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Financial Planning for National REDD+ Programs

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About program

The Regional Climate Change Program is a five-year cooperation initiative of the United States Agency for International Development (USAID).

Program partners contribute in complementary and strategic ways to the needs and opportunities in the region to cope with climate change, providing technical assistance to governments and organizations to promote sustainable territories, climate information systems and effective environmental management.

The program is implemented by the Tropical Agricultural Research and Higher Education Center (CATIE), International Union for Conservation of Nature (IUCN), Cooperative for Assistance and Relief Everywhere (CARE), Development Alternatives, Inc. (DAI), Technical assistance from the United States Environmental Protection Agency (EPA) and Terra Global Capital (Terra Global).

Terra Global was founded in 2006 to facilitate market and results-based payment approaches for forest and agriculture climate change mitigation programs that provide community benefits. Terra Global is now the leader in forest and agriculture program development, land-use greenhouse gas quantification, and finance, providing technical expertise and investment capital to their global client base in a collaborative and innovative manner. As a group, Terra Global has more global experience in climate change mitigation from landscape management than any other entity and is committed to working with its community and government partners to sustainably manage their forest and agricultural lands. Terra Global has extensive developing country experience and is the leading developer of protocols and aggregation for GHG emissions reductions from a full range of agricultural activities in the United States.

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Financial Planning for National REDD+ Programs

Executive Summary

This paper sets out a financial planning framework that government agencies, climate finance experts, international cooperation agencies, multilaterals, national development banks and relevant private sector parties can follow for national REDD+ financial planning. The framework facilitates the development of financial projections and a financing plan covering the implementation of the National REDD+ Programs deploying four levels of financial analysis. Adopting this framework will allow countries to clearly identify the cost, revenue and expected funding requirements for National REDD+ Program implementation as well as assess the financial feasibility of different strategic options for generating emission reductions and financial and social outcomes from sustainable landscape management. It also supports the development of realistic REDD+ Financial projections to allow for building a financial capital structure that can leverage multiple sources of public and private funds.

Given the complexity of national REDD+ program design and implementation, including a mind boggling number of terms and acronyms and a multitude of stakeholder languages, part of this paper focuses on establishing a common language needed to facilitate the REDD+ financial planning process. Coordinated planning and implementation of cross sectoral activities is needed for a country to benefit from the breath of international and domestic funding sources that are linked to agricultural, forestry, and climate change mitigation.

Financial models that accurately capture all costs and revenue, as well as identify the financing resources needed for implementation, are required to build a comprehensive and detailed REDD+ Financial Plan. Building financial models that support the evaluation of different strategic options under a National REDD+ Program requires modeling the different components of the program such that they can be evaluated individually but then combined to represent the full National REDD+ Program Financial Plan. This also facilitates aligning different funding sources with the most appropriate components of the REDD+ Program.

For this purpose, the following four levels for REDD+ financial analysis are defined:

Level 1 – REDD+ Administration: These are the incremental budgetary expenditures that the institution(s) responsible for managing the National REDD+ Program implementation will incur to manage and administer the Program.

Level 2 – REDD+ National Laws and Policies: The cost to design, develop, communicate, and implement policies that effectively support the implementation of the National REDD+ Program, such as new national policy, laws, tax exceptions, norms and regulations that do not exist. It includes the costs to develop, discuss, approve and communicate the new legal and policy frameworks. Implementation, at this level, refers to creating new institutions, departments or divisions in government with the staffing and resource to support the new laws and policies required for REDD+ However, the long term operational costs related to government incentives and financing for changing land managers changing their practices would be captured in Level 3 REDD+ Subprograms.

Level 3 – REDD+ Subprograms: The expected costs (and revenue) of implementing the programmatic framework of actions that Governments provide to support land-use related activities. These are not

the development of laws, policies, or administrative actions (Level 2). Rather, they refer to government supported programs that impact directly land-use management, such as training and technical assistance, inputs for improved management, subsidies, government guarantee funds, and other government programs that are directly tied to changing land-use in a spatially defined area. The term "Subprogram" was chosen to avoid confusion with the use of National REDD+ Program, which includes all levels.

Level 4 – REDD+ Activities: The costs and revenues associated with REDD+ related land use activities or actions (REDD+ Activities) implemented by land managers that reduce emissions and/or enhance carbon stocks as well as provide other social, financial and environmental benefits within the strategy of the REDD+ Program.

The importance of developing a detailed REDD+ Implementation Plan, as a precursor to financial planning is discussed and an outline of an implementation plan is presented to support its development. For each of the four levels for REDD+ financial analysis, guidance is provided on financial modeling.

The paper provides assistance in building consolidated financial projections, including integration of multiple funding streams, inclusion of benefit sharing plans, and calculating the cost of an emission reduction. The REDD+ Program's financial projections are the central tool to, i) securing long-term financial sustainability, ii) attracting and effectively negotiate financial resources, and iii) prioritizing specific Policies, Subprograms and Activities for the REDD+ National program implementation.

This paper explores the avenues by which a country will find new ways to access funding coming from a National REDD+ Program through a multi-tiered analysis identifying possible key roles for financing generated from the monetization of emission reductions and other REDD+ activities. It provides a detailed review of the types of financing instruments that can support REDD+ and evaluates different capital structures. Determining the financial requirements for the implementing a National REDD+ program and the role that climate finance can play in catalyzing/providing new finance is discussed.

By applying the four level approach to prepare the financial analysis, the overall National REDD+ Strategy can be refined because, i) total and marginal costs of emission reduction is calculated, ii) disaggregated financial analyses can be performed at every level to identify efficiencies and unsustainable strategic options, iii) national, subnational, and sectorial policies can be comparatively analyzed based on their efficiency, iv) the REDD+ Activities can be assessed for financial feasibility and v) the aggregated incremental funding required for the National REDD+ Program can be calculated, as well as broken down by REDD+ Subprogram and Activities and/or sectorial approaches. Moreover, REDD+ Activities that require subsidies from Subprograms can be prioritized based on co-benefits and public good/services value as well as their ability to generate income and climate change mitigation benefits.

The financial planning process will also: i) identify and quantify additional funding required for Activities to be financially competitive compared to similar activities and to alternative land uses); ii) identify and guide benefit sharing arrangements that need to established; iii) profile possible sources of funds for different levels depending on financial performance; and iv) identify the need for financial instruments, such as upfront emission reductions payments, loans and/or other financing instruments.

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1.1 PURPOSE OF DEVELOPING A REDD+ FINANCING PLAN

Financial planning for REDD+ aims to follow the guidance included in the UNFCCC REDD+ decisions, as well as maximize buy-in from international partners, domestic government agencies and other in-country and external stakeholders and investors. By creating a comprehensive Financial Plan, confidence in a country's capacity to deliver REDD+ results increases. This is particularly important, as the international financing mechanisms for REDD+ more towards results-based approaches where countries are competing for limited funding.

Therefore, financial planning should be part of the National REDD+ Program development process and begin after, or in parallel, with formulating the National REDD+ Strategy. Before the financial planning can start, a country must have a clear understanding of what is required to address the drivers[1] of deforestation and degradation at multiple scales and across multiple agents to produce sustainable landscapes. This include developing the detailed the REDD+ Laws and Policies, Subprograms, and Activities that are components of "results-based actions[2]" that will change behaviors to protect and enhance forests and support other sustainable and productive land uses.

Once completed, the REDD+ Financing Plan will reflect the economics of what is required to implement the National REDD+ Strategy. The REDD+ Financing Plan will be developed alongside the process of refining the REDD+ implementation and operational plans at a granular level. A prerequisite for developing a REDD+ Financial Plan is having a detailed multi-year REDD+ Implementation Plan. The REDD+ Implementation Plan must be designed in both a top-down (government led) and bottom-up (land manager drive) manner and should be a product of the REDD+ process, incorporating the many new requirements of the country from the government's perspective and principal land managers that are required to produce the REDD+ Program results. This process will be iterative, and strategic gaps between current and desired levels of implementation can be identified and addressed.

The objectives of REDD+ Financial Planning include:

- Identification and quantification of the additional budgetary expenditures that the National REDD+ Strategy will need to incur from an administrative, policy, and program management perspective
- Creation of financial projections for implementation under each of the four levels of financial planning (defined in this paper)included in the National REDD+ Program
- Determination of the profitable and sustainable REDD+ land use activities to generate agricultural and forest-related revenue while generating emission reductions and removals.

[1] As requested by Decision 15/CP.19 on *Addressing the drivers of deforestation and forest degradation*

[2] Decision 9/CP.19 on work programme on results-based finance to progress the full implementation of the activities referred to in decision 1/CP.16, paragraph 70

- Identification and quantification of the expenditures that a country and its land managers must incur to effectively support implementation of prioritized REDD+ Activities.
- Quantification of the additional finance required over the next 5-20 years to implement the National REDD+ Program and means to properly align and leverage multiple funding sources to create long-term financial sustainability of the Program
- Foundation for improving the National REDD+ Strategy by considering additional REDD+ Laws and Policies, Subprograms and Activities, as well as means to prioritize those REDD+ Activities that are financially viable

1.2 FRAMEWORK FOR NATIONAL REDD+ FINANCIAL PLANNING

The National REDD+ Program is considered to be the operative framework for the National REDD+ Strategy. It is important to ensure that the different components of the National REDD+ Program are financially sound. Applying a financial planning framework composed of four levels, which are designed such that each is developed in accordance with principals that allow for proper financial analysis. These levels are described and presented in Figure 1, and they include: 1) REDD+ Administration and Management; 2) REDD+ Laws and Policies; 3) REDD+ Subprograms; and 4) REDD+ Activities. The figure provides a breakdown with examples of which of the REDD+ components that will be evaluated at each level, and who are the principal actors involved in implementation.

Level 1 – REDD+ Administration and Management: These are the incremental budgetary expenditures that the institution(s) responsible for managing the National REDD+ Program implementation will incur to manage and administer the Program (Section 2), including readiness costs to establish the National REDD+ Program (e.g. Reference level, MRV, stakeholder engagement, and safeguards).

Level 2 – REDD+ National Laws and Polices include the costs to design, develop, communicate, and administer policies that effectively support the implementation of the National REDD+ Program, such as new national policy, laws, tax exceptions, norms and regulations that do not exist. It includes the costs to develop, discuss, approve and communicate the new legal and policy frameworks. Implementation, at this level, refers to creating new institutions, departments or divisions in government with the staffing and resource to support the new laws and policies required for REDD+ However, the long term operational costs related to government managed incentives and financing for land managers are captured in Level 3 REDD+ Subprograms. (Section 3).

Level 3 – REDD+ Subprograms are the expected costs (and revenue) of implementing the programmatic framework of laws and policies that Governments provide to support land-use related activities. These are not laws, policies, or administrative actions (Level 2). Rather, they refer to the implementation costs of government supported programs that impact directly land-use management, such as training and technical assistance, inputs for improved management, subsidies, government guarantee funds, and other government programs that are directly tied to changing land-use in a spatially defined area. The term Subprogram (Section 3) is used here to avoid confusion with the use of National REDD+ Program, which includes all levels).

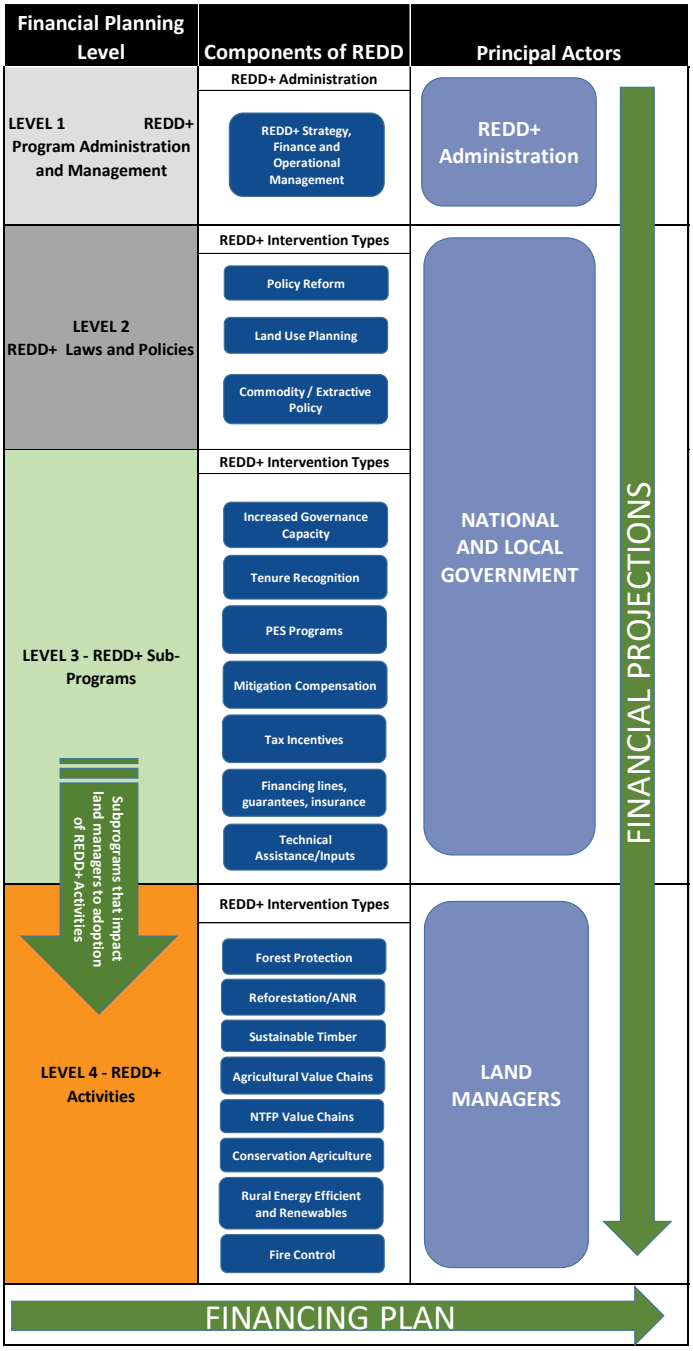

Figure 1.Financial Planning Levels, Components and Principal Actors

Level 4 – REDD+ Activities are the costs and revenues associated with REDD+ related land use activities or actions (REDD+ Activities) implemented by land managers (government, private, community) that reduce emissions and/or enhance carbon stocks within the framework of the REDD+ Program. These REDD+ Activities, may be bundled by common land use practice changes and within the Subprograms that support them (e.g. sustainable forestry, NTFP, sustainable pasture systems). This level represents the costs and revenue opportunities for land managers in implementing the changes in land management as identified within the REDD+ Strategy and Implementation Plan.

Following this analytical framework will allow countries to clearly assess the financial requirements of their National REDD+ Program and the cost of generating emission reductions and other related productive land use activities, as well the administrative and program management's costs for REDD+. (Section 5).

1.3 INFORMATION REQUIRED FOR FINANICAL PLANNING

A list of high level information to be used as inputs for building the Financial Plan is presented in Table 1. Often these inputs may not all be at the level of detail needed at the start of the financial planning process. However, unless there is a detailed Implementation plan that clearly defines the scope and scale of REDD+ interventions the process of financial planning cannot begin. For costs and revenue inputs, these may start out as initial estimates where more accurate and detailed forecasts are incorporated as they become available.

Table 1. Basic Information Required for the Financial Planning Process

Basic Information Required	Description/Concept
Clearly defined National REDD+ Strategy	List of proposed REDD+ prioritized of strategic options and program objectives that will guide the REDD+ Program design (Section 5.1.1.) and key actors for implementation
Implementation plan for the strategic options	The process of designing what is needed to implement the REDD+ Strategy at a granular level and includes details on a year by year basis of activities, identification of the lead and supporting implementing entities, annual implementation metrics, and target geographies.
Incremental costs to the government to build and administer the National REDD+ Program and for interagency institutions supporting REDD+ Subprogram implementation	Costs associated with the leading government entity managing the National REDD+ Program, and with the government's interagency activities being implemented at the sub-program level. These may be public collateral services, on-the-field activities as technical assistance, training, technology transfer, etc.
List of policy reforms, national plans and new institutions (if any)	All the policies required to support implementation of the National REDD+ Strategy, including the cost associated to develop, consult, communicate, and approve the policies.
Costs and revenue of REDD+ Subprograms	Extension services, new incentives/subsidies, government supported financing lines, guarantee funds, new taxes, etc.
Costs and revenue of REDD+ Activities	Needed to identify framework conditions required for successful REDD+ Activity implementation. So cost of design, consultation, communication, and approval can be identified and quantified.

1.3.1 Interaction of Subprograms and REDD+ Activities in the REDD+ Financial Planning Process

Government supported Subprograms, such as, incentives, subsidies or tax exemptions, may be required to promote adoption of new productive land use activity identified in the National REDD+ Strategy. These Subprograms may be necessary so that the REDD+ Activities are economically competitive to other land use alternatives for land managers that may act as drivers of deforestation and degradation. In this scenario, the government might need to support Subprograms to develop new or more productive value chains, where additional incentives and subsidies for investment, technical assistance, securing supply of key inputs, preferred credit lines, guarantee funds, training technicians, assembling key supply chain technology and services, preferential market access, quality and market requirements management, and other key factors are needed for successful startup and implementation. For modeling and evaluation purposes, Subprograms that are implemented by the government to impact the actions of land managers to adopt REDD+ Activities, can be clustered by REDD+ Strategy component, sector, driver type, groups of agents, or other characteristics that capture the interdependent link between these Levels.

The REDD+ financial plan will capture government costs on implementing, but since land managers will be required to adopt new management practices (REDD+ Activities – Level 4), the financial planning process should capture the economic impact of their adoption, to determine financial viability.

1.3.2 Financial Feasibility of REDD+ Activities - Cornerstone of Successful REDD+ Implementation

The lowest level of financial planning, Level 4, is related to analyzing the REDD+ Activities that are part of the REDD+ strategic options. These are the land use activities that are designed to be adopted by land managers to more sustainably manage their land to reduce deforestation, degradation, enhance carbon stocks and/or increase sustainable forest and agricultural land management. REDD+ Activities shall be subject to financial modeling and an assessment of their financial feasibility. Such assessment is expected to provide valuable feedback for evaluating the different strategic options as a way to improve the overall National REDD+ Program development process. These are the cornerstones of the financial planning process, as they reflect the economics that land managers need to change land use in order to produce emission reductions. This includes understanding economics to all types of land managers, government, private sector concession holders, communities/farmer groups, indigenous people, and individual land holders.

REDD+ Strategies will likely identify a broad spectrum of Activities but it is unlikely the all the funding or understanding of the detailed implementation requirements will be known in the early years of REDD+ financial modeling. This requires prioritizing the REDD+ Activities that will be implemented. Section 5.1.1 provides a framework and process for prioritizing REDD+ Activities. Financial analysis using an investment cash flow (business model) approach is recommended in order to evaluate the economics to the land manager and a potential return for investors.

The financial modeling for each REDD+ Activity will allow for the identification of the most profitable activities, as well as the link to the emission reduction potential. Financial performance shall be assessed using transparent assumptions and financial metrics. The likelihood that some of the activities evaluated

will underperform with respect to the required financial metrics is valuable feedback for the overall National Strategy development process. Moreover, this assessment will guide the process of identifying additional policy measures and/or subprograms that should be included in the National REDD+ Strategy. These could include those related to taxes, incentives, subsidies, technical support, capacity building, productive infrastructure, local market development, international market access, and many others that directly reduce profitability and/or competitiveness of the proposed activity when compared to traditional land use.

1.4 TECHNICAL ASPECTS AND COMPETITIVENESS OF STRATEGIC DEVELOPMENT OPTIONS

REDD+ Programs are designed to implement and carry out the REDD+ National Strategy. However, the financial planning process for a National REDD+ Program must have a broader approach than simply quantifying the cost of the National REDD+ Program implementation. The REDD+ financial planning process represents an opportunity to perform a competitive analysis of the sectors that impact land use in a certain country, as well as a practical and realistic financial evaluation of REDD+ related Subprograms and Activities to be promoted by the National REDD+ Program.

Strategically governments should choose between the different REDD+ Activities that will be promoted and supported by the country in such a way that it can be successfully implemented and sustainably operationalized through the National REDD+ Program. In financial terms this means, that REDD+ Policies, Subprograms and Activities that change the patterns of land use locally, regionally, sub-nationally and at the country level must deliver land managers improved productivity linked to local livelihoods needs and markets so, that once implemented, the activities are sustainable and contribute to support the country's economic growth.

2 LEVEL 1 - REDD+ PROGRAM ADMINISTRATION AND MANAGEMENT

The section details the financial required to support REDD+ readiness and on-going administration and management of the REDD+ Program. REDD+ Programs are large scale, intersectional specialized and require a multi-disciplinary team for successful design, implementation and management. These costs, regardless of whether the program is managed within an existing governmental agency or as a newly developed entity, must be understood. Breaking these costs out also allows for determination of the percentage of the Program's overall budget or carbon revenue are absorbed in the management of the Program.

2.1 SCOPE REDD+ PROGRAM ADMINISTRATION AND MANAGEMENT

Financial planning for the REDD+ Administration is focused on quantifying the funding needed to finance the REDD+ national administrative/management entity and any supporting entities. These entities will be focal point and responsible for: i) Monitoring performance National REDD+ Strategy performance; ii) interacting with and supporting country representation on REDD+ to the UNFCCC; iii) providing national

services on legal REDD+ matters (ERPAs,[3] donor agreements, LOI, etc.); iv) participating in structuring and operating national key institutional arrangement (benefit sharing, communications, stakeholders consultation and dissemination); v) manage strategic roles for fundraising activities/multilateral relationships amongst others; vi) establishing operative processes and procedures; vii) manage and oversee the national MRV and SIS systems, and vii) administering the day to day compliance and oversight of the program. These are all activities that are necessary to establish and run the National REDD+ Program far before any emission reductions are produced. The final expected outcome for financial planning at this level is the budget for the National REDD+ Program Administration. The administrative agency[4] will not be able to carry out all the technical tasks, but they are responsible for the management and funding of all of these as part of the administration of the National REDD+ Program.

Level 1 financial modeling includes: i) identifying and quantifying upfront startup costs typically associated with the readiness process for the National REDD+ Program structuring, as well as ii) budgeting the on-going management costs of administering the National REDD+ Program. The costs should be identified as incremental or additional to baseline costs of running the administrative entity. When this level of financial planning is complete, there will be a budget for the National REDD+ Program administration start up and operational stages.

2.2 FINANCIAL MODELING OF REDD+ PROGRAM ADMINISTRATION AND MANAGEMENT

2.2.1 Implementation Plans

Detailed REDD+ Implementation Plans are imperative for financial planning. Without them, there is no foundation for building financial projections, identifying the funding requirements and determining the appropriate capital structure for the REDD+ Program. Implementation plans capture the details of what is required to deliver on the prioritized components of the REDD+ strategy.

Developing implementation plans is often the hardest part of financial planning. It requires taking each of the Levels of REDD+ implementation (defined above) and creating line item details on a year by year basis of activities, identification of the lead and supporting implementing entities, annual implementation metrics, and target geographies. Based on the implementation plan the costs and revenue estimates can be developed from the bottom-up and a financial management tool can be created to support prioritization of REDD+ Program components based on available funds as well as quantifying the financial implementations of scaling REDD+ activities in the future. Typically REDD+ Programs spend years developing a road map and strategy, but they fall short of developing the detail needed to estimate implementation costs and identify sources of revenue on a accurate and granular manner.

Creating a REDD+ Implementation Plan should be considered an iterative process given the complexity of implementing a REDD+ Programs that targets multiple sectors and geographies and span implementation entities including government, private sector and communities/indigenous people.

[3] ERPA: Emission Reductions Purchase Agreement or Emission Reductions Payment Agreement

[4] Carbon Fund, FCPF documents refer this as the Program Entity (ies).

The process that has been used by the authors at both the national and subject level uses a implementation planning template that is either organized by Subprogram, sector and REDD+ strategy component. The REDD+ Implementation Plan is should include the following:

- Activity
- Sub-Activity
- REDD+ Strategy Component
- Level of REDD+ for Financial Planning (Level 1 – REDD+ Administration, Level 2 – REDD+ National Laws and Polices, Level 3 – REDD+ Subprograms, or Level 4 – REDD+ Activities)
- Direct or Indirect Impact on Land Use
- Target Geographies
- Economic sector (if applicable)
- Type of Land Tenure that Activity Targets
- Existing or New Activity
- Lead Implementer
- Supporting Implementer(s)
- Implementation metric (ha, #, etc)
- Annual Implementation Goals by Metric
- Priority (based on ability to address drivers of DF/DG, development value, financial viability and other factors see Section
- Identified Sources of Funds

2.2.2 REDD Readiness Budget

Countries find themselves in different levels of development regarding National REDD+ Strategy development and program implementation. Many countries will have already incurred a number of upfront costs associated with establishing a National REDD+ Strategy and create enabling conditions for REDD+ Strategy development (readiness costs and other even previous). Nevertheless, National REDD+ Programs still need to be fully developed in order to begin implementation and demonstrate compliance with the standards and methodological requirements of results-based payment programs..

It is recommended that each country prepare a startup cost budget including all aspects of establishing the National REDD+ Program. The startup budget should include basic assessments that are needed to better understand deforestation, degradation causes, agents, and drivers. Design costs for the National REDD+ Strategy, including the processes and procedures for Program administration and MRV must be included in this costs budget.

Following a description of several cost components that can be clearly identified when creating a start-up National REDD+ Program and costs incurred during readiness process. Main costs could be driven by the following components:

- REDD+ Readiness preparation process design;
- Administration and management of the REDD+ readiness preparation process;
- National REDD+ Strategy development;

- Reference level study and development (national, subnational, multiple jurisdictions);
- National Monitoring, Reporting and Verification (MRV) system, procedure design and implementation;
- National REDD+ Framework development for Safeguards Information System (SIS);
- Stakeholder communication and engagement;
- Framework law and/or norms that support National REDD+ Program administrative functions;
- Setting up a REDD+ focal point office;
- Staffing REDD+ focal point office and personnel at key government institutions functioning as implementing partners;
- Design, communication and engagement to institutional and fund management (benefit sharing) arrangements for technical, administrative and financial management of REDD+ national program;
- Development of ER-PIN[5] and ER-PD[6];
- Fundraising for readiness and startup process;
- Creating new institutions, programs or departments within government agencies; and
- Other operational, administrative, logistics, etc.

All of these are national tools, systems, protocols, and processes that need to be developed so that the National REDD+ Program is implemented on a sound administrative foundation. It is expected that these components of readiness may be created under different implementation partners and/or between different government agencies that will collaborate with the National REDD+ Program implementation.

2.2.3 Ongoing Administrative and Management Costs

The financial planning process should include developing long-term budgets (forward-looking at least 10 to 15 years) for the management of the National REDD+ Program.

In order to model a realistic budget, it is important to clearly identify the roles and range of functions/activities assigned to the management entity. For this reason, one of the basic sources of primary information for financial planning is the REDD+ Implementation Plan, which clearly identify roles of the REDD+ management entity.

Staffing and Office Costs

Identify all the specific staff positions that are specifically required for establishment and on-going management of the REDD+ Program. These are direct resources supporting the REDD+ Program within the REDD+ Management Entity, either as an agency/department within the government or a separate entity depending on the REDD+ Program's institutional structure. Estimate annually the number of "full

[5] Emission Reduction Program Idea Nota (ER-PIN). This document provides information for FCPF REDD+ country participants that have made significant progress toward REDD readiness to be considered for a potential Emission Reduction Purchase Agreement (ERPA) under the FCPF Carbon Fund. This is the first document submitted and is required for entry into the pipeline.

[6] Emission Reduction Program Document (ER-PD). After a REDD+ country accepted into the pipeline has signed a Letter of Intent (LOI) with the World Bank, a draft ER-PD is prepared by the REDD+ country, with technical support from the World Bank. A full ER-PD is submitted for review and selection after World Bank and Emission Reduction Program due diligence procedures have been conducted.

time equivalent" staff for each position that are needed. These may include newly hired staff or existing staff that are seconded to the REDD+ Program Management team. The cost of each staff position should be based on actual costs of staff with the technical expertise needed to carry out the position and include all fringe and other benefits that are typical to the country. These positions, may reflect the costs of full time employed staff or consultants, whichever is appropriate for the Program. The annual budgets should include an estimated merit increase for staff.

Example staff positions to be included in the budgets are:

Table 2. Example of Staff Position for REDD+ Management Unit

Title of Position
REDD+-program executive director
Finance and ER tracking
Finance Manager
Stakeholder engagement and redress
Monitoring and evaluation
GHG quantification
Communication and outreach
Private sector coordinator
Regional REDD+ managers
Remote sensing/GIS
Forest carbon quantification
Assistant to Exec Director

In addition to staff costs, office costs for each year are projected. These costs include office space (if no additional space can be provided without government facilities), office supplies, transportation (such as Program vehicle), computers/printers/projectors, system administration, internet, phone and other office management costs relevant for the Program. These annual costs should take into account and increase based on the expected inflation.

Travel to Support Management of the REDD Program

The travel for the REDD+ Program management team covers the trips required for overall program management. These include international trips for attendance to key conferences as well and domestic trips on the capacity of ER Program Management. The costs should be developed taking into account the staffing plan, the geographic area of the REDD+ Program and include annual increases for inflation.

Legal, Financial and Institutional Arrangement for REDD+ Program

These include the costs associated with managing the executive management of the REDD+ Program, financial and legal aspects of the ER Program. They include the consultancy costs associated with the evaluating the options for the institutional arrangements for the REDD+ Management Entity as well costs of establishing the entity or structure within the government to manage "ring-fenced" funds. Other costs included are annual audit fees for the REDD+ Program, Trustee/Management Fee for the entity managing the RME, and the on-going legal costs to support the ER Program. Depending on the capacity on the local personnel, these may also include the costs for an initial period of international REDD+ experts or a REDD+

management company supporting the local team, which are considered Trustee/Management Fee. The legal costs should cover the costs to develop and maintain the REDD+ Participation Agreements (between the REDD+ Program and implementing partners) over time and legal needs of the REDD+ Program.

REDD+ Readiness – Key Consultancies

The UNFCCC, World Bank and other major donors such as Germany and Norway, have established requirements and set of processes for countries to achieve "REDD Readiness". Not all these processes are fully designed and requirements differ. But basically for National REDD+ Programs to receive results-based payments, and in the future possible participate in future market or results-based mechanisms under UNFCCC, they need to achieve the preconditions of REDD Readiness. As REDD+ is new, most countries require technical support to achieve the requirements, which is provided by key consultancies funded directly or indirectly by the REDD+ Program. Some of these consultancies will align and be included in other sections of the budget (e.g. benefit sharing plan development, REL and MRV), but those that cannot be aligned with other areas of cost estimation should be included here.

Stakeholder Engagement

The costs to implement and maintain stakeholder engagement should include cost to design of stakeholder engagement process, training for engagement teams, costs to conduct stakeholder meetings to be held by group and geographically, costs to record and report results of meetings, as well as the on-going costs of communication. Costs are generally broken down by 1) meeting costs per type of meeting (including venue, food, transportation, per diem, and preparation), 2) technical support costs/consultancies and 3) communications. The stakeholder engagement process both upfront and on-going is a key component of REDD+ success and can be costly, thus time should be spent in developing realistic and detailed cost estimates.

Safeguard and Redress Systems

REDD+ Programs require certain safeguards be met. This necessitates the design of a safeguard monitoring plan and system to collect and report. These costs estimates may be developed early in the process but cannot be finalized without a comprehensive safeguards monitoring plan which should also evaluate the data that is already being collected by the government agencies which can be leveraged for REDD+ safeguard monitoring. These costs will include technical support for development of the safeguards monitoring plan that draws on the countries polices, laws and regulations to address risks/benefits of REDD+ as well as other safeguard requirements and good practice guidance. And the costs designing and implementing a safeguard information system to collect and report on data according to the plan.

In addition to development of the safeguard plan and system, a process must be supported register and address grievances from the groups of REDD+ stakeholders. This will include the cost of designing and/or expanding existing grievances processes, cost of staff to support the grievance and redress processes and reporting. Often the staffing costs for safeguard monitoring are captured in the REDD+ administrative and management staff costs, however the costs for supporting grievance and redress are generally incremental, as they involve external staff to have some independence from the REDD+ program management team.

Benefits Plan Management

The design REDD+ program institutional arrangements and the specifics of the benefits sharing plan will drive the costs of administering REDD+ stakeholder benefits. Often the staffing costs for on-going benefit administration are included in the REDD+ program management unit, however integration of benefits into the REDD+ participation agreements (or other forms of agreements with beneficiaries), specialized monitoring needed for each group of stakeholders and establishing/administering aggregated benefit fund management structures required to handle payments made to collective stakeholders. In some cases, additional emission reduction accounting or other forms of proxy-based performance quantification may require technical assistance beyond monitoring at the jurisdictional level to allocate benefits in accordance with the plan.

Emission Reduction Quantification, Verification and Issuance

The costs of initially registering a REDD+ program and preforming the on-going monitoring of verified emission will vary based on standard or protocol applied, size and typologies of the REDD+ program, frequency of monitoring and verification, as well as the first verification year. Table 3 provides a listing of the costs that a REDD+ program is likely to incur to quantify emission reductions, some may not be relevant for all programs.

Table 3. Emission Reduction Monitoring, Quantification, Verification and Issuance Costs Categories

Category	Cost Components
1. ER-PD PREPARATION COSTS	• Purchase Historical Remote Sensing Images (t=-10/15yrs to t=0) • LOE/consultancy for land-use/land-use change analysis (maps and transition matrices) • Costs of biomass sampling • LOE/consultancy for generation of emission factors • LOE/consultancy for Land-use change model and REL • LOE/consultancy for compliance with Methodological Framework • LOE/consulting ER-PD Development • LOE/consulting process documentation and training
1. ER-PD VALIDATION COSTS	• Costs for independent reviews and TAP review
2. ON-GOING ER-MONITORING AND VERIFICATION COSTS	• Purchase images for monitoring period, at minimum one at the end of the monitoring period • LOE/consultancy for land-use/land-use change analysis (maps and transition matrices) • Costs of biomass sampling (if required) • Costs of PRA and Biodiversity (non-carbon benefits) • LOE/consultant for update of emission factors (if required) • LOE/consultant for preparation of ER-Program monitoring report and verification support • Support for independent verification of monitoring report
4. ER MONETIZATION AND TRANSACTION RELATED COSTS	• Costs to issue emission reductions on an external providers systems or costs to build and maintain a registry system on an on-going basis • Establishment of REDD+ Funds management entity and costs of fiscal management • Brokerage/transaction costs for sale of emission reductions

3 LEVEL 2 - REDD+ NATIONAL LAWS AND POLICIES

This section elaborates on financial planning required to complete the legal and policy development required to support the National REDD+ Program. However, the financial planning for establishing and aligning laws and policies with REDD+ programs, is often less about costs implications and more about political commitment, cross agency effectiveness and efficiency of process.

The two following subsections define the scale and scope of the policies, as well as the relationship between them. Guidance is also provided on how to better structure financial modeling and how to identify and quantify budget costs for REDD+ Policy implementation.

3.1 SCOPE OF REDD+ NATIONAL LAWS AND POLICIES

National REDD+ Policies related to land use sectors are created in accordance with national/subnational conditions, and basic conditions for economic development. A National REDD+ Strategy is expected to identify and promote new laws and policies, adapt, and/or improve existing ones, so that economic development can be promoted through REDD+ Subprograms and Activities respectively. The financial planning process shall clearly identify and quantify all costs related to formulation, approval and implementation of such policy changes. Moreover, the financial plan should identify all relevant medium and long-term costs needed to implement the policies through the administrative structures (departments, ministries, agencies, others) within the national or subnational institutions.

For purposes of financial planning, Level 2 should be thought of as the laws and policies that will have an overall impact on land use but are not directly tied to implementation costs at the field-level implementation, which would be captured in Level 3. The incremental budget requirements must be created based on the scope of the work needed to support the implementation of the new laws and policies. Level 2 financial projections that capture the incremental or marginal costs of implementation REDD+ specific laws and policy budgets, will include policy formulation, consultation and implementation at the country level. This could be difficult due to the country's diversity of natural resources, economic activities, development programs, social constraints, as well as their multi-agency involvement, and national and subnational government agency coordination. Nevertheless, whenever a new or improved national policy is part of the National REDD+ Strategy, additional funding must be identified in the financial planning process.

Some policies and related laws may be developed at the national level, but require implementation and enforcement at subnational levels, while other polices and laws may be driven at the subnational level.

To manage the financial modeling at different scales, the following should be considered:

- The new or improved national policy will have costs for the leading national implementation agency at the central national office and at their regional offices for implementation and enforcement; or
- Subnational/local government agencies will need to have incremental budgets to support policy implementation, personnel, offices, equipment, capacity building, and others.

The costs of implementing new polices that drive a specific programs aimed at land managers within the context of the REDD Program will be captured in Level 3 Subprograms. However, the costs of implementing polices that are associated with creating enabling conditions should not be included in the REDD+ Financial Planning process. These enabling conditions could include costs of improving roads or establishing a port, to lower costs and increase market access for target sectors. These are shared goods and the financial implications should be evaluated outside of the REDD+ financial planning process.

3.1.1 Subnational and Sectorial Scale Policies

Subnational and jurisdictional scales often correspond to specific economic sectors. This is very common in many countries, since land uses are divided into jurisdictions where common ecological conditions exist. The first distinction is generally agricultural and forestry, which are often in different ministries, and then specific jurisdictions include sugar cane, coffee, natural rubber, palm oil, cacao, cattle, and other commodities that are well-established regionally as part of a productive cluster. Subnational jurisdictions also correspond in many countries to the largest areas covered by natural forest that need to be conserved and/or sustainably managed.

Subnational policies in a certain country may be created, modified and/or improved by National REDD+ Programs. In addition, policy formulation, consultation, approval, communication, and implementation must be considered within the context of decentralized land use management at regional, state and municipal levels. There a number of cases in different countries where regional/subnational jurisdictional policies on land use management prevail and are recognized over national policies.

A subnational approach to financial planning is appropriate when: i) previously described situations are present; ii) Costs identified and quantified related to subnational plans and agendas that (the identification and quantification of costs related to subnational scopes) are bound and acceptable under country laws; and iii) there are regional government offices/departments, or national government institutions that have regional offices and can lead the process of formulation, consultation, approval, communication, and implementation of the new policy.

There are countries where certain productive sectors are of great economic importance to the financial performance of a country and to the successful future of the National REDD+ Program. In such cases, policy could be applied to productive sectors, rather than to geographic locations (national or subnational). Changes in sectorial and policy approaches may be driven by specialized industry associations and/or certain ministries that are dedicated to a particular sector. Given that, financial planning must be focused on the specific expenses related to the sectorial policy, and its direct institutional developer-future operator.

3.2 FINANCIAL MODELING OF NATIONAL LAWS AND POLICIES

Based on the description of Level 2 policy identification process, it should be evident that political, administrative and management expenses for financial modeling for Level 2, are related to national policy programs and their required costs through the subnational decentralized bodied. This accounts for all potential incremental costs in existing/new government institutions or civil society institutions to be

created with supporting policy framework creation and implementation. The level of analysis shall be at the central government and regional/country offices.

The financial model for National REDD+ Laws and Policies shall take into consideration the expenses related to:

- Law and Policy Formation
  - Strategy setting and articulation (broad road map for REDD+ that promotes economic growth and sustainable development, roles of public, private, domestic and international actors).
  - Sectoral policy development and formulation (related sector policies required to support REDD+);
  - Stakeholder consultation around laws and policy;
  - Normative framework development (establishment of rules and regulations);
- Policy discussion and approval by key policy makers;
  - Communication to the public and other stakeholders;
- Startup costs: institutional cost of establishment (offices, furnishings, equipment, recruitment of key personnel), creation of technical and operative structures, creation of institutional capabilities and operational plans;
- Operational cost: annual cost of personnel, equipment and furnishing, offices, supplies, training, logistics, events, and all related costs of operation of the main executing body for the relevant new policy at the main national/subnational office; and
- Opportunity Costs – e.g., less tax revenue due to fewer concessions granted or extractive rights.

In the financial planning process, particularly when assessing opportunity costs, governments will need to have a clear understanding of the agents that are impacted by REDD+ strategic options and determine opportunity costs for these agents. For example, if a policy reduced the amount of new forest land that will be legally zoned for palm oil, the opportunity cost to the government would be the government's lost revenue from palm oil permitting fees and other lost income associated with palm oil production. Another example, at a smaller scale, is if REDD+ Activities involve land managers agreeing to conserve forests that could be harvested legally. In this case, the opportunity costs for the land manager agents who did not harvest would be their lost revenue, while the opportunity cost this would represent to the government would be any lost fees it would have collected from legal logging.

4 LEVEL 3 - REDD+ SUBPROGRAMS

Previous sections described the financial planning process for Level 1 and 2, which have to do with implementing measures for national administration of the National REDD+ Program and policy development and implementation, respectively. This section describes the Financial Planning for Level 3 REDD+ Subprograms, (i.e. costs (and revenue) of implementing the programmatic framework of actions that Governments provide to support land-use related activities).

4.1 SCOPE OF REDD+ SUBPROGRAM ACTIVITIES

The financial planning process for Level 3 - REDD+ Subprograms shall identify and quantify the expected costs of implementation for REDD+ Subprograms from the government's perspective. The government's perspective in this case is not a policy perspective, nor administrative; rather, all government support is provided directly to promote field-based REDD+ Activities (Level 4) (e.g., training and technical assistance, PES programs, and inputs for new productive land use activities and/or improved productivity).

Conceptually speaking, REDD+ Subprograms are the main government supported components of the National REDD+ Strategy – those are the bundled components that provide programmatic support into REDD+ land use activities. REDD+ Subprograms relate directly to the National REDD+ Strategy and policies and have national, subnational, or sectorial implementation modalities. These programmatic activities must be consistent with the National REDD+ Strategy, related laws and policies and the REDD+ Program implementation design. These programmatic activities will be focused on supporting priority productive sector's contribution to REDD+ results by creating local productive and market conditions to ensure land managers adopt new practices that change land-use. Having well developed Subprogram operational plans are imperative for financial planning. This will allow for the quantification of the budgets required to promote REDD+ Activities, such as technical assistance, training technicians, patrolling, master management plan development, productive infrastructure, linking to markets, value added processes, technological support to specific productive sectors, amongst others.

While Subprograms are designed to directly impact how land is managed, they must be supported by policy measures and designed to promote increased competitiveness of certain sectors, create optimal conditions to implement sustainable land use activities, promote productive and market conditions, deliver long-term livelihood improvements for land managers and rural populations, and promote emission reductions being generated.

4.2 FINANCIAL MODELING FOR REDD+ SUBPROGRAMS

Level 3 is defined as activities that governments will directly implement to support REDD+ Activities carried out by communities, associations, indigenous peoples' groups, cooperatives, and/or individual private land managers as well as government agencies who directly manage lands. In order to properly clarify what the expected costs associated with implementation of REDD+ Subprograms should be, some examples are provided in Table 4.

Budgeting for Subprograms is very specific to the program or sector being supported. Direct links should be made between the Subprograms budgeted and the REDD+ implementation plan and further to the specific REDD+ Activities that they are designed to support. Costs should be developed based on the metrics that drive costs (e.g. hectares, # land manager/producers, etc). The government's fixed, semi fixed costs and variable costs of managing and administrating each Subprogram should be estimated. Table 4 provides a listing of the types of costs that are generally incurred to implement Subprograms. Financial planning for this Level should also provide relevant information on the budget sharing between different REDD+ Subprograms to be implemented by different government institutions at different scales and scopes.

Table 4. Examples of Level 2 REDD+ Subprogram Cost Categories

Cost Categories	Description
Technical assistance and specialized skill training to strengthen Government field staff capacity to promote REDD+ activities	New technical support programs/departments in government and/or decentralized institutions: building new technical capabilities into extension services, startup costs, operative annual costs, staffing costs, basic services, office, vehicles, equipment, and others relevant to operations.
Technical assistance and inputs to land managers for REDD+ Activities	New government programs providing rural technical assistance and inputs to promote sustainable forest, reforestation, land restoration, and agriculture management best practices, business skills development, market and credit access, value added processes, NTFP livelihood management, improvement of ecotourism services, and other relevant areas supporting land use action implementation.
Resources for enforcement of forest management laws and conservation	Government services that are functional to different REDD+ Activities: patrolling, illegal logging control, tracking and control of legal wood, licensing forest management operations and inventories, forest inventories, monitoring and certification of land use actions, monitoring, verification, and others.
Access to finance to promote adoption of REDD+ Activities	The costs of PES program payments, lines of credit, guarantees, tax credits, ER results-based payments that provide land managers compensation for changes in land-use/adoption of REDD+ activities and access to capital to make investments required to change practices.

All other possible new (marginal or incremental) costs of implementing the REDD+ Subprograms activities that will be incurred by government institutions responsible of supporting the National REDD+ Strategy implementation must be identified and quantified as part of the financial planning process. The process of financial modeling at Level 3 will provide a clear definition of possible funding requirements for the government to operationally support REDD+ land use Activities. Once all possible and predictable expenditures are accounted at Level 3, the REDD+ Subprogram funding requirements can be clearly identified.

5 LEVEL 4 - REDD+ ACTIVITIES: THE CORNERSTONE OF DELIVERING EMISSION REDUCTIONS

5.1 SCOPE OF REDD+ ACTIVITIES

Covered in the last section, Level 3 accounts for the direct costs of government implementing REDD+ Subprograms, but there will also be costs and revenue incurred by land managers who adopt REDD+ Activities that change land-use under the REDD+ Strategy. Financial planning for Level 4 REDD+ Activities turns from identification and quantification of possible costs that are primarily borne by government, to evaluating financial feasibility of REDD+ Activities that will be adopted by land managers to produce emission reductions and other productive activities. These costs and revenue will not be explicitly part of developing the government's overall REDD+ financial plan. However understanding the financial implications for land managers adopting REDD+ Activities, including the benefits they can receive from

REDD+ Subprograms, is the only way to determine whether they will adopt the practices required for successful implementation of the REDD+ Strategy.

REDD+ Activities are implemented by a diverse group of stakeholders with different cultures, types of ownership and tenure schemes, natural resource rights, biophysical conditions and level of enabling conditions. These each effects their ability and desire to make the changes needed to support the REDD+ Program. Most implementing land owners/managers will be interested in maximizing the possible financial (example: revenue from eco-certifications) and non-financial (example: improved livelihoods) returns (financial and livelihood). At the very least, land managers will want to be able to cover the cost of opportunity of alternative land uses. It is critical to understand the "business case" for implementing the REDD+ Activities, which are primarily driven by return generation, but may for larger private sector land managers may also include motivation associated with corporate social and environment commitments.

At Level 4, it is important for financial planning to clearly define the interaction between Subprograms promoted by the government and the financial and other impacts for land managing adopting REDD+ land use Activities that are prioritized for implementation and financing within the National REDD+ Program.

One of the greatest challenges for REDD+ strategy development and implementation for governments, is prioritizing the REDD+ Activities that will be promoted in the REDD+ Program.

5.1.1 Prioritizing REDD+ Land use Activities for Financial Modeling

The criteria and rating methodology is presented in the section supports the identification of REDD+ Activities with the greatest chance of adoption, successful implementation and the ability to reach sustainable performance. In other words, those REDD+ Activities that have a higher chance of delivering sustainable land use management and economic growth for land owners/managers and private sector investors and companies. The criteria cover market access, cultural, value chain, profitability, productive conditions, and financial resources components that will less likely to incur by implementation barriers.

To prioritize REDD+ Activities they should evaluated based on the following criteria:

Table 5.Criteria to Prioritize REDD+ Activities within the REDD+ Strategy

Criteria	*Definition*
Cultural acceptance of the proposed land use and current level of adoption	*The land use activity proposed is traditional or normally implemented in the country (or with groups) and there is a proven record for scaled production/implementation and premium price sales*
Aligned to current national policy and priority sector	*The national laws and policies promote and support the proposed land use activity and/or government support development of sector*
Enabling conditions in place for efficient value chain	*The products and services produced by the activity have enabling conditions to be economically viable to supply chain buyers/processors*

Criteria	*Definition*
Product/service has demand local/export market	*The products and services produced by the activity for target geographies have liquidity and demand in the marketplace*
Productive factors are present for scaling up	*Key productive biophysical characteristics, inputs, human labor, technology and supporting technical services are present for scaling implementation*
Financing instruments available / locally or internationally	*There are financial instruments in the local banking system or international markets, that support the land use activity and the country has demonstrated capacity to source funds from investors / financiers*

Theoretically, the REDD+ Activities that match this set of criteria would be qualified as the most likely strategic options for implementation in each of the respective geographical areas. Nevertheless, there are certain conditions where a country may prioritize the implementation of REDD+ Activities that do not fit with all previous criteria. Annex 1 provides a Grading Scale for Prioritization of REDD+ Activities in accordance to the criteria presented in Table 5 and it supports assigning a "score or grade" to each Activity for each criteria. This scale is used to provide guidance for scoring each REDD+ Activity; to facilitate comparison of REDD+ Activities for prioritization. Countries can further refine the scoring process by assigning a weigh the relative importance of each of the criteria and calculate a weighted average to compare scores of each REDD+ Activity.

At this point, the prioritization process for land use Activities can provide valuable feedback to the National REDD+ Strategy. This is because it is highly probable that REDD+ Activities with low scores but political/cultural/social/environment/biodiversity importance to the country will need to have new/additional REDD+ Policy and Subprograms to support implementation.

5.1.2 Linking REDD+ Activities to Polices and Subprograms

As previously explained, REDD+ Subprograms are government-sponsored programmatic components that are designed to promote a sector focused bundle of REDD+ Activities. By assessing the financial feasibility of REDD+ Activities, within the context of the Level 2 Laws and Policies and Level 3 Subprogram provides the strategic feedback to signal a mismatch between policy and government programs and what is needed for adoption of REDD+ Activities by land managers. Within the financial balance, the ability to identify potential government budgetary and program gaps which need to be closed is significantly relevant to the process.

These gaps between could include:

- Need to increase financial returns of land use REDD+ Activities, so they are investable by providing attractive financial metrics and/or equaling cost of opportunity (i.e. agroforestry, NTFP, certified timber);
- Providing additional sources for finance for upfront investments, using for example special funds for equity, debt finance, lines of credit, upfront payments, insurance and guarantees;
- Limited technical expertise and access to inputs in key implementation geographies;

- Additional policy measures are identified that allow for improved financial performance of REDD+ Activities, these could be, but are not limited to, incentives, tax exemptions, law enforcement, forest governance, and other previously indicated;
- Improvements in local (subnational, sectorial) conditions to reduce key cost of transaction, like transport (roads or other transport system), responsible and if possible certified purchasing (timber, NTFP), licensing, forest certification licensing, or other investments needed that can be done by governments.

Once these sources of additional funding are identified and quantified, they must be added up to all additional budgetary funding required from Levels 1, 2, and 3. Once all additional funding is added up, it's important to evaluate the aggregated emission reductions costs and identify from a financial point of view the efficiency of the formulated National REDD+ strategy.

5.2 FINANCIAL MODELING OF REDD+ ACTIVITIES

5.2.1 Determining the Financial Feasibility/Business Case for REDD+ Activity

The three other levels of financial planning covered above, include the costs associated with the implementation of national REDD+ from a project administration, policy development and governmental programs to promote land manager adoption of REDD+ Activities. Level 4 financial projections, while not formally part of the government's cost of implementing REDD+, they reflect the financial impact of land managers in the adoption of REDD+ Activities. In this case the land managers could be farmers, communities, concession holders, protected area managers, indigenous groups, representing both public, private and collective tenure.

For each REDD+ Activity and land manager group, the financial planning process includes the development of financial models to project the cash flow (and net income/loss) from operations (revenues and expenses). They should include in-kind labor and inputs, payments and non-revenue funding sources (e.g. from Subprograms) and develop the indicators to evaluate investment likelihood. These financial models will support the business case for adoption by the land manager and allow for the determination of whether the REDD+ Activity can make a return for the land manager and further for a potential investor whose funds may be needed to implement the Activity.

The following are the typical financial metrics that should be developed and evaluated:

i. **Annual net cash flow of the land use activity**: This is net cash flow after financing costs and other sources of funds
ii. **Land manager rate of return**: This is the rate of return for the land manager relative to alternative land uses
iii. **Breakeven for the land use activity:** The point in time where the cumulative revenues from the Activity equal the cumulative costs, taking into account any other sources of funds, such as government subsidies and/or grant funding
iv. **Investor rate of return**: Return for investors considering leverage, incentives, and subsidies, taking into account any type of guarantees

v. **Payback period for investors**: Timeframe when the cumulative net present value of cash flow to the investor perspective is equal or higher the initial investment value

The financial metrics identified in this section are those generally used in accordance to international/national best practices related to performance measurements of a potential investment in certain productive sector. For those land use Activities where Policies and Subprograms impact their financial performance, they should be considered in the overall evaluation. These Activity and land manager specific financial projections allow for the identification of different sources of funding and capital structures would be relevant for financing the different REDD+ Activities depending on their financial profile. This will allow governments to create policies and subprograms that make "good business sense" (i.e., are financially sustainable). In addition, having a clear analysis of the financial profitability metrics and risk, (including a sensitivity analysis) different types of sources of funding can be targeted: i) donations; ii) angel investors; iii) subsidies – philanthropic funds; iv) risk capital, development banks, strategic investors; v) institutional investors; and vi) equity funds, investment banks, commercial banking amongst others.

5.2.2 Addressing Uneconomic REDD+ Activities

REDD+ Activities that are not financially feasible must be studied and considered by the government from a financial point of view in order to understand how to make them more viable. If the activity's financial metrics do not meet the requirements of different funding sources and their related financing instruments, additional options can be studied by the government to increase returns by offering tax exemptions, incentives, or subsidies.

While not financially feasible, the co-benefits generated by such land use activities could be considerable in terms of public goods and services. In addition, areas of conservation could set framework conditions for the development of new competitive clusters of research and development, of ecotourism, or others. As such, these could be strategic long-term opportunities for economic development for the country that need to be clearly identified, even though quantifying possible future economic benefits is not possible at the time of financial planning.

The land use activities that are not financially feasible to attract funding or promote changed behavior of the part of land managers provide useful feedback for the National REDD+ Strategy. At this point in the analysis, decisions need to be made between i) eliminating the land use activity as part of the REDD+ Program, and/or ii) proposing policy measures or supporting programs that support land use activities to generate the necessary level of financial return.

Eliminating a land use activity is not necessarily a negative output from financial planning. It is important to consider again that land use activities are strategic options of the National REDD+ Strategy, and that through its financial feasibility evaluation, final consideration can be given to which should be prioritized and promoted by each country.

6 NATIONAL REDD+ FINANCIAL PLANNING

The preceding sections provide a detailed structure for identifying and capturing the costs of designing, implementing and managing a national REDD+ program. Putting this all together to determine financing needs, capital structures and developing a financial decision support tool to guide the funding raising and implementation prioritization is the focus of this section and completes the REDD+ financial planning process.

6.1 CREATING CONSOLIDATED FINANCIAL PROJECTIONS

Detailed financial projections are a prerequisite to financial planning. For REDD+ Programs these are prepared on a cash flow basis to determine the funding requirements. Each Program should tailor the structure of the financial model to meets the specifics of the Program. Table 1 provides a cash flow model framework, for a typical REDD+ program.

One of the challenges in generating cash flow models for REDD+ is accounting for only incremental (or marginal) costs of REDD+ implementation. It is important to work with each of the implementing government agencies to identify both costs and funds that are tied specifically to each of the REDD+ Levels. Cash flow models should be developed for at least 10 years, and be designed to support sensitivity analysis on the key cost and revenue components. Models should be developed with full traceability of inputs, modeling good practices and include a detailed financial narrative to provide explanations of the structure of the model, assumptions and sources of data.

Table 6. REDD+ Cash Flow Model Framework

CASH FLOW MODEL FRAMEWORK	
ER PROGRAM CASH FLOW OUT REDD+ Program Management Costs (Level 1) Staffing Costs Office Costs Travel for Program Management Legal, Accounting and RME Trust/Mgt Readiness - Key Consultancies Stakeholder Engagement Safeguards Monitoring Grievance and Redress Benefits Management Emission Reduction MRV ER Program Management Reserve Government Fee of ER Revenue **Total REDD+ Program Management + Gov Fee**	**ER PROGRAM CASH FLOW IN** Reference Price per ton ER Sales Cash In (Secured) ER Sales Cash In (Other Sources) **TOTAL ER SALES** NON-ER CARBON CASH FLOW IN Donor Government Budget Other **NON-ER CASH FLOW IN**
Program Mgt % of REDD + Program Revenue	**TOTAL PROGRAM CASH FLOW IN**
REDD+ Law and Policy (Level 2) Law and Policy Formation Start-up Operational Costs **Total Law and Policy** REDD+ Subprograms (Level 3) Subprogram 1… Subprogram n **Total Subprograms**	
TOTAL ER PROGRAM CASH FLOW OUT	
	NET PROGRAM CASH FLOW **CASH BALANCE (CUMULATIVE)**

6.1.1 Sources of Funds

The prior chapters on each of the Levels of REDD+, provide guidance for estimating the annual costs of establishing, managing and implementing the REDD+ Program. These create the annual estimated cash outflows of the Program. But REDD+ Programs also come with an existing source of funds, available or projected at the time of financial modeling.

There is a broad spectrum of potential funding sources for REDD+ Programs. These include international and domestic sources, public and private sources, and short-term, long-term, or recurring sources. It is important to make a distinction between sources of funds with related financing structures and the REDD+ program-related revenue. REDD+ program-related revenue is considered revenue that is earned from the sale of commodities produced through the implementation of the program. These could include revenue from emission reductions sales/results payments, timber revenue, agricultural commodity revenue, and/or NTFP revenue. However, funding sources may not be related to the results of implementing the

REDD+ program or selling of a commodity or service, but rather ways in which the program can secure the funding of a positive cash flow. Table 4 provides a list of the types of funding sources including the typical financing instruments that should be evaluated for REDD+ finance. These sources and instruments may be applied at difference scales and scopes (or subsectors) of the National REDD+ program.

Table 7. Funding Sources and Instruments

Funding Source	Description	Typical Financial Instruments
Public Grants and Assistance	Public funds are grants or concessional in nature, meaning that they do not require repayment or have non-market terms for returns and repayment.	•Allocated funds (from annually budgets), or •Appropriated funding sources from government budgets
Multilateral/Bilateral Development Banks	These can include international development finance institutions, such as OPIC, IFC, FMO, IDB, WB and others.	•Equity •Loans •Loan guarantees •Fund investments
National Development Banks (NDB)	NDBs are entities that provide financing, technical assistance and other collateral financial products, based on promoting country/sectorial development and that normally have a strong commitment to sustainability. They support innovation and are normally tied to the national economic development strategy.	•Fund investments •Loans •Credit lines through private banks •Collateral guarantees •Technical assistance •Risk sharing structures •Development of best practices when unknown for local financial sector
Private Financial Institutions (domestic or foreign)	Commercial banks, investment banks and microfinance institutions that provide financing, generally equity investments, loans on commercial terms and collateral services like trust administration and guarantee holders. Some of them operate specific credit lines provided by NDBs, multilaterals and bi laterals.	•Equity investments •Loans •Leasing •Trust management •Trust guarantee holder
International/Regional Banks	Banks who provide finance based on commercial terms.	•Loans •Loan guarantees
Private Equity Investors	Covers a board spectrum of investors that include private equity funds, impact funds	•Equity •Mezzanine capital •Prepaid ERPA

Funding Source	Description	Typical Financial Instruments
	(including foundation and endowments), individual investors, and microfinance entities.	
Companies who Source Sustainable Forest/Agricultural Products and/or use emission reductions	Private companies that are starting to recognize that sustainable sourcing of agricultural products is critical to their business' success. Beyond the revenue from commodity purchase, they provide funds for financing the implementation of best practices, which is a clear driver as a funding source for REDD+ activities.	•Long-term guaranteed purchase contracts to be used as collateral guarantee for loans •Technical assistance •Best practices •Provide in-kind up front funding (seeds and key inputs)
Insurance Providers	These entities provide different types of insurance: political risk, weather, crop, wildfires, and others that can be used to reduce the risk of the overall operation to fail on performing in accordance with expected cash flows.	• Insurances of different types •Insurance can be collateral guarantees for investable entities
Carbon Markets/Results-based ER Payments	These are payments made for emission reductions, either through markets or result-based payments.	•ERPA - Spot transaction •ERPA - Forward transation •ERPA - Forward with prepayment
Capital Markets	Funding options are present in capital markets. Nevertheless, a track record of successful performance is needed. In various cases bonds and also shares are issued, those are normally required to pay a minimum return. Capital markets from developed countries have, in various cases, funded investable entities in developing countries.	•Pubic equity issuance •Muni/corporate bond issuance •Investable entity bond issuance •Investable entity shares

Each of the above sources of finance for the National REDD+ program and activities can be sourced to different options or modalities.[7]

In is important that the full spectrum of funding sources that will support the REDD+ Program in whole or part are included. Projections should include components of large donor programs (e.g. FIP, UNREDD, FCPF, GEF) that support REDD+. Each of these sources of funds should be projected on an annual basis

[7] http://theredddesk.org/resources/background-note-redd-partnership-meeting-advanced-redd-finance

and include only the portion that supports REDD+. These sources should also be identified by which of the Levels of REDD+ they support. These sources should also be identified by Subprograms, so that an estimates of sources and uses of funds can be presented for each Subprogram.

Carbon or results-based payment revenue should be estimated based on the actual timing of cash flows, which will be aligned with verification and delivery requirements for each source of carbon finance. The sources should be identified by the specifics of whether they are secured or projected, and use conservative prices.

6.1.2 Handling Benefit Sharing of Emission Reductions in Financial Modeling

While a full discussion of benefit sharing methods is outside the scope of this paper, it is essential that the financial impact of the REDD+ benefit sharing plan be captured properly in the financial modeling process. If a country has clear laws that specify who has "ownership" of emission reductions in each and every area of the country, financial modeling would follow these arrangements and assign emission reduction revenue to the REDD+ Activities during the modeling process. Emission reduction tenure laws are rarely this developed, and proper allocation becomes challenging due to the fact that quantifying the precise number of ERs generated on each parcel of land over a large area may be difficult to determine (i.e. who decides what volume of ERs to be generated where), and because emission reductions may be generated by one entity while being monetized by another. For example, emission reductions may be generated through the participants/land managers in a government-sponsored PES subprogram, but the government is the only entity that can monetize the ER through a results-based payment program.

The financial modeling process needs to capture the dynamics of emission reduction tenure, benefits sharing and monetization mechanics that will be followed in a particular country for tenured land under the specific program. There are range of benefits sharing of emission reductions should be captured in the financial modeling process as provided in Table 8. In addition to the benefit sharing related to emission reductions, governments and their benefits plans need to capture the inherent benefits in the program of donor/governmental REDD+ related programs.

Table 8. Emission Reduction Monetization Mechanics and Financial Attribution Options

Monetization Mechanics	Financial Attribution Options
Government sells/receives result-based payments on all emission reductions generated in the country	• A percentage or fixed amount of ER revenue is allocated to administration of the REDD+ program (Level 1) • Funds from emission reduction revenue used to cover short-fall in government income from taxes and permit fees due to opportunity costs (Level 2) • Funds from emission reduction revenue used to fund prioritized REDD+ Subprograms (Level 3) • No payments are made to land managers (Level 4) • Government PES payments or other performance based payments made to land managers with direct or indirect link to producing emission reductions (Level 4) and/or • Government payments linked directly to the production of a verified emission reduction; the monetization price is paid to land managers (Level 4)
Government sells/receives results payments on a portion of the reductions generated in the country and land managers may monetize emission reductions independently	• A percentage or fixed amount of ER revenue from both government sales and independent land owner sales is allocated for administration of the REDD+ program (Level 1) • Funds from emission reduction revenue used to cover short-fall in government income from taxes and permit fees due to opportunity costs (Level 2) • Funds from emission reduction revenue used fund REDD+ prioritized subprograms (Level 3) • No payments are made to land managers (Level 4) <u>Land owners WITHOUT emission reduction tenure</u> • Government PES payments made to land managers with direct or indirect link to producing emission reductions (Level 4) and/or • Government payments linked directly to the production of a verified emission reduction and the monetization price is paid to land managers (Level 4) <u>Land owners WITH emission reduction tenure</u> • REDD+ activity land managers can elect to sell emission reductions to government (Level 4) • REDD+ activity land managers can elect to sell emission reductions to markets independent of the government program (Level 4)

This table outlines only a limited number of benefit sharing options for the proceeds from the sale or payment of ERs. For financial planning, laying out the options that are relevant for a country and allocating

the total estimated emission reductions revenue with the financial planning Level it will help ensure that marginal costs and benefits are properly modeled.

6.1.3 Estimating the Cost of Emission Reductions from REDD+ Programs and Activities

The projections for the generation of emission reduction can generally be produced for specific REDD+ Subprograms (Level 3) and REDD+ Activities (Level 4), because these strategic options are defined with enough granularity with respect to their ability to reduce deforestation and degradation and their geographic definition to generate creditable emissions estimates. When developing emission reduction estimates, it is important to avoid double counting. One example of when this may occur is when evaluating a PES program's generation of emission reductions and the emission reductions from private landowners who are conserving a portion of their land as forests. It may be important to define these as distinct areas with unique land manager adoption rates and emission reductions. In countries where pilot REDD+ projects are being implemented, project-level emission reductions estimates can provide valuable inputs for national emission reductions estimates and implementation costs.

With emission reductions estimates and implementation costs for Subprograms and Activities, the cost to produce a metric ton of emission reductions can be calculated. This calculation is based on the marginal costs that are new and additional for implementation of the National REDD+ Program, and that can be clearly linked to producing emission reductions, divided by the estimated emission reductions. It is important when developing these calculations to include the full marginal costs of producing emission reductions that are in the REDD+ Program budget and those incurred by land managers in Level 4. For example, a government program (Level 3) may include spending one dollar per ton to provide inputs for increased forest protection in community forest areas. This could be complemented by spending $3 USD per ton by land managers on REDD+ Activities (Level 4), such as community patrolling, inputs for conservation agriculture, woodlot establishment, or other activities related to reducing pressure on forests and/or increasing carbon stocks in a defined area.

The calculation of both the total cost to produce an emission reduction (abatement costs) and the marginal cost should be calculated. The total abatement costs would be the total costs of all Levels of the emission reductions Program, divided by the emission reductions produced. The marginal cost of emission reductions can be calculated per Subprogram and its related REDD+ Activities and used to evaluate the effectiveness of each. While needed to administer a National REDD+ Program, Level 1 costs should not be considered in the marginal cost of producing an emission reduction. It is critical to understand the abatement cost and marginal abatement cost per ton of a REDD+ program, to ensure that effective negotiations of financing linked to results-based payments can be supported.

While it is important to identify the cost of reducing emissions as one of the main criteria for evaluating the effectiveness of a National REDD+ program, this is not the only important criteria for prioritizing programmatic approaches, management and program policies. It is expected that the financial indicators to be generated from the financial planning process and the emission reduction abatement costs will be complemented by other indicators, such as social, environmental, cultural, and political. This set of

financial and non-financial indicators can improve the evaluation of a national program, its management, policies and activities.

6.2 CAPITAL STRUCTURES AND FINANCING NATIONAL REDD+ PROGRAMS

Financing REDD+ will require the integration of multiple sources of funding, and financial structuring that leverages the most common financial instruments and creates innovative new ones. The cash flow analysis and sources and used of funds provides an estimate of the required funding, timing and which Subprograms and Activities will need additional finance. This section provides a brief overview of the sources of funds that should be evaluated for National REDD+ Program finance, and describes common types of financial instruments that could be combined to create the capital structure to finance REDD+. The term "capital structure" simply refers to how a National REDD+ program would finance its overall operations and growth by using different sources of funds and financial instruments, including grants, equity, debt issuance, loans, prepaid ERPAs, and/or other instruments.

6.2.1 Return-oriented Financing Instruments

This section covers the different types of financing instruments that could be used in developing the capital structure in the National REDD+ financing plan.

Private Equity

Equity investors put funding into a business or project seeking financial returns by taking an ownership stake determined by on the size of their investment. Generally, an equity investor would make an investment into a National REDD+ Program or Activity through the investment entity (Section 5.2.2) which will: i) pay a percentage of future profits/dividends back to the investor, and ii) appreciate in value over the cost basis until the investor's planned exit. Equity ownership may also be assigned to implementing partners or managers that contribute "sweat equity" (unpaid time) in the initial origination and structuring of the equity finance.

The most important characteristic of an equity investor against other investor types in REDD+ financing is that equity investors take the most risk, and commensurately seek the greatest return. An equity investor is motivated by the higher rates of return from the "upside exposure" to the investment's success through sharing in future annual profit, or the net income generated by the program or activities after all other financing costs, including loan interest and tax.

The equity investor takes the most risk due to being "junior" to loan providers in the capital structure. They are also junior to the ERPA pre-paid investor who has claims on the emission reductions before they can be future sold to bring additional revenue to the investment entity. Loan obligations must be paid before the equity owners receive their share of profits. Equity owners are therefore referred to as junior to loan providers in the capital structure.

Since the programs and markets for REDD+ emission are still in their infancy, investments that rely heavily on the value of emission reductions are perceived as risky, and investors will likely seek returns in excess of 20% per annum. While this may appear to be a high return, particularly in a global environment where banks and governments are paying interest to consumers and bond holders that is in single digits (i.e., under 5% per annum), it is a reasonable expected return to compensate for the uncertainties of the

emission markets and other results-based payments scheme. It is important to add that certain equity investors will be motivated by an element of control over the National REDD+ Program or Activity that is gained through their ownership stake, or may be seeking to gain experience and insight into forest carbon project operations through their investment (known as a strategic investor).

Emission Reduction Purchase Agreements (ERPAs)

This section provides a summary of ERPA types and terms. For more details on the structure of ERPAs and the terms that are negotiated with buyers, see Guidance and Best Practices for REDD+ Transactions,[8] [9] which is available in both English and Spanish. While this paper discusses ERPAs for REDD+ "projects," it nevertheless has detailed information on ERPA terms and the negotiation process, which is valuable for REDD+ program finance.

Table 9. Type of ERPAs

Transaction Type	Mechanics/Critical Considerations
Forward Payment upon Delivery Purchase (Forward-POD)	• This is the type of transaction that the CF is seeking to execute. • CF agrees to pay a set price in advance (at execution of the ERPA) for ERs to be delivered in the future. • None (or very little money) when the ERPA is executed, it is only paid when (and if) the ERs that have meet the CF requirements are delivered • While no funding is provided at the execution of the ERPA, these types of ERPAs provide the seller a certain cash flow from sales IF they produce the emission reductions verified and delivered
Pre-paid Forward Purchase (PP-Forward)	• This is the type of transaction that would be executed if upfront investment10 if the ER program was made by and investor. • This is NOT being offered by the CF and is not common in the marketplace, until you are dealing with investment funds11 who seek to make an investment in all or part of the ER program • In this transaction, money is provided upon ERPA signature a (sometimes it is paid over time and/or milestone based) • The way the ERPA pre-paid amount buy is paid back is through delivering ERs once they have been generated and issued. • Because these transactions are taking all the risk assuring that ERs will be produced to cover the upfront costs are granted "senior rights" to receive

[8] English http://www.terraglobalcapital.com/sites/default/files/FIELD%20Report%20No%2016%20REDD%2B%20Guide_1_2_final.pdf

[9] Spanish http://www.terraglobalcapital.com/sites/default/files/Terra%20FIELD%20Report%20No%2016%20REDD%2B%20Transaction%20Good%20Guidance%20Spanish.pdf

[10] In this document the term "investment" means upfront funding from a private or other source that seeks to generate a return for its investment, this is NOT concessional or donor funds

[11] This could include investments from funds like Althelia, Terra Bella or other investors who seek to provide upfront capital to ER programs

Transaction Type	Mechanics/Critical Considerations
	the first ERs that are produced from a program and they have senior rights until the total ERs due against the prepaid transaction have been delivered. • Sometimes these transactions are structured as a loan, with the same types of terms
Payment on Delivery (Spot-POD)	• This is the typical structure in today's voluntary market • Generally, ERs are already verified (or very close) and the ERPA agrees to pay a price for delivery within the next ~3-90 days • Payment is made when and if the ERs are delivered • These ERPAs, are usually not senior, but since the seller knows they will have the required ERs to deliver and they are aware of any other ER buyers claims that are senior, they only enter into a ERPA for the amount they know they can deliver • If the seller wants to enter into multiple payments upon delivery sales that might be more than the tons they are going to produce, they would prioritize delivery by the date of ERPA execution, unless otherwise negotiated.

Source: Prepared by Terra Global

The prices offered under each type of transaction are subject to negotiation. Typically, the range from lowest to highest as follows: 1) PP-Forward, 2) Forward-POD and 3) Spot-POD.

ERPA pricing structures may include different features depending on the risk preferences of the program in selling its carbon. Price negotiation will typically include both fixed and market-linked (or "floating") price components as a function of the program's desire to lock-in the level of cash flow from carbon sales during the contracted ERPA term, versus the potential for upside – but also downside – through revenue being linked to carbon market values at the time of delivery.

Negotiating terms with a buyer/investor such that a REDD+ program has sufficient financial and operating revenue is central to the financial success of a project. A well-structured ERPA is critical to the financial sustainability of a project, since it will balance incentives for the buyer/investor and the seller, and allocate risks to the party best able to mitigate them.

Private and Public Sector Loans

Lenders provide capital in return for a pre-agreed interest rate, usually paid routinely over the period of the loan and priced at a higher level than the lender's cost of financing, covers its expenses associated with originating and administering the loan, and has a premium over its cost of capital that reflects risk (i.e., probability of repayment). As such, lenders are motivated by the known stream of revenue that will provide the cash flow to pay for interest and minimize risk. Lenders can also earn revenue from loan arrangement fees that are charged on application or drawdown. The financial exposure of a loan to the National REDD+ Program or Activity is less risky than an equity investor's position given the fixed interest repayments and the loan ranking ahead of equity capital for repayment. It is for this reason that equity providers seek much higher returns on their investment than the bank's interest rate. Loans vary in the priority with which they are repaid. Where there are numerous loans, they may be referred to as "senior," "junior" and "mezzanine" (see below) to describe the priority of repayment. Naturally, lower ranking loans

will charge a higher interest rate to compensate for the greater embedded risk. It is important to clearly state that loans provided against emission reductions' future cash flow are not common commercial instruments in the financial markets.

Loan providers do not have rights beyond repayment of the interest and capital. However, loan providers may seek a guarantee or element of collateral (meaning the ability to seize other assets or revenue streams in the event of non-repayment) and use covenants (explained below) to ensure that an investment's performance and actions remain within pre-defined limits.

For a longer loan life, all else being equal, the interest paid will be greater, but each regular repayment amount will be smaller. The lender is repaid at the end of the loan's life (loan life is typically referred to as "loan tenor" or "loan maturity"), though there may be a provision for early repayment at the borrower's request. Loan terms cannot exceed the life of the National REDD+ Program and Activities.

Loans can vary in structure in the following ways:

- Fixed / floating interest rate: the interest rate agreed at a fixed value at the outset of the loan, or linked to the value of a certain market interest rate plus a profit margin (known as "spread");
- Profile or "sculpting" of the repayment amount: the repayment amount varies as a function of modeled future revenues, featuring escalating or balloon[12] payment (repayment all at once) amounts;
- Redemption or call option provisions: lender requests accelerated repayment after a certain period of time; and
- Covenants: a restricted action or a pledge to take action that is accepted by the borrower through the loan agreement. Lenders use covenants to mitigate their risk through enforcing certain behaviors and performance requirements.

Loans Collateralized with ERPAs

Few cases of loans have been provided for pure future emission reductions revenue streams, some examples of loans that have been made to finance emission reductions are: a) development finance institutions and local banks in China, India and Indonesia financing (Clean Development Mechanism (CDM) forestry Program and Activities. These loans rely on the emission reduction revenue to repay principal and interest, with repayment timing matched to expected emission reductions credit delivery dates. In cases where the National REDD+ Program does not have non-ER sources of revenue, most lenders would require that an ERPA be in place with a creditworthy counterparty to secure the repayment of the loan; b) The Plantar Coal Substitution REDD+ Program in Brazil is an example of lending against an ERPA, and where a buyer was the World Bank Prototype Emission Reductions Fund. Rabobank Brazil provided a loan with a repayment schedule that matched the emission reductions cash flow expected from the World Bank ERPA.

[12] Refers to a balloon loan payment, which is required at the end of the term to repay the remaining principal balance of the loan.

As the depth of the market of REDD+ buyers builds, and performance of REDD+ programs delivering emission reductions is tracked (estimated future contracted volumes are produced, and timing until issuance and delivery to buyers is efficient), it is expected that similar structures will become "bankable" for financing National REDD+ Program and Activities.

In Latin America, private and public sector loans have been provided. National development banks have led the process of innovation, supporting the development of several emission reduction projects primarily focused on renewable energy and clean technologies with concessional funds. The difference in these cases is that loans have been provided based on better-known cash flow streams. This means loans are provided to certain production media that have one or various well-known stream(s) of future cash flow and collateral guarantees, rather than directly associated with future cash flow associated with emission reductions. This is because carbon markets are not seen as liquid (low and non-predictable demand), the operative risk of production, issuance and delivery is not well understood by the financial sector, and emission reductions are identified as value-added instruments, rather than the financial stake.

These practices are reflected in various cases; some of them are loans provided through development banks in Brazil, Colombia and Peru that are tied to energy efficiency, renewable energy and clean technologies whenever a well-known future cash flow stream is identified and the benefit of generating emission reductions is present. In such cases, projects, programs of activities and NAMAs were designed for financing sectors/technologies and have created emission reductions as an additional benefit. In Mexico, the national development bank developed programs of activities, focused on sectorial approach for waste to energy and small-scale energy generation plants. In these cases, banks are linking future cash flow streams to electricity markets and commercial products rather than ERs. Nevertheless, ERs are accounted, and the platform for their quantification, reporting, verification, issuance, and monetization is provided as additional service to the loan. Given that, future revenue from ERs is an additional collateral source of debt service payment.

Moreover, once national development banks have best practice for providing, developing and validating these loans, they have promoted replication throughout private banks. These being done using credit lines directed to specific technologies and sectors. Incentives have been provided, like concessional interest rates, collateral partial guarantees, concessional technical assistance, low cost access to carbon markets, insurances, and others, depending on special financial requirements of the loan, so risk can be downsized to private banks.

Table 10. Examples of Financing Instruments in Several Countries.

Financing Instrument	Short description	Example
Loans	Loans and lines of credits that are provided to producers (small and large), as well as SMEs along the value chain.	Commercial Lending to Small Holders for Forestry and Natural Rubber In Guatemala, Financiera de Occidente developed a unique long-term loan product for smallholders aimed at rubber trees and forest reforestation. However, in many domestic commercial banks, portfolio allocations to

Financing Instrument	Short description	Example
		forestry and agriculture are small (under 10%), and few have a special organizational units or departments dedicated to agricultural or forestry lending. Commercial banks, whether directly or through lower level intermediaries, can play a key role in financing REDD+ and LED with specialist loan and other financing products as they establish a direct link to small producers, with formal financial institutions to help them build credit histories to access future long-term financing.
Bonds	A private domestic issuer raises funding from the capital markets (national or international) to finance projects	The Georgia (US) cotton case is considered a specific example. The catastrophic bond contracts are based on percentage deviations of realized state average yields relative to the long-run average. The contracts are priced using historical state-level cotton yield data. The principal finding is that the proposed catastrophic bonds demonstrate potential as risk transfer mechanisms for crop insurance companies.[13]
Equity/Fund Investments	Investments are made in companies or projects for a share of the financial results	Equity for Tanzania is a private equity fund operating at a domestic level, providing loans and equity-like investments for agriculture and agro-processing to have a positive impact on development, especially in terms of employment and strengthening demand for the benefit of smallholder farmers in the supply chain[14]
Forest and Land-use Emission Reduction Buyers	Funding is provided through the purchase of emission reductions, generally on a payment upon delivery basis	Brazilian cosmetics giant Natura Cosméticos has purchased 120,000 Mt of carbon offsets from the Paiter-Suruí, an indigenous people of the Amazon who, in June 2014, became the first indigenous people to generate credits by saving endangered rainforest using the Verified Carbon Standard (VCS)[15]

[13] http://ageconsearch.umn.edu/bitstream/8610/1/31020318.pdf

[14] http://www.ruralfinance.org/fileadmin/templates/rflc/documents/FAC_Working_Paper_062-1_pdf.pdf

[15] http://www.ecosystemmarketplace.com/pages/dynamic/article.page.php?page_id=9932

Financing Instrument	Short description	Example
Supply Chain Commitments	Through financing (in-kind and/or cash), providing technical assistance, investments, and/or long-term purchase contracts, supply chain buyers support conversion to sustainable production	Alpina, the 2nd largest Colombia-based dairy company, supports the *Map Social* initiative for small dairy producers in Colombia. The program focuses on the southern dairy-producing regions in the departments of Cauca[16] and Nariño, and targets 189 indigenous, Afro-Colombian, and indigent small producers.[17]

Types of Loans

There are numerous terms used with respect to loan sources, which are described in the following table:

Table 11. Types and details of different loans.

Type of loans	Description
Corporate Loans	Everyday lending to businesses to support day-to-day operations, with the interest rate set related to the borrower's financial strengths and associated risk of repayment. Such general facilities will be lighter on restrictions on use of funds, providing certain covenants are met.
REDD+ Program Finance	A company is incorporated for one specific REDD+ Subprograms and Activities bank loan, backed against future REDD+ revenue streams, which are the key source of finance. The REDD+ Program finance loan is made against the revenue generated by the REDD+ Subprogram and Activities alone, and does not have "recourse" (i.e., access) to other sources of revenue that accrue to the REDD+ Program sponsor or other investors. For this reason, REDD+ Subprogram and Activity finance loans are often referred to as "limited recourse" lending. This is a highly specialized structure not commonly used by national development banks and private banks in developing countries. Nevertheless, there are international sources of finance that can provide loans over this structure.
Mezzanine Finance	This term is used to describe lending that is junior to the senior loan described above. However, the terms of mezzanine finance will ensure that it has seniority of repayment over equity capital providers. Such loans are typically shorter in duration and more expensive (i.e., charging a higher interest rate) than senior loans.

[16] In Cauca, there are two programs: 1) A program with Oxfam aimed at the social and financial sustainability of smallholder systems in four municipalities. Phase I began in 2007; Phase II began in 2013. 2) A program with the Government of Cauca focused on creating a dairy conglomerate in 14 municipalities.

[17] N. Nelson, L. Durschinger, SUPPORTING ZERO-DEFORESTATION CATTLE IN COLOMBIA, March 2015

Type of loans	Description
Loan Re-financing	The replacement of existing loan arrangements by new ones just like the refinancing of a mortgage. Reasons include more attractive lending terms or longer durations (known as tenor) of loan becoming available.
Debt Funds	Pooled debt investment funds established specifically to make bespoke loans, and usually focusing on specific sectors or a particular financial characteristic within the loan market (for example, "distressed"). Debt funds have investment objectives consistent with bank lending: preserve capital and generate income.
Development Finance Loans and Guarantees (from Development Finance Institutions)	Specialist public/private banks offering longer tenor loans to pre-approved countries and sectors, as a function of a development bank's strategy. Such banks tend to have a greater ability to accept the developing country risk. Development finance banks can prove to be critical financial stakeholders in REDD+ Activities given their tolerance to the level of risk that characterizes REDD+ Subprograms and Activities. Also, these banks become crucial in the supervision by the bank's treasury and the associated link to the country's donor agency, which may hold political persuasion over the host country government. Government agencies and donor agencies may offer mechanisms for loans at preferential rates, and lenders or multilateral finance agencies may support commercial sector lending by offering loan guarantees. In this way, such agencies take on the risk that a lender will not be repaid its loan.
Loan guarantees	A loan guarantee is a pledge that may be given by another bank or insurance company to guarantee repayment for the value of all or part of the borrower's obligations under a forest emission reductions loan agreement. The loan guarantee provider will usually have stronger credit-worthiness (i.e. ability to repay) than the REDD+ Subprogram and Activity entity itself. The use of such a guarantee allows a lower interest rate than would be achieved by the REDD+ Subprogram and Activity without the guarantee. The guarantor is typically motivated by supporting the development of a business, either REDD+ Subprograms or Activities, or in a particular sector. One such loan guarantee product is being developed by the USAID Development Credit Authority (DCA). DCA is developing an emission reductions credit guarantee product that would underwrite a portion of a lender's risk related to non-delivery or under-delivery of emission reductions after validation. In this context, the lender could be an entity or a pooled vehicle (e.g., a fund) that provides upfront loan funding to a REDD+ Subprogram and Activity that may be complemented by an ERPA transaction alongside the traditional loan structure

Bond Issuance

A bond is a debt instrument issued by a borrower (the "issuer") for a fixed term and usually at a fixed interest rate. The issuer can be a private corporation, a government entity, or a special purpose entity such as a water district or utility, which might be of public or private organization. Proceeds from the debt issuance can be used to finance operations or capital investments, among other applications.

Bonds are typically classified as general obligation bonds, which fund the general operations of the issuing entity and are secured by the general funds and cash flows of the issuer through a payment guarantee, or as asset-backed or revenue bonds, which are repaid by the revenues generated by the specific assets being funded and secured by an interest in those assets. However, bonds can be structured to provide project finance where a single project/asset, or bundle of related projects/assets, are financed.

The issuer of the bond is typically rated by a credit rating agency, indicating the strength and reliability of the borrower. This is important if bond interest and principal repayment are being guaranteed by the issuer. In some cases, the bond collateral package can be enhanced through partial or full payment or performance guarantees from a third-party. These credit enhancements help to reduce risk and lower the cost of capital (interest rate paid by issuer). Bond investors are typically institutions such as pension funds, mutual funds, insurance companies or fund managers. For county's considering bond issuance for REDD+ finance, it would require that capital markets in the country could create enough demand from investors to purchase the bonds.

Green Bonds follow the same characteristics as ordinary bonds, but the bond proceeds must be used to promote sustainable or green purposes. What constitutes a Green Bond may vary, but typically they fund program operations or assets dedicated to:

- Renewable energy;
- Energy efficiency (including efficient buildings);
- Sustainable waste management;
- Sustainable land use (including sustainable forestry and agriculture);
- Biodiversity conservation;
- Clean transportation; or
- Clean water infrastructure

While there has been a large global focus on green bonds, there has yet to be a dedicated REDD+ bond issued. The general market approach to REDD+ bonds has been to issue a bond on a portfolio of REDD+ activity. These are typically structured such that the bond coupon (i.e., interest payment) is met through distribution of issued emission reductions. The concept of using bond issuance as a source of capital with coupons linked to environmental performance is gaining traction in environmental finance. For countries with capital markets that can support bond purchases, bond issuance should be considered as a funding source for REDD+.

Public Capital Markets

Capital market financial instruments require financial regulation and depth of market in order to leverage domestic institutional investors under public markets structures. This can be achieved through public equity and issued debt. Nevertheless, equity is unlikely in many countries, or is only limited to domestic equity buyers. Debt issuance may be possible through green bonds in some countries, if a. the bond is a debt instrument issued by a borrower (the 'issuer') for a fixed term and usually at a fixed interest rate, b. where capital markets have proven buyers of multi and/or corporate bonds, c. the issuer is a private corporate, government entity, or other special purpose entity, d. general obligation bonds fund the

general operations of the issuing entity and are secured by the general funds and cash flows of the issuer, and e. project bonds fund a single project, asset, or bundle of related projects/assets.

6.2.2 Assessing Capital Structures and Levering Multiple Financing instruments

Following the calculation of the cash flow and required financing, the REDD+ Program is in a position to evaluate the opportunities for concessional funds and commercial terms for return-oriented funds to build a capital structure for the program.

As discussed earlier, capital structure refers to the combination of financing instruments used to finance the National REDD+ Program. The financial planning process supports the calculation of cash flows for each levels of the National REDD+ Program, and the identification of funding needs and potential financing sources. The results of this evaluation produce options for how the combination of public funding, loans, equity, bond issuance, ERPAs, and other vehicles can be used for different scopes and at different scales to fund REDD+. This is done through financial analysis that layers the economic terms and conditions of the financing instruments on the cash flow to get a net cash flow after funding, and to ensure that a positive cash flow can be maintained over the long-term for the REDD+ activity being financed. Figure 2 provides insight into how different financial instruments in a capital structure impact the commerical terms of others.

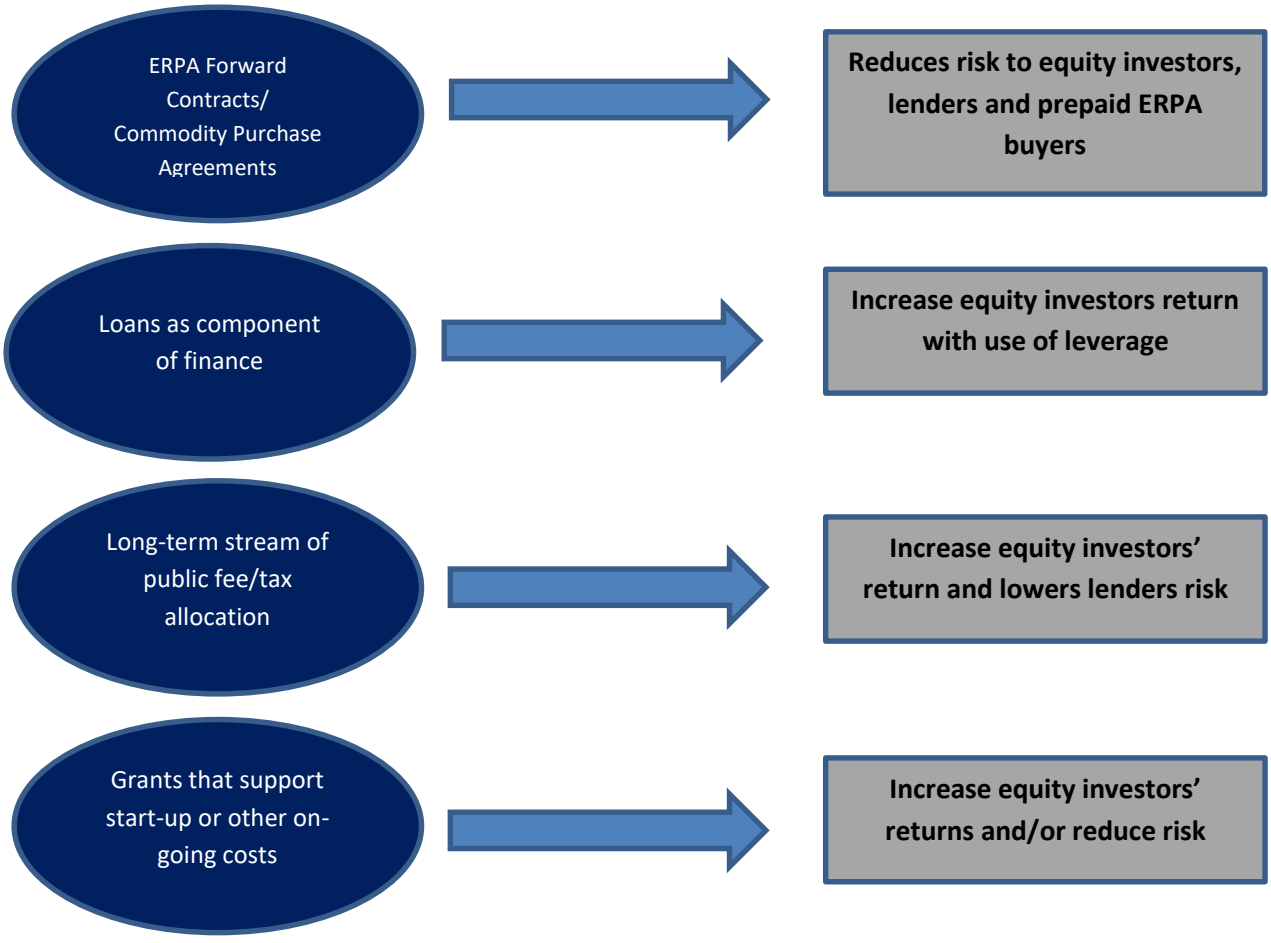

Figure 2. Components of Capital Structure and Impact on Commercial Terms (risk and return)

6.3 PUTTING IT ALL TOGETHER AND STRESS TESTING

The financial modeling process outlined in this paper will allow for analysis of each of the four levels. The models should also allow for the aggregation of all levels' financials under the overall National REDD+ Program. Once all the costs, market prices and output volumes are combined for each level, a complete financial model can demonstrate the cash flow and financing needs of the National REDD+ Program, including breakeven, return analysis and variable sensitivities.

6.3.1 Identifying Main Financial Drivers of Model Results

The financial projections for a National REDD+ Program may start out being developed at a very high level, but through iterations using guidance provided in the paper and other sources, the financial modeling will end up being very detailed and comprehensive. Using a multi-level approach to modeling, it will be built for each of the four levels, and include the prioritized strategic options with indications of whether costs and income are marginal, and with whom the costs/income is incurred/generated. When each of the components is aggregated, this will allow the financials to be attributed to specific government agencies, program levels, and/or implementing stakeholder partners.

Each component of the financial model will have different key drivers that will have the greatest impact on the financial projections.

Table 12. Examples of key drivers per level of the financial model

Financial Modeling level Component	Main Financial Drivers	Modeling Risks
Level 1 – REDD+ Administration	• Staffing Costs • Technical provider costs	• Level Of Effort (LOE) for government agencies to administer the REDD+ program under estimated • Stakeholder engagement more time intensive
Level 2 – Policies	• Opportunity costs to government of adopted policies • Enforcement costs • Revenue sources from taxes, mitigation fees and others	• Opportunity costs under/over estimated • Resources required for enforcement • Variable cost to communication and consultation activities
Level 3 – Subprograms	• Costs for subprogram implementation • Emission reduction revenue	• Scale of adoption • Tons of emission reductions produced • Quantity and prices of emission reductions that can be sold/delivered into results-based programs

Financial Modeling level Component	Main Financial Drivers	Modeling Risks
Level 4 – REDD+ Activities	• Revenue from agriculture, timber and NTFPs[18] • Emission reduction revenue • Implementation costs budgets • Third Party verification costs	• Quantity and market price of agricultural commodities, crops, timber or NTFP prices specific to the field checks • Tons/price of emission reductions produced • Market price of inputs and labor

6.3.2 Model Stress Testing

It is recommended to create multiple scenarios for the REDD+ financial model and apply stress tests to the main financial cost and revenue drivers to assess the impact it would have on the financial projections, including delays in the timing of payments for verified emission reductions. In stress tests, input values for the main financial drivers for each component of the financial model are adjusted to assess the impact on commercial viability, and to identify the factors that demonstrate the greatest sensitivity to change. Scenario analysis combines multiple changes in variables to create negative scenarios that could be reasonably anticipated, and to inform the financial feasibility assessment. The outcome of this sensitivity analysis should help define a certain level of "safety margin" to demonstrate that the program can continue to operate in scenarios that, while not welcome, are plausible.

[18] NTFP stands for Non-timber forest products

6.3.3 Role of Climate Finance

The financial planning process provided in this paper gives guidance on quantifying additional costs that arise from a National REDD+ Program implementation as well as projecting the sources of funding and revenue. This includes emission reduction revenue and other related agriculture and forest revenue generated under the National REDD+ Program. However, evaluating the financial feasibility of REDD+ Activities that include monetization of emission reductions introduces a level of complexity. Nevertheless, at every level of national REDD+ financial planning, the potential to generate emission reductions and the role of climate finance from emission reductions should be included.

Climate finance is generally defined as the financial resource that can be secured from generating verified emission reductions or removals that generate revenue via results based payments and/or sales. Climate finance could be earned from REDD+ strategic options implemented at different levels of a National REDD+ Program. They may include payments to governments for adopting Level 2 policies that reduce deforestation (whether verified as emission reductions or not). Examples of this include Norway's payment to Indonesia in part to support the moratorium of the award of new licenses in primary natural forests and peat lands. More common climate finance would be paid based on verified emission reductions generated and monetized from a combination of Subprograms (Level 3) and REDD+ Activities (Level 4).

While climate finance is expected to play a key role in catalyzing additional funding for implementation, it cannot be the only thing the supports the long-term financial sustainability of the REDD+ Program. Hence, Subprograms and Activities models that are solely dependent on carbon revenue should be evaluated and expanded to generate incremental sources of return for the land managers and/or investors. This is particularly important, given the uncertainty of future climate finance and revenue generation from emission reductions.

After determining budgetary and financial needs at the different levels, it is important for countries to determine the expected role that climate finance is to play in financing the National REDD+ Program. It is also necessary to define other funding sources including public funds, private sector engagement and other sources of multilateral, bilateral and market mechanism funding, as well as aligning existing funding flows to sectors driving deforestation and degradation that will be used to support the National REDD+ Program.

7 CONCLUSIONS AND RECOMMENDATIONS

The development of comprehensive financial plans for REDD+ National Programs are required to determine the long-term financial sustainability of the Program, to attract and effectively negotiate financial resources, and to prioritize specific Policies, Subprograms and Activities for implementation. The financial planning process can be complex, as it requires identifying costs, revenues, and funding sources across a diverse set of implementing actors and at multiple scales within government and non-government sectors. It also relies on having a concretely designed set of strategic priorities (Policies, Subprograms and Activities) that may evolve over time, but there must be a detailed REDD+ implementation plan developed to properly develop a financing plan. All these inputs may not all be

available at the start of the financial planning process, so the process will need to incorporate, as well as inform, new and revised inputs over time as they increase in granularity and accuracy.

The financial process developed in this paper provides guidance on structuring the financial planning such that the process can be made more manageable, by achieving the following:

- **The four level approach allows for granular and iterative REDD+ Program Financial Planning,** making it possible to evaluate the efficiency of the REDD+ strategy at every level analyzed: National Program administration, Policy, Subprogram, and Activity, from both a government and land manager perspective.
- The financial planning process for a National REDD+ Program that has a broader benefit that just quantifying the cost of REDD+ Program implementation. The **financial planning process represents an opportunity to perform a competitive analysis of land use sectors** or clusters of REDD+ components, as well as a practical and realistic financial evaluation of REDD+-related Subprograms and Activities to be promoted by the REDD+ National Program.
- Evaluate the economics of different REDD+ Policy options (Level 2) at the national, subnational and/or sectorial level allows for the **determination of policy efficiency at each scale, as well as bundled at the national level.**
- **Produce financial estimates or business models for REDD+ Activities (Level 4) with a prioritization framework** to provide iterative feedback as to whether the Policies and Subprograms create the financial conditions that will promote the required land managers to adopt Activities.
- Quantify the total incremental funding needs of the National REDD+ Program can as well as identifying that marginal cost that is associated with the production of emission reductions to **facilitate determination of additional capital needs and to effective negotiation of carbon finance related transactions.**
- Identify the different sources of funding available for the Program will be profiled in accordance with their objectives and conditions and how they align with the Levels and components of eh REDD+ Program.
- Financing the National REDD+ Program will require accessing a wide variety of funding sources depending on stage of development, the type of strategic option to be funded (Policies, Subprograms, Activities), and the sources of funds to be secured. This demonstrates why governments **consider creating or outsourcing the specialized knowledge to plan and implement the required enabling conditions and attract the identified types of funds**, since these are key to the successful implementation and sustainability of the REDD+ National Program.
- How governments can **leverage their strategic alliances** with specialized private enterprises, private investors, local financial institutions, NDBs, and multilateral/bilateral banks to **align funding sources to the REDD+ Strategy and develop new transaction structures that are needed to maximize the available funding for REDD+.**

ANNEX 1 – GRADING SCALE FOR PRIORITIZATION OF REDD+ ACTIVITIES

		Relative Grading Scale				
Criteria	***Definition***	**1 (Low Score/High Risk)**	**2**	**3**	**4**	**5 (High Score/Low Risk)**
Cultural acceptance of the proposed land use and current level of adoption	***The land use activity proposed is traditional or normally implemented in the country (or with groups) and there is a proven record for scaled***	Land use activities are new but compatible with culture, market access/adoption of practices do not exist	Land use activities are small scale and compatible to culture, market access/adoption is present at small scale	Land use activities of meaningful scale and compatible to culture, however quality is not premium and there is no access to competitive markets	Land use activities of meaningful scale and compatible to culture, with premium quality but no access to competitive markets	The land use activity proposed is traditional or normally implemented in the country (or with groups) and there is a proven record for scaled
Aligned to current national policy and priority sector	***The national laws and policies promote and support the proposed land use activity and/or government support development of sector***	National policy and plans are not expected to be reformulated or modified to support the proposed activities	National policy and plans are not expected to be reformulated or modified, to support the proposed activity, however it might be able to be supported through existing government programs but these	National policy and plans are expected to be reformulated or modified in order to support activities and they are one of the main priorities for the future development of the country	National policy and plans include the activity and there exist some programs to support it	National Policy and Plans include the activity as one of the priority activities for the development of the country with numerous supporting government programs
Enabling conditions in place for efficient value chain	***The products and services produced by the activity have enabling conditions to be economically viable to supply chain buyers/processors***	Policy regulations and transport/logistics are time/cost consuming so products/services are not competitive for accessing supply/value chain. Government is not committed to improve policy and/or transport/logistic basic	Policy regulations and transport/logistics are timing/cost consuming so products/services are not competitive for accessing supply/value chain. Government is not committed to improve policy and/or transport/logistic basic	Policy regulations and transport/logistics are timing/cost consuming so products/services are not competitive for accessing supply/value chain but government is committed to improve policy and/or transport/logistic basic	Policy regulations and transport/logistics have average timing/cost for acceptable delivery to supply/value chain	Policy regulations and transport/logistic can be delivered to the supply/value chain for low timing/cost consuming
Product/service has demand local/export market	***The products and services produced by the activity for target geographies have liquidity and demand in the marketplace***	Demand is limited in market and the country/region is not well positioned to build market demand and lacks of capabilities to offer the products that meet market	Some demand is present in the market but the country/region is not well positioned to expand markets and offer the products that meet market requirements	Buyers know the product/service, potential of the country/region, and are looking for it, but few producers have knowledge to deliver the products in compliance	Buyers know the product/service, and seeking to expand purchases for producers sell complying with their requirements	Products /services buyers are present in value added markets locally/regionally and products comply with market requirements
Productive factors are present for scaling up	***Key productive biophysical characteristics, inputs, human labor, technology and supporting technical services are present for***	One or more key productive factors are not present for scaled and competitive implementation	One or more key productive factors are not present, but with support for these could be expanded but effectiveness is unknown	One or more key productive factors are not present, but with support for these could be expanded and pilots are underway to	Most key productive factors are present and can be predictably enhanced within a reasonable time and budget	Key productive biophysical characteristics, inputs, human labor, technology and supporting technical services are present for
Financing instruments available / locally or internationally	***There are financial instruments in the local banking system or international markets, that support the land use activity and the country has demonstrated capacity to source funds from***	There are no financial instruments in the local banking system or international markets, that have interest in the activity, the government and private sector are not expected to collaborate,	There are no financial instruments in the local banking system or international markets, that have interest in the activity proposed, but government and private sector are collaborating to develop such	There are financial instruments in the local banking system or international markets, that could be adapted to the activity and government and private sector are collaborating on development	There are financial instruments in the local banking system or international markets, that hare supporting the activity at small scale but government and private sector are raising	There are financial instruments in the local banking system or international markets, that have strong focused on the activity and the country have demonstrated capacity to raise interest on those

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