-Step Overview and Guide. In Building Forest Carbon Projects, J. Ebeling and J. Olander (eds.). Washington, DC: Forest Trends, 2011". For further reading and information on each of these stages, see Section 9 "Additional Reading" for a bibliography of resources relevant to the PSNP carbon project development process.

reaching this goal is laying out the activities and objectives for the envisaged PSNP carbon project. A preliminary assessment will help the project proponent conceptualize the key components of the project and begin to build a framework and timeline for project development.

## 2.1 Activities and objectives

One of the first questions to ask during project conceptualization is, how will carbon benefits be generated? For projects arising from PSNP activities this will typically involve sequestration of carbon in biomass and/or soils, and/or reduction of GHG emissions from land use activities implemented under PSNP. Having a clear plan for the activity (or set of activities) that will create carbon benefits is crucial—this objective will be re-visited continually throughout the project development process as key decision points are reached.

### 2.1.1 Standard and methodology selection

For acceptance into a carbon market, the carbon-benefit generating activities that are identified must be quantified using existing GHG accounting methodologies that are approved by carbon offset programs. Methodology selection is discussed in detail in Section 3 below. Appendix 1 AFOLU Methodologies Relevant to Ethiopia's PSNP lists published GHG methodologies from voluntary carbon offset programs as well as from the United Nations Framework Convention on Climate Change (UNFCCC) Clean Development Mechanism (CDM) which are applicable to PSNP.

## 2.2 Project design versus implementation

An important distinction to make at this early stage is between those activities encompassing formation of a project to be submitted to a carbon offset program for validation, and those activities that actually generate carbon benefits (see Figure 1 above). These are essentially two discrete phases: 1) project design leading to submission of a Project Design Document (PDD) and validation of calculated carbon benefits, and 2) implementation and monitoring of activities under PSNP that generate carbon benefits, verification of emissions reductions, and issuance of credits.

While there will necessarily be overlap between these two phases, some partners will feature more prominently in different phases e.g., a technical consultant may be brought in during the first phase to conduct the complex analyses and modelling to estimate carbon benefits, whereas the community-based organization where land use activities are planned as part of PSNP will be heavily involved during the implementation and monitoring phase. Recognizing the different requirements of project design versus implementation will help ensure success.

## 2.3 Partners and stakeholders

A key element of PSNP carbon project conceptualization is the identification of the partner organizations and stakeholders that must be brought into the folds of the project. Partners and stakeholders can be roughly divided into two categories: 1) those that will play an active role throughout project development i.e., partners, and 2) those that must be consulted periodically but will not be active participants i.e., stakeholders.

## 2.4 Project scale

Another element of the project conceptualization stage is deciding on the scale of the project to be pursued. Carbon benefits derived from projects in the agriculture, forestry and other land use (AFOLU) sector – in which PSNP's participatory watershed management activities fall – generally accrue on the

order of a few tons of carbon dioxide-equivalent ($CO_2e$) per hectare per year. At this rate, a minimum project area would need to be on the order of at least hundreds – but more likely thousands – of hectares to generate sufficient revenues from carbon credits to offset the expenses incurred during project development—typically ranging from tens to hundreds of thousands of US dollars. Financially more attractive projects will aggregate carbon benefits across larger areas ranging on the order of tens to hundreds of thousands hectares. Managing projects at this scale, however, can be complex. Thus the financial benefits must be weighed against the complexities, costs, and risks of developing and implementing a large-scale carbon project.

# 3 Project Idea Note

The Project Idea Note (PIN) is a high-level description of the proposed carbon project and is the first formal document in the development process for carbon projects in Ethiopia's PSNP. PIN elaboration is the first opportunity to address the major requirements that must be fulfilled in order to bring the project to the market. While PIN development is not a requirement of most carbon offset programs, it is widely acknowledged that the process of developing a PIN is a sound and sensible strategy to identify the key advantages and disadvantages of the proposed project, and to help inform future decision making; most notably, whether it may be worthwhile to pursue full project development and implementation—a major resource commitment.

There is no specific format that a PIN must follow (because it is not a formal requirement) but project proponents have at their disposal templates available for download from the internet. The World Bank BioCarbon Fund's AFOLU PIN template is widely used for AFOLU projects and is available for download at http://tinyurl.com/ntjb2ph.

The PIN contains several categories of information; some of them are basic and easy to fill out e.g., project location, partner organizations, etc.; others are more complex and necessitate access to and use of data, methodologies and/or tools to characterize business-as-usual scenarios, calculate carbon benefits, and demonstrate additionality, among others.

The PIN will list information on the PSNP carbon project identified in the preliminary project assessment phase discussed above in Section 2 (activities, objectives, partners, and scale). It will also begin to delve into the categories discussed in the following sections and depicted in Figure 2 below.

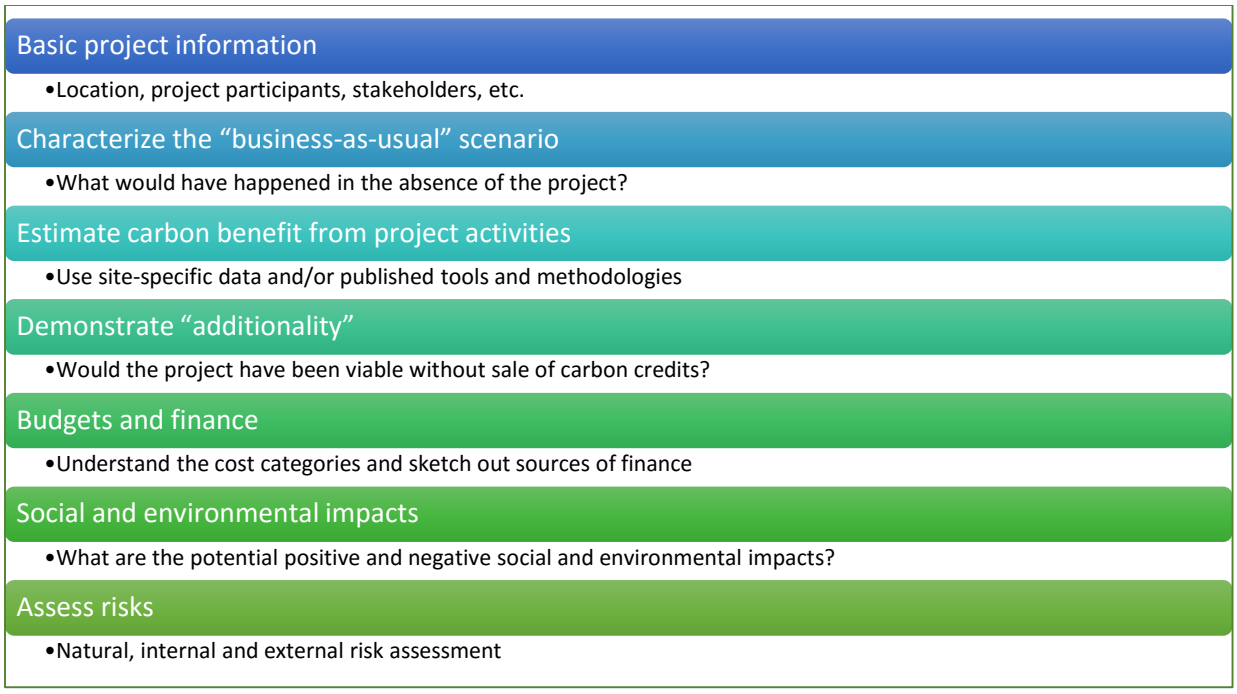


*Figure 2. Main elements of the Project Idea Note (PIN).*

## 3.1 Characterization of the BAU scenario

The central assumption of carbon projects is that in the absence of the project i.e., the BAU scenario, emissions would increase. The characterization of emissions in the BAU scenario is thus key to quantifying the net carbon benefit. The project scenario entails implementation of PSNP land interventions and results in a net carbon benefit. Under the project scenario GHGs are reduced and/or sequestered, over time relative to the BAU scenario. This is depicted in Figure 3 below.

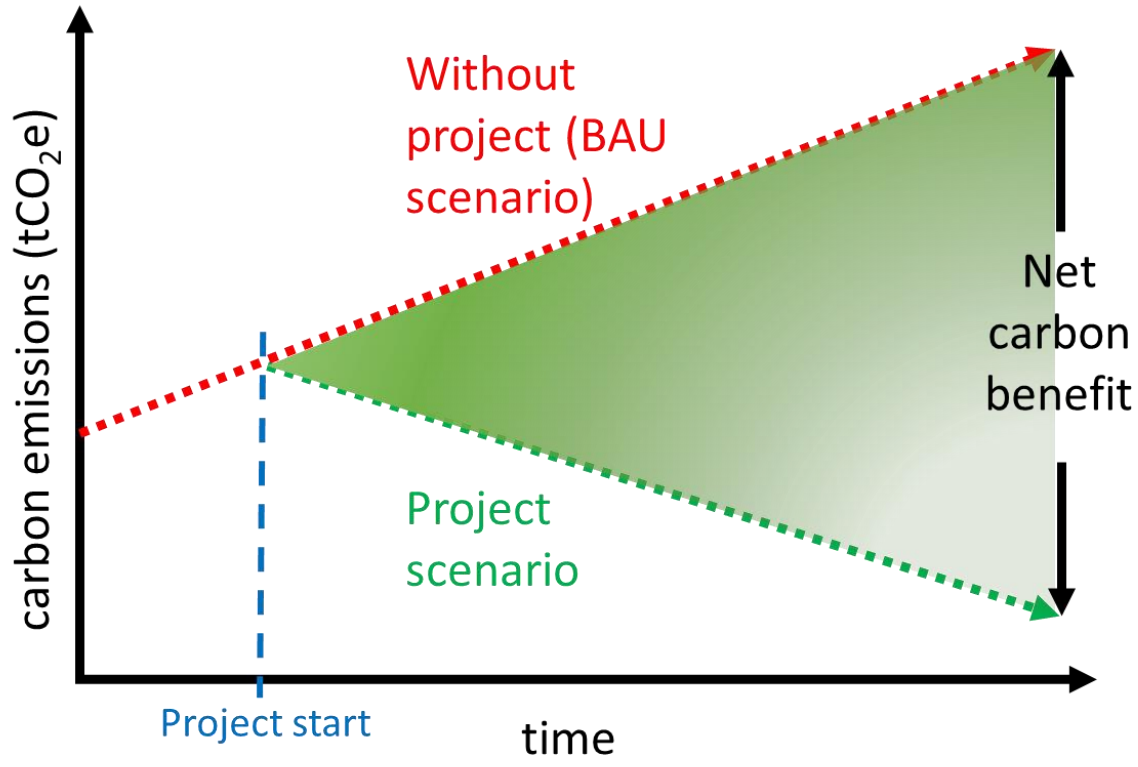


*Figure 3. Graphical depiction of carbon benefits generated by the project scenario under PSNP. Note that business-as-usual (BAU) scenarios may have carbon emissions that are either constant or are expected to change over time. The only requirement is that the project scenario has lower net carbon emissions than BAU.*

The question that must be asked is, what would realistically happen in the future without the PSNP carbon project? To answer this question, PSNP project proponents should utilize available information including data on historical trends, government policies implemented and/or planned that may affect land use decision-making, and community intent, among others. A complete assessment justifying the BAU scenario will be part of the PDD (see Section 6), but at this early stage of project development understanding the various facets of BAU scenario development will help to get a sense of the potential net carbon benefit, and thus financial viability of the proposed project.

## 3.2 Estimates of carbon benefits

For a detailed description of the methods and tools for assessing carbon benefits of PSNP projects, see Woolf et al. 2015. Here we present a brief summary.

Carbon benefits generated by PSNP can be estimated using a variety of methods. Most relevant and reliable is the use of site-specific data on woody biomass accrual, soil carbon stocks, and/or reduced GHG emissions from manure and fertilizers. Published allometric equations and data for specific tree species and/or regions should be used where available. Where specific data are not available, default values from the International Panel on Climate Change (IPCC) may be used[2].

[2] Note that IPCC values provide only a rough estimate of carbon stocks. During project implementation more robust and detailed approaches must be taken to measure and monitor carbon stocks.

There are also several tools[3] designed to estimate carbon accruals and reductions from the AFOLU sector. In general, these tools use modelling approaches to make estimates. The user enters assumed inputs and then the tool produces outputs of estimated carbon benefits over some specified period of time. Some of the tools are spreadsheet-based while others are online.

Included in the estimate of carbon benefits should be a detailing of the incentives that will be put in place to maintain the activities that generate those carbon benefits. For example, what types of incentives will insure the adoption of new technologies and management practices necessary to achieve the desired GHG reductions in the PSNP project scenario?

## 3.3 Additionality

Additionality is the requirement that a proposed PSNP carbon project would not be possible in the absence of carbon finance. To meet this requirement, the project proponent i.e., PSNP carbon project developer, must provide plausible evidence justifying that this is the case. In the PIN, the evidence can be provided in a narrative fashion[4], taking into account other financing opportunities e.g., traditional loans, investment capital, etc. and implementation of related activities.

For a detailed discussion related to demonstrating additionality for PSNP carbon projects, see Sections 4.2.5 and 8 in Jirka et al., 2015a.

## 3.4 Environmental and social impacts

Carbon projects designed under PSNP exist in the context of the community and landscape in Ethiopia where they are planned. The activities implemented as part of a PSNP carbon project have numerous impacts beyond solely carbon accrual and/or emissions reductions. This is especially true for Ethiopia's PSNP, covering large areas of the Ethiopian landscape. Taking stock of other environmental and social impacts of planned activities is key to all carbon projects.

Often, the environmental and social impacts of AFOLU carbon projects will be beneficial, as is well-documented in the case of Ethiopia's PSNP. For example, an agroforestry reforestation project implemented under PSNP may produce increased foodstuff and income generating opportunities, reduce detrimental soil erosion and degradation, and increase local biodiversity. But there are instances where impacts may be negative. For example, to reach the necessary scale of implementation, land that was formerly used to graze livestock may need to be fenced to allow for agroforestry plantings, thereby reducing available fodder for some community members if communal rights to use of products from PSNP lands are not managed equitably. All potential impacts—both beneficial and adverse—should be reviewed and documented as part of the PIN assessment.

## 3.5 Leakage

Leakage occurs when interventions implemented as part of the carbon project lead to unintended increases in emissions outside of the project boundary (see Section 3.6). An analysis of factors potentially leading to leakage should be conducted. With knowledge of these factors, the PSNP project

[3] For a detailed review of published tools see Milne et al. 2013. "Methods for the quantification of GHG emissions at the landscape level for developing countries in smallholder contexts." *Environmental Research Letters*.
[4] During the PDD phase, a more rigorous additionality assessment is required often using existing tools provided by the carbon offset program.

proponent can implement measures to reduce the risk of leakage occurring when the project is implemented.

For further discussion of potential for leakage in PSNP projects, see Section 2.5 in Woolf et al. 2015, "Climate Change Mitigation Potential of Ethiopia's Productive Safety Net Program (PSNP)".

## 3.6 Project boundary

All GHG projects aim to have a primary effect which is the intentional reduction of GHG emissions or sequestration of carbon through a target set of GHG sources, sinks and reservoirs (SSRs); for example, an agroforestry project accumulating carbon in woody biomass and soils and reducing nitrous oxide ($N_2O$) emissions from chemical fertilizers. However, projects also have secondary non-target effects associated with implementation of project activities. For example, the agroforestry project may emit GHGs through the combustion of fossil fuels to transport seedlings and cultivate soils, and through the decomposition of crop residues used as organic fertilizers. All primary and secondary effects are delineated via the project boundary which dictates which SSRs must be quantified in order to tally the net GHG benefit of a project.

## 3.7 Budgets and finance

The development of a carbon project implemented under Ethiopia's PSNP will be a time and resource intensive process. The design phase of AFOLU carbon projects typically lasts 2-3 years and implementation even longer. During this time, project participants must be retained in order to insure execution of required activities, and technical consultants may be required for specific tasks. Furthermore, the review process itself is costly; carbon offset programs charge fees for project submission, validation and verification. All of this requires financial resources. Having a realistic understanding of the various cost categories and their required funding levels is crucial to insuring that projects can be seen through to completion. Without proper financial planning, projects may be abandoned before actual carbon finance revenues can be generated.

## 3.8 Risk assessment

Carbon projects designed under PSNP are implemented over a multi-year period, often spanning decades where forest or soil carbon activities are included. At any time during this process unplanned events may jeopardize the ability of the project to continue. These risks that a project will not be seen through to completion are categorized as natural, internal or external. Natural risks include fires, droughts, and other extreme weather events; internal risks are those related to project management and finances; and external risks are those related to events outside of the project team such as community relations and land ownership. The PIN should begin to identify and categorize potential risks in each of these categories.

# 4 Project feasibility assessment

Until this point in the PSNP carbon project development process, relatively little resources have been expended. Before committing the bulk of requisite time, technical, political and financial resources in the subsequent steps of the project, project proponents should now make an informed decision on feasibility of project implementation. The information compiled in the PIN will be crucial to the feasibility assessment. The estimate of net carbon benefits generated under a PSNP carbon project can

be converted to an estimate of revenues based on a range of current market rates for carbon credits. The benefits and risks outlined in the PIN must be weighed carefully.

At this point it is advised that PSNP administrators pursuing a carbon project seek expert guidance to ensure a solid feasibility assessment. The successful development and implementation of carbon projects is a complex process. Experienced carbon project developers may have insights into potential pitfalls and specific areas to consider given the unique characteristics of Ethiopia's PSNP and the socioeconomic context that will influence the project development process. It is often the case that the project developer is deeply immersed in the details of the project and may give short shrift to seemingly minor issues that may later morph into formidable obstacles. A set of "outside eyes" can help view the project from a new perspective. Capacity building as the Ethiopian Ministry of Agriculture (MoA) gains experience in developing and managing carbon projects can relieve the need for external consultants in the long term, and efforts should be made to work with advisors who will contribute towards the building of self-reliance within the MoA.

Particular attention should be given by PSNP carbon project developers to the following problems often encountered during project development:

- over-estimation of net carbon benefits;
- under-estimation of the costs associated with project implementation;
- overly optimistic assumptions of carbon finance; and
- lack of clarity in planned activities.

Based on input received from outside experts as well as internal assessment of feasibility, adjustments can be made to structure a more favorable project. For example, new project participants such as local government agencies may be identified and invited to participate, or additional land areas may be sought for inclusion to increase the scope of the project and the net carbon benefits.

# 5 Project design and planning

With a positive assessment of project feasibility the details of PSNP project design and planning can begin. The information gathered during this step will be used directly in formulating the (PDD)[5] (see Section 6)—a formal requirement under most carbon offset programs.

A first step is to select the target carbon offset program and GHG accounting methodology therein. With the guidance provided by the program and methodology, the PSNP project proponent can proceed with other design requirements including: budgeting and work plans; definition of partner's roles and responsibilities; community engagement and consultation; acquisition of project design finance; legal due diligence; more rigorous social and environmental impact assessments; and non-permanence risk assessment and mitigation.

Before delving into the details of each of the steps of the project design and planning, it is important to note that this process will require significant resources in the form of time and money. The various facets of project design are complex and will require diverse expertise in areas ranging from technical and scientific assessment to community engagement to policy and legal matters. To ensure an uninterrupted flow of work, there should be plans to secure required financing (see Section 5.6),

[5] Also referred to as Project Description (PD) in the VCS.

measures to overcome potential obstacles, and interface with regulators and policymakers from the government of Ethiopia who will play a vital role in approving project activities.

## 5.1 Carbon offset program selection

The current state of compliance and voluntary carbon markets for the AFOLU sector is detailed in the accompanying report[6]. Given that the CDM is in decline with an uncertain future (though there are promising signals from negotiations leading up to 21st Conference of Parties (COP-21) in Paris of a new post-CDM global compliance market), the most relevant carbon offset program for AFOLU projects arising from Ethiopia's PSNP is at present the Verified Carbon Standard (VCS). However, the carbon offsetting space is highly dynamic: international, national and even local policy decisions as well as global economic conditions can all quickly alter the status quo. It is advisable for the project proponent to conduct an assessment of carbon offset program programs at this stage in project design before making a final selection.

## 5.2 Methodology selection

The nature of planned PSNP project interventions will dictate the GHG accounting methodology that is selected. Published methodologies usually focus on one or a small number of carbon sequestration and/or emissions reduction activity type(s). For the AFOLU sector, these include reduced emissions from deforestation and degradation (REDD), improved forest management, reduced impact logging, agroforestry, and manure management, among others.

A list of available methodologies relevant to PSNP is provided in Appendix 1.

## 5.3 Budgeting

The cost categories associated with developing an AFOLU carbon project under the auspices of PSNP are shown in Figure 4. The project proponent should have a firm grasp of these cost categories and budget accordingly. While total project design and implementation costs vary widely depending on factors like experience, location, scale, and others, typical costs for carbon projects in the AFOLU sector begin at US$100,000 and may be several-fold more than that. Having a realistic understanding of the scale of financial resources required to execute the planned activities will help when raising capital and planning for smooth implementation.

[6] Jirka, S., D. Woolf, D. Solomon, J. Lehmann. 2015. "Comprehensive Report on Ethiopia's Productive Safety Net Programme (PSNP) Climate-Smart Initiative: Accessing climate finance to promote socially and environmentally sustainable public works social safety net programs." A World Bank Climate Smart Initiative (CSI) Report. Cornell University

| | |
|---|---|
| Project coordination | •Manage daily activities internally and with partners |
| Local staff | •Human resources needs at local level |
| Design | •Design AFOLU project |
| Methodology development | •Technical aspects of selected methodology |
| Geospatial analysis | •Acquisition of imagery and processing and analysis |
| Field work | •Ground truthing via field inventories, timber cruises, etc. |
| Modelling | •Carbon benefits projections via established models |
| Social and environmental assessment | •Social, biodiversity and environmental assessments |
| Stakeholder consultation | •Community consultations and benefits-sharing |
| Project Design Document | •Development of technical document |
| Legal review | •Expert legal guidance on benefits-sharing, other legal aspects |
| Third-party validation | •Hire third-party to conduct validation |
| Implementation | •Plant trees, fence exclusion zones, change management practices, etc. |
| Monitoring | •Regular field- and remote-based monitoring of advances |
| Third-party verification | •Hire third-party to conduct verification |
| Registration and issuance fees | •Pay required fees to carbon offset program to create carbon credits |
| Contingencies | •Unforeseen costs |

*Figure 4. Cost categories associated with PSNP carbon projects.*

## 5.4 Partners roles and responsibilities

With a budget drafted according to cost categories listed in Figure 4, the PSNP project proponent will have a sense of the partners required to execute the project, as well as the other stakeholders that will play a role at some stage in project design and implementation. For example, community landowners, regulatory body representatives (*woreda* development agents), and non-governmental organizations.

At this stage, the various categories of PSNP project needs should be reviewed and assigned to partner organizations with clearly defined roles and responsibilities. These include:

- technical aspects;
- business and legal matters;
- stakeholder and community relations;
- project implementation and coordination; and

- monitoring and third-party audits.

Each of these categories requires a different set of skills. Some of them, such as technical aspects, will be emphasized at discrete time periods during the project design. Others, such as project coordination, will be ongoing throughout the lifetime of the PSNP carbon project. Assessing capacity and convening meetings amongst partner organizations to agree collectively upon roles and responsibilities is advised. The insights of outside experts can be useful here to make judgements about capacity of the proposed partners. Ideally, Memoranda of Understanding (MoUs) should be used to formalize the relationships and deliverables for partner organizations.

### 5.4.1 Benefits-sharing

PSNP carbon projects will ultimately be designed to generate revenue via sale of carbon credits. In some cases, the revenues may finance part or all of project implementation costs. In a best case scenario, projects are designed such that net revenues are generated. These must then be allocated to the various partners that have some claim to them in ways that are mutually agreeable. Defining how revenues will be allocated is known as benefits-sharing in carbon projects. The benefits-sharing agreement reached in PSNP should be transparent and agreed upon in advance by all relevant stakeholders. It should be legally binding, thus necessitating the involvement of legal guidance.

Note that benefits need not be monetary. In some cases, non-monetary benefits will be an appropriate vehicle for compensating stakeholders. A common example is the provisioning of beehives or installation of value-added processing facilities to community members or community-based organizations that implement carbon revenue generating activities on their lands.

Also, the benefits-sharing agreement should recognize that anticipated revenue may deviate, in some cases widely, from the hoped for scenario. Numerous factors can lead to differences between projected and actual income, and all parties should be clear at an early stage that benefits are not guaranteed.

## 5.5 Community engagement

Carbon projects in the AFOLU sector are location-based i.e., the activities that lead to carbon sequestration and/or GHG emissions reductions are implemented on discrete areas of land. For Ethiopia's PSNP, this means that communities must be involved where activities are planned. It should be noted that PSNP's participatory watershed management approach sets a useful baseline for continuous engagement with community members in PSNP *woredas* and watersheds. Effective community engagement is key to ensuring that a PSNP carbon project will be possible in a given location.

Indeed, most carbon offset programs require significant community consultation. As discussed in Section 3.8, external risks in carbon projects are associated with community relations (or lack thereof) that could lead to issues blocking implementation activities. Communities may object to certain PSNP land management plans or activities. Consultations can help resolve any potential conflicts or misunderstandings before project implementation. Thus, having clearly documented and ongoing community engagement will help reduce future risks.

The principle of free, prior, and informed consent (FPIC) should be adhered to by project developers when engaging communities where PSNP carbon projects are intended. This principle states that communities should be fully informed before any activities are implemented and have the right to freely

give or withhold consent on those activities. Many carbon offset programs will look for FPIC in documentation of community engagement.

## 5.6 Financing design and planning costs

As discussed in Section 5.3, there are major costs associated with PSNP carbon project design and implementation. Raising capital to cover these costs will be essential to advancing the project. There are several sources of funding that should be pursued by the project proponent.

### 5.6.1 Grants and awards

PSNP carbon projects contribute to climate change mitigation. In the AFOLU sector, they also create numerous co-benefits[7]. These outcomes often overlap with the missions and objectives of private and public funding agencies. Oftentimes there may be programmatic funding available for carbon projects to apply for and receive grants or awards from such agencies. These monies can help offset the costs of certain components of project design and implementation. For example, a philanthropic foundation with a program focus on improved health outcomes in sub-Saharan Africa may support an AFOLU carbon project developed as part of Ethiopia's PSNP that includes elements of improved crop productivity and thus food security and nutrition.

### 5.6.2 Forward finance

The anticipated carbon benefits from a PSNP carbon project can be monetized and "pre-sold" to investors, middlemen or commercial project developers. Investors may provide some level of initial finance in exchange for a share of eventual proceeds from the sale of carbon credits. Commercial project developers may finance early stage project development in exchange for decision making power and engagement in project development. While such forward finance may reduce revenues for the project proponent and partners once credits are issued and sold, the involvement of experienced investors or project developers can benefit the project by providing expertise during future design and implementation.

### 5.6.3 Self-finance

While not an option for most organizations, self-finance can be pursued by entities with significant financial resources. Many carbon projects are initiated by community development programs associated with large multinational charities. In such cases, the central organization may have some funds available to offset project development costs. For Ethiopia's PSNP, funds raised from the bi- and multilateral development partners may be used in part to cover carbon project development costs but consideration must be given to the issue of additionality (see Section 3.3).

## 5.7 Legal considerations

Laws with respect to carbon rights vary by country. In many cases, because of the novelty of carbon projects, there are no clear cut laws that can be referenced when developing projects. Instead, legal experts need to review applicable laws and any precedents set in a specific jurisdiction on a case-by-case basis. Project proponents should also stay abreast of legal developments as a project is planned and implemented; legislation is currently being developed and adopted in many places to deal with this new area of carbon rights. Other laws not pertaining directly to carbon rights but rather labor, land use, and

[7] See Section 6 in Jirka et al., 2015a.

taxation, among others must of course be adhered to as well. For these instances having a well-informed legal opinion is crucial to ensuring that a planned project does not run afoul of the law.

PSNP project developers must be cognizant of all legal considerations relevant to Ethiopia. Previously developed carbon projects e.g., the Humbo Ethiopia Assisted Natural Regeneration Project validated under the CDM, can provide important guidance with respect to legal (and other) project development concerns.

### 5.8 Non-permanence risk mitigation

As previously discussed (see Section 3.8), AFOLU projects face risks that their carbon benefits will not be fully realized and/or maintained over the intended lifetime of the project. For example, reforested trees may be burnt unintentionally (i.e., natural risk) in forest fires or cleared intentionally for firewood (i.e., external risk); or soil carbon can be lost again following cessation of soil organic carbon-building practices. For example, reduced tillage or residue incorporation may be halted due to lack of resources to maintain requisite equipment (i.e., internal risk). These risks are termed non-permanence risks i.e., the risk that carbon benefits will not remain in place permanently[8].

Natural, internal and external risks arising from a PSNP carbon project must be identified and strategies put in place to mitigate them. The main carbon offset programs provide protocols[9] for quantifying risk. The risk assessment produced by the project proponent is then reviewed by the third party auditor during validation (see Section 7). A key element of AFOLU projects is a "risk buffer pool"—a reserve of a project's carbon credits that are withheld and released in case of project failures or reversals. The greater the assessed risk, the larger the percentage of credits that are withheld in the risk buffer pool.

Note that the mere identification of risks associated with a PSNP carbon project need not lead to a large risk buffer pool. Clearly defined risk mitigation strategies including monitoring systems and rapid response actions will demonstrate to the carbon offset program that the project proponent has the capacity to deal with identified risks. This will be reflected in a smaller percentage of credits withheld in the risk buffer pool.

## 6 Project Design Document

Unlike the PIN, the PDD is a requirement of carbon offset programs. In the PDD, the PSNP project proponent will provide details on many of the elements of the carbon project discussed in previous sections. The PDD will be submitted to the carbon offset program for review and eventual acceptance—a process termed validation (see Section 7). The structure of the PDD will be based on that outlined by the selected methodology and standard within the carbon offset program.

### 6.1 Key PDD elements

While all methodologies require different data and information that will be reflected in the PDD, there are numerous elements commonly reported in all PDDs. These include the following:

- Spatial boundaries of the land parcel(s) must be explicitly identified using geospatial coordinates.
- Additionality must be demonstrated (see Section 3.3).

[8] The *de facto* definition for permanence under the Kyoto Protocol is 100 years.
[9] For example, the VCS *AFOLU Non-Permanence Risk Tool.*

- BAU and PSNP project scenarios must be outlined with sufficient justification and rationale presented for each (see Section 3.1). The initial scenario from which the BAU and project scenarios originate must likewise be clearly described.
- Carbon benefits quantification must be conducted using the calculations outlined in the chosen GHG accounting methodology.
- Leakage risks must be delineated and quantified (see Section 3.5). Any leakage that cannot be avoided will be debited from the carbon benefits.
- Non-permanence risk assessment must be conducted (see Section 5.8).
- Social and environmental impacts must be reviewed and addressed in consultation with all relevant stakeholders (see Sections 3.4 and 5.5).

# 7 Post-PDD submission

After the PDD has been submitted to the carbon offset program, there are a series of additional steps that must be completed prior to actual approval and sale of carbon credits. Most significant of these is actual implementation of project activities that will generate carbon benefits under a PSNP carbon project. Prior to this, however, the project proponent may wish to make adjustments to the project design using analyses and information compiled in the PDD. Additional consultations with community members and groups at this stage will also help ensure that transparency is maintained as the project progresses through the approval process.

Also important is to seek formal host country approval i.e., government of Ethiopia, where necessary. Depending on the carbon offset program this may be a requirement or a recommendation. Either way, demonstrating that Ethiopian officials are on board with planned activities will shine a positive light on the project.

## 7.1 Validation

The process whereby a project's cumulative GHG benefits are assessed is known as validation. In this phase of a carbon project the calculations used in the methodology and other assumptions laid out in the PDD are carefully scrutinized. Validation is usually carried out by third-party auditors that have been accredited by the carbon offset program.

The process of validation involves a desk review of the PDD and all associated documents; one or more public comment periods to garner input from the larger community; and a site visit by the auditor. Based on information collected, there may be requests for clarification and adjustments prior to a final recommendation by the auditor.

Validation can be pursued before or after initiation of PSNP project implementation. However, because the auditor may request adjustments to the project design during validation, in practice, it is advised to pursue validation before implementation in order to avoid having to undo or adjust interventions—which may necessitate additional, unplanned expenditures as well as time.

## 7.2 Registration

Upon successful validation, the PSNP project will be registered and begin accumulating carbon credits. This is a highpoint in the project development process creating opportunities for favorable publicity and showcasing of the project. This will be needed to attract potential investors in project implementation

as well as purchasers of the carbon credits to be generated by the project, discussed in the following sections.

## 7.3 Project implementation

The initiation of field activities signals that PSNP carbon project implementation has begun. The types of interventions being implemented will be defined by the type of GHG project designed by PSNP carbon project developers. It is important to note that interventions and activities must match exactly what has been outlined in the PDD as that is what was approved during at the validation step. During verification (see Section 7.5), the third-party auditor will be comparing project implementation to the PDD.

### 7.3.1 Financing implementation

PSNP project implementation occurs over the span of years; significant financial resources will need to be secured to ensure that all planned activities can be executed and maintained. The financing that supported the PSNP project design phase will likely be insufficient to also support implementation. Typically, implementation financing comes (wholly or in part) from entities investing in the anticipated carbon credits. Such financing can be secured at any point during the PSNP project development process but typically occurs after validation and before implementation.

Several classes of entities may invest in implementation of a PSNP carbon project. These include the following:

- Buyers seeking to acquire offsets to meet regulatory and/or voluntary commitments.
- Investors seeking a share of profits generated by the project.
- Brokers (or middlemen) linking sellers (i.e., carbon project proponents) to buyers in return for a fee or commission.
- Donors can provide grants or other funds to supplement core activities.

### 7.3.2 Commercializing carbon credits

When pursuing investments for implementation that involve sale of carbon credits as a type of forward finance, PSNP project proponents should be cognizant of the legal ramifications of sales agreements. As with any financial transaction, it is strongly advised that PSNP project developers seek and retain legal counsel from experts familiar with the relatively new area of carbon finance.

The emission reduction purchase agreement (ERPA) has emerged as a common legally binding agreement to structure the sale of carbon credits between buyers and sellers. ERPAs contain most of the following terms:

- Volumes and price of credits to be delivered
- Delivery and payment schedule including advance payments
- Consequences for failure to deliver on part of seller or default on part of buyer
- Obligations of each party e.g., payment of verification
- Management of project risks

Note that all of the above terms are negotiable by both parties entering into the ERPA and that there are various options for structuring payments.

## 7.4 Project monitoring

After initiation of project implementation, the PSNP project proponent must begin monitoring project activities generating carbon benefits implemented under the PSNP carbon project. Data collected through monitoring is used to confirm the actual accrual of carbon benefits *vis a vis* the BAU scenario. This is critical for the verification process. The monitoring activities must follow the monitoring plan laid out in the PDD. Any deviations from this monitoring plan must be approved by the carbon offset program; note that deviations from the monitoring plan risk delaying or increasing the financial burden on the project.

## 7.5 Verification

Verification is the step to demonstrate fidelity to the PDD and to verify and certify the volume of carbon benefits generated. As with validation, an accredited third-party auditor will conduct the verification.

The process begins with the submissions of monitoring reports from the PSNP carbon project to the auditor who then usually conducts a site visit. A draft verification report is issued requesting any clarifications from the project proponent. After clarifications are submitted, the auditor issues a final verification report and statement indicating the volume of carbon credits generated during the monitoring period.

In cases where non-compliance are detected, provisions are made for enforcement which may include monetary penalties or retraction of carbon credits from the marketplace.

There may be multiple rounds of verification, each one resulting in the issuance of a new tranche of carbon credits. However, verification has associated fees (ranging from US$20,000 – 50,000) so PSNP project proponents should weigh the costs of verification against the gains from issuance of carbon credits. It may be that fewer rounds of verification, while temporally further apart, are more favorable because of lower costs combined with larger tranches of credits issued upon successful verification.

## 7.6 Credit issuance

Once the PSNP carbon project(s) has been verified it will be issued credits—in the forms of tons of $CO_2e$—that can then be posted for sale or trade (if they have not yet been allocated through an ERPA). Credits may be posted on registries—platforms that enable the tracking of carbon credits by the various carbon offset programs. Registries are used to publicize the availability of credits and track ownership as credits are sold or retired.

# 8 Conclusions

Sustainable land use interventions undertaken as part of Ethiopia's ambitious PSNP have the potential to generate revenue from carbon markets. Using a combination of geospatial techniques, field-based analytical methods and modelling, the climate change mitigation benefits of the program can be quantified. These data can then be used by PSNP administrators to pursue development of carbon projects for eventual sale of credits to public/private sector entities through compliance or voluntary carbon markets.

It is important to note that carbon offset markets are not currently in a state to allow for ambitious proposals (although note that non-market mechanisms of climate finance are in a more robust state). The single largest compliance market that allows for international offset projects in the AFOLU sector—

the UNFCCC CDM—is winding down in the Kyoto Protocol CP2. Voluntary markets, while more positive in their market outlook, remain small relative to Ethiopia's PSNP climate change mitigation potential and would likely only provide revenues for projects covering a small fraction of its land area. At present, VCS is the most promising carbon offset program for international AFOLU projects, and other programs in the voluntary space could also be scoped for potential fit with PSNP activities. A revival of the CDM or its follow-up may also reinvigorate opportunities within the compliance market. (For a more detailed review of the current state of carbon markets and their relevance to PSNP please see the accompanying report Jirka et al., 2015a.)

If carbon markets do grow substantially in the near future—as they must if climate change is to be kept within safe limits, and as seems probable given the growing pressure to reach a new global accord at COP-21 in Paris at the end of 2015—then Ethiopia should act now to insure that it is well-positioned to take advantage of market opportunities as they arise. It is envisioned that this report provides much-needed guidance for administrators and policymakers seeking to build the in-country capacity for development of carbon market projects under Ethiopia's PSNP. The steps laid out in the previous sections detail the general process for project development that typify all carbon offset programs. If successfully brought to the market, such a project might, at present, only cover its own costs for design and implementation, but would offset the cost of building in-country capacity and readiness for emerging future opportunities at a much larger scale—whether through new global compliance markets or to meet expanded voluntary demand.

# 9 Bibliography of related project documents

Further details about carbon benefits and climate finance for PSNP can be found in the following related project documents:

Jirka, S., Woolf, D., Solomon, D., & Lehmann, J. (2015). "Climate finance and carbon markets for Ethiopia's Productive Safety Net Programme (PSNP): Executive Summary for Policymakers." A World Bank Climate Smart Initiative (CSI) Report. Cornell University. https://ecommons.cornell.edu/handle/1813/41302

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# 10 Additional Reading

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Milne, E., H. Neufeldt, T. Rosenstock, M. Smalligan, C.E. Cerri, D. Malin, M. Easter, et al. 2013. "Methods for the Quantification of GHG Emissions at the Landscape Level for Developing Countries in Smallholder Contexts." *Environmental Research Letters* 8 (1): 015019.

Olander, J., and J. Ebeling. Building Forest Carbon Projects: Step-by-Step Overview and Guide. In Building Forest Carbon Projects, J. Ebeling and J. Olander (eds.). Washington, DC: Forest Trends, 2011.

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# Appendix 1 AFOLU Methodologies Relevant to Ethiopia's PSNP

| Carbon Offset Program | Methodology Name | Status | AFOLU Sector(s) | GHG Pools Quantified | PSNP Relevance (1=high, 2=medium, 3=low) | Description |
|---|---|---|---|---|---|---|
| **VCS** | VM0017 Adoption of Sustainable Agricultural Land Management, v1.0 | Approved | Croplands, Grasslands | above- and belowground biomass; soil C; N fertilizer management; N-fixing cover crops; fossil fuels ag management | 1 - methodology covers multiple C pools that PSNP addresses. Developed for Kenya context so should be applicable to Ethiopia. | The methodology quantifies the GHG emission reductions of sustainable land management practice activities that enhance aboveground, belowground and soil-based carbon stocks of agricultural areas. The methodology applies input parameters to analytic, peer-reviewed models to estimate the organic soil carbon density at equilibrium in each of the identified management practices in each land use category. This methodology is applicable to projects that introduce sustainable management practices to an agricultural landscape where the soil organic carbon would have remained constant or decreased in time without the intervention of the project. |
| **VCS** | VM0006 Methodology for Carbon Accounting for Mosaic and Landscape-scale REDD Projects, v2.1 | Approved | Forestlands | aboveground biomass | 1 - for PSNP 3 and earlier phases that have reforested enclosures that are threatened by logging/deforestation or conversion to croplands/grasslands | This methodology quantifies the GHG emission reductions and removals generated in mosaic and landscape scale REDD+ projects by allowing such project activities to be combined with improved forest management, afforestation, reforestation and re-vegetation activities, as well as clean cookstove initiatives. This allows for a more holistic landscape approach to REDD+ activities that integrates efforts to protect forests with programs to improve the livelihoods of rural communities. |
| **VCS** | VM0007 REDD+ Methodology Framework (REDD-MF), v1.5 | Approved | Forestlands | aboveground biomass | 1 - for PSNP 3 and earlier phases that have reforested enclosures that are threatened by logging/deforestation or conversion to croplands/grasslands | This methodology provides a set of modules for various components of a methodology for reducing emissions from deforestation and forest degradation (REDD). The modules, when used together, quantify GHG emission reductions and removals from avoiding unplanned and planned deforestation and forest degradation. This methodology is applicable to forest lands that would be deforested or degraded in the absence of the project activity. The methodology includes a module for activities to reduce emissions from forest degradation caused by extraction of wood for fuel. No modules are included for activities to reduce emissions from forest degradation caused by illegal harvesting of trees for timber; such a module may be included in the future. |

| Carbon Offset Program | Methodology Name | Status | AFOLU Sector(s) | GHG Pools Quantified | PSNP Relevance (1=high, 2=medium, 3=low) | Description |
|---|---|---|---|---|---|---|
| **CDM** | AR-ACM0003: Afforestation and reforestation of lands except wetlands --- Version 2.0 | Approved | Forestlands | above- and belowground biomass, and soil C | 1 - all GHG pools in methodology are targets for C sequestering activities under PSNP | Large-scale (>16K $tCO_2e$ per year) projects. GHG removal by increasing carbon stocks in the following pools: above-ground biomass, below-ground biomass, and optionally: deadwood, litter, and soil organic carbon. |
| **CDM** | AR-AMS0007 Small-scale afforestation and reforestation project activities implemented on lands other than wetlands --- Version 3.0 | Approved | Forestlands | above- and belowground biomass, and soil C | 1 - all GHG pools in methodology are targets for C sequestering activities under PSNP | Small-scale (<16K $tCO_2e$ per year) projects. $CO_2$ removal by increasing carbon stocks in the following pools: above-ground biomass, below-ground biomass, optionally deadwood, litter and soil organic carbon. |
| **VCS** | VM0021 Soil Carbon Quantification Methodology, v1.0 | Approved | Croplands, Grasslands, Forestlands | soil C; soil $CH_4$ and $N_2O$ | 2 - methodology utilizes generalized IPCC methods that may be inadequate to site specific PSNP circumstances | This modular methodology is designed to be applicable to ALM projects, including changes to agricultural practices, grassland and rangeland restorations, soil carbon protection and accrual benefits from reductions in erosion, grassland protection projects and treatments designed to improve diversity and productivity of grassland and savanna plant communities. The associated modules provide methods for quantifying and monitoring changes in carbon accrual in, and emissions from, soils as well as from other GHG pools and sources that may be affected by AFOLU projects. |
| **VCS** | VM0026 Methodology for Sustainable Grassland Management (SGM) | Approved | Grasslands, Livestock | soil C | 2 - potentially relevant in pastoral areas | The methodology provides procedures to estimate the GHG emission reductions and/or removals from the adoption of sustainable grassland management (SGM) practices on grasslands in semi-arid regions. Eligible project activities include a broad range of SGM activities such as improving the rotation of grazing animals, limiting the grazing of animals on degraded pastures and restoration of severely degraded lands. Where biogeochemical models can be demonstrated to be applicable in the project region, they may be used to estimate SOC pool changes. Where such models are not applicable, the methodology uses direct measurement methods to estimate SOC pool changes. |

| Carbon Offset Program | Methodology Name | Status | AFOLU Sector(s) | GHG Pools Quantified | PSNP Relevance (1=high, 2=medium, 3=low) | Description |
|---|---|---|---|---|---|---|
| **CDM** | AMS-III.R. Methane recovery in agricultural activities at household/small farm level --- Version 3.0 | Approved | Livestock | manure $CH_4$ | 2 - installation of household biogas systems is not a current PSNP activity | Small-scale (<5K $tCO_2e$ per year per biogas system) projects. Recovery and destruction of methane from manure and wastes from agricultural activities through: Installation of a methane recovery and combustion system to an existing source of methane emissions; or, change of the management practice of an organic waste or raw material in order to achieve controlled anaerobic digestion that is equipped with methane recovery and combustion system. |
| **ACR** | Avoided Conversion of Grasslands and Shrublands to Crop Production | Approved | Croplands, Grasslands | soil C; livestock enteric fermentation; manure $CH_4$ | 3 - intact grasslands are not converted to croplands as a BAU practice. Rather land is already highly degraded that is moving to cropland | The methodology quantifies the emissions avoided from preventing the conversion of grasslands and shrublands to commodity crop production. Grassland and shrubland soils are significant reservoirs of organic carbon that, if left uncultivated, will continue to store this carbon below ground. Grassland and shrubland ecosystems may also support greater plant biomass than annual cropland, especially below ground. In addition to the avoided cultivation and oxidation of soil organic carbon, several crop production practices, such as fertilizer application, may also be avoided. Livestock, primarily cattle, are anticipated to be common in the project scenario and their associated emissions from enteric fermentation and manure deposition are accounted for. |
| **ACR** | Grazing Land and Livestock Management | Approved | Grasslands, Livestock | livestock enteric $CH_4$;manure $CH_4$;above- and belowground biomass;soil C;N fertilizer management;fossil fuels ag management | 3 - multiple GHG pools addressed through diverse SLM practices that involve livestock. But methodology is developed for US context | The methodology focuses on five primary GHG sources, sinks and reservoirs (SSRs) affected by beef and dairy production – enteric methane, manure methane, nitrous oxide from fertilizer use, fossil fuel emissions, and biotic sequestration in above- and below-ground biomass and soils – and provides accounting modules for each of these. |
| **Gold Standard** | Savanna Burning | In review | Croplands | soil C; reduced $CH_4$ | 3 - burning is prohibited under Ethiopian legislation | Unknown until methodology is published. |

| Carbon Offset Program | Methodology Name | Status | AFOLU Sector(s) | GHG Pools Quantified | PSNP Relevance (1=high, 2=medium, 3=low) | Description |
|---|---|---|---|---|---|---|
| **VCS** | ALM Adoption of Sustainable Grassland Management through Adjustment of Fire and Grazing | In review | Grasslands, Livestock | soil C; reduced $CH_4$ | 3 - burning is prohibited under Ethiopian legislation. Livestock herd size is not a PSNP focus | This methodology will quantify the GHG emission reductions and removals from activities that introduce sustainable adjustment of the density of grazing animals and the frequency of prescribed fires into an uncultivated grassland landscape. The methodology shows how to determine additional carbon offsets through grassland soil sequestration and/or reduction in methane emissions as a result of reducing fire frequency and altering the density and/or activities of grazing animals. |
| **Gold Standard** | Increasing Soil Carbon Through Improved Tillage Practices -- V0.9 | Approved | Croplands | soil C; reduced $CH_4$ | 3 - reduced tillage is not an activity promoted via PSNP | The aim of this methodology is to reduce greenhouse gas (GHG) emissions from agriculture by changing soil tillage practices within agricultural systems. Activities can achieve prevention of emissions as well as sequestration of carbon in the soil, both of which result in increased soil organic carbon (SOC) content. |
| **CAR** | Grassland Project Protocol | In review | Croplands, Grasslands | soil C | unknown until protocol is published | Two types of land-use change activities will be included: avoided conversion of grasslands and conversion of croplands to grasslands. Based on the completed issue paper and internal scoping and research activities, the Reserve has decided to move forward with the development of a protocol to address grassland projects in the United States. |
| **Gold Standard** | Agriculture Requirements, v1.0 | In review | Croplands, Grasslands, Livestock | unknown | unknown until requirements are published | Details the requirements for inclusion of projects that generate C offsets through changes in agricultural management. Emphasis is on building out the Cool Farm Tool as a mechanism to quantify on-farm GHG SSRs |

# Appendix 2 BioCarbon Fund AFOLU Project Idea Note (PIN) Template

## *BioCarbon Fund*
## *Community Development Carbon Fund*
### Project Idea Note (PIN) template for Agriculture, Forestry and other Land-Use Change (AFOLU) Projects considering Kyoto and potential post 2012 project categories

**Guidelines**

A Project Idea Note (PIN) will consist of approximately 7 pages providing indicative information on:

- the type and size of the project
- its location
- the anticipated total amount of Greenhouse Gas (GHG) considering CO2, CH4 and N2O reduction compared to the "business-as-usual" scenario (which will be elaborated in the baseline later on at Project Design Document [PDD] level)
- the suggested crediting life time
- the estimated Emission Reductions(expressed in CO2 equivalent (CO2e)
- project institutionalisation, carbon revenue distribution and incentive systems
- the financial structuring (indicating which parties are expected to provide the project's financing)
- the project's other socio-economic or environmental effects/benefits

**While every effort should be made to provide as complete and extensive information as possible, it is recognized that full information on every item listed in the template will not be available at all times for every project.**

Illustrative project categories and examples include:

| Code | Afforestation and reforestation |
|---|---|
| **1** | Rehabilitation of degraded lands (e.g. *Imperata* grasslands*)* to |
| **1a** | forest |
| **1b** | agroforestry (shade trees, boundary planting) |
| **2** | Reforestation of degraded temperate grasslands or arid lands by tree planting |
| **3** | Establishing tree/shade crops over existing crops (e.g. coffee) |
| **4** | Plantations for wood products |
| **4a** | Small scale landholder driven |
| **4b** | Commercial scale |
| **5** | Landscape rehabilitation through planting corridors etc |
| **6** | Fuel wood plantings at a commercial scale |
| | Forest Management |
| **7** | Improved forest management via fertilizer, in-plantings etc |
| **8** | Improved fire management |
| **9** | Reduced impact logging |
| **10** | Alternatives to fuel wood for forest/environmental protection |
| | Cropland management |
| **11** | Reduced till agriculture |
| **12** | Other sustainable agriculture |
| | Grazing land management |
| **13** | Revegetation of semi-arid and arid lands with shrubs or grasses |
| **14** | Improved livestock management leading to vegetation and soil recovery |
| **15** | Bio-fuels: Use of biological residue to produce energy |
| **16** | Other |

# ***PROJECT IDEA NOTE***

***Name of Project:***

***Date submitted:***

***A. Project description, type, location and schedule***

| **General description** | |
|---|---|
| A.1 Project description and proposed activities<br>*Provide information on the i) objectives of the project, ii) size of the project in ha and if the project is sub-divided in smaller areas, iii) innovations involved and iv) economic drivers of the project apart from carbon finance opportunities* | [See Section 3 of this report] |
| A.2 Project category adopted and description of introduced technologies<br>*Select code(s) of project category(ies) from the list above and describe the current and alternative land use practices with reference to existing pilot activities* | [See Section 3 of this report and the table on page 1 of this PIN template] |
| **Project proponent submitting the PIN** | |
| A.3 Name | |
| A.4 Organizational category *(choose one or more)* | a. Government<br>b. Government agency<br>c. Municipality<br>d. Private company<br>e. Non-Governmental Organization |
| A.5 Other function(s) of the project developer in the project *(choose one or more)* | a. Sponsor<br>b. Operational Entity under the CDM<br>c. Intermediary<br>d. Technical advisor |
| A.6 Summary of relevant experience | |
| A.7 Address | |
| A.8 Contact person | |
| A.9 Telephone / fax | |
| A.10 E-mail and web address | |

| | |
|---|---|
| **Project sponsor(s) financing the project**<br>*(List and provide the following information for all project sponsors)* | |
| A.11 Name | |
| A.12 Organizational category<br>*(choose one or more)* | f. Government<br>g. Government agency<br>h. Municipality<br>i. Private company<br>j. Non Governmental Organization |
| A.13 Address<br>*(include web address)* | |
| A.14 Main activities | |
| A.15 Summary of the financials<br>*(total assets, revenues, profit, etc.)* | |
| **Type of project** | |
| A.16 Greenhouse gases targeted<br>*Please mention gases that will be monitored $CO_2$ / $CH_4$ / $N_2O$* | [See Section 3.2 of this report]<br><br>[See Section 1.1.1 of Woolf, D., *et al*. "Climate Change Mitigation Potential of Ethiopia's Productive Safety-Net Program (PSNP)". A World Bank Climate Smart Initiative (CSI) Report. Cornell University.] |
| **Location of the project** | |
| A.17 Country | |
| A.18 Nearest city | |
| A.19 Precise location<br>*Please provide GPS coordinates from project boundary and sub-project area boundaries* | |
| **Expected schedule** | |
| A.20 Estimate of time required before becoming operational after approval of the PIN | Time required for financial commitments: xx months<br>Time required for legal matters: xx months<br>Time required for negotiations: xx months<br>Time required for establishment: xx months |
| A.21 Earliest project start date<br>*(Year in which the project will be operational)* | |
| A.22 Current status or phase of the project | a. Identification and pre-selection phase<br>b. Opportunity study finished<br>c. Pre-feasibility study finished<br>d. Feasibility study finished<br>e. Negotiations phase<br>f. Contracting phase |
| A.23 Current status of the acceptance of the project by the | a. Letter of No Objection is available<br>b. Letter of Endorsement is under discussion or available |

| | |
|---|---|
| Host Country *(choose one)* | c. Letter of Approval is under discussion or available |

***B. Expected environmental and social benefits***

| **Environmental benefits** | |
|---|---|
| B.1 Estimate of carbon sequestered or conserved *(in metric tones of $CO_2$ equivalent – t $CO_2e$). Please attach spreadsheet if available. If information is not available please provide information on: i) site conditions, annual rainfall, altitude, soil type ii) tree species planted per ha, iii) tree harvesting intervals iv) above ground biomass (e.g. trees and mulch) and below ground biomass accumulation (roots and composted organic material) in tones dry matter/ha.* | [See Woolf, D. *et al*. "Climate Change Mitigation Potential of Ethiopia's Productive Safety-Net Program (PSNP)". A World Bank Climate Smart Initiative (CSI) Report. Cornell University.] |
| B.2 Baseline scenario *(What would the future look like without the proposed project? What would the estimated total carbon sequestration / conservation be without the proposed project? Explain why the project is additional, i.e. without the carbon finance project component the project would not take place.* | [See Sections 3.1 and 3.3 of this report]<br><br>[See Section 2.4.1 of Woolf, D. *et al*. "Climate Change Mitigation Potential of Ethiopia's Productive Safety-Net Program (PSNP)". A World Bank Climate Smart Initiative (CSI) Report. Cornell University.] |
| B.3 Existing vegetation and land use *(What is the current land cover and land use? Is the tree cover more or less than 30%?)* | [See Section 3.1 of this report]<br><br>[See Section 2.3.4 of Woolf, D. *et al*. "Climate Change Mitigation Potential of Ethiopia's Productive Safety-Net Program (PSNP)". A World Bank Climate Smart Initiative (CSI) Report. Cornell University.] |
| B.4 Environmental benefits | [See Section 3.4 of this report] |
| B.4.a Local benefits | |
| B.4.b Global benefits | |
| B.5 Consistency between the project and the environmental priorities of the Host Country | |
| **Socio-economic benefits** | |
| B.6 How will the project improve the welfare of the community | [See Sections 3.4 and 5.5 of this report] |

| | |
|---|---|
| involved in it or surrounding it? What are the direct effects which can be attributed to the project and which would not have occurred in a comparable situation without that project? *(e.g., employment creation, poverty alleviation, foreign exchange savings).* Indicate the number of communities and the number of people that will benefit from this project. | |
| B.7 Are there other effects? *(e.g., training/education due to the introduction of new technologies and products, replication in the country or the region)* | [See Sections 3.4 and 5.5 of this report] |

***C. Finance***

| **Project costs** | |
|---|---|
| C.1 Preparation costs (e.g. baseline survey, development and documentation costs of carbon finance component) | US$ million [See Sections 3.7 and 5.3 of this report] |
| C.2 Establishment costs (e.g. extension costs to introduce new management practices, tree planting, mulching etc costs) | US$ million |
| C.3 Other costs *(explain)* (e.g. organic or ISO certification) | US$ million |
| C.4 Total project costs | US$ million |
| **Sources of finance to be sought or already identified** | |
| C.5 Equity *(Name of the organizations and US$ million)* | [See Sections 3.7, 5.6 and 7.3 of this report] |
| C.6 Debt – Long-term *(Name of the organizations and US$ million)* | |
| C.7 Debt – Short term *(Name of the organizations and US$ million)* | |
| C.8 Grants | |
| C.9 Not identified *(US$ million)* Projects with a big financing gap will not be considered by the Carbon Fund | |
| C.11 Sources of carbon finance *(Has this project been submitted to other carbon buyers? If so, say which ones)* | |
| C.12 Indicative price for the emission reductions in US$ per t/$CO2_e$ for the first 10 years of the | |

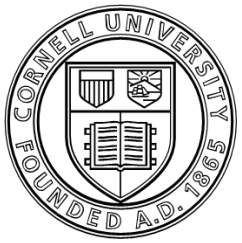
| | |
|---|---|
| project *Subject to negotiation and financial due diligence* | |
| C.13 Emission Reductions Value offered to the BioCarbon Fund *(= price per t $CO_2e$ * number of $tCO_2e$)* *Leave this field empty if you have not calculated the estimated emission reductions in section B1* | |
| Until 2012 | US$ |
| Until 2017 | US$ |

| | |
|---|---|
| C.14 Financial analysis *Please provide the expected financial internal rate of return (FIRR) for the project with and without the carbon finance component (Please attach financial spreadsheet if available.).* *If you can not estimate the impact of the carbon finance component on the FIRR please list, rank and qualify important decision making parameter for your enterprise to develop a carbon finance project e.g. carbon component should be at least cost covering, partly covering the introduction costs of new activities or within the corporate social responsibility budget ceiling (Please attach financial spreadsheet if available.)* | FIRR without carbon component:<br><br>FIRR with carbon component:<br><br>[See Section 3.3 of this report] |

***D. Institutionalization and carbon revenue distribution***

| ***Institutionalization*** | |
|---|---|
| D.1 In-house capacity to develop, implement and monitor project activities. *Please provide information on: i) extension system, number of extension workers and project area covered by extension workers, ii) number of mapping, inventory and monitoring specialists* | [See Section 5.4 of this report] |
| D.2 Internal Control System (ICS) *Please describe your ICS system and mention which national and international quality standards are achieved or will be achieved in the future (ISO, organic certification etc)* | [See Section 7.4 of this report] |

| | |
|---|---|
| D.3 Project participants, institutional structures and partnerships<br>*Please list project participants, describe existing or envisaged institutional structures and partnerships to develop, implement and monitor carbon finance project component. Please indicate sustainable financing mechanisms in place covering respective costs.* | [See Section 5.4 of this report] |
| ***Carbon revenue distribution* and incentive systems** | |
| D.3 Carbon revenue distribution<br>*Please explain what you intend to do with the carbon revenues and in particular how small-scale farmers will benefit from the carbon revenues* | [See Section 5.4 of this report] |
| D.4 Incentive systems<br>*Please list existing and future incentives of the project that will ensure a high adoption rate of new management practices. Please also indicate the expected level of adoption in %* | [See Section 3.2 of this report] |




Cornell University

School of Integrative Plant Science
Soil and Crop Sciences Section
Bradfield Hall
Cornell University
Ithaca, NY 14853 USA

Please address questions and comments to:

Stefan Jirka: sj42@cornell.edu
Dominic Woolf: d.woolf@cornell.edu
Dawit Solomon: ds278@cornell.edu
Johannes Lehmann: cl273@cornell.edu