



LAND-USE FINANCE TOOL



A diagnostic tool that enables a quantitative and qualitative analysis of the alignment of public and private spending with climate and forest objectives.

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About CPI

With deep expertise in policy and finance, CPI works to improve the most important energy and land-use practices around the world. Our mission is to help governments, businesses and financial institutions drive growth while addressing climate risk. CPI works in places that provide the most potential for policy impact including Brazil, Europe, India, Indonesia and the United States.

About the EU REDD Facility

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Disclaimer

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Introduction

Since 2010, USD 20 billion has been provided to support the reduction of forest emissions. But, over the same time period, at least USD 777 billion has been invested in land-use activities that could be driving deforestation (Climate Focus, 2017).

Finance flows, from both public and private sources, drive economic activity that contributes either to the sustainable or unsustainable use of natural resources.

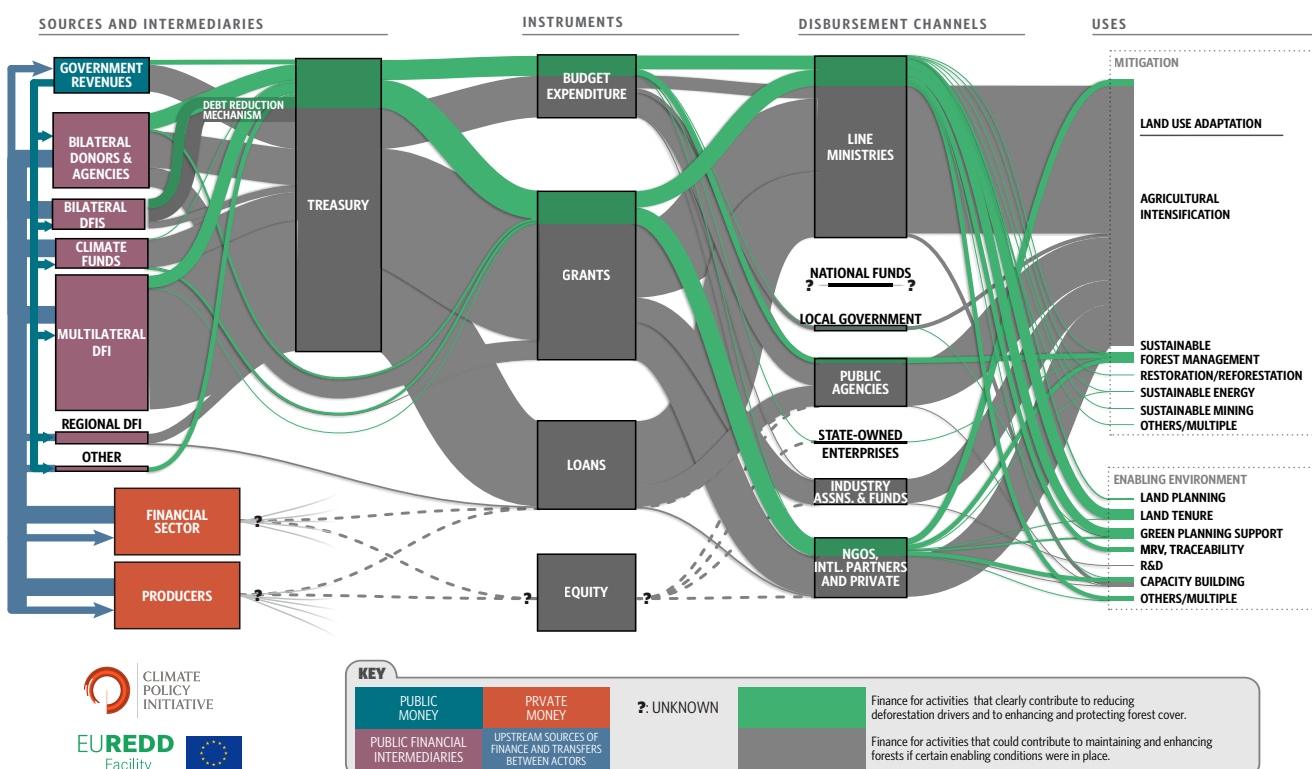
What is land-use finance mapping?

Land-use finance mapping is a methodological approach that supports the analysis of financial flows in activities and sectors related to the use of land, particularly the potential impact (positive or negative) on forests. Finance mapping derives from traditional budget review approaches but seeks to offer additional insights to inform policy development. The analytical approach used is a quantitative and qualitative life cycle analysis of financial flows in selected sectors.

Finance mapping was originally developed by Climate Policy Initiative (CPI) to track global financial commitments to climate action. The approach has since been adapted and further developed to support countries and jurisdictions in understanding their financial landscape in selected sectors of interest. For example, the figure below maps the alignment of finance flows to outcomes related to reducing emissions from deforestation and forest degradation in developing countries, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD+) inspired by a land-use finance mapping analysis in Côte d'Ivoire (Falconer et al., 2017).

Finance mapping can, in theory, be applied to any sector, scale (global, national or local), and sources of finance (public or private). This document provides standardised guidelines and templates for countries and jurisdictions interested in understanding financial flows associated with land use.

Figure 1: Example of landscape of land-use finance mapping



Why map land-use finance?

Mapping finance flows into land-use activities helps policymakers and other change-makers understand who finances what, and what the best solutions could be to maintain and grow forests sustainably.

Tropical forest country stakeholders, development partners and investors are interested in understanding existing dynamics in financial flows to inform how their own investments can support policy goals and ensure sustainable land use over time.

Finance mapping activities will be most useful when integrated alongside broader analytical activities, such as: building strategies; and carrying out institutional and public financial management analysis, policy and investment planning, implementation, and monitoring and evaluation.

Some key ways in which land-use finance mapping can support the policy process are:

- **Mobilising and planning resources:** the quantification of investments relevant to REDD+ strategies, policies and measures is a key analytical step in the elaboration of resource mobilisation frameworks, funding proposals, and the identification of funding gaps at national or sub-national levels. In addition, the analysis of actors, financing mechanisms and policies can help identify barriers to investments and potential incentive mechanisms. This analysis can also inform the design of specific financial instruments.
- **Aligning finance to policy objectives:** Mapping business-as-usual finance flows that are not aligned with REDD+ objectives can provide strategic information for inter-ministerial and cross-sectoral coordination and efforts to mainstream climate objectives in planning. Characterising financial flows according to their potential impact on forests requires multi-stakeholder and participatory discussions on setting the boundaries for REDD+ aligned or 'green' activities. This process can directly feed into policies and measures for REDD+, and help define sectoral plans and activities.
- **Monitoring financial flows:** Mapping financial flows provides a baseline to monitor progress in mobilising resources and redirecting investments to more sustainable activities. Periodic tracking helps improve accountability and build trust with partners. It also provides data for international (United Nations Framework Convention on Climate Change (UNFCCC), the Green Climate Fund (GCF) and donors) and national reporting requirements.

Taking the REDD+ process as an example, Figure 2 identifies at which stages specific objectives and outputs of land-use finance mapping can support progress.

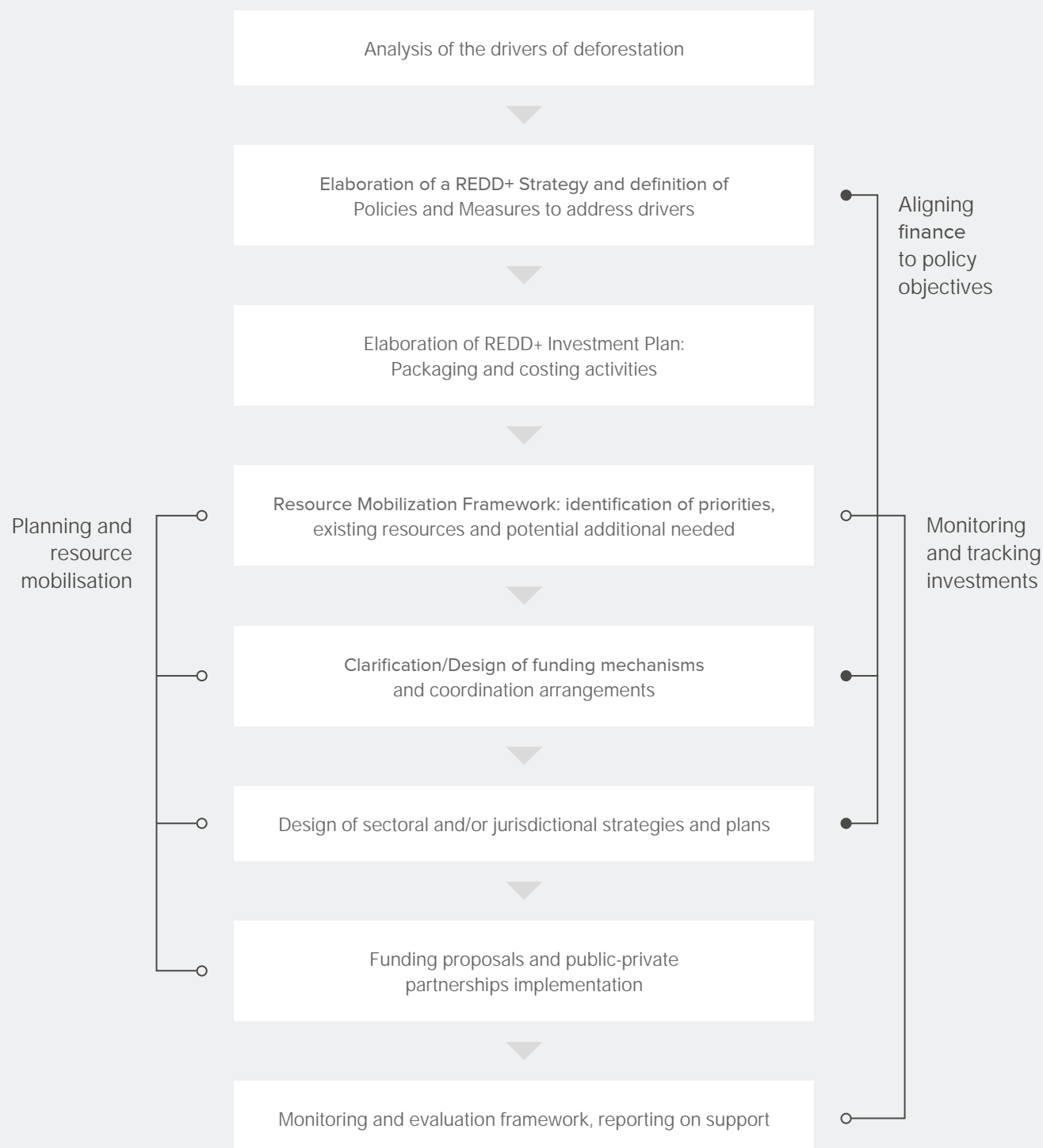


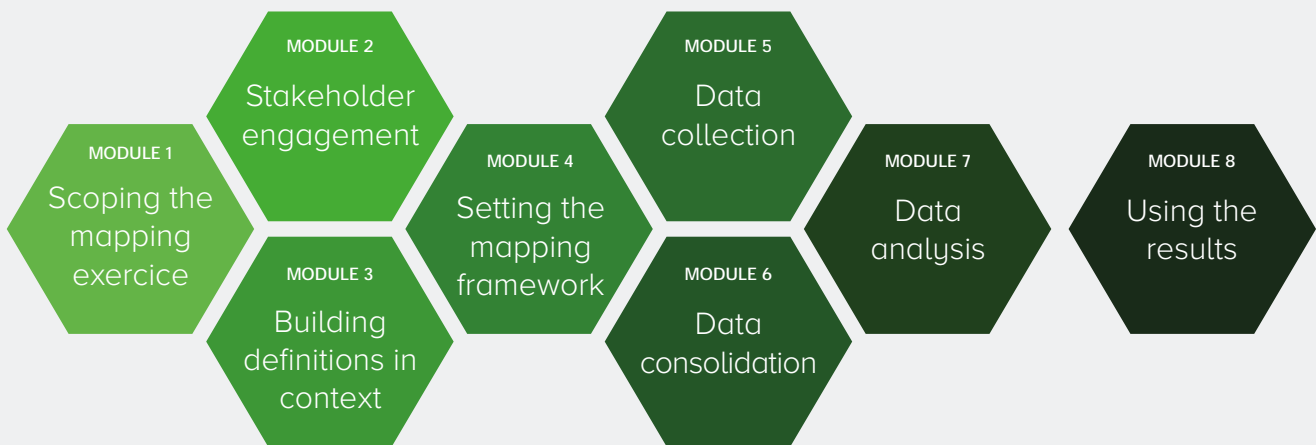
Figure 2: Entry points for land-use finance analysis in the REDD+ planning process

How does the tool work?

The objective of the tool is to provide guidelines, templates and case study examples to support you in conducting land-use finance analysis. It provides a standardised approach to land-use finance mapping and analysis, which can be tailored to your specific needs and objectives. It is based on experiences and lessons from climate finance or land-use finance mapping in Indonesia, Côte d'Ivoire, Vietnam and Papua New Guinea. The tool will be improved iteratively over time following further implementation experience. Users are invited to share feedback and examples that could be integrated.

The tool has eight modules, as shown in Figure 3. These modules represent the various analytical steps involved in developing a land-use finance mapping analysis. They can be approached in a linear way or independently. This is because the development of a land-use mapping analysis is an iterative process, which requires revisiting certain elements of the work as data collection and analysis progress.

Table 1 (next page) summarises the content of each module in the tool.



▲
Figure 3: The eight modules of the land-use finance mapping tool

	OBJECTIVE	QUESTIONS	OUTCOME
MODULE 1: Scoping the mapping exercise	Develop a 'vision' for the project and set a clear purpose	<ul style="list-style-type: none"> ▶ What is the purpose of the analysis? ▶ What scoping questions need to be raised with stakeholders? ▶ What data is available? ▶ What resources are needed? 	Scope of the work, data to be collected and project plan
MODULE 2: Stakeholder engagement	Develop an idea about who to involve and consult, why and how often	<ul style="list-style-type: none"> ▶ Who should be involved and why? ▶ How and when should stakeholders be engaged? 	Stakeholder engagement plan
MODULE 3: Defining sustainable land use	Understand options for building a land-use finance definition and typology	<ul style="list-style-type: none"> ▶ What is the scope of analysis? ▶ What is a nationally/jurisdictionally appropriate definition of climate-relevant land-use finance? ▶ How do you classify land-use finance according to national definitions and potential impact on forests? 	Definition of qualitative scope of analysis and typology of land-use activities
MODULE 4: Setting the mapping framework	Identify elements of the land-use finance mapping framework	<ul style="list-style-type: none"> ▶ Which dimensions of flows are to be mapped? ▶ How do flows relate to each other? ▶ What format should the output have? 	Framework and first qualitative sketch of the land-use finance mapping
MODULE 5: Data Collection	Identify data sources and how to fill potential gaps	<ul style="list-style-type: none"> ▶ Where to find data? ▶ How to assess its quality? ▶ How to identify gaps in data and fill them? ▶ How to assess supporting information? 	Inventory of data sources to be used in the analysis Survey template
MODULE 6: Data Consolidation for Analysis	Learn how to clean, consolidate, and classify data, and how to create a database	<ul style="list-style-type: none"> ▶ How to construct a consolidated database for analysis? ▶ How to check quality of consolidated data? ▶ How to categorise data to support objectives of mapping? ▶ How to develop and meet strict documentation 	Consolidated dataset
MODULE 7: Data Analysis and Presentation	Understand options for analysing and presenting data	<ul style="list-style-type: none"> ▶ What are the key quantitative and qualitative analytical questions to consider? ▶ What visualisations can be helpful/constructive? ▶ What to do if results are inconsistent with other sources, controversial or limited? 	Key results and visualisations
MODULE 8: Data interpretation: Using the results	How to interpret results and inform policy or project processes	<ul style="list-style-type: none"> ▶ How can results be used for monitoring and reporting? ▶ How can results be used to align finance to climate objectives? ▶ How can results be used for resource mobilisation? 	Final recommendations and dissemination plan



Table 1: Overview of module content

MODULE 1:

Scoping the mapping exercise

The project scope will clarify what needs to be included in the land-use finance mapping and what should be excluded, and why. Careful scoping will save time and resources.

OBJECTIVE

Develop a 'vision' for the exercise of mapping land-use finance: define objective, outputs and the potential scope of the analysis. Develop a project plan.

KEY QUESTIONS

- 1.1 What is the context for the analysis?
- 1.2 What is the purpose of the analysis?
- 1.3 What scoping questions need to be raised with stakeholders?
- 1.4 What data is available?
- 1.5 What resources are needed?

TEMPLATE



Download **Template 1 - Scoping checklist**

1.1 What is the context for the analysis?

The project team should clarify the broad policy objectives, context and policy framework for the analysis at the outset. The policy framework considered in the work could be national climate change or sustainable development policy, or a sectoral policy or strategy targeted at a specific driver of deforestation or specific supply chains. The approach developed in this tool can be adapted to various policy frameworks, broad or narrow, according to the objectives pursued. For this tool, we assume that the broader policy objective for the finance mapping work relates to the role of forests in addressing climate change, usually defined in REDD+ strategies at national or sub-national level.

It is useful to identify strategy papers that provide information on key drivers of deforestation and/or factors driving resilience of land use, and the perceived opportunities for influencing these drivers/factors. These may include:

- National/jurisdictional REDD+ strategies
- National/jurisdictional climate change plans
- National adaptation plans and national adaptation programmes of action
- Nationally determined contribution (NDC)
- Readiness Preparation Proposal (R-PP) for the Forest Carbon Partnership Facility (FCPF)
- Green growth or sustainable development strategies
- Forest policies
- National/jurisdictional agricultural plans
- Other relevant national/jurisdictional sectoral development plans
- National communications and biennial update reports to the UNFCCC
- Needs assessments or investment plans

Questions to consider to develop a good understanding of country/jurisdiction context for land-use finance mapping include:

- ▶ What are the main economic activities in the country/jurisdiction? What are the main sources of revenue?
- ▶ What are the priorities for short to mid-term development?
- ▶ What is the role of forests in country/jurisdiction development?
- ▶ What are the main challenges around natural resources management in the country/jurisdiction?
- ▶ What are the main drivers of deforestation in the country/jurisdiction?
- ▶ Is the country/jurisdiction aware of REDD+? Is it involved in REDD+? Is there a country/jurisdiction forest development or REDD+ plan?

1.2 What is the purpose of the analysis?

Once the broad context is clarified (1.1.), the specific objectives of the land-use finance mapping exercise should be defined. This can range from information gathering, reporting on progress, or identifying ways to develop new solutions. Next, you should consider what kind of output is needed to support and/or achieve the objective(s): What do we want to analyse? How do we analyse it? How do we get results that are informative and significant to the right people?

Table 2 includes a list of potential objectives, related outputs and desired outcomes. Table 3 provides some real-world examples undertaken by mapping teams.

Objective	Output	Outcome
<ul style="list-style-type: none"> ▶ What do you aim to achieve? ▶ What process(es) is the analysis going to inform? 	<ul style="list-style-type: none"> ▶ What does the data/analysis need to deliver? What to analyse, and how to analyse it? What should the numbers and analysis say? 	<ul style="list-style-type: none"> ▶ What will be gained from the output? What will happen upon achievement of the objective?
Monitor progress on policy goals, targets and support received	Calculate annual or periodic investment/finance flows/resource allocation, for example: <ul style="list-style-type: none"> • Budget revenue/expenditure • Mobilised public and private investment • Investment delivered vs. needed for a given activity or goal, for example forest cover, recovered land or protected land, for example ha/m²; emissions reduced or sequestered (CO₂ equivalent); productivity increases in livestock or crop yields as a result of intensification (intensity metric). • International and national reporting on support received vs. support needed or specific donor reporting 	Increased transparency and accountability Increased trust with partners and donors
Align finance to forest and climate objectives	Identify and assess the volume of investments that might drive deforestation Stimulate multi-stakeholder and cross-sectoral discussion on the definition of sustainable and unsustainable investment categories and mainstreaming of climate and forest objectives (in sectoral policies, development cooperation, public-private partnerships, etc.) Support the formulation of detailed policies, measures and activities aligned with forest and climate objectives	Coherent and detailed actions to support climate and forest objectives formulated Redirection of unsustainable spending towards activities aligned to forest and climate policy goals Leveraged sustainable investments
Develop investment plans and funding proposals, resource mobilisation frameworks and investment vehicles	Reflect on the nature of existing financing in specific sectors or activities where there are investment gaps Analyse the effectiveness of existing measures in leveraging funding for forests	Additional funding mobilised
Build effective partnerships/dialogues to implement climate and forest objectives	Identify entry points for different actors' finance/investment into forest and climate policies and measures Increase coordination among actors to understand linkages and overlaps of finance, for example: public-private, cross-sectoral, domestic and international	Identification of co-financing opportunities More efficient use of resources, for example public capital and leverage private sector investments

Table 2: Potential objectives, related outputs and desired outcomes of land-use finance mapping

Table 3: Examples for objective, output and outcome of former climate or land-use finance mappings [next page]

Objective	Output	Outcome
<p>► What does the initiator aim to achieve? What process(es) is the analysis going to inform?</p> <p>Landscape of public investments relevant to REDD+ in Côte d'Ivoire, 2015 (Falconer et al. 2017): Identify opportunities to increase finance available for the implementation of the National REDD+ Strategy Engage cross-sectoral dialogue on coherence of land-use spending</p>	<p>► What does the data/analysis need to deliver? What to measure and how to measure it? What should the numbers tell?</p> <p>Baseline for 2015 that shows the nature and volume of domestic/intl. public finance (actors, financial channels) contributing to:</p> <ul style="list-style-type: none"> • reducing deforestation and • potentially driving deforestation 	<p>► What will be gained from the output? What will happen upon achievement of the objective?</p> <p>Increased understanding and transparency of the volume and nature of public land-use investments Multi-stakeholder definition of activities aligned to REDD+ objectives in each land-use sector Mainstreaming of forest and climate objectives in sectoral planning and budgeting processes initiated by the Ministry of Planning</p>
<p>Overview of planned public land-use investments in the Central Highlands region of Vietnam, 2016-2020 (EU REDD Facility and CIEM, 2018) Baseline for sub-national REDD+ investment proposals and identification of co-financing opportunities Inform integrated masterplan pilot in one province Clarification of main gaps and challenges for the implementation of the National REDD+ Action Plan in Central Highlands Inform the Government and donors on potential gaps and opportunities for the implementation of provincial REDD+ activities in Central Highlands, in complement to the national Resource Mobilisation Framework</p>	<p>Identification and quantification of planned domestic and international public investments (2016-2020) relevant to the implementation of the National REDD+ Action Plan in the Central Highlands' five provinces, identifying:</p> <ul style="list-style-type: none"> • main sources of finance, actors, and planned spending patterns • contribution of public investment spending to the achievement of REDD+ objectives and the main gaps in the implementation of the National REDD+ Action Plan • role of investments from central and provincial levels in potentially driving land-use change and forest loss 	<p>Increased understanding and consolidated vision of planned public land-use investments at sub-national level Priorities for support identified, as well as measures to leverage more efficient funding for forests feeding into future funding proposals for sustainable jurisdictions</p>
<p>Landscape of land-use finance in Papua New Guinea (Parker, forthcoming) Understand how revenues and expenditures in Papua New Guinea can be redirected to align with climate change outcomes, while supporting livelihoods and economic growth</p>	<p>Identification of financial flows relevant to the agriculture and forestry sectors, including taxes and levies imposed on major commodity exporters, government expenditure and subsidies to the private sector Mapping of the alignment of total flows with land-use mitigation and adaptation activities that can be scaled up Recommendations on improving inconsistencies in the application of taxes and levies across sectors and improving transparency in the collection and disbursement of finance</p>	<p>Increased awareness of land-use finance flows and their relative contribution to climate change Increased donor support through GCF to support transition to sustainable land-use economy</p>
<p>An analytical framework for Improving Land Productivity through Fiscal Policy in Indonesia (Mafira and Sutyono, 2015) Develop recommendations for:</p> <ul style="list-style-type: none"> • adjusting the design of existing revenue collection instruments • increasing the transfer of revenues to local government • earmarking more revenues to support reduced deforestation 	<p>Analysis and quantification of selected tax and non-tax laws and regulations pertaining to land use in Indonesia, including forestry, agriculture, oil and gas, mining, and geothermal energy, and identification of low rates of revenue collection and opportunities to adjust fiscal policy instruments</p>	<p>Meet both Indonesia's revenue and sustainable land-use targets</p>

1.3 What scoping questions need to be raised with stakeholders?

You should discuss and agree the scope of the analysis with the project team and key stakeholders you will engage with (see Module 2). Key scoping questions to discuss include:

- ▶ Should the analysis capture climate mitigation and/or adaptation activities related to land use?
- ▶ Should the mapping also include finance in land-use activities that drive deforestation or could drive it? (business-as-usual finance, in addition to green investment in forest restoration, protection, zero deforestation, and so forth)
- ▶ Which sectors or commodities are of particular interest?
- ▶ What geographic scope should be reflected, for example national or provincial?
- ▶ What year/period should the analysis cover?
- ▶ What sources of finance will be included?
- ▶ What type of finance will be assessed?

The following sections will enable you to familiarise yourself with the terminology, introduce challenges to consider during the decision-making process, and provide examples from previous finance mapping efforts.

1.3.1 Should the analysis capture climate mitigation and/or adaptation activities related to land use?

The focus of the analysis can be on mitigation action or adaptation activities, or both. What does climate mitigation and adaptation mean in the context of land use?

- A mitigation focus would consider all low-emissions development scenarios and identify key sectors that contribute to land-use change and land-use emissions.
- An adaptation focus would also include an analysis of sectors and activities that increase or decrease resilience in land-use systems, as well as help adapt to the impacts of climate change. Lack of resilience planning could lead to additional land-use change and land-use emissions.

1.3.2 Should the mapping include finance that drives deforestation or could drive it?

Typically, an analysis of land-use finance in the context of REDD+ might start with flows of spending and investments contributing to climate objectives. Depending on the objectives of the analysis, broadening the scope of finance flows to be analysed from climate-aligned finance, which positively impacts sustainability, to all finance flows can be helpful. These other flows, sometimes referred to as 'grey' if the finance is unknown to be climate-relevant or not, or 'brown' if the finance is linked to activities known to drive deforestation or forest degradation, can help identify opportunities to integrate sustainability considerations into policies, redirect unsustainable investments, and limit deforestation and degradation impacts.

There are both definitional challenges in having a broader scope that includes grey or brown flows as well as increased data collection efforts.

In general, you might decide to map the following three types of land-use activities, or a subset of these:

- **Climate-aligned** activities, which contribute to climate change mitigation by increasing greenhouse gas (GHG) emission removals or decreasing GHG emissions from agriculture and forestry. Examples of climate-aligned activities include afforestation/ reforestation, sustainable forest management, zero deforestation agriculture, and clean cooking alternatives such as Liquid Petroleum Gas, improved efficiency cookstoves,¹ and induction cookers. Under a broader scope of climate-relevant finance, this could also include activities that increase resilience and adaptation to climate change impacts, as well as activities that contribute to climate change mitigation in the agricultural sector.
- **Conditionally-aligned or ‘grey’** activities are often indirectly related to land-use emissions and may contribute to reducing deforestation, but only under certain conditions. Examples include agricultural intensification, bioenergy and timber harvesting. Agricultural intensification, for example, can contribute to climate change mitigation by increasing production on existing land, thereby reducing pressure on surrounding forests. If not coupled with strong land-use policies, however, agricultural intensification can have unintended spill over effects that can lead to an increase in land value and an incentive for more forests conversion to agricultural lands.
- **Climate-misaligned or ‘brown’** activities, which drive deforestation or forest degradation. These activities vary by country, and are commonly referred to as the drivers of deforestation and forest degradation. Examples of climate-misaligned land-use activities include agricultural extensification, unsustainable forest management or infrastructure development, and using biomass for heating and cooking. Under a broader definition of land-use finance, this could also include activities that are not adapted to climate change impacts, or reduce the resilience of ecosystems, which could lead to expansion on new lands in the future.

The land-use finance mapping can include any (or all) of these categories based on the desired objective of the analysis. More detail on the approach to define land-use activities is provided in Module 3.

Previous finance mapping activities also quantifying ‘grey’ and/or ‘brown’ finance include:

- EFI and CPI work in Côte d’Ivoire (Falconer et al. 2017), which mapped REDD+ aligned financial flows and ‘grey’ financial flows in the country in 2015.
- CPI’s Landscape of Public Climate Finance in Indonesia 2011 (Ampri et al. 2014), which shows finance that could clearly be identified as climate-aligned. In addition, it indicates the large band of uncertainty, reflecting the portion of potentially-relevant finance that could not be verified in the absence of improved definitions and information on adaptation activities.
- The work of the United Nations Development Programme (UNDP) in Papua New Guinea (Parker, forthcoming) mapped REDD+ relevant financial flows, including both public sources of revenue and expenditures that contribute to deforestation and forest degradation.
- EFI and CIEM’s work in Central Highlands in Vietnam, which looked at planned investments in land-use sectors, including those aligned to the REDD+ Action Plan (EFI and CIEM, 2018).

¹ Potential rebound effects might need to be considered for both of these activities.

1.3.3 Which sectors or commodities are of particular interest?

In preparation of a discussion/decision on which sectors or commodities to include, you may consider questions such as:

- What are the key drivers of deforestation and degradation now, and what are they likely to be in the future? Which actors are involved in activities related to those drivers?
- What sectors of the economy, therefore, drive deforestation or minimise the drivers of deforestation?
- What land-use sectors are prone to the impacts of climate change, or help increase the resilience of land-use systems?

Certain sectors might be interesting for a jurisdiction/country seeking opportunities for additional external funding and could be the focus of a targeted finance mapping.

Sectors may include forestry, agriculture, energy, manufacturing, mining and quarrying, water supply, infrastructure or land management.

Commodities may include, for example soya, beef, timber or palm oil. These are discussed in more detail in Module 3.

Examples from previous finance mapping activities assessing particular sectors include:

- EFI and CPI work in Côte d'Ivoire (Falconer et al. 2017), which mapped activities that were considered 'relevant' in the context of the country's National REDD+ Strategy, including agriculture, forestry, domestic energy, environment, mining and planning policy.
- UNDP's work in Papua New Guinea (Parker, forthcoming) included the agriculture and forestry sectors that were identified as climate-relevant land-use sectors.
- ODI's analysis of subsidies to key commodities driving forest loss, which tracked domestic and international public subsidies that apply to private sector beef and soy production in Brazil, and public-sector subsidies (domestic and international) to private sector timber and palm oil production in Indonesia (McFarland et al., 2015).

1.3.4 What geographic scope should be reflected?

Should the mapping capture global, national, local (state, municipality), and institutional level? Most mapping initiatives conducted to date have been at the national level, however tracking at the sub-national level may provide a greater level of detail, particularly relevant in federal or decentralised governance systems.

One challenge to consider is if data may be harder to obtain at sub-national level, and whether it will be consistent with data collected at national level. This could be an opportunity to assess the level of coherence and coordination in budget planning and reporting between different levels of government.

Previous finance analysis activities conducted at the sub-national level include:

- EFI and CIEM work in Vietnam with five provinces of the Central Highlands region
- Forest Trends' REDD+ finance tracking in Amazonia and Acre states, Brazil

1.3.5 What timeframe should the analysis cover?

Options of timeframe for the analysis include whether the analysis would consider past (ex-post) or future (ex-ante) spending, or both, and whether it will focus on one specific year, or on a longer time period.

Annual vs. multiple year

Focusing on a specific year can provide a snapshot and baseline view of annual land-use expenditure, which can be updated each year or every two years. Mapping multiple years can show trends in the way financing may be changing. However, multiple-year mapping can encounter challenges of inconsistency in data between years.

Choosing very recent year(s) might mean that data is not yet available, as official reporting is often delayed by one to two years after the fact.

Ex-post vs. ex-ante

A decision needs to be made on whether to undertake ex-post or ex-ante analysis. Ex-post analysis provides information on actual expenditure, while ex-ante analysis provides information on planned expenditure through budgets. Ex-ante mapping can help inform resource mobilisation strategies to achieve policy goals. However, data access and accuracy can be challenging.

Commitments vs. disbursements

For ex-post analysis, the project team must decide whether the public finance mapping will capture financial commitments or disbursements of financial institutions and donors. Financial commitments represent a firm obligation to provide financing to a project, by means of financial contract closure or a Board decision on investment. The full amount of the transaction would be recorded irrespective of the time required for the completion of the project, for example loan or grant amounts.

Financial disbursements, rather, denote the specific disbursement of the agreed transaction in the given year, for example loan or grant drawdowns.

A focus on commitments rather than disbursements affects the magnitude of flows because large, committed amounts are often disbursed over several years. Consistent data on disbursements is often lacking across international public finance actors, but can be available through national budget and expenditure systems.

Previous finance analysis activities conducted over different timeframes include:

- Most analysis focused on ex-post disbursement data for a single year, generally the most recent in terms of audited data availability (Indonesia climate finance landscape, Côte d'Ivoire and Papua New Guinea land-use finance mapping)
- EFI and CIEM's mapping of investments at sub-national level in Vietnam looked at planned (ex-ante) data for a five-year period

1.3.6 What sources of finance will be included?

Another important high-level scope question is whether the study will cover public and private financial flows, from both domestic and international sources, or some subset of those flows. The choice of financial flows to be tracked should be determined according to the key activities contributing to, and acting against, sustainable land use, and where the capital that supports these activities flows from, as well as by data availability.

For example, if the scope of the study is to assess forestry finance in a country where the majority of forestry investment is made by the public sector, then public investments should be tracked. If, on the other hand, the scope of the study is to assess finance flows for a specific commodity, such as palm oil, in a country where palm oil is largely financed by private sector actors, then the incentive framework for private investment and actual private investments should be tracked.

Some key questions for consideration are:

- ▶ What is the role of forests in the national development plan (three-five years), the medium-term expenditure framework, fiscal policy direction, and/or national spending?
- ▶ What are the main economic activities in the region of interest? What are the main sources of (budget) revenue?
- ▶ Is the majority of land use, agriculture or forestry activity in the jurisdiction publicly or privately financed?
- ▶ What are the main industries active in the land-use sectors? Where are investors mostly from? (national/international)
- ▶ What is the role of domestic and international sources of finance?
- ▶ How easy will it be to collect and access data?

Previous finance mapping activities also covering the private sector include:

- CPI's Landscape of Climate Finance in Germany, 2010, which revealed the dominance of mitigation expenditures by corporate actors and households across all sectors of the economy, focusing on domestic funding sources (Juergens et al. 2012).
- Other finance mappings carried out by CPI and EFI in Indonesia (Ampri et al. 2014) and Côte d'Ivoire (Falconer et al. 2017) focused on public finance as a first step, including from domestic and international sources of finance.

1.3.7 What type of finance will be assessed?

The decision on the sources of finance to include influences the types of finance to assess. An analysis of public finance can be limited to:

- public expenditures and investment flows from domestic sources and/or international public actors, and/or
- public revenue raising from land-based industries, including taxes and non-tax revenues, or
- public subsidies in general, including regulations, grants and low-cost loans, tax incentives, government budget spending for research and development, and awareness campaigns.

Private finance analysis may include:

- private sector investment through debt or equity in projects, and/or
- financial markets where finance is raised through stock and bond issuances.

The scope can be identified through workshops with sector experts and ministry officials, but crucially also needs to give careful consideration to data availability, timescales and resource availability.

Challenges may also arise in capturing multiple, or all, types of finance, where overlaps exist and there is a potential for double counting. For example, subsidies that incentivise a private investment by providing revenue support for sustainable agricultural production.

The following sections provide guidance for the project team to explore these sources of finance in more detail, and lists key questions, actors and instruments for consideration. Module 4 revisits the flows to further refine the key actors to be included in the mapping, and build a first view of their interconnections.

At this stage, you should also start to gather information to understand the public and private finance management systems in the jurisdiction, for example budget/finance laws, documents on budget processes and budget classification, relevant laws and regulations, annual reports of public agencies, documents of state-owned enterprises (SOEs), funds accounts, audit reports or evaluation reports.

Public Expenditure and Investment Flows

Public finance analysis considers public sector expenditures and investments made with domestic and/or international sources of finance. The analysis typically includes federal and ministry-level expenditure (occurring within the national budget), transfers from national government to local government, to SOEs and to financial institutions, as well as the expenditures and investments of those entities. See Module 5 for an introduction to government budget. This category also includes international donor or public financial institution investments that occur inside and/or outside of the national government budget.

Key questions for consideration include:

- ▶ Which ministries, agencies, SOEs, funds and public financial institutions play a role in distributing finance for land-use activities?
- ▶ Which types of financing (planned expenditure/investment, operational budgets, revenues) does the jurisdiction hope to influence? Where do opportunities lie?
- ▶ Are there specific public funds or funding mechanisms related to the land-use sector?
- ▶ What mandates do departments, agencies and local governments have in sectors related to land use, if any? What role do they have in financing and implementing national programmes?
- ▶ Which transfer mechanisms channel budget from the central to local level?
- ▶ Which donors and international public financial institutions are most active in funding land-use activities?
- ▶ Do donors support the national/local government directly through government budget or off-budget/direct programme support? How is public finance captured in domestic budgets? Is budget data accessible to the project team?

Key actors to consider for inclusion are:

- Central government/line ministries – focus on those most relevant for land use, for example environment, forestry, water, agriculture, energy, mining, industry, infrastructure, planning and finance, depending on the project scope
- Local government (provincial/state, municipality/county, district)
- Public agencies supporting the implementation of line ministries' mandates, including environmental agency, meteorological agency, national parks and rural development agencies, forest management agencies, agriculture sector research and development agencies, environmental monitoring agencies and agriculture chambers of commerce
- Public trust funds operating at the national or local level with a portfolio in relevant sectors, including, for example, a national REDD+ fund, rural development fund or environmental trust fund
- SOEs operating in relevant sectors
- Public financial institutions or financial institutions with a majority public shareholding and with a portfolio in relevant sectors, including public agricultural credit agencies
- International public actors: bilateral donors, multilateral agency/fund, multilateral/regional/bilateral development finance institutions
- Private and civil society actors, for example NGOs, academic and research centres, and other public non-state actors: they might be supported by donors, usually off-budget, or through direct programme support

Key financial instruments to be analysed include:

- Domestic public budget recurrent expenditure to fund operating expenses for core and special programmes or policies; investment expenditure to create future benefits, for example infrastructure expenditures; and transfers to local governments or other implementing agencies. These are executed by line ministries and departments or agencies
- Grants by international and domestic public actors, generally channelled to fund investments without the expectation that the money be repaid. Used to cover, for example, capacity building, feasibility studies or incremental cost of a climate change investment.
- Loans by the government, contracted by international financial institutions or commercial banks. These may be at concessional or commercial terms
- SOEs and financial institutions may use balance sheet financing as well as equity and debt
- Sovereign bonds

Challenges for capturing government budget data include:

- Inconsistency between datasets of different years since ministries often change, merge, close or expand, with implications for budget structure
- Distinguishing operational budgets, which pay for salaries and running ministry offices, from investment budgets, which pay for specific programme implementation, infrastructure and so forth.
- Data on off-budget flows/direct programme support by international actors, public subsidies, public agencies, SOEs and banks, as well as local government budgets can be difficult to obtain and often requires time-consuming bottom-up data collection

Subsidy flows

Government or government agencies may establish fiscal (dis)incentives, as well as policies and regulations that guide private investment behaviours and impact the actions of land users and commodity supply chain actors.

Subsidies can be wide ranging and include: regulatory instruments; taxes and fees for land users and supply chain players; feed-in tariffs; agricultural production or protection credit; and publicly-backed insurance for loss of income in the agricultural sector or carbon market payments. Figure 4 provides a more comprehensive list of potential subsidies.

DEGREE OF INFLUENCE		
Information Instruments	Economic Instruments	Regulatory Instruments
Influence behavior through awareness (funded through budget support or grants - see economic instruments) <ul style="list-style-type: none"> • Policies, plans and strategies • Research and development • Information centres • Statistical services • Awareness campaigns • Training/education • Industry associations • Transparency initiatives • Voluntary performance targets • Certification labeling (voluntary) • Accounting systems (voluntary) 	Influence behavior through price <ul style="list-style-type: none"> • Access to resources (at reduced cost or free) • Taxes • Levies • Royalties • Tradeable permits • Budget support • Grants • Lending and guarantees <ul style="list-style-type: none"> - Debt - lending - Equity - investing - Guarantees • Insurance • Public procurement • User fees/charges • Price support or controls • Parallel infrastructure (roads and transmission lines) 	Influence behavior through legality (funded through budget support or grants - see economic instruments) <ul style="list-style-type: none"> • Standards (for processes and products) • Property rights/land rights and land use laws • Legally binding targets • Quotas • Licenses • Planning laws - Accounting systems (mandatory) • Copyright and patent protection (intellectual property rights) • Import/export restrictions • Enforcement

Figure 4:
Instruments of government support (ODI, 2015) ▶

Key questions for consideration:

- ▶ Are there national policy goals with a potential to affect land use or land-use sectors (food and energy security, income buffering for certain actors/sectors, energy supply diversification, rural development, improved national transport infrastructure, or other interests in special sectors or regions)?
- ▶ What fiscal policies or measures related to the land-use sectors (subsidies, tariffs, taxes, levies and so forth) are in place at the national or local level?

Key actors to consider include:

- Central government
- Central banks acting on behalf of central government
- Local governments with devolved fiscal responsibilities
- Commodity boards and other statutory authorities
- Commodity importing governments

Key financial instruments include:

- Government budget revenue tools as part of the fiscal policy framework, for example taxes and fees for land users and supply chain players
- Government budget spending tools as part of the fiscal policy framework, for example budget expenditure on insurance for loss of income of the agricultural industry, research in the agricultural sector, tax breaks, or policy and regulatory expenditures.
- Grants
- Low cost debt
- Low cost equity

If it is decided to include subsidies, caution should be taken when later aggregating and presenting data in order to avoid double counting. For example, subsidies lowering investment cost or supporting revenues pose a risk for double counting when tracking public subsidies and private sector investment flows.

Primary financial transactions and investment cost vs. revenue support mechanisms

CPI's Landscapes of Climate Finance have typically captured total primary financial transactions and investment costs or, where tracked, components of activities that directly contribute to adaptation and/or mitigation, plus public framework expenditures (for example, development of national climate strategies). CPI does not track policy-induced revenue support mechanisms, secondary market transactions, or other revenue support mechanisms. Revenue support mechanisms, such as feed-in tariffs, carbon market payments or payments for ecosystem services, pay back investment costs, so including them would constitute double counting if aggregated. Other private sources of revenue are also not generally mapped in existing studies of flows of finance. Secondary market transactions (for example, re-selling of stakes) are not tracked because they do not represent new money targeting climate-aligned outcomes, but rather money changing hands (Falconer and Stadelmann, 2014). CPI instead considers subsidies in case study analyses, where the often-complex role of subsidies can be considered in detail.

Public Revenue Flows

In tropical forest countries, revenues raised from natural resource exploitation often represent a large contribution to national revenues due to taxes, levies, royalties and fees incumbent on natural resource users. At the same time, revenue raising instruments can influence behaviour and be used as fiscal policy tools to help meet sustainable land-use targets.

Key questions for consideration:

- ▶ What are the sources of funding for the domestic public budget? Do related measures influence land-use practices, for example do instruments that are calculated based on land area have the potential to influence decisions related to land expansion and incentivise better productivity per hectare?
- ▶ How does the government raise revenue from land users?
- ▶ How is natural resource revenue redistributed to local governments or sectoral departments?

Key actors to consider include:

- Ministry of finance, including treasury department
- Statutory authorities, including commodity boards
- Producers and other commodity supply chain businesses, including traders, manufacturers, and retailers

Key financial instruments include:

- Tax instruments, such as land and building tax
- Non-tax instruments, such as levies, royalties (for exploitation by mining companies or production by geothermal), and fees (for forest utilisation licences)

Often, data related to domestic revenues is not directly available and proxy analysis may be needed to fill these gaps.

In Papua New Guinea, two key data sources were helpful to improve understanding of domestic climate-relevant land-use revenues (Parker, forthcoming). These were annual financial reports of statutory authorities that list the amounts collected through various non-tax instruments, as well as domestic trade data collected monthly by the Bank of Papua New Guinea.

Private Sector Investment Flows

In some countries, private finance accounts for a higher share of total investment in climate finance. These investments are not captured in most climate finance mapping analyses so far, due to poor data availability (UNDP, 2012). When mapping private sector engagement, it will be useful to understand the relevant players – investors, corporations, producers, traders – and the financial instrument used – equity, debt or balance sheet financing. Expenditures in agriculture and forestry will often include both working capital and capital expenditures, funded through a producer's own balance sheets, rather than a project attracting debt and equity investment on the strength of future cash flows. Upstream sources of finance for producers may include formal and informal lenders. Sustainable land-use project developers may be financed by a blend of equity, grants and debt.

Key questions for consideration:

- What are the main industries active in the land-use sectors?
- What are the main policies and instruments used to stimulate private investments?
- Where are investors mostly from (national/international)?
- Is there data available on the amount of investment? Any institution/organisation collecting relevant data?

Key actors to consider include:

- Institutional investors, including commercial financial institutions and (impact) funds
- Producers, including corporate actors and households/family farms
- Project developers
- Service providers, traders, unions or industry associations
- Civil society, for example NGO, academic and research centres, religious authorities, charities/philanthropists
- Commercial banks and funds (domestic and international)

Key financial instruments to be analysed include:

- Balance sheet finance
- Grants in subsidised markets
- Loans
- Bonds
- Equity
- Guarantees

Mapping private sector investment flows is still very ambitious for most countries, as data is sparse and difficult to compare. There is no established methodology to quantify private investments into land use, and research in this area is resource-intensive. Some inroads are being made at the global level by researchers and organisations, including Lowder et al. (2015), and Forest Trends (2015), as well as through the work of COWI for the European Union (COWI, 2018) that looks at private investment in REDD+ in more detail.

Challenges for capturing private finance data include lack of centralised and publicly available datasets, necessitating bottom-up data collection, which will also likely be challenging due to the large number of actors concerned and confidentiality concerns. There are also challenges in understanding what should be measured, and when, when it comes to private expenditures and investments, for example working capital vs. capital investment. One option may be to focus on the volume and price of commodities sold as this encapsulates investments made throughout the value chain. This is an imperfect proxy, however, as it captures revenue, not investment in a given year, and is therefore inconsistent with annual disbursement or commitment data on the public side.

1.4 What data is available?

A key factor for scoping decisions includes awareness of what data is available:

- What data sources are already accessible that cover the sectors or activities under consideration?
- What additional data could be collected?

It is useful to start listing potential data sources for different sources of finance, actors or instruments.

Any pre-existing budget analysis in the context of a UNDP Climate Public Expenditure Review (CPEIR), a World Bank Public Expenditure Reviews (PER), or a UNDP Climate Change Financing Framework (CCFF) also provides a helpful base for understanding what data sources already exist.

More information is available in Module 5 on data collection and Annex I.

1.5 What resources are needed?

When discussing the potential scope of the study, it is important to consider the amount of time and resources required for the different options previously discussed.

1.5.1 Time Requirements

Table 4 sets out the range of time required for various processes in the mapping exercise with a team consisting of two-four core experts, based on experiences so far. The resources required are highly variable depending on ease of data collection and stakeholder engagement, the size of the jurisdiction, and the complexity of the scope of work or the sectors considered. The work can be streamlined once the methodology has been established and through use of expert local staff with a good understanding of different data sources and links to data providers.

Some further resourcing considerations are:

- If land-use finance mapping is planned to be done regularly, then it makes sense to explore how the first-time exercise may set up future iterations. For example, allowing extra time for testing the data collection process could lead to automated processes in the future, such as introducing a new 'climate marker' in the state budget database, or increasing the frequency of surveys prepared by statistics agencies
- Compromising on the level of certainty required for the first-time land-use finance mapping can save time initially, and quality can be improved with each iteration
- The level of detail and accuracy the work aims for should be balanced with resource availability
- Some key data sources, such as government ministries, require allocation of dedicated internal staff to assist in the work

Task	Time	Person/days
Scoping	0.5 - 1.5 months	5 - 60
Stakeholder engagement	1 - 2 months over the course of work	10 - 40
Mapping Framework	0.5 - 1 month	5 - 20
Data Collection	3 - 5 months	20 - 150
Data Processing	1 - 2 months	10 - 40
Data Analysis and Presentation	2 - 3 months	10 - 50
Using the results	1 - 3 months	10 - 40
Total	9 - 15 months	70 - 420

Table 4: Person day estimates to prepare a land-use finance mapping



1.5.2 Project Team Requirements

The size of the team required will also depend on its members' skill set, and the level of buy-in and involvement of important stakeholders, such as the ministries of finance or budget and planning, which can help access and interpret data.

Required skills and experience

- Experience working with the relevant government on public policies related to agriculture and/or forest-related issues
- Understanding public and private financing needs and existing practices in relevant sectors

Experience in public financial management

- Understanding the budget structure, tax system, fiscal incentives, private investment vehicles and so forth.
- Excellent network of contacts with relevant government departments and private financial institutions, experts, data providers and so forth.
- Quantitative data analysis skills

Additional skills and experience

- Experience using software to visualise climate finance flows
- Previous experience in mapping and tracking qualitative and quantitative flows of public and private finance at the global and national level

Template 1 - Scoping checklist



Template 1 - Scoping question checklist

Questions	Responses
What are the broad policy objectives, context and policies framing the work?	
What are the specific policy objectives of the mapping? How are the outputs likely to be used?	
Would the analysis capture climate mitigation and/or adaptation activities related to land use?	
Would the mapping also include finance in land-use activities that drive deforestation, or could drive it? (business-as-usual finance, in addition to green investment in forest restoration, protection, zero deforestation, etc.)	
Which sectors or commodities are of interest?	
What geographic scope should be reflected, for example national, provincial, etc.?	
What period should the analysis cover? Will it be a one-off or multi-year approach?	
What sources of finance will be included?	
What type of finance will be assessed?	
Preliminary ideas on sources of data and key actors to involve	
Available resources (budget, human resources)	

MODULE 2:

Developing a stakeholder engagement strategy

Stakeholder engagement is essential for every step in the process to create ownership and buy-in for the land-use finance mapping results, and to translate findings into policy recommendations.

OBJECTIVE

Develop an idea about who to engage, why and how often.

The process of mapping financial flows in the land-use sector is often as important, if not more, than the results achieved. Indeed, building the analytical framework for land-use mapping and qualitatively assessing the role of actors or expected impacts of investments requires transparent and participatory discussions across sectors.

The results of these discussions can inform various processes beyond land-use finance mapping and build trust and coordination among actors. Reaching consensus through the continuous engagement of stakeholders is key to ensure both that the land-use finance mapping: (a) provides an accurate and valuable evidence base for policy making; (b) is actually used as an evidence base for policy making and for cross-sectoral dialogue and collaboration; and (c) builds country ownership of the analysis, which will increase its impact on the policy dialogue. Stakeholder engagement is equally essential to help identify sources of data and facilitate access to them.

The project team should develop a stakeholder engagement plan outlining who will be engaged, why, when and how, considering crucial milestones in the project lifecycle. A template is provided here with further information.

KEY QUESTIONS

2.1 Who should be involved and why?

2.2 How and when should stakeholders be engaged?

TEMPLATES

 Download **Template 2 - Identification of Stakeholder Groupings and Engagement Approach**

 Download **Template 3 - Stakeholder Contact List and Log**

2.1 Who should be involved and why?

Depending on the objectives and scope of the land-use finance mapping, key stakeholders may include:

- Domestic public sector actors (federal ministries, local government, public agencies/enterprises/banks, national funds)
- International public sector actors (bilateral donors, multilateral agency/fund, multilateral/regional/bilateral development finance institution)
- Private sector actors (financial sector, producers/service providers, industry associations, unions)
- Civil society actors (NGO, academic and research centres, religious authorities, local communities)

Different stakeholders have different roles, interests, access to information and networks. Consider the following questions when describing and grouping potential stakeholders.

- ▶ Why is it important to engage this stakeholder (group)? What would their role be?
- ▶ What could be the challenges for engaging this stakeholder (group)? For instance, do they have limited time to engage in such a study? Are there multiple departments within the organisation that need to be consulted together or separately?
- ▶ What is the stakeholder (group)'s main interest? What are the benefits/incentives for each stakeholder (group) to engage and share information and data? For instance, motivations may include publicising their activities, attracting funding or technical assistance, ensuring coherence across sectors or organisations, or ensuring efficiency and impact.
- ▶ How should the stakeholder be engaged, and at what level of seniority? Does the project team have relevant contacts at the right level? For instance, when contacting a ministry, it is often necessary to be introduced (usually at a senior level from another ministry that would ideally be one of the project champions).

Figure 5 shows the different groups of stakeholders to consider, and ways to engage.

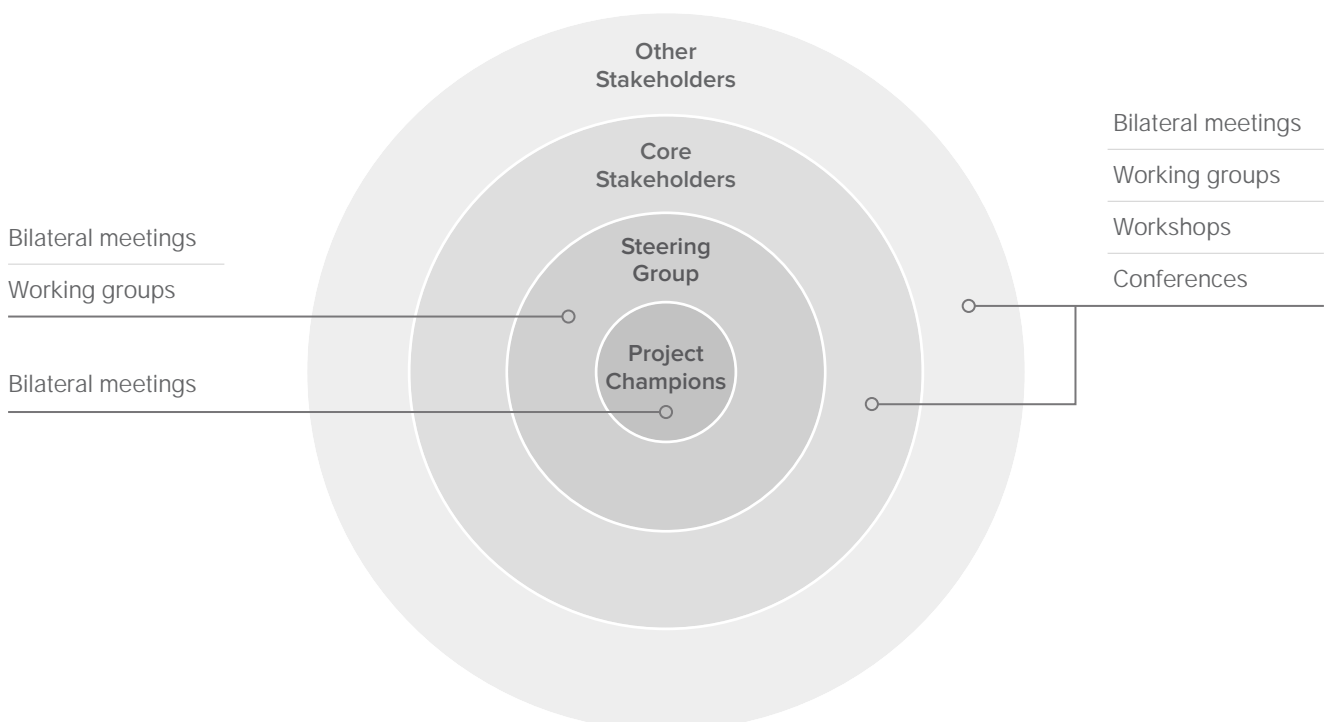


Figure 5: Groups of stakeholders to consider, and options for ways to engage

2.1.1 Project champion

Rationale

The project team should identify one project champion organisation, and a set of individuals within the organisation who have a strong interest in the objective of the land-use finance mapping. The champion may be the funder, or client of the work, or the main counterpart and beneficiary for the project team and funder.

The champion should be well placed to influence relevant policy processes and should be familiar with the policy environment in the region of interest. Ideally, the champion would have a strong network of key contacts and authority within and across government ministries, as well as with donor organisations and the private sector.

Typical champions could be coordinating ministries – like the ministry of finance or budget, the ministry of planning, the President's/the Prime Minister's Cabinet office, or sectoral ministries with a strong interest in the study, such as the ministry of environment. The champion would, in principle, be a government entity to ensure access to public finance data.

Role

The champion will have a leading role in shaping and implementing the project. They will be involved in project decision making (scope, definition building process, development of policy recommendations and so forth), provide guidance and feedback on analysis, support stakeholder engagement and access to data and information, and ensure that the analysis developed is policy-relevant and that the results are considered by the government.

The champion will help drive the project forward politically, provide technical guidance, and assist with data access and engagement with key experts and officials. The champion will take joint ownership of the work, and build interest in the approach and results in their institution.

Challenges

Senior officials will likely have limited time to engage in the process and should be engaged at a high level for input and guidance on key decisions, rather than on technical details. Preferably, senior officials would allocate a dedicated staff member to support the project team on more detailed matters and access to information.

2.1.2 Steering group

Rationale

While we recommend that you identify one main champion in the interests of streamlined decision making, the study team may decide to set up a steering group made up of key organisations. Together with the champion, the steering group members would help build buy-in and country ownership, as well as guide the work of the project team.

The steering group would typically be made up of three to six representatives of key institutions, potentially including coordinating ministries, such as the ministry of finance or budget, the ministry of environment, the ministry of agriculture, the ministry of planning, or the President's/Prime Minister's Cabinet office (including the project champion), a representative of international development partners and a private sector representative. The choice of representatives should also be related to key data sources for the study, as steering committee members would be expected to support data collection and access.

Role

Steering committees can participate in initial objective-setting and scope-setting, as well as interim and final validation of results. The steering committee will ensure that the project is as policy-relevant as possible and increase country ownership.

Validation of results with the steering committee can provide quality control, help interpret data, and increase political relevance of recommendations.

Challenges

Officials and experts will likely have limited time available to engage in the study and ways should be sought to be as sensitive as possible in terms of the time and input requested. Meetings should be scheduled well in advance with clear specification of the feedback requested.

2.1.3 Core stakeholders

Rationale

Core stakeholders will include a broader group of institutions that may have an interest in the objective behind the land-use finance mapping and are influential in relevant policy processes. They will be key sources of information and data for the analysis. They will also have some influence in policy process or project/programme/institutional financing decisions.

They will typically include the ministry of finance or budget, the ministry of planning, the President's/Prime Minister's Cabinet office, the ministry of environment, sectoral ministries (ministry of forestry, energy, industry, water), government agencies including statistics agencies, local government, development partners, financial institutions and funds, SOEs, specialised civil society organisations, and associations that represent the private sector.

Another key core stakeholder group are (often local) experts in land-use policies, practices and finance. Such experts can provide invaluable guidance and support to help identify key contacts and data sources, as well as to help analyse data and draw out policy conclusions. They may provide expertise for particular stages of the analysis or throughout, for example expertise on the country's domestic public budgeting system. They may have been involved in previous land-use finance mapping or analyses upon which the project team should build on.

Role

Core stakeholders should be introduced to, and kept informed on, the results of the analysis. They can also help guide and support data collection and analysis, and interpret the results.

Core stakeholders can also play an important role in the elaboration of the relevant definitions and typology of land-use finance used in the analysis (see Module 3). Multi-stakeholder participation and consensus-building throughout the process is an important element to build ownership of study results, as well as inform various policy processes.

Challenges

Officials and experts will likely have limited time to engage in the study. This should be taken into account in terms of the time and input requested. One option may be to request bilateral meetings that are focused on the institution concerned, as well as regular working group calls for those who would like to be more involved in the process.

Some organisations may initially have limited interest in the study, in which case careful and targeted outreach is required to convey its potential benefits. The project team may also have to enlist the support of other actors to make introductions.

2.1.4 Other stakeholders

Rationale

Other stakeholders who may have an interest in the analysis include NGOs, researchers and producers.

Role

Other stakeholders should be informed of analysis results, as they can disseminate and implement policy recommendations.

2.2 How and when should stakeholders be engaged?

2.2.1 Engagement milestones

Engagement and consultation should be iterative, continuing throughout the process, but there are some crucial milestones in the project lifecycle that require careful planning with regards to the number and kind of stakeholders to be involved as described in Figure 6:

- Kick-off meeting
 - Initial objective setting, definition building and scoping of the analysis
 - Should be country-led to ensure that the analysis created will meet its needs and involves the project champion and the steering committee
- Kick-off event
 - Provide a platform to discuss land-use finance mapping with multiple stakeholders
 - Engage key data providers
- Definition building
 - Consultation is needed to develop and test the definition developed by the team
- Data collection
 - Outreach is needed to gather and understand data
 - Verify the nature of funded activities to support data categorisation
- Data analysis, including interim or draft results sharing
 - Outreach is needed to verify preliminary results and develop policy recommendations
- Using the results, including publication
 - Disseminate final results
- Training
 - Training within the champion organisation and other interested stakeholders to ensure they can use the results to inform policy processes and, if desired, replicate the work in the future

2.2.2 Formats for engagement

Formats for stakeholder engagement can vary from small bilateral or team meetings, to larger working groups or workshops/seminars, depending on the purpose and participants.

Small bilateral or team meetings allow in-depth consultation and discussion. As such, the format is ideal for gathering information, seeking feedback on preliminary results and discussing policy implications. These can be time consuming as multiple meetings are required to reach all relevant stakeholders and gain all the necessary information.

Larger workshops are ideal when a larger and broader set of stakeholders need to be consulted and/or when you wish to encourage dialogue between stakeholders from different organisations on particular topics. Workshops require more organisation and usually resources to cover accommodations, catering and so forth. The format allows for some discussion, but time may be limited unless parallel breakout sessions are organised and the input received is properly documented.

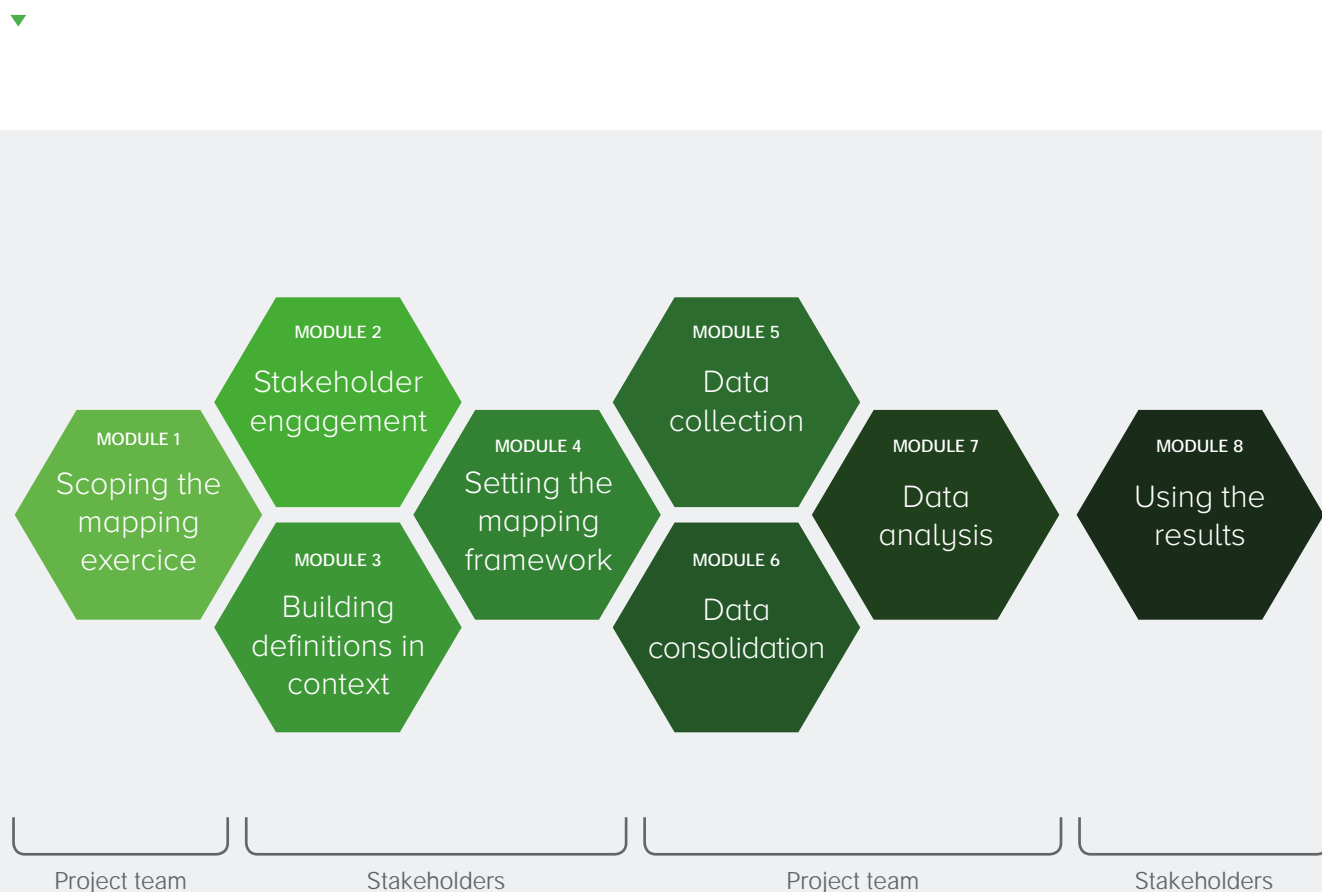
Working groups can be an alternative to bilateral and larger workshops, and allow the study team to efficiently gather a mixed group of experts. The working group could be formed of selected technical experts and officials representing their organisations. Availability permitting, ideally the same members meet on several occasions to provide feedback and guidance to the study team, and act as references and ambassadors for the work in their organisations. In this way, the working group can act as a kind of steering group to guide the direction of the study. This type of arrangements is particularly helpful for detailed technical discussions on definitions and activities when building the typology for the study (see Module 3).

When possible, stakeholder engagement should be pursued through existing participatory structures, for example sectoral working groups, REDD+ committees, REDD+ multi-stakeholder groups, donor coordination groups or industry platforms. This will ensure ownership and use of results beyond the research project.

For less interactive updates, emails, websites and webinars can be used.

It is important to note that stakeholder engagement will be a crucial part of any land-use finance mapping exercise and will require significant amounts of time for coordinating, implementing and monitoring engagement efforts. In addition, the project team might set aside a budget for large events, which would cover location costs, catering, transportation and so forth.

Figure 6: Engagement of stakeholders throughout the modules



Templates - Stakeholder engagement plan

Stakeholder engagement templates are provided for project teams to adapt and modify depending on their project scope and jurisdictional context.



Template 2 - Identification of Stakeholder Groupings and Engagement Approach

Stakeholder group	Project champion	Steering Group	Core stakeholders	Other stakeholders
Group member organisations	Ministry of finance, ministry of environment, ministry of planning or the Prime Minister's Cabinet office	Ministry of finance, ministry of planning, the Prime Minister's Cabinet office, key sectoral ministry/ies (ministry of environment and/or agriculture) a representative of international development partners, and a private sector representative	Ministry of finance, ministry of environment, ministry of planning or the Prime Minister's Cabinet office, sectoral ministries (ministry of forestry, energy, industry, water, mining, land management, etc.), government agencies, including statistics agencies, local government, development partners, financial institutions and funds, SOEs, industry and private sector associations that represent the private sector, and (local) experts in land-use policies, practices and finance	NGOs, researchers and producers
Role	High-level guidance and support for scoping and implementation of recommendations, data collection and analysis, as well as interpretation of the results	High-level guidance and support for scoping and implementation of recommendations, data collection and analysis, as well as interpretation of the results	Guide and support data collection and analysis, as well as interpretation and implementation of the results. Support typology building	Support dissemination and track/influence implementation of policy recommendations
Challenges	Time Buy-in	Time Buy-in	Time Buy-in	Time Buy-in
Engagement approach	Bilateral meetings, workshop events, etc.	Small group meetings, workshop events, etc. Provided with info via emails, websites, and webinars	Bilateral meetings, workshop events, etc. Provided with info via e-mails, websites, and webinars Working group meetings	Workshop events etc. Provided with info via e-mails, websites, and webinars
Project phase	All	All	All from data collection onwards	Dissemination
Frequency timetable	Very frequent Bi-weekly	Less frequent Quarterly/ monthly	Occasional, but likely iterative, to access right people and info	Occasional (in particular at the end of the study)



Template 3 - Stakeholder Contact List and Log

Stakeholder group	Stakeholder organization name	Key contact point: name, position, contact details	Engagement approach in detail	Record of engagements (dates and key details for follow up)
Project champion/ Steering Group/ Core Stakeholder/ Other	XYZ	XYZ	<ol style="list-style-type: none"> 1. Invitation to kick off workshop 2. Official letter from ministry X requesting introductory in-person meeting 3. Introductory in-person meeting 4. Departmental bilateral meetings to discuss categorisation of programmes per study definition 	
Project champion/ Steering Group/ Core Stakeholder/ Other	XYZ	XYZ		
Project champion/ Steering Group/ Core Stakeholder/ Other	XYZ	XYZ		
Project champion/ Steering Group/ Core Stakeholder/ Other	XYZ	XYZ		

MODULE 3:

Developing a land-use finance definition

The definition of land-use finance specifies the sectors and activities included in the analysis in a detailed typology of misaligned/aligned/conditionally-aligned land-use activities.

OBJECTIVE

Understand options and key aspects for consideration when building a land-use finance definition and typology.

Module 1 provided guidance for high-level discussions on scope. In this module, you will develop a detailed definition to guide data analysis. This will entail specifying relevant sectors and activities that are in scope, and presenting detailed typologies and approaches for assessing the alignment of projects and programmes with jurisdictional or national policy objectives.

Choices on the sectors and activities that should be considered in scope of the land-use finance definition, as well as decisions on how to determine policy alignment, should be based on a thorough understanding of land use and land-use change, as well as relevant national policy frameworks. The typology can also build on existing national and international frameworks and discussions that have been developed.

Continuous stakeholder engagement is key to developing a useful, accurate and accepted definition of land-use finance.

KEY QUESTIONS

- 3.1** What steps should be followed to develop a detailed national/jurisdictional-level definition of climate-relevant land use?
- 3.2** Which sectors and activities might be considered misaligned/aligned/conditionally-aligned?

3.1 Steps to develop a detailed typology of land-use activities

As outlined in Module 1, initial consideration should be given to the type of land-use activities that are within the scope of the analysis. In general, three types of land-use activities can be considered. These can be defined as:

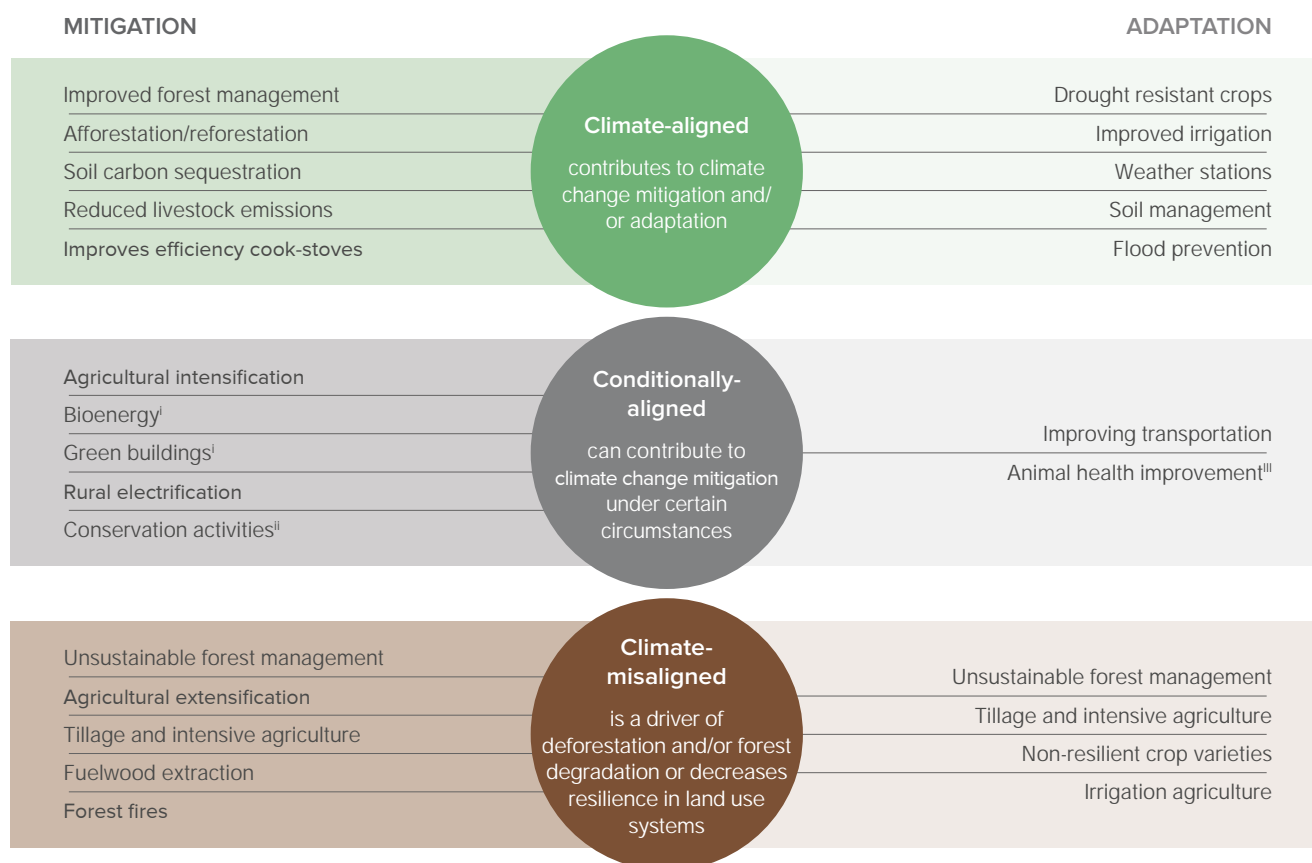
- **Climate-aligned** activities, which contribute to climate change mitigation by increasing GHG emission removals or decreasing GHG emissions from agriculture and forestry. Examples of climate-aligned activities include afforestation/reforestation, sustainable forest management, zero deforestation agriculture, and clean cooking alternatives such as Liquid Petroleum Gas, improved efficiency cookstoves² and induction cookers. Under a broader scope of climate-relevant finance, this could also include activities that increase resilience and adaptation to climate change impacts, as well as activities that contribute to climate change mitigation in the agricultural sector.
- **Conditionally-aligned or ‘grey’** activities are often indirectly related to land-use emissions and may contribute to reducing deforestation but only under certain conditions. Examples include agricultural intensification, bioenergy and timber harvesting. Agricultural intensification, for example, can contribute to climate change mitigation by increasing production on existing land, thereby reducing pressure on surrounding forests. If not coupled with strong land-use policies, however, agricultural intensification can have unintended spillover effects that can lead to an increase in land value and an incentive for more forests conversion to agricultural lands.
- **Climate-misaligned or ‘brown’** activities, which drive deforestation or forest degradation. These activities vary by country. They are commonly referred to as the drivers of deforestation and forest degradation. Examples of climate-misaligned land-use activities include agricultural extensification, unsustainable forest management or infrastructure development, and the use of biomass for heating and cooking. Under a broader definition of land-use finance, this could also include activities that are not adapted to climate change impacts, or reduce the resilience of ecosystems, which could lead to expansion on new lands in the future.

These three categories all fall under the scope of **climate-relevant land-use**. For example, activities within these groups can impact land-use mitigation and adaptation outcomes either positively or negatively. Their relative contribution to climate change mitigation and adaptation can be represented in concentric circles, with areas in the centre contributing heavily to mitigation and adaptation outcomes, and areas towards the outside being misaligned with climate objectives (see Figure 7).

The land-use finance mapping can include any (or all) of these categories based on national level policy discussions and the desired objective of the analysis. Tracking climate-aligned land-use activities can improve overall understanding of the scale of finance delivered to support forest conservation efforts, and reduce emissions from deforestation and forest degradation. Analysing conditionally-aligned and misaligned activities creates additional opportunities to redirect existing flows of finance towards climate change outcomes.

Identifying which activities fit in each category, and under which conditions, helps assess whether they are addressing the current (and future) drivers of deforestation.

² Potential rebound effects might need to be considered for both of these activities.



▲
Figure 7: Definition of climate-relevant land use, including aligned, conditionally-aligned and misaligned activities.

Note: The activities listed are examples only and depend on the jurisdictional policy context, which could result in the same activities classified as either aligned or misaligned.

ⁱ Can reduce emissions in other sectors but depends on the sustainability of supply

ⁱⁱ If not managed at a large scale these may result in leakage

ⁱⁱⁱ Does not always have adaptation benefits

3.1.1 Literature review and consultation

Developing a detailed national/jurisdictional-level definition of climate-relevant land use for the intended region requires a review of national and international literature and in-depth consultations with relevant stakeholders to develop a detailed list of activities that fall within the scope of analysis.

Climate-misaligned activities (often referred to as the drivers of deforestation and forest degradation) are often identified in a country's national REDD+ strategy. They help to set the overall context for the analysis. Climate-aligned activities can be identified during an assessment of strategies and approaches to address the drivers of deforestation, or through an analysis of opportunities to increase forest carbon stocks, for example through afforestation and reforestation programmes. In the context of a national or jurisdictional REDD+ strategy these activities might be defined as REDD+ policies and measures in various sectors. Conditionally-aligned activities are the most challenging to identify, and could be either aligned or misaligned depending on other policy and economic conditions in the jurisdiction.

If there are differences between international and national definitions, policies or targets, it is important to engage in dialogue with relevant stakeholders to reconcile these differences. For example, agricultural export growth targets may be central to government development plans, but may also conflict with reduced deforestation goals. In all cases, it is useful to ensure that potential areas of conflict are clearly distinguished in different categories of tracking activities, through specific sub-sector categories, to allow for flexibility in the analysis.

All climate-relevant land-use policies, strategies, and programme documentation should be identified and reviewed. A list of documents and key questions is provided in Module 1, section 1.1.

The outcome will be a detailed overview of climate-relevant land-use national and/or jurisdictional-level policies in the jurisdiction, including their objectives, challenges and status of implementation. This overview could be distributed for stakeholder consultation.

3.2 Which sectors and activities might be considered misaligned/aligned/conditionally-aligned?

3.2.1 Identifying aligned land-use activities

In this step, the project team will define a detailed typology of climate-aligned activities that can be used to assess and categorise available financial data.

The level of detail of the typology should match the level of detail of the available information on spending and investments. For example, in the agriculture sector the key sectoral division will most likely be crop and animal production. It will be targeted by different actions/programmes, for example agricultural intensification, which cover manifold activities/measures, such as training for improved farming techniques. And even these activities/measures might be disaggregated into various types of expenditures and investments, for example operational costs.

National or jurisdictional definitions might already exist and typology of aligned land-use activities might be derived from existing frameworks, such as REDD+ or green growth strategies and plans. Sometimes these plans might not go into a sufficient level of detail and further work might be needed to develop activity-level typologies.

International norms on defining mitigation and adaptation activities in land use are important guiding posts in developing a nationally-specific definition. Table 5 provides information on three international approaches that might provide a useful starting point for countries/jurisdictions as they develop their own tailored and jurisdiction-specific typology of sustainable land-use finance.

The three approaches are:

- Definitions adopted jointly by the group of Multilateral Development Banks (MDBs) and the International Development Finance Club (IDFC) on tracking mitigation and adaptation finance in the relevant areas of agriculture, forestry and land use (MDBs/IDFC, 2015).
- The Climate Bonds Initiative taxonomy used as guidance for green bond issuers and investors in relation to agriculture and forestry activities (CBI, 2018).
- A list of mitigation and adaptation activities identified as part of a three-tier framework in defining land-use mitigation and adaptation by CPI (see Falconer et al. 2015b).

Guidance on mitigation action and activities in land use

MDBs/ IDFC, 2015	<p>Agriculture:</p> <ul style="list-style-type: none"> • Reduction in energy use in traction (such as efficient tillage), irrigation and other agricultural processes • Agricultural projects that improve existing carbon pools (such as rangeland management; collection and use of bagasse, rice husks or other agricultural waste; reduced tillage techniques that increase carbon contents of soil; rehabilitation of degraded lands; or peatland restoration) • Reduction of non-CO₂ GHG emissions from agricultural practices and technologies (for example, paddy rice production, reduction in fertiliser use) <p>Afforestation, reforestation and biosphere conservation</p> <ul style="list-style-type: none"> • Afforestation (plantations) and agroforestry on non-forested land • Reforestation on previously forested land • Sustainable forest management activities that increase carbon stocks or reduce the impact of forestry activities • Biosphere conservation and restoration projects (including payments for ecosystem services) seeking to reduce emissions from the deforestation or degradation of ecosystems <p>Livestock</p> <ul style="list-style-type: none"> • Livestock projects that reduce methane or other GHG emissions, for example manure management with biodigestors, and improved feeding practices to reduce methane emissions <p>Biofuels</p> <ul style="list-style-type: none"> • Production of biofuels, including biodiesel and bioethanol, only if net emission reductions can be demonstrated.
CBI, 2018	<p>Agriculture that reduces carbon and GHG gas emissions; increases soil-based carbon sequestration; improves climate resilience</p> <ul style="list-style-type: none"> • Reduced water use • Verifiable reduced fertiliser use • Verifiable zero-till agriculture • Verifiable rangeland management, for example cell grazing • Intensive agricultural efficiencies for example manure management on dairies, or milk power processes to reduce transport weight of agricultural products • Intelligent management systems, for example infrastructure and practices aimed at efficient fertiliser dispatch, or increased CO₂ sequestration <p>Exclusions: all agriculture on peatland</p> <p>Forestry activities that avoid or substantially reduce carbon loss; deliver substantial carbon sequestration</p> <ul style="list-style-type: none"> • Plantation forestry and sustainable forestry management with current certificates from internationally-recognised certifying bodies for example Verified Carbon Standard and Forest Stewardship Council • Afforestation plantation on degraded lands • Re-vegetation or reforestation on previously forested land • REDD+ <p>All subject to governance criteria and adherence to internationally-recognised standards that ensure sustainability of investments</p> <p>Exclusions: timber harvesting</p>
CPI (Falconer et al. 2015b)	<p>Production efficiency: mitigation achieved by changing production practices</p> <ul style="list-style-type: none"> • Improved fertiliser use • Manure management • Soil conservation practices • Nutrient and water management • Improved feeding practices • Green forest management • Improved charcoal production techniques <p>Land efficiency: mitigation achieved by using land more efficiently, placing less pressure on forests and other ecosystems.</p> <ul style="list-style-type: none"> • Any of the above practices that increase yield per hectare • Increased cattle stocking densities • Improved palm oil yields per hectare • Shifting to degraded (non-forested) land • Afforestation/reforestation <p>Changes in demand: mitigation achieved through decreasing demand for high emission commodities and increasing demand for high sequestration commodities</p> <ul style="list-style-type: none"> • Reduced demand for unsustainable commodities • Increased demand for certified commodities • Switching from wood fuel to alternative energy sources • Increased demand for green buildings • Changing dietary habits by eating less beef

Guidance on adaptation activities in land use

MDBs/ IDFC, 2015	<p>Three key steps are applied by MDBs in adaptation finance tracking:</p> <ul style="list-style-type: none"> • Setting out the climate change vulnerability context of the project • Making an explicit statement of intent to address climate vulnerability, as part of the project • Articulating a clear and direct link between the climate vulnerability context and specific project activities <p>When applying the methodology, reporting adaptation finance is limited to solely those project activities that are linked to the climate vulnerability context.</p> <p>Examples of potential adaptation activities in crop production and food production, and other agricultural and ecological resources:</p> <ul style="list-style-type: none"> • Primary agriculture and food production: investments in research and development of crops that are more resilient to climate extremes and change • Agricultural irrigation: supplemental irrigation, multi-cropping systems, drip irrigation, levelling and other approaches and technologies that reduce the risk of large crop failures • Forestry: improved management of forest fires and pest or disease outbreaks • Livestock production: increased production of adequate fodder crops to supplement rangeland foraging
CBI, 2018	<p>Infrastructure to provide greater resilience in the face of more severe storms</p>
CPI (Falconer et al. 2015b)	<p>Natural resource management:</p> <ul style="list-style-type: none"> • Afforestation, reforestation and other vegetative cover to increase water retention, reduce flooding risk and reduce soil loss • Protection and expansion of biodiversity-rich areas to increase resilience • Increase drainage capacity of land to reduce flooding risk • Improve coastal defences, for example strengthening of sea walls, planting of mangroves • Restoration/creation of wetlands • Flood protection dikes • River bank erosion control • Construction of multipurpose reservoirs • Construction of green dams <p>Information and technology:</p> <ul style="list-style-type: none"> • Research and development on more heat, drought, pest and pathogen tolerant varieties • Better seasonal forecasting and decision support tools • Improved access to early warning systems for weather hazards • Research on pests and pathogens (pathology and epidemiology) • Pest and pathogen control technologies available • Breeding and development of locally-adapted crops • Agricultural extension services/farmer training <p>On farm practices:</p> <ul style="list-style-type: none"> • Switch to more heat, drought, pest and pathogen tolerant varieties • Improving on farm water storage, irrigation and efficiency of use • Weather protection systems for crops and livestock to reduce heat exposure • Improved crop storage facilities to reduce post-harvest waste from weather and climate events • Adaptation of fish/aquaculture techniques to increased flood risk • Farm level soil conservation practices (no till, mulch, alternative cropping) • Soil conservation structures, for example terraces, grassed waterways • Farmland set-asides for soil conservation • Use of windbreaks • Pest management through targeted herbicide and pesticide application • Switch to livestock with greater heat and drought tolerance • Optimizing herd size and grazing patterns

Table 5: Three approaches to land use mitigation and adaptation activities

3.2.2 Identifying misaligned land-use activities

During this step, the team will review all relevant studies on the drivers of deforestation and forest degradation, and conduct consultations to determine if there is a consensus across all relevant stakeholders. Such consultations should not duplicate any existing working groups focused on the drivers of deforestation, but rather try to consult those groups.

Policy	Underlying deforestation driver (mitigation)	Potential climate risk (adaptation)
Agriculture	Main drivers: extensive farming techniques in cocoa, palm oil, rubber, rice, cashew and yam	Reductions in crop yields; losses caused by catastrophic events
Wood energy	Firewood and charcoal production	
Forestry	Illegal logging and over-exploitation of plantations	Reductions in production levels; losses caused by catastrophic events, erosion
Mining	Artisanal gold mining	Erosion
Infrastructure	Roads, settlements and other infrastructure	
Tenure and land-use planning	Insecure land tenure and lack of land-use planning	
Demographics	Migration of gold miners and population growth	

Table 6: Starting points for identifying nationally-specific activities that drive deforestation or 'misaligned' activities ►

Many countries have already assessed the drivers of deforestation as part of their REDD+ readiness process. Documents likely to provide up-to-date information on drivers include:

- R-PPs³
- UNFCCC forest reference level/forest reference emission level submissions
- Emission Reduction Programme Documents⁴
- National or regional-level academic studies documenting deforestation and/or forest degradation
- National or sub-national REDD+ strategy

The result of this step will be an agreed typology of drivers of deforestation and forest degradation. Table 6 provides an example output.

³ R-PPs are part of the FCPF and UN REDD readiness process.

⁴ Emission Reduction Programme Documents are also part of the FCPF process under the Carbon Fund.

3.2.3 Identifying conditionally-aligned land-use activities

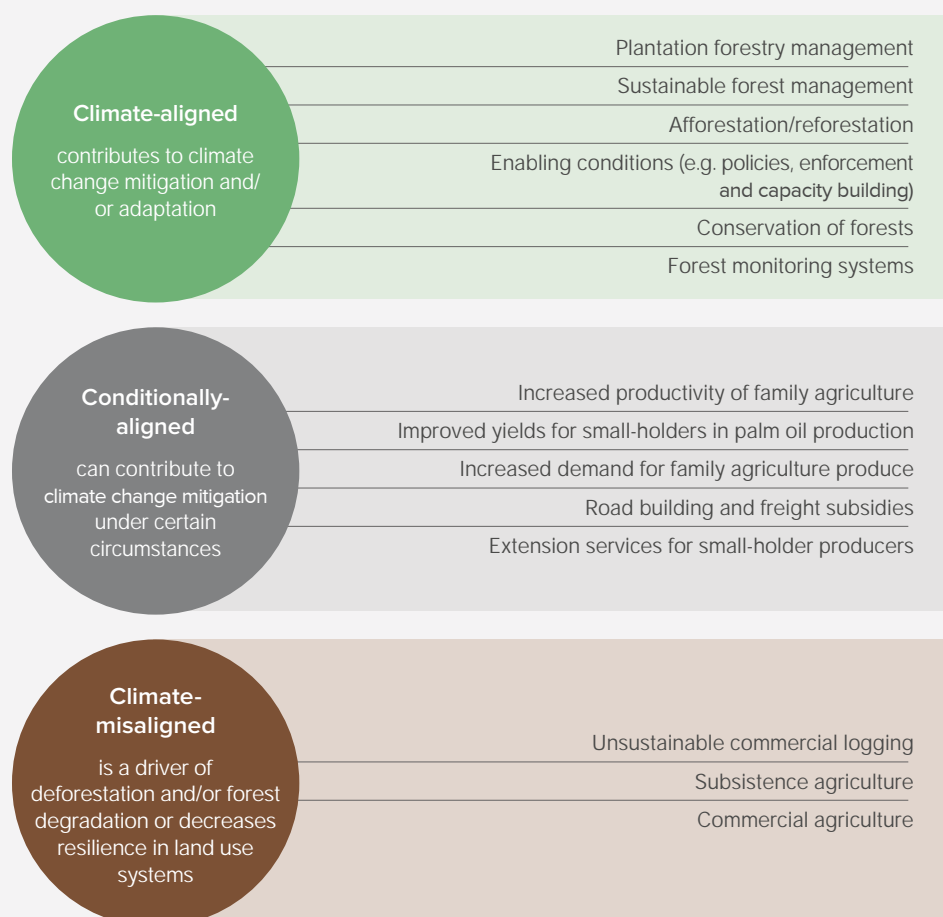
If an activity cannot be clearly categorised as either misaligned or aligned, then it should be classified as conditionally-aligned. Conditionally-aligned activities could include commodity market support programmes or agricultural intensification programmes that incentivise the production of the particular types of agriculture driving deforestation in the jurisdiction in some, but not all, cases. In some instances, safeguards may exist to protect against negative impacts on forests.

In some cases, it might be difficult to clearly distinguish between conditionally-aligned and climate-misaligned activities because of limited data on the potential impact of given measures or activities on climate and forest objectives, or lack of consensus. The project team might choose to only pick two categories of land-use activities as climate aligned and activities with unknown impact.

Figure 8: Example showing how climate-relevant land-use activities have been classified in Papua New Guinea

In Papua New Guinea, three classifications were adopted, based on national discussions and a desire to highlight aligned, conditionally-aligned and misaligned land-use activities.

In Côte d'Ivoire, however, only two categories were used: conditional and climate-aligned. In addition, a different terminology was adopted in Côte d'Ivoire, with the terms grey and green used to refer to these different types of activity respectively. The choice of terminology is open to national interpretation as outlined in Section 1.1.



MODULE 4:

Setting the mapping framework

Setting the mapping framework and defining all its elements is crucial for efficient and focused data collection and consolidation.

OBJECTIVE

Confirm the final scope of the analysis, and develop a first qualitative sketch of the finance mapping for consultation with experts to refine data collection needs.




By now, after the initial scoping research in Module 1, stakeholder dialogues in Module 2, and definitional building in Module 3, the project team should have a well-defined and agreed-upon scope for the analysis.

In this next step, the team will put all of the elements together and develop a first qualitative visualisation of the potential final output. This will help confirm the scope with the project champion, including the dimensions and categories to be used.

KEY QUESTIONS

- 4.1** Which dimensions of flows should be mapped?
- 4.2** How to identify and describe key actors?
- 4.3** How do flows relate to each other?
- 4.4** What format should the output have?

TEMPLATES

-  Download **Template 4** - Expenditure and investment framework
-  Download **Template 5** - Mapping tax and non-tax flows
-  Download **Template 6** - Key actor profiles

4.1 Which dimensions of flows are to be mapped?

After identifying the types of finance to be included, as well as the actors and instruments, the team needs to clarify how to frame the information for the final output. This has to be done before collecting data, since the framing reveals what information is needed to categorise and map actors and flows consistently.

Various frameworks can be used for mapping financial flows. However, the complexity of the framework depends on the objectives of the intended land-use finance analysis (see Module 1 on the links between objectives and output).

Figure 9: Conceptual overview of the life cycle of climate finance;
Source: Ampri et al. 2014



Figure 9 shows the life cycle of finance typically mapped in climate finance mapping exercises, highlighting the actors through which money is channelled, the instruments used to channel money and the activities money is spent on. The project team should agree on which of these horizontal headings should be included and the set of vertical categories. These categories can then be applied when data is processed. (See Table 7)

SOURCES/ INTERMEDIARIES	INSTRUMENTS	DISBURSEMENT CHANNELS	USES
Central Government	Budget Transfer Mechanisms	Central Government	Mitigation & Adaptation
Local Government		Local Government	Direct & Indirect
International Development Partners	Grants	International Development Partners	
	Loans		
Funds	Equity	State-owned Enterprises	
		Private & NGO	

Mapping question	Horizontal dimension	Vertical dimension
Where and who is the finance flowing from?	Sources and intermediaries	On the public side, this may include categories like: central government; local government; public agencies; public trust funds; SOEs; public financial institutions; and international public actors including other governments, financial institutions, and other funds. On the private side, this may include institutional investors, including commercial financial institutions, (impact) funds, producers, including corporate actors and households/family farms, project developers, service providers, traders and philanthropists.
What financial instruments are being used to deliver finance?	Instruments	The following categorisation may be used: budget expenditure; grants; balance sheet finance; loans (concessional and commercial); and equity. For other purposes, it might also be interesting to map: bonds; guarantees; revenue tools, including tax instruments and non-tax instruments, such as levies, royalties, fees; or public subsidies in general, including fiscal policy tools (budget revenue/expenditure), grants, etc.
Where and who is the finance flowing to?	Disbursement channels and recipients	Most mapping exercises do not provide detail on the final recipients of finance, due to lack of available detailed information. Most exercises stop at executing or implementing on entity level, mapping categories like central government/implementing ministries; local government; public agencies; SOEs and public-private partnerships; unions/industry associations and funds; NGO; international partners; private companies; academic and research centres; and other civil society actors. It is worth noting, however, that the recipient may not always be the beneficiary of investment. Consider expenditure on technical assistance: the recipient of finance could, for example, be an NGO, which uses the capital to deliver training to smallholder farmers, the beneficiaries.
What activities are being financed?	Activities and sectors	The typology of land-use finance activities developed in Module 3 provides the framework to categorise activities financed. These activities might be grouped in sectors or policy areas. The landscape on land-use finance in Côte d'Ivoire mapped mitigation activities minimising drivers of deforestation, adaptation activities and enabling environments. The Indonesian Landscape of Climate Finance also mapped direct and indirect investments, as well as a breakdown by sector.



Table 7: Dimensions of climate finance landscape framing

Template 4: Expenditure and investment framework



Template 4 - Expenditure and investment framework

Sources/ intermediaries	Instruments	Disbursement channels	Uses
Government Revenues	Budget Expenditure	Technical Ministries	Adaptation
Treasury	Grants	National Funds	Mitigation
Bilateral Government	Low Cost Debt	Local Government	Agricultural Intensification
Bi-/Multilateral/ Regional DFI	Market Rate Debt	Public Agencies	Sustainable Forest Management
Multilateral Agency/Fund	Equity	State-owned Enterprises/Banks	Restoration/ Reforestation
Commercial Financial Institutions		Industry Associations/Fund	Sustainable Energy
Private Equity, Venture Capital, Funds		NGO's, Intl. Partners and Private	Sustainable Mining
Institutional Investors			Enabling Environments
Corporations - Producers, Traders			Land Planning
			Land Tenure
			Green Planning
			MRV, Traceability
			Research and Development
			Capacity Building

	Public
	Private

Template 4 provides possible typologies that users can use to agree on the dimensions for the finance mapping framework, and to develop lists of actors, instruments, activities, sectors, and so forth. This enables users to prepare a first qualitative view of the potential scope of key flows and attributes to be mapped. This template is a relatively simplistic and linear view of expenditures and investments.

When mapping revenues instead of, or in addition to, expenditures and investments, an alternative framing may be required – see Template 5 for an example. Government budget revenue instruments that raise funds from land-use related sectors are collected by either local or central government agencies. This focus can point to promising opportunities to address unproductive land use, and adjust fiscal policy instruments to meet revenue and land-use goals.

Template 5: Mapping tax and non-tax flows template (adapted from Mafira and Sutiyono, 2015)



Template 5 - Mapping tax and non-tax flows template

Sector	Revenue instruments	Collector	Budget
Agriculture	Tax	Regional Government Office	Regional Budget
Mining	Regional Tax	Central Government Tax Office	Central Budget
Geothermal	Income Tax	Central Government Ministries	
Land Licensing	VAT		
Forestry	Land/building		
Oil and Gas	Export duty		
	Non- tax		
	Forestry		
	Agriculture		
	Energy & Mineral		
	Land office		

4.2 How to identify and describe key actors?

Following the identification of the dimensions and groups of actors that will be captured in the land-use finance mapping, the project team should develop provisional lists of specific organisations and agencies that are most active in land-use finance in the jurisdiction, and should be included in the analysis. See Module 1.3.

Qualitative and semi-quantitative information characterising the role of different key actors/institutions and inter-relatedness with other institutions or actors can be very useful at this stage, and especially for the first land-use finance mapping exercise. Such information can help judge the relative importance of different actors, and visualise how they relate to one another.

Project champions, steering committee members and core stakeholders who are familiar with the land-use sector in the geography of interest can help identify important actors. They can also provide important context information on each, including the role played in land-use financing, source of funding and so forth. Such qualitative information can help refine the mapping framework, and later help analyse and interpret the data received about these actors (Module 7). See Template 6 to build profiles of potentially key actors.

Template 6: Key actor profiles



Template 6 - Key actor profiles

Name of the entity	[Fill in name]
Type of structure	[Ministry, Department, Agency, Fund...]
Annual budget	[On average]
Mandate	[Supporting legislation]
Resources	[Sources of funding]
Use of funds	[What are resources being spent on]
Comments	[Other observation in relation to role in land-use change that may help understand the flow of funds]

4.3 How do flows relate to each other?

Next, it is important to understand the possible financial relationships between actors and categories, and start to qualitatively assess and illustrate those relationships. At this stage, you need not attempt to quantify or illustrate the volume of finance.

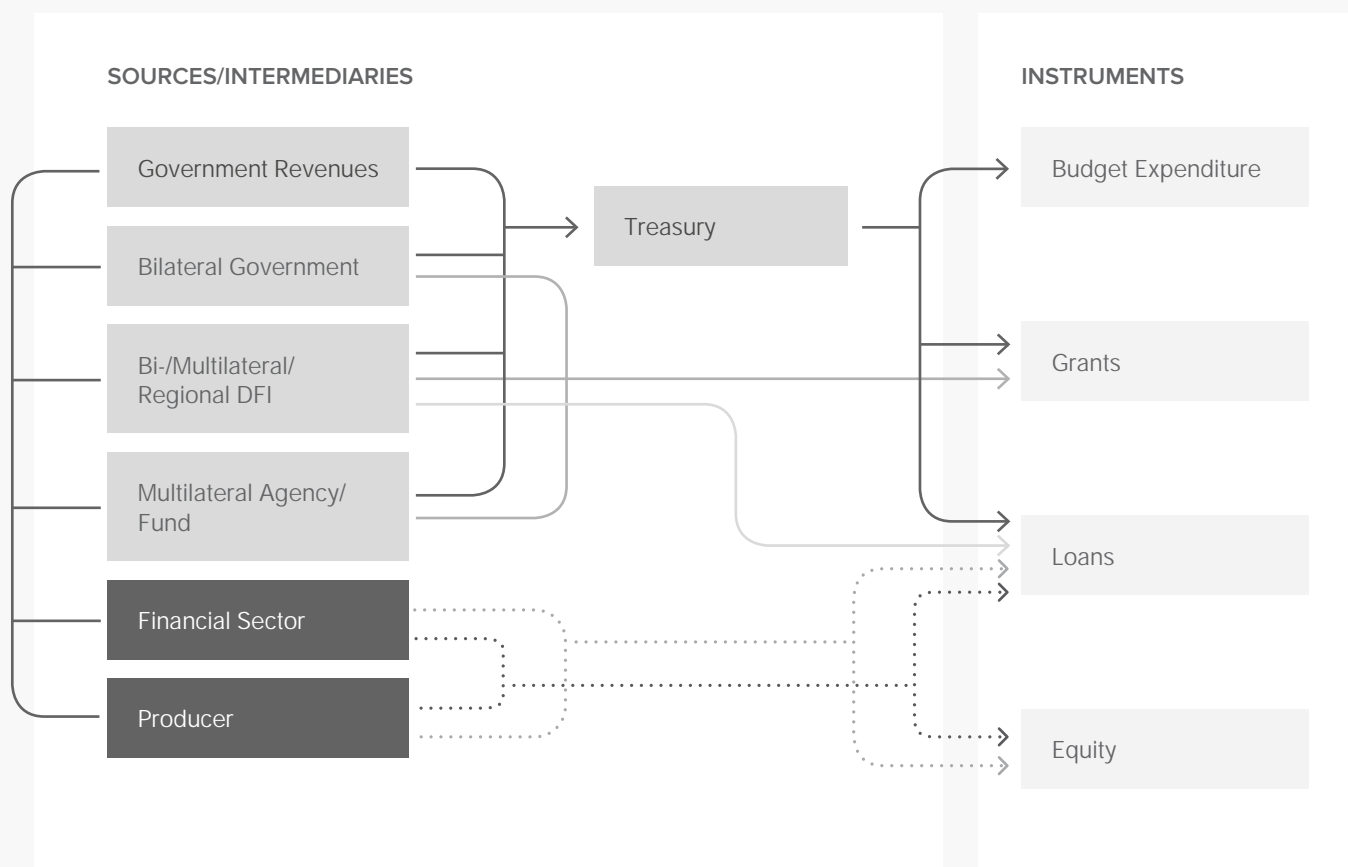
Guiding questions include:

- ▶ How do different institutions raise their capital? What are their sources of finance?
- ▶ What financial instruments do they use to raise/disburse finance?
- ▶ Are they considered an executing/intermediary, or implementing agency/disbursement channel?
- ▶ What sectors are they active in?

Sources of information that will help explain the flow of funds include: budget/finance laws; documents on budget processes and classification; annual reports of public agencies; enterprises and funds; public audit reports; and evaluation reports.

This qualitative illustration (Figure 10) will enable discussions with stakeholders about important categories, actors, financial flows or instruments that may be missing, or unimportant elements that can be deprioritised. Revised qualitative maps can support data collection. Even during data collection and analysis, categories may turn out to be (less) important, and (additional) views might be adapted and iterated again.

Figure 10:
Relationships/flows
within a typical climate
expenditure and
investment mapping
framework



4.4 What format should the output have?

Determining the output format at this stage can help to focus on valuable resources during data collection and analysis. The decision on dissemination mode (report, policy brief, poster, email, blog and video) and visualisations (graph types, infographics and formatting) depends on the targeted audience(s) (national or local policy makers, international development partners, civil society, or internal team).

Preparatory questions are:

- ▶ What type of decisions is the target audience supposed to make?
- ▶ What do they know about the topic? What information do they already have available?
- ▶ How much time do they have to handle information? What format will help them to do that most efficiently?
- ▶ What additional insights can charts provide?

Most results of land-use finance analysis take the form of a report, often including supplementary analysis of climate-aligned finance. Aggregate analyses are often presented in either tabular format or via a Sankey diagram. For reasons of data confidentiality and sensitivity, only aggregate data are typically shared. However, a Sankey diagram might not reflect specific details or findings, and it might be constructive to visualise key findings in other formats (see Module 7 on types of visualisations).

MODULE 5:

Data collection

Data collection procedures and quality assurance principles will help ensure that it best supports the policy objectives of the land-use finance mapping exercise.

OBJECTIVE

Collect quantitative and qualitative data to fill out the mapping framework and gaps.

With the project scope and mapping framework defined, the team can focus on data collection efforts in support of the analysis. There are two different categories of data needed, which are equally important for every climate finance mapping:

- Quantitative financial data is the basis for the final financial mapping
- Qualitative information is essential for understanding the land-use context within the geography/jurisdiction of interest, and to feed into recommendations to be made on the basis of the analysis. Data on the quantity of flows is of little value without understanding also the underlying drivers, incentives and relationships that may be altered to achieve policy goals.

There are three types of qualitative data that might be useful to inform the study

- a) Information on the policy framework: to support the scoping (Module 1) and definition setting (Module 3), for example international and national climate and REDD+ strategies, sectoral plans or studies on drivers of deforestation.
- b) Information on actors, instruments, flows and processes to: support the development of a mapping framework (Module 4), as well as data analysis (Module 7), and development of recommendations (Module 8), for example budget/finance laws, documents on budget processes, budget classification, legal framework, annual reports of public agencies, SOEs, funds, audit reports or evaluation reports.
- c) Information on projects: to support the classification of budget lines according to the typology defined (Module 6), for example project documents and reports, funding proposals, terms of reference or bilateral interviews of technical staff.

When starting the data collection process, the project team should identify needs, list sources and develop questionnaires and templates for quantitative and qualitative data. Collecting both kinds of data at the same time can save time and resources and will also help keep stakeholders engaged by approaching them only once.

KEY QUESTIONS

5.1 Where to find data?

5.2 How to identify gaps in data, and how to fill them?

TEMPLATES



Download **Template 7 - Scoping data sources by actors**



Download **Template 8 - Cataloguing qualitative data sources and quality**



Download **Template 9 - Cataloguing quantitative data sources and quality**

5.1 Where to find data?

A list of potential data sources can be the start for a systematic search for data sources.

Guiding questions are:

- ▶ Looking at actors: Who are the key actors within scope (see Module 4) in planning/ implementing/financing land-use activities? What related sources of data are available?
- ▶ Looking at activities: What are the key land-use programmes/projects/activities within scope? Who is involved? What related sources of data are available?

Data gathering is best conducted in close collaboration with key stakeholders. This will increase the likelihood that: (a) all relevant data is accessed and gathered; and (b) data analysis or interpretation issues are easily solved. Hence, key contacts and data providers need to be engaged from the beginning (See Module 2 on stakeholder engagement).

A template is provided at the end of the module that can be used to scope potential data sources. Project champions, steering committee and core stakeholders can help identify contacts within the relevant ministries/departments/organisations to approach for data and information. The same template can be used to keep a record of all the data and information sources used for inclusion in eventual publications, and to support any future updates.

Templates are also provided to catalogue data sources for qualitative and quantitative information respectively, and to assess them for data quality.

The next sections describe the key data sources for domestic public, international public and private actors/organisations/structures in more detail. They indicate whether they can meet data quality objectives regarding timeliness, completeness, consistency and accuracy (for further details on data quality concept see Table 8).

5.1.1 Domestic public actors

The government budget is a key source of quantitative information covering domestic public actors, such as central government/federal ministries, local government or national funds. They also offer a gateway to understanding more in-depth qualitative information about finance flows to provide context to the analysis and feed into recommendations.

Answering the following questions will be necessary to access, analyse and interpret the government budget:

- ▶ What is the planning and budgeting process?
- ▶ How is the government budget structured?
- ▶ How and by whom are the central government budget and related data managed?

- ▶ Where can qualitative data on projects be found to interpret the information from the government budget?
- ▶ What is the role of provinces in implementing national programmes? Is information on sub-national budgets centralised and/or sub-national budgets shared with the national government?
- ▶ Are there specific funds, funding mechanisms or fiscal measures related to the land-use sectors that are captured in the budget?

Ways to answer these questions include: carrying out interviews with stakeholders; and reviewing documents on budget processes, budget classification, legal framework, budget/finance laws, audit reports, evaluation reports, annual reports of funds, etc. Next, potential challenges to consider will be identified.

What is the planning and budgeting process?

You should understand how the budget planning and monitoring processes work to support data requests and interpretation. Usually, different actors will be responsible for leading the processes for developing national development plans, sector strategies and budget plans.

The budget cycle comprises different phases. First, each line ministry typically formulates its budget and submits it to the ministry of finance/planning for further consideration and approval. Once approved and enacted by the parliament/presidency/ministry of finance, the estimated budget will then be implemented by the line ministries. At the end of the fiscal year, each line ministry will provide an annual report to the ministry of finance, who is responsible for consolidation into the actual (unaudited) budget for auditing. It can take more than a year before budget audits are finalised. Hence, if a land-use finance mapping is to reflect the latest fiscal year, it might need to be based on the actual (unaudited), or even estimated, budget numbers. Different departments within the same ministry might need to be consulted to access data on the different elements of the budgeting process, such as budget planning, budget management and debt management.

Challenge: Estimated, actual (unaudited) and audited budgets differ in their amounts, and deciding which one to use depends on the objective, methodology and timeline of the land-use finance mapping.

How is the government budget structured?

The government budget can be national or local. It represents the government's projected revenues and expenditures for a fiscal year.

- Expenditures show how the revenues are planned to be spent. They are usually divided into:
 - Recurrent expenditures that cover operational/ongoing running costs (salaries, stationary, utilities, rentals, communication and fuel)
 - Investment expenditures that are meant to create future benefits (infrastructure), expenditures (public works programmes), and subsidies for crop insurance of the agricultural industry and research in the agricultural sector
 - Transfer payments that are made without the exchange of goods or services (unemployment or retirement benefits)
- Revenues are the resources that the planned activities will be covered from. They come from:
 - Taxes (land and building tax on local level/export tax on national level)
 - Non-tax revenues (excise and customs duties, user fees like parking fees), fees for the issuance of permits or licences (plantation business permit/licence to harvest existing timber on land with a plantation concession, revenues/royalties/proceeds from SOEs, official development assistance, borrowing/loans, private donations, revenues from the sale of state assets and/or oil revenues)

While some budgets are highly aggregated, others are broken down into budget line items that relate to a specific development goal or programme, such as the establishment of forest management units. Only a disaggregated government budget enables the analysis of how much is spent on what kind of land-use related activities. Domestic public budgets are generally structured into different categories and attributes. To make the right data request, it is necessary to understand how the domestic public budget is structured. Finance tagging and mapping generally requires the most detailed breakdown of information possible.

Challenge: Some budgets/budget divisions might not be suitable as data sources, since their format might not allow tracing allocations to specific policy objectives. Additional data (project documents, interviews) might be needed to complement.

The Central Highlands study in Vietnam focused only on investment data, not on recurrent budgets. Although the latter represent the biggest share of government spending, consultations with stakeholders confirmed that the classification of recurrent budget (cost norms) hinders the categorisation and allocation to specific policy objectives (EFI, 2018).

In Côte d'Ivoire, the breakdown to nine-digit levels provided information on individual programmes at the most granular level and provided useful attribute information, such as the type of finance or the associated actors.

How and by whom are the central government budget and related data managed?

Usually, management of different types of government expenditure and revenues will be under the lead of different ministries/departments. To ensure access to different budget divisions, for example investment or recurrent budget, it is necessary to engage key stakeholder(s). In many cases, these will be coordinating ministries – ministries that have consolidated data about domestic and potentially international budgets like finance/budget, planning, and/or the prime minister or president's office.

Furthermore, budget expenditures are presented in the form of allocations for each ministry or department, such as forestry, agriculture or health. The implementation of land-use related programmes and activities happens in various ministries. It is therefore important to track land-use issues in the various ministries relevant to the scope of the study, but take care not to double count (see Module 3 on definitions for the policy areas/line ministries potentially relevant to land use, and Module 2 for the identification and engagement of key stakeholders).

Challenge: Assessing and analysing the different divisions of the government expenditure (recurrent/investment expenditure or transfer payments) and revenue might require intense engagement with various actors, as different ministries and departments might be responsible for managing budget data.

In Vietnam, recurrent budgets are the responsibility of the Ministry of Finance and its provincial departments of finance. Investment budgets are the responsibility of the Ministry of Planning and Investment and its provincial departments of planning and investment (EFI and CIEM, 2018).

What is the role of sub-national government in implementing national programmes? Is information on sub-national budgets centralised and/or shared with the national government?

Parts of the government budget might be implemented by local divisions of ministries in the regions and the methodology for tracking the land-use relevance of these funds could be the same as for tracking the use of funds implemented at the central level. Other parts of the government budget will be transferred and blended into local government budgets, as local governments often have limited capacity to finance their expenditures using their own revenues. Tracking the land-use relevance of these parts of the central government budget might require the analysis of local government budgets, which can be time- and resource-intensive. Especially, if numbers are not shared/centralised/documented at the central level, the project team would need to engage closely with local governments to access data, analyse and verify results.

In some countries, local government budgets may not follow the same structure, making a comparison and consolidation of local budgets more difficult. They may also be available in detailed form at a further divisional level, for example municipal or district level, and may not be available in electronic format.

Challenge: Tracking the land-use relevance of local government budgets and central government budget transferred to and implemented by local governments might be time- and resource-intensive, as local budget data might neither be centralised nor shared with the central government.

Are there specific funds, funding mechanisms or fiscal measures related to the land-use sectors?

Revenue collection and expenditure are both fiscal policy tools that the government uses to influence the economy, for example to create demand and economic growth (see Module 1). Government or government agencies may have established fiscal measures, as well as policies and regulations, that guide (private) investment behaviours and impact the actions of land users and commodity supply chain actors, for example:

- budget revenue instruments that raise funds from land-use related sectors and are collected by either local or central government bodies, for example taxes (export/import tax, production tax) and levies
- instruments used to stimulate private investments in the land-use sector in the province, for example freight or production subsidies, or tax holidays

In addition, specific funding mechanisms and/or funds might be designed and managed by government actors to incentivise sustainable land use, for example Reforestation Fund in Indonesia targeting private sector investment in sustainable land use

The value of some of these instruments may be found in the government budget. However, to assess their land-use relevance, identify beneficiaries/targeted actors or to understand how they work, the project team will need to collect further information. This information can be gathered through the review of legal and technical documents and expert interviews (see qualitative data collection template).

Finding qualitative data on domestic public projects

In most cases, budgetary and financial data collected from public actors will contain very little detail about project components, objectives and potential results. Budget line descriptions are usually limited to a few words. To be able to understand the extent to which budgets and related programmes are aligned with policy objectives, supplementary qualitative information on programmes has to be collected.

Qualitative information, such as project documents, programme description, implementation reports, evaluations or audits, is usually not managed by the same actors as quantitative information. This might complicate the data collection process. In some cases, budget planning is preceded by a programming phase, during which line ministries formulate programme or project proposals based on their policy priorities. This information might be collected centrally by cross-cutting ministries such as ministries of planning. However, the most detailed information is likely to be available from line ministries' planning directorates or individual departments responsible for programmes.

Additional qualitative information might be necessary to assess the potential impact on forests of certain financial flows, for example land cover data and replanting cost data. The quality and level of detail needed will greatly depend on the scope and level of detail of the typology developed (see Module 3).

Challenges: Collecting qualitative project data can be resource intensive, particularly if data quality is poor, or information is fragmented and/or inconsistent. For example, projects may have different names or codes in the budget compared to policy documents. The objective or the typology of the analysis might need to be revised alongside the project if the availability or quality of qualitative data is an issue.

5.1.2 International public actors

The following questions may be useful to consider in collecting qualitative and quantitative data on the funding of international public actors in the analysis:

- ▶ Do donors directly support the national government/province on sustainable land use? What are performance requirements to release the funds?
- ▶ What reporting requirements are in place for international development partner funding and how is the compliance rate?
- ▶ What other reporting initiatives exist?
- ▶ Should a survey approach be followed?

Do donors directly support the national government/province on sustainable land use? What performance requirements are needed to release the funds?

There are typically two types of grants and loans:

- **Budget support:** the funds are directly transferred to the government's budget where it can be managed with national systems. As the government decides what to use the funds for, 'budget support [can be] a means to strengthening country ownership, financing national development strategies (including poverty reduction strategies), and promoting sound and transparent public finances.' (EU, 2018). However, it depends on the budget structure/aggregation level whether one can track the final use of budget support and map whether it is related to land-use activities or not.
- **Programmatic support:** funds given/earmarked to finance a certain programme. In some cases, programmatic support grants might go directly from the (international) partner to the government or non-government agency/organisation implementing the programme and hence may not be detailed in the budgetary records at all (off-budget) or in a timely manner. It is therefore necessary to cross-check budget information with information provided by international partners.

What reporting requirements are in place for international development partner funding?

Governments have a clear interest in tracking international partners' activities in country. Government budgets will include information on international actors' contributions in the case of (on) budget support, but might lack information on programmatic support. Reporting requirements and monitoring systems are in place in some countries to collect information on all international inflows to the country, and may provide valuable information for a land-use finance mapping. Whether or not related data can be useful for a climate finance mapping depends on compliance with these requirements and the timeliness, completeness, consistency and accuracy of these monitoring efforts.

Some countries have dedicated departments or agencies monitoring international donor contributions, with databases detailing commitments and disbursements.

In Côte d'Ivoire, international development partner disbursement data was obtained from the External Resources Mobilisation Committee (Comité de Mobilisation des Ressources Extérieures or COMOREX), which monitors and manages finance from development partners (Falconer et al., 2017). The dataset was comprehensive and provided a valuable source of information on land-use finance.

Under Ministry of Finance processes in Indonesia, cash grants should be reported by the relevant Indonesian agency through the revenue recognition process. As reporting requirements did not appear to be well understood, there was low compliance with them and significant differences between information held by the Ministry of Finance on international development partner funding, versus survey information submitted by the development partners themselves (Ampri et al., 2014).

What other reporting initiatives exist?

National level initiatives

In many countries, donors collect information themselves about their own, and their peers', spending and programmes. Donor coordination groups might be useful partners to engage to access available data.

International level initiatives

There are initiatives that aim to harmonise definitions and methods for reporting climate finance across multilateral and/or bilateral providers, and to consolidate data in joint, publicly-available reporting/data management systems. Although these are valuable data sources for global climate finance tracking efforts, they might only be used for cross-reference in a national land-use finance mapping since:

- Information is not always broken down to country or jurisdictional-level, and hence cannot be extracted for the geography of interest. The IDFC, for example, breaks down into regions like Sub-Saharan Africa only.
- Indicators describing the use of funds might not be broken down to the level needed for detailed categorisation of land-use activities, for example, the Climate Funds Update website summarises mitigation activities under 'Mitigation – general' and 'Mitigation – REDD+.'
- Numbers often reflect commitments, while some climate finance mappings might require numbers on actual disbursements to be consistent with other flows included, such as domestic budget expenditures. For example, the Development Assistance Committee (DAC) Creditor Reporting System (CRS) database of the Organisation for Economic Co-operation and Development (OECD) provides project-level commitment data comprehensively, but disbursement data is often more limited.

Should a survey approach be followed?

A direct way to obtain accurate and detailed data from international donors is to request it bilaterally through donor surveys. This approach allows you to collect all necessary information for the study but is resource-intensive. Data received can be used as a primary data source or to cross-check the accuracy of other data sources. The survey approach is particularly useful to collect information on off-budget flows (see section on ‘Acquiring unpublished data and dealing with confidentiality’). Donor coordination groups, if they exist, can help facilitate data collection.

5.1.3 Private sector finance

Private sector land-use finance might be the most challenging to cover, as it is not a homogenous group of actors and their role in land-use finance might be wide-ranging. Hence, before setting out to collect data, it will be important to understand:

- ▶ What are the main industries/private sector actors active in the land-use sectors? Where are investors mostly from (national/international)? See Module 4.
- ▶ What are the main policies and instruments used to stimulate private investments? See Template 8 for assessing qualitative data from sources.
- ▶ Is there data available on the amount of investment?

Climate finance is not systematically and comprehensively tracked by the private sector. There is neither an established definition of climate-aligned finance, nor an established process or common framework for monitoring, reporting and verifying. For many companies, climate-aligned investments are largely indistinguishable from ‘normal’ expenditures in the re-investment cycle, such as acquisition of new equipment (German landscape, 2013). As a result, former climate finance mappings at the country-level experienced major difficulties in obtaining data for private actors and in comparing tracking methods, so the private sector was often excluded from the mapping entirely.

However, some approaches are being developed and tested by researchers to gather information on private investment flows. In particular, work by FAO (see Lowder et al., 2015) estimates the relative size of on-farm and foreign direct investment in agriculture, as well as official development assistance and government investments. COWI has also developed approaches to quantify direct and indirect private REDD+ finance (COWI, 2018).

In addition, bottom-up sources of information may be available, but collection and aggregation of information is time-consuming and challenging. For instance, company reporting by some private sector actors provides details on their climate-aligned investment, for example corporate social responsibility/sustainability/annual or market reports, while the reporting of others do not. Although private land-use sector players might well be aware of the global climate regime and its influence on their business strategy, ‘private funding for REDD+ is yet to be compiled and compared in a consistent manner with public funding for REDD+’ (COWI, 2018).

Industry associations may also be a good source of data on investments or production that can be used as proxies to estimate investment flows. In some countries, industry associations and support programmes may have a strong influence on production patterns.

A recent study introduced an approach where ‘private funding is mapped using a financial instrument-centric approach (instead of an actor-centric approach), as a context to discuss how various financial instruments can channel funding and at the same time leverage inclusion of sustainability or deforestation considerations into supply chains and production investments’ (see COWI, 2018). The study finds that the principal private funding sources can be divided into:

- Direct REDD+ finance - defined as financial flows supporting projects/programmes identifying themselves using the term 'REDD' or 'REDD+'
- Indirect REDD+ funding - defined as financial flows supporting projects/programmes that do not identify themselves using the term 'REDD' or 'REDD+', but supporting the objectives of REDD+, for example reducing emissions from deforestation, forest degradation, forest conservation, enhancing carbon stocks and sustainable management of forests

The study aimed to quantify direct and indirect REDD+ funding channelled through:

- Carbon markets, for which both direct and indirect REDD+ funding were quantified.
- Conservation and restoration finance, using direct loan, notes, bonds, private equity and funds. Neither direct nor indirect REDD+ funding could be estimated for this category.
- Funding channelled into deforestation-free soft commodity production systems and value chains, using climate-aligned and green bonds, loans, private equity and trade finance. Indirect REDD+ finance could be quantified for dedicated impact investors' equity only.

For the estimation of finance channelled to each of the three above-mentioned categories, through the different financial instruments, the study team consolidated information from:

- Analysis published by other organisations or initiatives, for example Ecosystem Market Place, Climate Focus, Overseas Development Initiative and Center for Global Development
- Publicly-available databases, such as the database of REDD+ projects (ID-RECCO), which contains data on private sector financing for more than 300 REDD+ projects
- Data extracted from publications, for example a report on carbon pricing in the corporate world published by CDP (formerly Carbon Disclosure Project)

5.2 How to identify data gaps and fill them?

Data access, availability and quality are consistently reported as challenges. To address this, one should develop a data acquisition strategy where publicly-available data does not meet (quality) requirements for the reasons listed in Table 8.

Challenge	Reason	Approach taken
Accessibility	Data source not centralised, for example local governments	Bottom-up approach to aggregate available data Case study
	Publicly-available data highly aggregated and does not show sufficient level of detail to be accurately classified	Acquire unpublished data directly through bilateral requests, surveys and interviews
Timeliness	There are records in the datasets describing a period before or after the chosen project period/year	Engage with data manager/provider to see whether an update is possible, for example using the latest estimated budget data accepting its uncertainty
		Expert judgement on whether expenditure described by this record was constant in time Document carefully
Quality: Content incomplete	Insufficient qualitative information available on project scope, objectives, sub-components, activities realised and so forth, to assess the use of funds and their potential impact on forests	Engage with data providers to collect qualitative information bilaterally (for example project notes, reports.) Interview of technical staff engaged in the project
	Not all relevant fields covered (columns incomplete, while rows are complete, information on financial instruments missing)	Consultation with government and data providers and experts Engage with data manager/provider and check why dataset incomplete (database query did not cover all fields) Cross-check against other data sources to identify problems
	Not all data points covered (columns complete, while rows are incomplete) intl. programme grants only partly covered	Consultation with government, data providers and/or experts
		Fill missing information with default/proxy data Consolidate with other data sources
Quality: Inconsistent content	Discrepancies between different datasets (govt. budget and public donor reporting show different numbers on international expenditures)	Consultation with government and data providers and experts
	Data on land-use finance provided based on a different definition/methodology than the one used for the land-use finance mapping	Acquire unpublished data to double-check Expert judgement
Quality: Inconsistent content	See Module 6, consolidation of datasets	See Module 6, consolidation of datasets



Table 8: Data quality requirements and challenges

5.2.1 Acquiring unpublished data and dealing with confidentiality

It can be valuable to initiate a survey to acquire unpublished data, if there are data gaps for categories/areas that are key to the land-use finance mapping objective, as it is useful to know the largest funders, actors or instruments that have the greatest potential to change, or which might be potential bottlenecks. In most cases, it will only be feasible to survey relevant stakeholders from the most important stakeholder groups, since each survey needs careful preparation and follow up, and this can be very time consuming. One needs to prepare survey templates that are specific to each stakeholder group, identify/contact stakeholders, and analyse/consolidate the survey responses.

To receive a significant number and high quality of responses, one should:

- Keep the survey simple, so the respondent understands the task quickly and can fill the survey with a minimum effort
- Explain methodologies and give examples for how to apply them, so the answers of different respondents are comparable
- Try to address existing contacts/stakeholders and explain why they should help
- Identify and partner with intermediaries (donor coordination group, industry association) that can collect data on behalf of the project team

The level of data that survey respondents will be willing to provide can vary from:

- Ideally, project-level information that enables the application of a climate finance definition
- At the least, the climate finance data at the aggregation-level needed
- Qualitative information

Data providers might restrict access to information because it is confidential, unpublished or not yet finalised. It is advisable, where possible, to cooperate with data providers to find solutions to overcome their concerns by:

- Explaining the intended use of the data
- Agreeing, in writing, to the level at which it will be made public
- Identifying the increased accuracy that can be gained through its use in inventories
- Offering cooperation to derive mutually-acceptable datasets
- Giving credit/acknowledgement in the inventory to the data provided (IPCC, 2006)

5.2.2 Case studies

A case study might be conducted when data sources are not centralised, and a bottom-up approach is not feasible. This can be for various reasons, including because local government budgets vary too much in their structure and cannot be consolidated, or expenditure data are not accessible for all relevant SOEs.

Although case studies are only an excerpt of the whole picture, they can provide valuable insights to:

- Understand current land-use investment trends
- Understand the extent to which REDD+ objectives are mainstreamed into particular actors' planning and budgeting
- Fill existing knowledge (and finance) gaps

5.2.3 Qualitative assessments

Like case studies, qualitative assessments can help understand trends and challenges where access to, or quality of, data prevent a quantitative analysis. Timeframe, budget estimates and sources of funding might, at least, be made in qualitative terms by reviewing policy context and institutional arrangements, and conducting interviews with key stakeholders understanding land-use activities and investments in the region, such as local government and other (non) governmental implementing agencies. Also, public subsidy data (including fiscal incentives or disincentives) and their application, can be very hard to obtain, and it is often unclear if a particular fiscal incentive has had an impact on the private sector in practice. Qualitative assessments of fiscal incentives can be more feasible than quantitative.

5.2.4 Surrogate/adapted data

Surrogate data are 'alternative data that have a correlation with the data that they are replacing. [...] It is preferable to use data that is directly related to the item being quantified rather than to use surrogate data [...]. In some cases, however, directly applicable data may be unavailable or have gaps [...]. In these cases, surrogate data can help fill gaps and generate a consistent time series or a country average' (IPCC, 2006). It is important to confirm and document the relationship between surrogate data and the subject to be quantified.

Examples of surrogate data or data adapted for land-use finance mapping include:

- Annual financial reports of statutory authorities that list the amounts collected through various non-tax instruments, as well as domestic trade data collected monthly by state agencies
- Sustainable certification schemes, such as the Forest Stewardship Council and others, may be used as proxies for sustainable land use in specific plantations, industrial production, or project activities. Volume of agriculture or timber commodities sold or produced and price encapsulate investments made throughout the value chain. This is an imperfect proxy, however, as it captures revenue, not investment, in a given year and is, therefore, inconsistent with annual disbursement or commitment data on the public side
- Data on planned expenditures have been easier to obtain than actual expenditures in some countries. When using planned expenditures, the user should report this transparently and be aware that there will be updates or corrections to data after reconciliation and audits
- Commitment data might be more readily available than disbursements data. However, commitments might be cumulative, spanning multiple years, for example commitment for a specific multi-year programme. One might equally break such cumulative numbers down to equal annual shares. However, while data on annual disbursements would allow interpretation, for example zero disbursements could suggest that there are barriers in the system for delivering or absorbing finance, commitment data cannot substantiate such assumption
- Private funding can be mapped using a financial instrument-centric approach (instead of an actor centric approach), as a context to discuss how various financial instruments can channel funding, and at the same time, leverage inclusion of sustainability or deforestation considerations into supply chains and production investments (see COWI, 2018)

5.2.5 Expert judgement

Experts can be consulted to help identify important financial flows and assess their relative importance in the absence of official information and data. In addition, when assessing the potential impact of land-use investments and categorising financial flows, the project team might systematically consult land-use experts and officials with close knowledge of particular programmes (see section 6.3 on categorisation).

If possible, it is best to consult more than one expert to come to a consensus (Benoit, Wiesehomeier, 2009). Experts may be from government, industrial trade associations, technical institutes, industry or universities (IPCC, 2006).

In the Landscape of Public Climate Finance in Indonesia, representatives of line ministries were consulted to quantify the climate-aligned share of large programmes with several goals, including climate change. As they were familiar with these programmes, they made this judgement, especially since there was no official documentation.

Template 7 - Scoping data sources by actors



Template 7 - Scoping data sources by actors

Kind of actor	Actor	Potential data source	Nature of the data	Where and how to collect the data, key contacts
Domestic public actors	Central govt./ line ministries	Detailed disaggregated central government budget information system	quantitative	Check if detailed disaggregated data is available publicly or request detailed budget database extracts from the ministry of finance/budget
		Project databases and documents	qualitative	Search for publicly-available project information documents or request them from line ministries or a central coordinating ministry such as the ministry of planning
		Legal texts and strategies	qualitative	Official journal or legal databases may include relevant legal texts
	Local govt.	Local govt. budgets	quantitative	Check if detailed disaggregated data is available publicly or request detailed budget database extracts from local govt.
		Mid-term investment plans	quantitative	Publicly available or request from local govt.
		Project database and project documents	qualitative	Publicly available or request from local govt.
		Central govt. budget allocation and transfer data	quantitative	Check if detailed disaggregated data is available publicly or request detailed budget database extracts from the ministry of finance/budget
	Public agencies	Agency websites, annual reports	qualitative and quantitative	Check online or obtain bilaterally
		Central govt. budgets and finance laws	quantitative	Check if detailed disaggregated data is available publicly or request detailed budget database extracts from the ministry of finance/budget
	National funds	Fund websites and reports	quantitative and qualitative	Check online or obtain bilaterally
		Central govt. budget	quantitative	Check if detailed disaggregated data is available publicly, or request detailed budget database extracts from the ministry of finance/budget
	SOEs/ public financial institutions	Reports (annual reports, audits)	quantitative and qualitative	Check online or obtain bilaterally
		Donor survey on intl. loans/grants to SOE	quantitative	Survey and bilateral consultations
		Donor reporting/ survey on intl. loans/grants to SOE	quantitative	Survey and bilateral consultations

Template 7 - Scoping data sources by actors

Kind of actor	Actor	Potential data source	Nature of the data	Where and how to collect the data, key contacts
International public actors	Bilateral govt.	Reports and project documents	quantitative and qualitative	Check online or obtain bilaterally
	Multilateral agency/fund	Joint reporting (OECD DAC CRS, Joint MDB reporting, Climate Funds Update, IDFC)	quantitative	Usually available online
	Multilateral/ regional/ bilateral development finance institution	Donor survey	quantitative	Survey and bilateral consultations
		Central govt. budget	quantitative	Indonesia: used to map international flows captured in government budget and cross-check with other sources
		National statistics/ databases	quantitative	Check with government departments overseeing international grants, usually in the ministry of finance/budget or specialised agencies, for example REDD+ office
Private	Financial sector (impact) funds	Reports (annual reports, audits)	quantitative and qualitative	Check online or obtain bilaterally
	Producers			
	Project developers			
	Service providers	National statistics/databases	quantitative	Check online or obtain bilaterally
Civil society	Traders			
	Industry associations/ Unions			
	NGOs	Reports (annual reports, audits)	qualitative	Check online or obtain bilaterally
	Academic and research centres	Central govt. budget	quantitative	Check if detailed disaggregated data is available publicly or request detailed budget database extracts from the ministry of finance/budget
	Philanthropists			
		Donor reporting/ survey on intl. loans/grants to SOE	quantitative	Survey and bilateral consultations

Template 8 - Cataloguing qualitative data sources and quality



Template 8 - Cataloguing qualitative data sources and quality

Information to be gathered	Example/ guiding questions
Name of instrument/mechanism/project	
Supporting legislation, if any	What is the regulatory framework that establishes the instrument or mechanism?
Purpose of instrument/mechanism/project	What is the entity to manage monitoring of forest concessions, fund development activities, and subsidise certain sectors of the economy?
Year the instrument/mechanism was effective from (current/historic)	
Governing structure	Who decides how funds are spent?
Structure of instrument	% of revenue from stumpage
Supporting instruments	How is the entity capitalised? (levy, tax, loans, equity or bonds)
Total receipts/flow in the year(s) of analysis (local currency)	
Source of information	Where was this information captured from (provide supporting documents)?
Use of funds	What were the funds used for? (government staff, development projects, etc.) Are there targeted beneficiaries in the case of subsidies?
Classification	(green, grey or brown)
Recipient of finance	national government, provincial government, community, supplier, project developer, etc.
Analysis of effectiveness of instrument	How well were the funds being used? Are there any issues with, for example, disbursement, governance, use of fund, accessibility, needs, collection, governance, financial impact?
Lessons/potential to reform or change behaviour	What is the potential for amending measures or new incentives to drive behaviour change? For example, the higher the hierarchy of the regulation, the harder it is to enact or make amendments. Is there potential to adjust how a revenue is allocated and/or distributed? Will profit incentives or regulatory improvement alter investment decision making?

Template 9 - Cataloguing quantitative data sources and quality



Template 9 - Cataloguing quantitative data sources and quality

Data source	Actors covered	Timeliness	Completeness	Consistency, accuracy
		<i>What is the frequency of publication of data in relation to the scope of analysis</i>	<i>Is land-use related finance covered? Is it possible to track the recipients?</i>	<i>Is the applied definition of climate finance/tracking method transparent? Can results be replicated? Other challenges?</i>
Domestic public actors				
Government budget	<p>Coordinating/line ministries and/or local govt. as actors in response</p> <p>Donors as sources of funds</p> <p>Local govt., govt. agencies, national funds, NGOs, academic and Research centres as funding channels/ recipients</p>	<p>Year before (estimated)</p> <p>Same year (actual/ unaudited)</p> <p>1-2 years after (audited)</p>	<p>Depending on the budget structure, one can identify for the central/local govt.:</p> <ul style="list-style-type: none"> • Source of funds including (non-)tax revenues, (intl.) grants/ loans • Channels/recipients of funds including central/local government agencies, national funds, etc. • Use of funds, including land-use related activities <p>Challenges:</p> <ul style="list-style-type: none"> • Centralised data sources not available for (local) budgets and the approach needs to aggregate available data (bottom-up) • Lack of accessible, detailed project-level qualitative information to enable budget marking for climate relevance and application of definitions related to sustainability, for example green vs. grey • Intl. funds not, or only partly, reflected in budgets since donor funding partially reported • Data on public subsidies (including fiscal incentives or disincentives) and their application are hard to obtain 	<p>Discrepancies between different datasets on international expenditures</p> <p>Inconsistency between years since ministries often change, merge, close or expand, with implications for budget coding/structure</p> <p>Updates/corrections to disbursement data after reconciliation and audits</p> <p>Structure of local budgets differs, which hinders reconciliation</p>

Template 9 - Cataloguing quantitative data sources and quality

Data source	Actors covered	Timeliness	Completeness	Consistency, accuracy
		<i>What is the frequency of publication of data in relation to the scope of analysis</i>	<i>Is land-use related finance covered? Is it possible to track the recipients?</i>	<i>Is the applied definition of climate finance/tracking method transparent? Can results be replicated? Other challenges?</i>
International public actors				
Government budget (also see section 5.1.1)	Donors as sources of funds	Year before (estimated) Same year (actual/ unaudited) 1-2 years after (audited)	Depending on the budget structure, one can identify for the intl. grants/loans <ul style="list-style-type: none"> • Channels/recipients of funds • Use of funds including land-use related activities Challenges: <ul style="list-style-type: none"> • Intl. funds not or only partly reflected by (local) budgets since donor funding poorly planned/reported or not yet approved 	Discrepancies between different datasets on international expenditures
National databases	Intl. public and private expenditure and investment within a jurisdiction	Country-specific	Country-specific and depends on the compliance with national reporting requirements. If the compliance rate is low, it may not pick up information on budget flows that are not channelled via the domestic public budget	Country-specific
National level initiatives	Usually intl. public expenditure within a jurisdiction	Country-specific	Country-specific	Country-specific
International level initiatives				
Members of the OECD's DAC: CRS database	Public: Govt. budgets, Agencies, Public FI Private: Commercial FI For full list see http://www.oecd.org/dac/dacmembers.htm	One and a half years after (June) Data on commitment	Project level bilateral and multilateral official development assistance data including information on countries, donors, instruments, (disbursement) channels and uses/ sectors	Risk of double-counting: some funds are also tracked by IDFC or Climate Funds Update

Template 9 - Cataloguing quantitative data sources and quality

Data source	Actors covered	Timeliness	Completeness	Consistency, accuracy
		<i>What is the frequency of publication of data in relation to the scope of analysis</i>	<i>Is land-use related finance covered? Is it possible to track the recipients?</i>	<i>Is the applied definition of climate finance/tracking method transparent? Can results be replicated? Other challenges?</i>
MDB that jointly report on climate finance	World Bank Group; European Bank for Reconstruction and Development; European Investment Bank; Inter-American Development Bank Group; African Development Bank; Asian Development Bank	Data on commitments published in Q2/Q3 of the following year	Aggregate sector level data on agriculture, forestry as a group Country level data is provided for climate finance only (MDB 2018) Not applicable for national mapping to sectors, instruments, recipients, or uses	MDBs also report to the OECD CRS on a longer timeframe
IDFC reports	23 national, regional and bilateral development finance institutions	Q3/Q4 in the following year Data on commitments	Aggregated data, less useful for national mapping (no breakdown to countries, instruments, recipients or uses)	Risk of double-counting: some IDFC members will also be OECD DAC members
Climate Funds Update	Climate funds For full list, see: https://climatefunds-update.org/the-funds/ and https://public.tableau.com/profile/gbantoni#!/vizhome/CFU-REDDfinance/REDDfunds	The following year, in July Data on approval and disbursement	Project-level data, including information on country, funds (note: some are excluded), instruments, implementers Breakdown of uses 'only' into: • Adaptation • Mitigation – general • Mitigation - REDD • Multiple foci • Unknown	Risk of double-counting: some funds are also tracked by OECD DAC CRS database
Donor survey initiated for climate finance mapping exercises		Depends on the reporting cycle of surveyed organisations	Depends on the quality/number of responses	

Template 9 - Cataloguing quantitative data sources and quality

Data source	Actors covered	Timeliness	Completeness	Consistency, accuracy
		<i>What is the frequency of publication of data in relation to the scope of analysis</i>	<i>Is land-use related finance covered? Is it possible to track the recipients?</i>	<i>Is the applied definition of climate finance/tracking method transparent? Can results be replicated? Other challenges?</i>
Private actors				
Bloomberg terminal	Agriculture and food industry companies	Constantly updated including with annual disclosures	Findings are often illustrative, as not all actors are covered	Depends on level of disclosure in corporate reporting from individual corporations
Industry associations	Depends on association membership	-	Depends on the nature of data collected	Would likely not track the impact of investments, but may offer data on overall investments
Annual report Corporate social responsibility report Sustainability report	Individual organisations	1-2 years after	Climate finance is not systematically and comprehensively tracked by all actors Centralised datasets unavailable	Tracking methods and results not consistent/ comparable, and rarely transparent Difficulties in accounting for the incremental cost of investments hamper comparability of different types of finance flows
Sustainable reporting or certification platforms, for example • Voluntary REDD+ Database/ REDD+ Partnership, • REDD X- Tracking Forest Finance/ Forest Trends, • Verified Carbon Standard database	Individual projects by public and private actors	Depends on the platform	Depends on the platform, but often do not cover: • financial information • private actors • activities beyond readiness arrangements • complete list of projects for each country	Depends on the platform. Can range from potentially-biased voluntary reporting to verified entries providing standardised complete and accurate reports

MODULE 6:

Data consolidation and categorisation

Standardised data consolidation procedures, well-defined categorisation rules, and strict documentation requirements are the basis for a transparent, reproducible and credible land-use finance mapping.

OBJECTIVE

Consolidate and classify quantitative data to construct a database against the land-use finance definition

KEY QUESTIONS

- 6.1** How to construct a consolidated database for analysis?
- 6.2** How to check quality of consolidated data?
- 6.3** How to categorise data to support objectives of mapping?
- 6.4** How to develop and meet strict documentation requirements?

TEMPLATE



Download **Template 10 - Database** (See Excel "Database Template")

6.1 How to construct a consolidated database for analysis?

By now, you should have different sets of quantitative and qualitative data from different sources. These datasets need to be checked for their quality and, based on this assessment, included or excluded from further analysis. Datasets to be included must be cleaned and/or formatted so they can be consolidated in one spreadsheet or uploaded to a database that is set up in accordance with the mapping framework established in Module 4.

6.1.1 How to select the datasets and clean them

When assessing the quality of a dataset, one should:

- Identify the key fields (or columns) whose contents need to be assessed for their quality, because they will be used in the land-use finance mapping. The quality of fields outside of that list will not need to be assessed, and will not have an influence on whether a dataset will be selected for final use or not.
 - For a land-use finance mapping, the list of key fields could include location, year, source of finance, amount, currency, use of finance (activities, sectors) and qualitative markers (climate relevance)
 - Depending on the scope of the land-use finance mapping, key fields might also be intermediary of finance, financial instrument and recipient of finance
 - Dataset fields determined to be unimportant should be excluded from the quality assessment. Such fields might include e.g. project lifetime, city, sub-regional classification, grant/loan number and so forth. However, information can be retained in case it becomes useful for the analysis later on.
- Check the data quality of the key fields in each dataset, and clean/correct if necessary. Quality indicators are: timeliness, completeness, consistency, accuracy, validity/integrity, and uniqueness (DAMA UK, 2013). See Table 9 for definitions, examples, and potential solutions to data quality issues.
- Compare different datasets reflecting the same key fields, and based on the result of the quality assessment, decide which (part of each) dataset to use for the later land-use finance mapping.
- Document for each (part of a) dataset for the land-use finance: quality assessment of key fields, and why the dataset can or cannot be used for the mapping exercise.

6.1.2 How to know which database format to use

A database will be customised to the scope of a land-use finance mapping. It depends on the scope, the schedule, available resources and planned frequency of a project whether a database or a spreadsheet is more feasible.

- **A database** should be designed and used if the focus is on managing large amounts of data efficiently, consistently and permanently. In a relational database, data would be split and stored in many different database tables, each of them reflecting a unique set of information. Avoiding multiple storage of the same kind of information helps minimise storage space and manipulate the data quickly. However, database queries are needed to 'reconnect' the information stored in these different tables, to perform mathematical operations and so forth. For a database approach, a team would need somebody who is familiar with setting up databases and queries, and who would be available throughout the project. In addition, team members would need to be trained to use the database. A database approach is recommended if a land-use finance mapping is planned to be undertaken frequently.

Quality indicators	Definition	Example	How to solve
Timeliness	Does the data represent reality for the required point in time?	There are records in the datasets describing a period before the chosen project period/year	See Module 5 on how to fill data gaps
Completeness	Are all datasets and data items recorded?	Not all data points covered (columns complete, while rows are incomplete)	See Module 5 on how to fill data gaps
		Not all relevant fields covered (columns incomplete, while rows are complete)	
Consistency (in structure)	Has the same definitions/ methodologies/ categories been used across all datasets over time?	Different currencies used throughout the dataset	Use consistent structures (formats, values, naming conventions), such as date formats, currency exchange rates, units (thousand vs million)
Consistency (in content)		Datasets are based on different land-use finance definitions or use different categorisation	Engage with data manager/ provider to see whether there is a translation table or a list that helps to convert budget codes/structure from one year to the other
Accuracy	Does the data reflect the correct value?	Updates/corrections to disbursement data after reconciliation and audits	If schedule allows, update dataset with reconciled/ audited data, otherwise document carefully
Double counting/ uniqueness	Is there a single view of the data?	There may be ten ministries key to a land-use finance mapping, but the dataset captures 11, including 'Ministry of Environment' and 'Environment Ministry'	Use standards: unified spelling/abbreviations/ capitalisation in names
Validity	Does the data match the rules?	Invalid record content: Each govt. budget line should have a unique four-digits code/ identifier that describes: ministry (two digits) and programme (two digits). There are records in the dataset, whose identifier shows 'XXX' instead of a four-digit code/ identifier, hence the record cannot be related to the source (ministry) and the use (programme) of finance.	Engage with data manager/ provider to see what the reason for invalid records might be; correct if possible
		Invalid date format used: instead of using an English default date format MM/DD/YY, a record or table shows the German format 'Mittwoch, 14. März 2018' and thus does not appear in a filtering result	Check whether all records use the same formats
Integrity	Is the information unchanged from its source, for example accidentally through programming errors?	Amount of finance recorded for a ministry's programme is not accurate because digits were transposed during recording	Compare recorded dataset with original data, for example by comparing the total number of records, using checksums, carrying out spot checks on the data and cross-checking sums in processed dataset with those in the original dataset, and so forth



Table 9: Ensure the quality of a record/dataset/database

- **A spreadsheet** might be sufficient if the focus of the land-use finance mapping is on analysing data (once) and datasets are reasonably sized. Spreadsheets are easy to create and to share, but difficult to handle. In most cases, data can be added/ manipulated any time and by all team members without any built-in data quality checks. As a result, spreadsheets bare an increased risk of double-counting, manual errors and inconsistency. It is advisable to introduce mechanisms to avoid this. For example, applying the four-eyes principle or appointing a spreadsheet manager who is responsible for maintaining data quality, integrating new data and so forth. If they are too large, spreadsheets might also require long processing times, or even lead to the crash of the spreadsheet application. However, there are built-in functions for most mathematical and logical operations, statistical comparisons and visualisations in most spreadsheet applications. Most users will be familiar with the usage without further training.

Next, we will focus on spreadsheet design and use.

First, the structure of the spreadsheet must be determined (see Template 10 as an example):

- Key fields represent the minimum set of columns in the spreadsheet. For the quality assessment, the user already identified key fields (or columns) reflecting the information to be used in the land-use finance mapping. These key fields will become columns in the spreadsheet.
- Additional columns might be used to store data from the original datasets for documentation purposes. There might be no current plans to use this information for the final land-use finance mapping. This information could include, for example grant/ loan number, programme description, region, whether it is blended finance and so forth. However, it might turn out at a later stage that this information from the original dataset as a table or chart could help to underpin the findings of the land-use finance mapping. It could therefore be valuable to upload this information to the consolidated dataset.
- Additional columns will be needed for:
 - Calculations, for example currency conversion
 - Flags or markers, for example green finance or grey finance
 - Notes, for example reference to data source, documentation about how records have been manipulated

As data is currently organised in different formats, including tables with various structures, all datasets have to be converted into a list format reflecting the structure of the spreadsheet.

Once all datasets reflect the standard structure, and blank columns and rows have been removed, they can be consolidated into one spreadsheet.

6.2 How to check the quality of consolidated data?

After the first quality assessment, the records in each of the selected original datasets now appear to be complete, consistent, accurate, unique, valid and whole. However, after the consolidation into one spreadsheet, there might be inconsistencies between datasets or errors resulting from the consolidation process. For example, a column format may have been changed erroneously. Hence, the consolidated spreadsheet has to be checked again for the described quality indicators (see Table 9: Ensure the quality of a record/dataset/database.) to avoid double-counting or underestimating funds.

Common challenges after consolidating different datasets into one spreadsheet include the variation in date, time or number formats, currencies, naming conventions and so forth. The user needs to check the consolidated records under each column, and in most cases manually adjust so that all entries are consistently named to allow analysis in pivot tables and so forth.

6.3 How to categorise data against the national land-use finance definition

Once the user has a clean consolidated dataset, records need to be filtered for their relevance, and categorised applying the land-use finance definition and typology developed earlier in this project (see Module 3) according to the following steps:

1. Classification of budget lines, activities and programmes into climate-aligned/misaligned/conditionally-aligned
2. Applying a weighting strategy
3. Categorisation into dimensions in line with mapping framework (defined in Module 4)

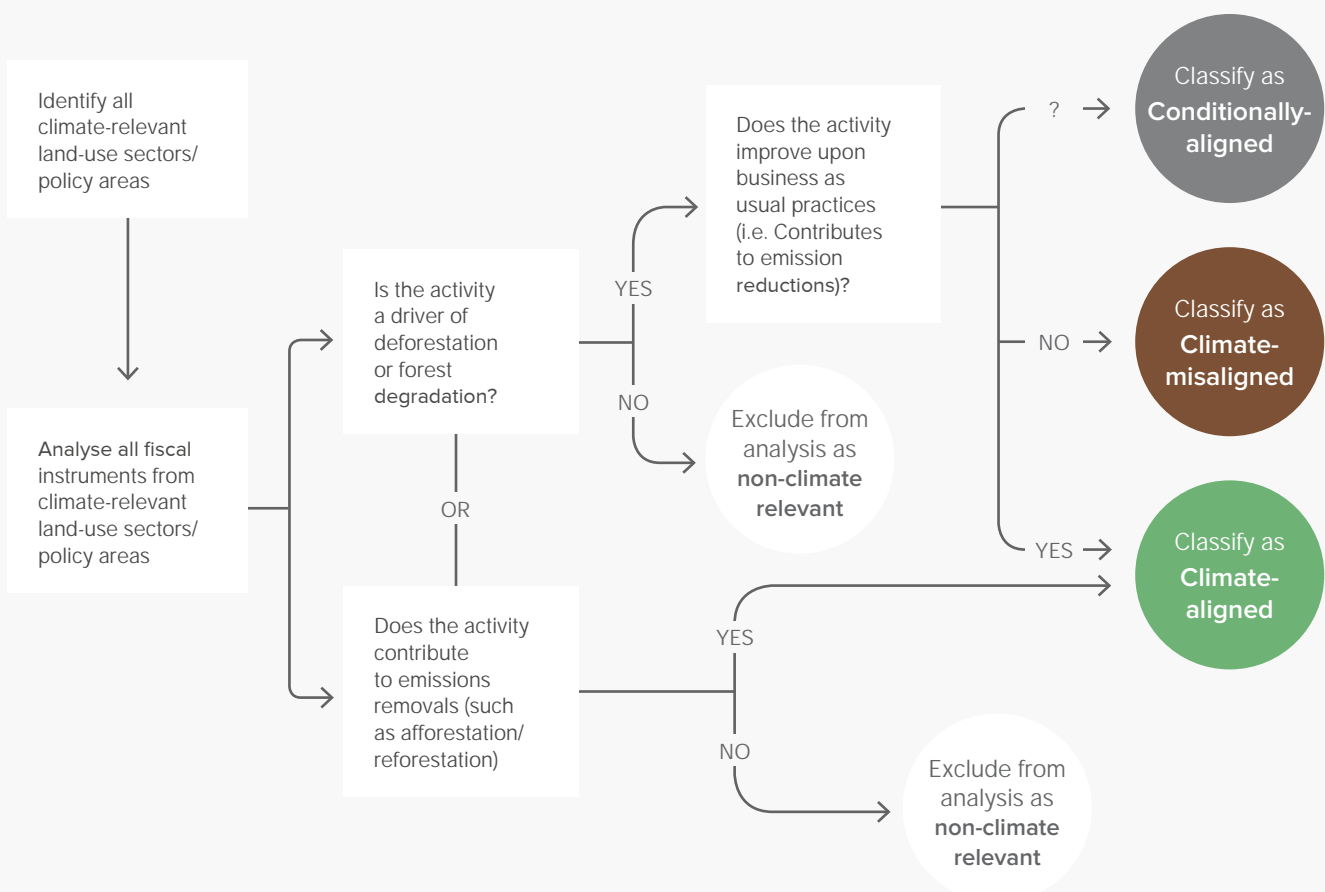
6.3.1 Classifying budget lines, activities and programmes

The following guiding questions can be used to classify individual financial flows according to the definition developed in Module 3:

- Is the activity a known driver of deforestation or forest degradation, or does the activity contribute to atmospheric CO₂ removals?
- Does the activity improve upon business-as-usual practice, for example by contributing to emission reductions?
- Is the activity aimed at improving the enabling environment, for example towards implementation of the National REDD+ Strategy?

Figure 11: Process flow to classify climate-relevant land-use flows as climate-aligned, conditionally-aligned, or climate-misaligned

The process of classifying financial flows may identify additional sectors or activities that are considered climate-relevant, that were not considered during the initial definition setting stage. These additional activities can be incorporated into the typology to improve the overall definition of climate-relevant land-use finance.



However, a classification of financial flows is only possible if the data is detailed enough, and if qualitative information about the nature of programmes and activities can be accessed. Access to project data information, reports, as well as bilateral interviews with implementers are usually needed to be able to categorise activities according to their expected impact (see Module 5).

In Vietnam, for example, there is very limited qualitative information on projects available. Information focuses on the general objectives of projects and programmes. In various cases, these are purposely kept broad to accommodate changes depending on local priorities. These circumstances and the forward-looking nature of the study made it challenging to classify budget lines according to the typology (EFI and CIEM, 2018).

6.3.2 Applying a weighting

During the classification process, weighting may also be applied to individual financial flows. It can be done for several reasons:

- Financial flows often have multiple sub-components, not all of which may be related to climate change. In these cases, and where data is available, analysis can distinguish between sub-activities and only include a corresponding amount of the overall financial flow in the final analysis.
- More detailed weighting strategies can also include apportioning expenditures based on the degree of relevance and impact of climate change mitigation and adaptation objectives.

The determination of if, and how, to apply such weightings is a matter of national priority and outcomes of consultations.

There is no one-size-fits-all approach to this analysis, nor a 'right' or 'wrong' way of classifying flows. This is a national or jurisdiction-level decision, based on needs and availability of information.

Data classification is usually resource-intensive and the responsibility of the project team. Considerable effort is required to ensure consistency of approach in how definitions are applied and in classification decisions. However, it can be of great added value to involve relevant sectoral experts in the process if possible, both to add accuracy to the analysis, as well as to build awareness of partners on potential misalignment of spending with climate objectives.

Once financial flows are categorised according to the definition developed during this module, and further analysis is conducted based on these results (see Module 6), a final consultation can be conducted to validate the results of the classification. This can include a discussion on how financial flows were classified, as well as the resulting qualitative and quantitative analysis that categorises flows according to the definitions. If multiple categories of finance have been classified, for example climate-aligned and climate-misaligned, it is often helpful at this stage to validate if the results of the classification match expectations at the national level.

In Côte d'Ivoire, for example, weighting based on individual subcomponents was applied, but was not in Papua New Guinea. In Vietnam, the analysis took a simple approach to apportioning individual budget lines. Many investments have multiple sub-components, not all of which related to the National REDD+ Action Plan. In these cases, and where data is available, the study distinguished between sub-activities and only included a corresponding amount of the overall financial flow in the final analysis (Source: Vietnam case study).

6.3.3 How to verify categorised numbers?

In most cases, consultants and/or technical staff will be responsible to help with the management and processing of data. However, their ability to categorise projects and activities might be limited. Hence, data gathering and categorising is best conducted in close collaboration with stakeholders, for example government officials at key ministries or land-use experts from research institutes/academia. This will increase the likelihood that all relevant data is gathered, the appropriate typology is assigned to records of the dataset/expenditure items, and data analysis or interpretation issues are easily solved.

As data categorisation creates the base for a land-use finance mapping, it is advisable to verify the results of this step with advisers/principle staff of those organisations financing/implementing the land-use activities categorised. A verification at this point can help to gather further input, keep stakeholders at a higher hierarchy level informed and engaged, and ease a later acceptance and value of final results. Potential formats could be (see also Module 2 on Stakeholder Engagement):

- Presenting categorisation results to the organisation/department in question, explain implications and answer questions
- Sending an extract of the relevant actor data that was filled in the database.

6.4 How to document data robustly

When consolidating different datasets, it will be important to document (either in a separate spreadsheet, in an extra column/row of the same spreadsheet, or similar):

- Where data in the spreadsheet comes from (document for each column in the spreadsheet, which column(s) in which original dataset it corresponds to)
- Calculation rules and assumptions used to manipulate or process original data, for example flag set to 'non-climate,' if the value of another cell equals a certain threshold/number/code
- Conversion tables, for example currency exchange rate table used for currency conversion

Clearly documenting data sources and processing procedures ensures transparency and replicability in future years.

When processing many sources of data and/or using different versions of the same datasets, it can be helpful to catalogue each dataset according to their characteristics (see Table 10). This could be done in a specific documentation file for all data sources or as an attachment to each data source. For example, a workbook consisting of spreadsheet A with the data, and spreadsheet B with data source characteristics.

Table 10: Dataset characteristics

Characteristics	Example
Definition of the dataset, for example time series, sectors, and sub-sector detail, coverage	Audited govt. budget covering: <ul style="list-style-type: none"> • Ministry of Forestry • Ministry of Agriculture • Year 2016
Definition of the format (spreadsheet) and structure (what different tables are needed and their structure) of the dataset	Spreadsheet (soft copy) providing information on: <ul style="list-style-type: none"> • Ministry • Level of activity (programme, activity, activity component, etc.) • Activity name • Source of funds • Recipient/executing agency • Expenditure for staff • Expenditure for goods • Expenditure for assets
Description of any assumptions made regarding coverage, the sectors included, representative year, technology/activity level	Coverage: <ul style="list-style-type: none"> • Expenditure data for Ministries complete. See climate finance definition for selection of Ministries • Data on 'source of funds' can give some indication on intl. development partners' expenditure • Data on 'recipient' can give some indication on local govt. and national fund activities • Year: Latest available year. Budget auditing takes 18 months on average, so only numbers on the fiscal year 2016 are currently audited (June 2018). • Quality assessment: Some records for 'level of activity' are corrupt/invalid. Need to double-check with ministry in response.
Identification of the routines and timescales for data collection activities (for example, how often is the dataset updated and what elements are updated)	Elements are updated yearly after the budget audit, in line with the planning and budgeting cycle. Audited numbers will be available by July of the following year at the latest. Latest dataset (13 June 2018) compared to former result of database query (May 18, 2018) – no difference, but extra columns (source of funds). Hence, the routines already developed for processing can be applied to this dataset too. Note: Budget codes were restructured in 2016, so processing routines and results cannot be compared between 2016 and the preceding years
Contact name and organisation	Mr. XYZ/Director of Budgetary Revenues and Expenditures/Ministry of Finance, building/floor/room/tel./Email
Date of availability	Database query from 13 June 2018

Template 10 - Database



See Excel template accompanying this document.

Land-Use Finance Tool Template 10 - Database	
Instructions: How to use the template	
Sheet name	Description
Database Structure	Provides a sample database structure with key fields (or columns) for the land-use finance mapping
Definitions and Classifications	Provide sample reference tables defining and classifying uses, instruments and sources of financing.
<div>Template IntroductionDatabase StructureDefinitions and Classifications</div>	

MODULE 7:

Data analysis and presentation

Only data that has been robustly collected, managed, and carefully analysed can lead to accurate conclusions and inform a decision-making process. What and how to measure is important to get results that are informative and significant to the right people to drive policy dialogue forward.

OBJECTIVE

Create different output formats, for example sankey diagram, pie charts, tables for the qualitatively and quantitatively analysis.

KEY QUESTIONS

7.1 What are the key quantitative and qualitative analytical questions to consider?

7.2 What visualisations can be helpful and constructive?

7.3 What to do if results are not consistent with other sources, controversial or limited?

7.1 What are the key qualitative and quantitative analytical questions to consider?

The qualitative and quantitative analysis links back to the objective and initial questions behind the land-use finance mapping (see Modules 1 and 4).

- ▶ What do we aim to achieve? What processes is the analysis going to inform?
- ▶ What should the numbers say?
- ▶ What do we want to measure? How do we measure it?

In most cases, it will be interesting to get an overview by quantifying the key dimensions of financial flows:

- ▶ How much did land-use related finance account for, in total, within the region and period of interest?
- ▶ Who provided the finance, and how much was provided?
- ▶ How much was delivered through each financial instrument?
- ▶ What were the main channels implementing land-use related finance?
- ▶ What sectors and activities was the money for?

In a second step, the spotlight might be on the financial flows, which will differ between actors. Some flows and levels of finance might be unexpected, and further analysis will be needed to find out why:

- What financial instrument(s) do actors/sources of finance prefer for each type of finance (climate-aligned/misaligned/conditional)? This usually includes budget expenditure for government actors, or grants/loans for international development partners.
- Which channel(s) do actors/sources of finance deliver most money through for each type of finance? For example, government might channel mostly via technical ministries/public agencies, while intl. development partners channel through a diverse set of actors.
- What sector(s)/use(s) do actors/sources of finance focus on? For example, government spends most climate-aligned finance on enabling environment setup, while intl. development partners focus on adaptation activities.

Comparisons and ratios will be helpful to provide context, show progress, reveal bottlenecks, and so forth (see Table 11). These calculations could be undertaken:

- Per actor, for example to compare the engagement of, or challenges to, domestic vs. international, or public vs. private
- Per year, for example to track progress between years
- Per province, for example to reveal a potential influence of provincial policy/economic environments
- Per target sectors or uses, to compare resources dedicated to different policy objectives and coherence between policy objectives and resources

When data is consolidated in a spreadsheet, built-in functions can help to calculate these ratios and manipulate the data in several different ways, including by filtering data, summing it up, or creating pivot tables.

Quantifying financial flows and ratios will show where further analysis is needed, where initial questions need to be revised, and where others could potentially have objections. As a result, more information and data might be needed to feed into this additional analysis/revised research questions (see Module 5 on data collection).

In addition, financial mapping analysis can also offer more qualitative analysis on the role of certain actors, financial mechanisms or intermediaries.

Approach taken	Reason	Challenge
Ratio <ul style="list-style-type: none"> • Total economy-wide investment vs. total land-use sector investments 	Provides context by revealing the importance of the land-use sector compared to other policy areas or sectors of the economy	
Outliers: Disproportionally high/low value for <ul style="list-style-type: none"> • Instruments • Channels • Sectors or policies and measures 	Indicates opportunities for delivering additional finance or current challenges	Subject to further analysis
Finance received (flowing in) does not equal finance delivered (flowing out). Might be interesting for evaluating <ul style="list-style-type: none"> • Instruments • Intermediaries or channels 	Reveals bottlenecks	Subject to further analysis
Ratio of land-use sector finance that is <ul style="list-style-type: none"> • Climate-aligned vs. climate-misaligned or conditionally-aligned 	Shows where REDD+ objectives/safeguards have already been taken into account and where they have not Shows the advance in terms of REDD+ planning and resource mobilisation	Could face some political resistance
Ratio for climate-aligned land-use finance <ul style="list-style-type: none"> • Delivered in total vs. delivered through key programme(s) 	Shows influence of/reliance on key programme(s) as compared to other activities Underlines the importance of ensuring that these programme(s)/activities provide the right incentives for forest owners to adopt sound forest management practices, and of monitoring their impacts	Might be biased, since data/information for important programmes might be more readily available than for less streamlined activities, where data might be scattered across different data sources
Amount spent <ul style="list-style-type: none"> • Per objective or focus area of a REDD+ or similar strategy compared to objectives 	Reveals bottleneck or potential for additional funding	Need further analysis on the reasons, for example resources requested from national budget not granted, because no budgetary priority
Ratio for climate-aligned land-use finance <ul style="list-style-type: none"> • Planned/estimated vs. disbursed • Contribution of different sources of finance and/or instruments in financing specific policy objectives 	Reveals bottlenecks or re-prioritisation of budgets Reveals which sources of finance are important, and could be further mobilised if funding transfers (for instance between national and local governments) are effective	Subject to further analysis
Revenue generated from land use as a percentage of total government budget	Shows the importance of specific land uses for the economy	



Table 11: Possible dimensions for data analysis and interpretation

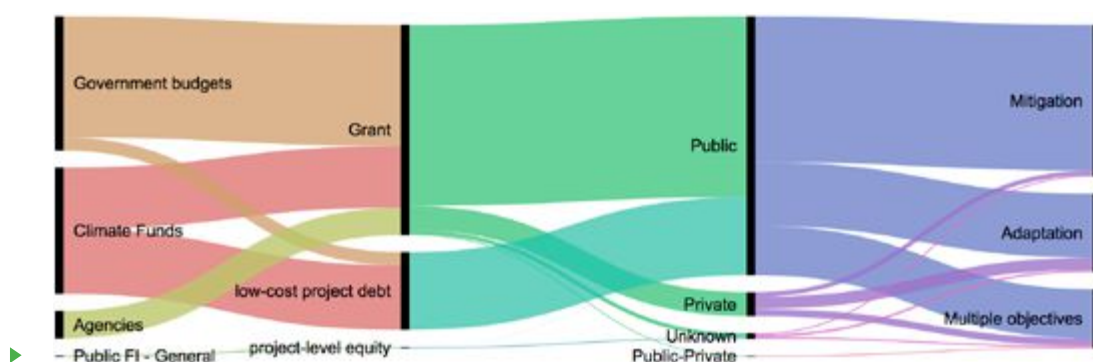
7.2 What visualisations can be helpful or constructive?

Aggregate analyses are often presented in either tabular format or via a Sankey diagram. Additional visualisations can help shed light on certain angles of the land-use finance analysis.

7.2.1 Sankey diagram

A Sankey diagram visualises the magnitude of flows between different categorical dimensions. The flows are displayed as lines with thickness proportional to the quantity of flow —smaller flows have thinner lines— and each categorical node's height is determined from the sum of the flows entering and exiting that node.

Figure 12: Example Sankey diagram showing financial flows from sources, through instruments, disbursement channels, to uses



Different software providers offer tools to generate Sankey diagrams. Some software is free, while others have a small subscription fee.

The Sankey diagram can be made clearer and more visually appealing by using separate illustrator programmes. See Figure 13 that shows aligned (green) and conditionally-aligned (grey) flows.

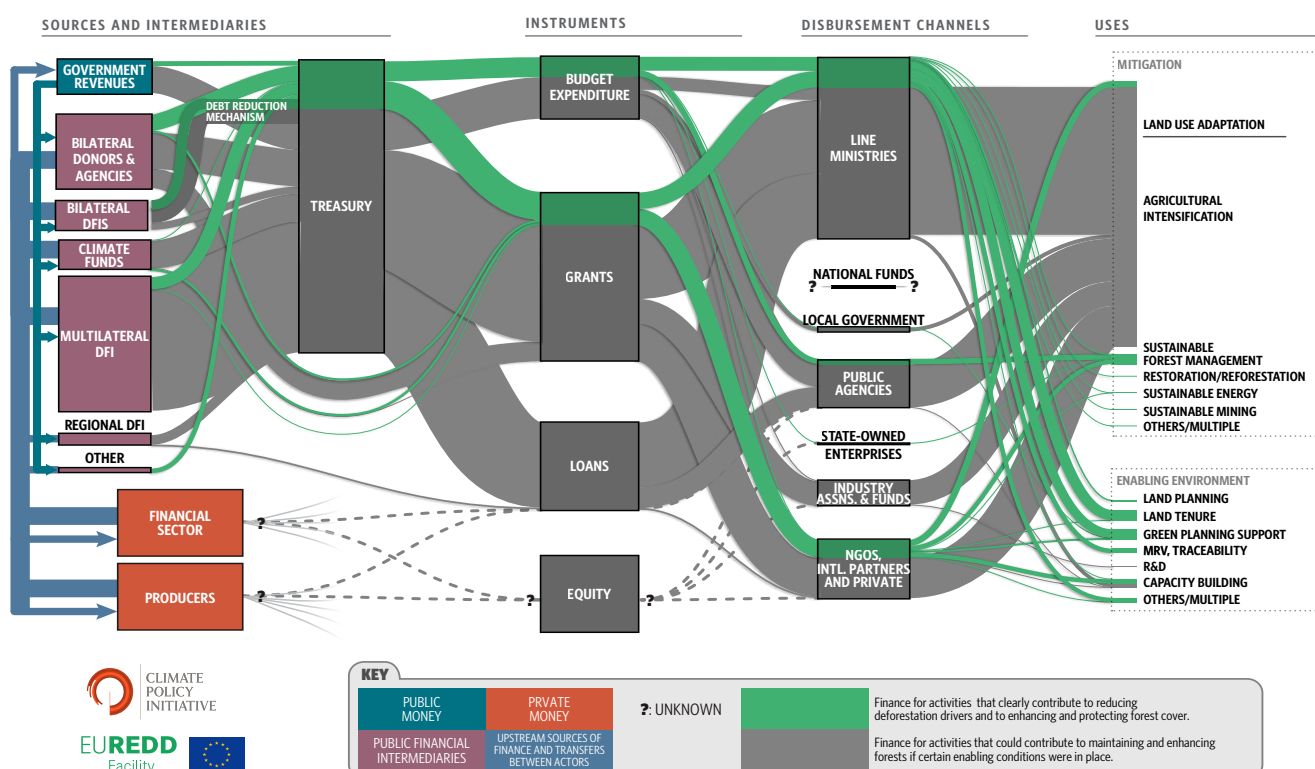


Figure 13: Example Sankey diagram processed through Illustrator programme

A detailed set of data is necessary to create a Sankey diagram, including detailed financial information on all sources/intermediaries, instruments, (disbursement) channels and uses. The related dataset has to provide enough detail to be filtered for its land-use sector relevance and to be categorised into 'green finance' and 'grey finance.' When information is consolidated in one spreadsheet, different pivot tables can be created that deliver the base for the initial analysis of the key dimensions and the financial flows between them.

Pivot 1 provides many insights. It:

- Summarises how much each source of finance contributed: 'government budgets' are the largest source of finance, and provided, in total, USD 2 049 million of climate-aligned finance. (see Table 12)
- Shows how much was spent, in total, on each instrument: USD 3 186 million was spent on grants, by far the most important instrument in this example.
- Quantifies the financial flows between sources of finance and financial instruments: out of the USD 2 049 million contributed by 'government budgets,' USD 1 855 million were issued as grants, and USD 194 million as low-cost project debt.
- Shows the distribution of financial instruments used by each source: 'climate funds' have invested roughly equal amounts in 'grants' and 'low-cost project debt,' while 'agencies' have only used grant financing.

Sum Sankey Value USD m

Rows	Columns			
	Grant	Low-cost project debt	Project-level equity	Total
Climate funds	910	953		1863
Government budgets	1855	194		2049
Agencies	421			421
Public FI - General	0		20	21
Total	3186	1147	1147	4354

Table 12: Pivot 1 relating sources of finance to financial instruments

The data selected to create pivot 1 could also be visualised in a Sankey diagram, which might be more intuitive than the table.

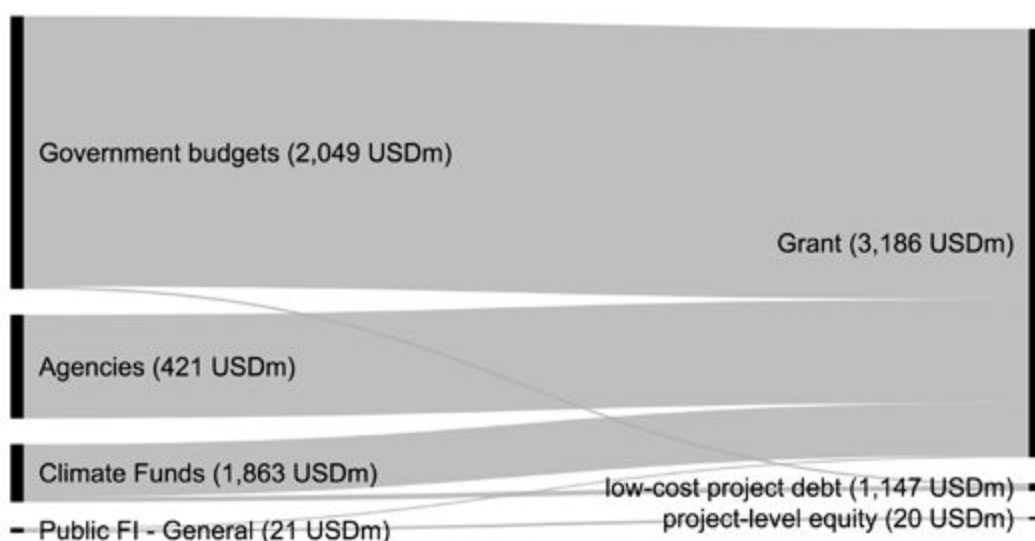


Figure 14: Sankey diagram relating sources of finance to financial instruments

There are more pivots needed to complete the climate finance cycle. Pivot 2 shows how much climate-aligned finance was actually delivered by each instrument, and to what recipients. Finally, pivot 3 quantifies the uses of climate-aligned finance for each recipient.

Sum Sankey Value USD m

Rows	Columns			
	Grant	Low-cost project debt	Project-level equity	Total
Private	421			421
Public	2684	1147	2	3832
Public-Private	16			16
Unknown	66		19	84
Total	3186	1147	21	4353

Table 13: Pivot 2 relating financial instruments to channels/recipients

Sum Sankey Value USD m

Rows	Columns			
	Grant	Low-cost project debt	Project-level equity	Total
Private	218	82	121	421
Public	955	2144	733	3832
Public-Private		0	16	16
Unknown	34	25	26	84
Total	1207	2251	896	4353

Table 14: Pivot 3 relating channels/recipients to approaches used

Tools available to create a Sankey diagram, include <http://rawgraphs.io/gallery/>⁵, <http://sankeymatic.com/>, or Tableau visualisations.⁶ Depending on the website or tool used, either the whole dataset or the consolidated pivot tables' information are needed as input.

The following graphics show how to create a Sankey diagram using the RAWGraphs website.

Copy the data of your spreadsheet and paste it to <http://app.rawgraphs.io/>

⁵ 'How to make an alluvial diagram', by RAWGraphs Team. Licensed under CC BY-NC-SA 4.0. Accessed: 28 May 2018, from <https://rawgraphs.io/learning/how-to-make-an-alluvial-diagram/>

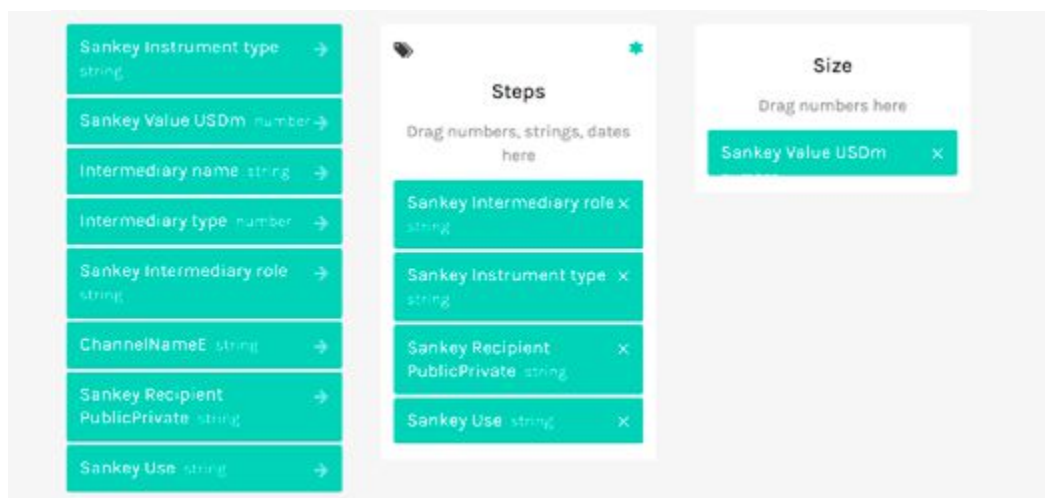
⁶ See for example <https://community.tableau.com/thread/152115>

Sankey	Instrument type	Sankey Value USDm	Intermediary name	Intermediary type	Sankey Intermediary role	ChannelNameE	Sankey
Recipient	Public/Private	Sankey Use					
1	Grant	11	Global Climate Change Alliance (GCCA)	0	Climate Funds	Public	Multiple objectives
2	Grant	8	Global Climate Change Alliance (GCCA)	0	Climate Funds	Public	Multiple objectives
3	Grant	4	Global Climate Change Alliance (GCCA)	0	Climate Funds	Public	Adaptation
4	Grant	4	Global Climate Change Alliance (GCCA)	0	Climate Funds	Public	Multiple objectives
5	Grant	4	Global Climate Change Alliance (GCCA)	0	Climate Funds	Public	Adaptation
6	Grant	11	Global Climate Change Alliance (GCCA)	0	Climate Funds	Public	Adaptation
7	Grant	5	Global Climate Change Alliance (GCCA)	0	Climate Funds	Public	Multiple objectives
8	Grant	11	Global Climate Change Alliance (GCCA)	0	Climate Funds	Public	Multiple objectives
9	Grant	5	Global Climate Change Alliance (GCCA)	0	Climate Funds	Public	Multiple objectives
10	Grant	3	GEF Trust Fund (GEF S)	0	Climate Funds	ADB Public	Mitigation
11	Grant	0	GEF Trust Fund (GEF S)	0	Climate Funds	ADB Public	Mitigation
12	Grant	1	Clean Technology Fund (CTF)	0	Climate Funds	AFDB	Public Mitigation
13	Grant	3	GEF Trust Fund (GEF S)	0	Climate Funds	UNDP	Public Mitigation

Figure 15: Spreadsheet data

Map the dimensions to be visualised in the final Sankey diagram using <http://app.rawgraphs.io/>

Figure 16: Mapping dimensions



Format the Sankey or alluvial diagram created using <http://app.rawgraphs.io/>

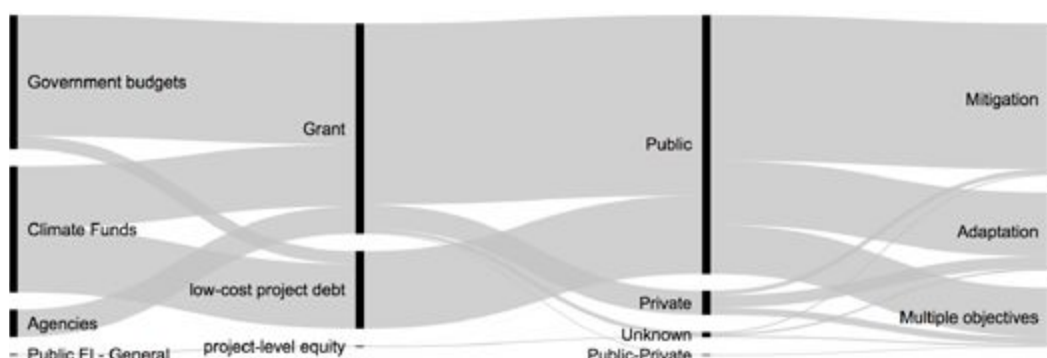


Figure 17: Sankey formatting

7.2.2 Other visuals

Other visuals that could be constructive to visualise comparisons, ratios or other insights include:

Bar/pie charts are a simple, easy-to-implement way to visualise ratios, for example split between REDD+ aligned and grey finance contributed by different actors/to different sectors.

Figure 18: Bar chart showing how much 'REDD+ aligned' finance and how much 'grey' finance government and international partners each provided (Source: Falconer et al., 2017)

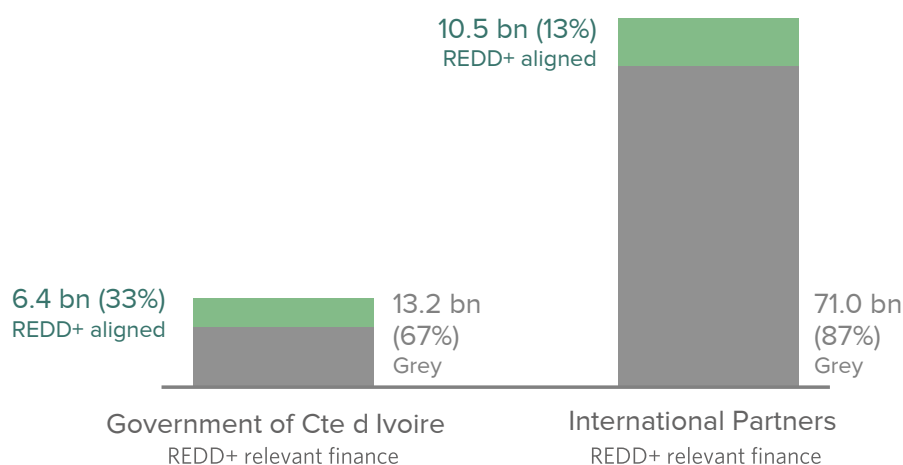
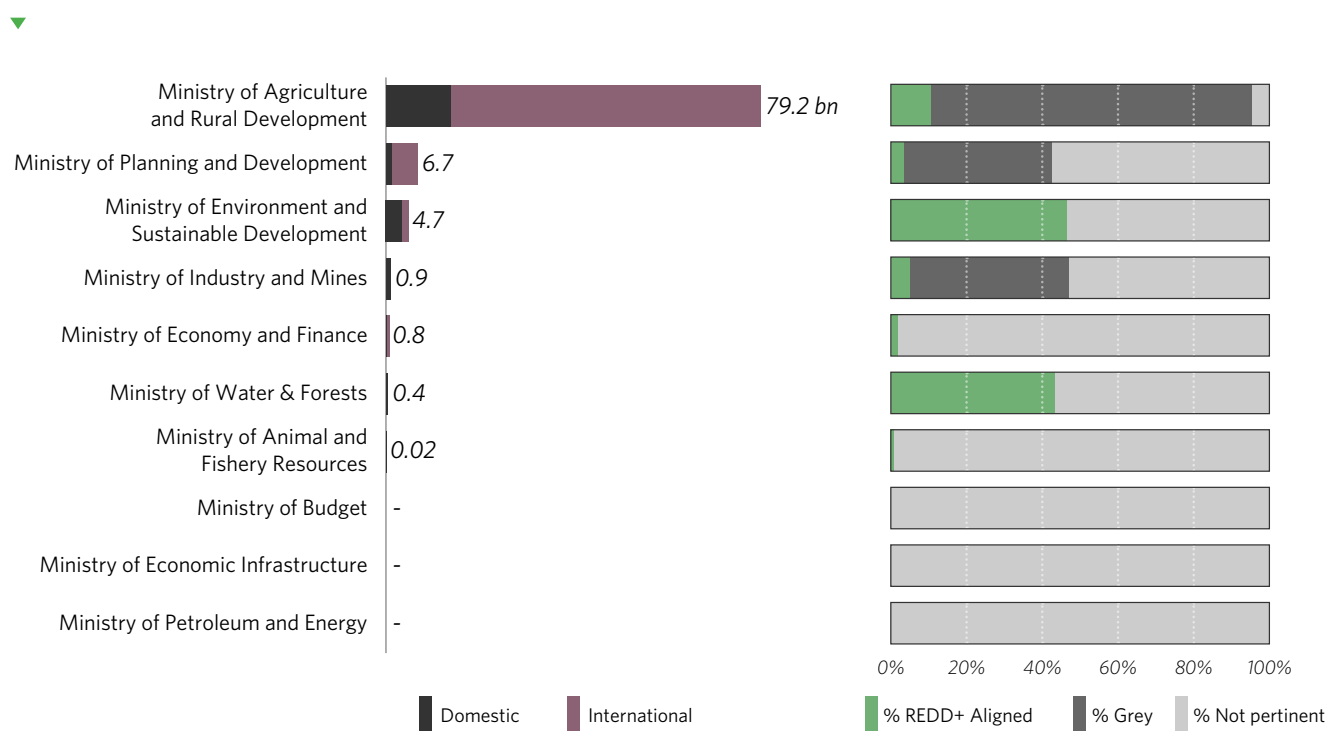


Figure 19: Bar chart showing, for each ministry, where the finance delivered originates from (domestic/international) and how it was used (REDD+ aligned/grey) (Source: Falconer et al., 2017)



Bubble charts may also depict ratios, for example climate-specific finance as a share of total potentially climate-relevant development finance.

Uses of Public Climate Finance in Indonesia in 2011

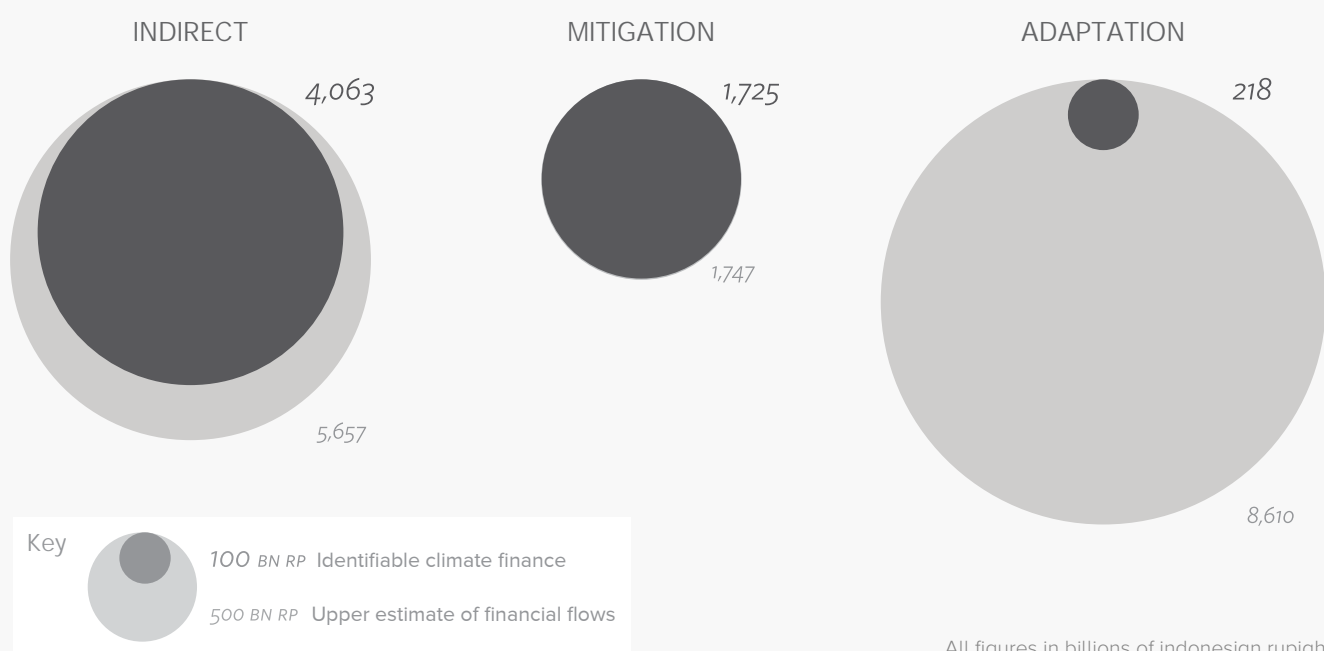
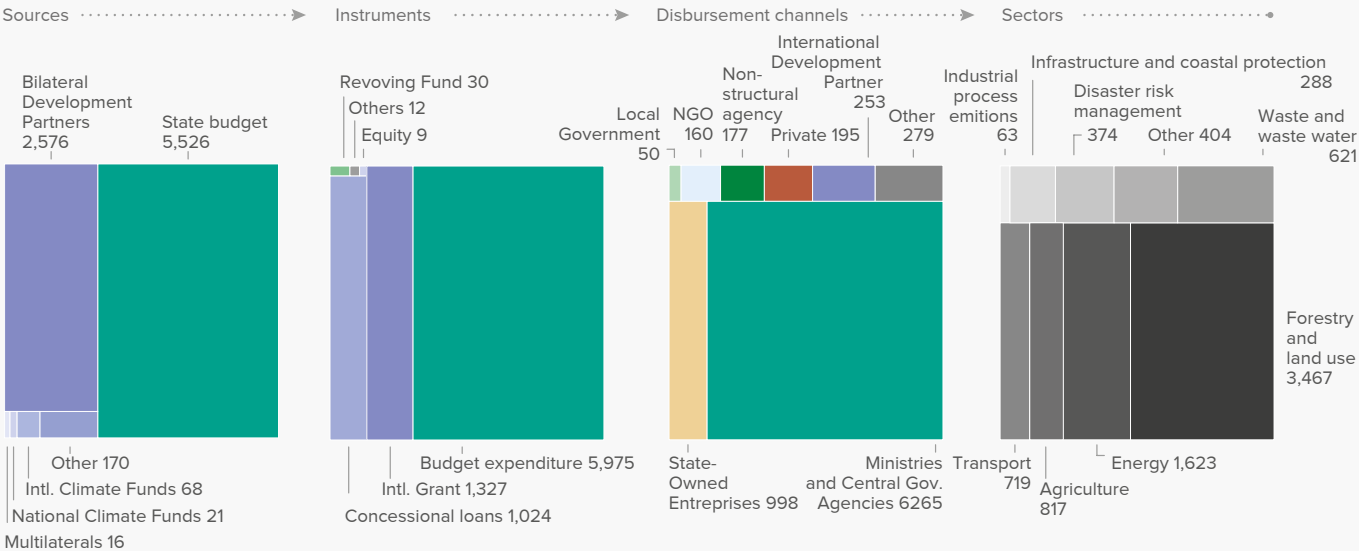


Figure 20: Chart depicting the uncertainty in tracking 2011 public climate finance in Indonesia (Source: Ampri et al., 2014)

Treemaps can help visualise a more complex set of information, for example climate finance by sources, instruments, disbursement channels and sectoral uses, while using colours to represent financial contributions of different sets of actors, for example international public in blue, domestic public in green and so forth.

Public climate finance flows in indonesia in 2011



All figures in billions of indonesian rupiah (IDR)

Figure 21: Treemaps showing a simplified break-down of public climate finance flows in Indonesia in 2011 (Source: Ampri et al., 2014)

If there is no quantitative data available, or if numbers would distract the audience from the statement or process to be substantiated by a chart, a flowchart can be useful.

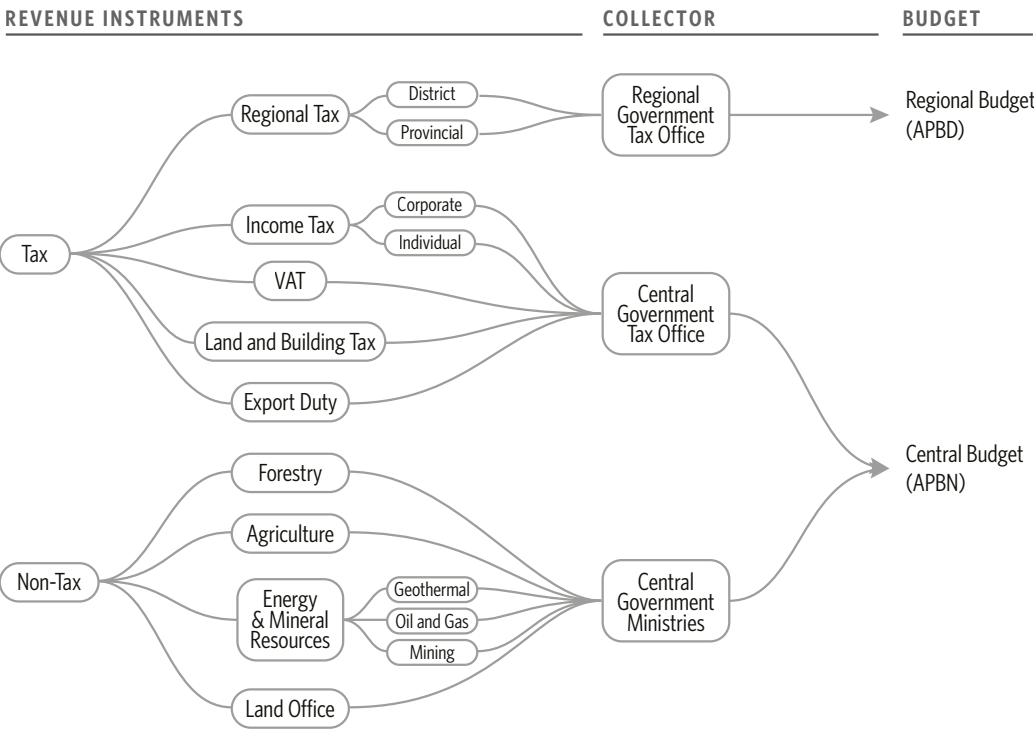


Figure 22: Qualitative analysis of revenue instruments related to the land-use sector in Indonesia (Source: Mafira and Sutiyono, 2015)

7.3 What to do if results are inconsistent with other sources, controversial or limited?

In most cases, consultants and/or technical staff will be responsible and/or help with analysing the data. Before proceeding with the development of policy recommendations based on the results of the analysis, they should evaluate them against the following questions:

- ▶ Will the analysis results help to answer the original question? How?
- ▶ Are they consistent with other sources or politically controversial? Why?
- ▶ Does the data help to defend against any objections? How?
- ▶ Are there any limitations on the conclusions, any unconsidered angles?

As analysis results form the basis for the development of policy recommendations, it is advisable to reach out and discuss the results with advisers of those organisations that are financing or implementing the land-use activities being analysed. This is especially important if consolidated numbers do not add up to an 'official' number, could be controversial or have limitations. Further, stakeholder engagement is needed to find reasons for the discrepancy and/or controversy, to discuss implications and benefits of policy recommendations based on such numbers, and to agree on further proceeding (see Module 2 for potential formats). For example, budget analysis can be politically sensitive. In particular, an aggregate expenditure figure can be sensitive. Some countries may be reluctant to report a figure that is considered to be too low. Here, careful messaging and communications are necessary to put numbers in context, also highlighting where data was unavailable and therefore missing from the analysis.

MODULE 8:

Using the results

Arriving at overall estimates for financial flows in land-use activities is one achievement. Using these estimates to drive positive change in policy development or investment planning is another.

OBJECTIVE

Consider how best to use results to feed into objectives.

At this stage, you should have estimates on finance flows to meet the objective of the mapping, as set out in Modules 1-3. Next, we outline how to use the results, depending on the original objective or further uses for the data beyond the original objective.

KEY QUESTIONS

- 8.1** How can results be used for monitoring and reporting?
- 8.2** How can results be used to align finance to climate objectives?
- 8.3** How can results be used for resource mobilisation?

8.1 How can results be used for monitoring and reporting?

One of the common uses of finance mapping data is to measure progress against existing goals and targets, such as:

- a planned budget expenditure over a specified time
- an estimate for mobilised public and private investment during a specified time, or on an annual basis
- an estimate for investment needed for a given activity or goal during a specified time, or on an annual basis

You should ensure that no double-counting of investment flows is included in estimates of existing flows.

In many countries, detailed quantification of overall or activity-specific investment needs are not available and may need to be calculated separately.

Spending on particular activities might be compared to: non-monetary impact metrics in the related time period to reflect on cost effectiveness, for example forest cover, recovered land or protected land (ha/m²); emissions reduced or sequestered (CO₂ equivalent); and productivity increases in livestock, or crop yields as a result of intensification (intensity metric). Making a direct comparison would however be very challenging, given time delays and multiple factors influencing land cover, productivity and so forth, causality to particular streams of funding.

Such monitoring of investments over time can provide useful input to regular international reporting requirements, for example biennial update reports, national communications or nationally determined contributions to the UNFCCC, reporting about the use of funds to specific donors or to national stakeholders, as well as in applications for international support, for example to the Green Climate Fund.

Complementary analysis or work to enhance reporting potential include:

- Ensuring the alignment of the land-use finance mapping typology with external reporting frameworks
- Developing systematic tracking through a budget tagging approach
- Designing framework for regular updates to mapping through building capacity of specific actors

8.2 How should results be used to align finance to climate objectives?

The mapping of land-use finance may identify a large portion of grey or conditionally-aligned finance or misaligned finance across a variety of sectors. This is powerful information to support the mainstreaming of REDD+ objectives in projects, programmes and investments across all economic sectors.

It is important to maintain engagement with key stakeholders throughout the mapping exercise to provide a suitable context for corrective actions to be taken on mainstreaming existing flows.

For national government actors, potential implementation actions to take include:

- Effective cross-sectoral coordination processes
- Stronger guidance on integration of safeguards or activities in budget programming
- Incentives to reach expenditure or disbursement targets

- Specific policy reforms to adapt policy goals to the reality of spending and investments
- Specific financial mechanisms and instruments to leverage or redirect greater amounts of finance to aligned activities
- Local government tax incentives or soft loan facilities to enable mainstreaming

For international donors and development actors, that often provide finance to non-state actors in the country, discussions on alignment may need to be elevated in the context of country strategies and long-term partnerships.

For private actors, further policy incentives, capacity building measures or access to preferential finance facilities may further result in the alignment of their investments.

Complementary analysis to align finance to climate objective include:

- Impact assessments of specific policies on forests to fine-tune data classification
- Integrated development planning and scenario analysis to reconcile sectoral objectives
- Identification of information and data management systems missing to build accountability

8.3 How should results be used for resource mobilisation?

Every investment proposal and plan includes a description of the baseline situation and problems the proposed intervention will address.

For private actors, a market opportunity is often expressed in terms of expected investment needed, the policy environment conducive to providing a return on the investment, and a risk assessment on how investment returns may be delivered.

Data from land-use finance mapping can be used to highlight funding gaps to reach policy objectives or targets. It can, therefore, make the case for new or scaled-up interventions targeting specific investment actors, using specific instruments, in specific sectors or activities. These sectors or activities will have been revealed by the land-use finance mapping to be either currently insufficient (in the case of green finance flows) or with significant potential to have impact (in the case of brown or grey flows mapping).

Additional analysis that can be complementary for resource mobilisation include the costing of sustainable measures and programmes to inform gap analysis or the leverage potential of financial instruments that have been identified through regular mapping.

In these instances, it is important to ensure that the data reflects the scope of the analysis and that it is kept up to date to reflect the existing status of finance activity on the ground.

For public development finance actors, such as development banks or funds, a significant amount of evidence is required to justify interventions, including through measures of value-added, scale-up potential and sustainability of the initiative to result in lasting change. Funds where such information may be beneficial include the Central African Forest Initiative,⁷ Norway's International Climate and Forest Initiative, the Forest Investment Program, the Forest Carbon Partnership Facility's Carbon Fund and the REDD Early Mover Program.

The GCF provides funding to countries for the implementation of the UNFCCC REDD+ Mechanism, and is increasingly requesting information on land-use finance and coherence of funding in its own funding applications for REDD+ related activities.

⁷ See for example the Democratic Republic of Congo's REDD+ Investment Plan (DRC 2015)

When countries prepare proposals to the GCF to receive support for early phases of REDD+, they are asked to provide complete and transparent information about planned and/or ongoing activities that are supported by other initiatives. In addition, information about domestic allocation of resources supporting REDD+ is requested.⁸

Phase 1 of the UNFCCC REDD+ Mechanism includes the development of national strategies or action plans. The GCF can support preparation of an investment plan, which specifies a country's financial needs, gaps and barriers.⁹

In phase 2 of the UNFCCC REDD+ Mechanism, the GCF can support resource mobilisation through analysing the funding sources and needs from countries in the process of implementing REDD+ programmes.¹⁰ The GCF is also providing funding for REDD+ investments, provided the value added of this funding is justified. In particular, the GCF is seeking strong justification on barriers and bottlenecks preventing the financing of enabling conditions for REDD+ implementation, and their catalysing potential to unlock or redirect investments. The Fund puts a strong emphasis on securing public and private co-financing of investments, and ensuring the sustainability and coherence of the proposals in the national framework.

Proposals for the GCF's results-based payments funding programmes will require information on 'how different financing (domestic and international) contributed to the achievement of the reported results', information on intended use of proceeds and how double financing will be avoided.¹¹

Finance mapping can support all of these information needs.¹²

8.4 Complementary tools and resources

Several tools and guides are available to support such activities beyond tracking, including:

- LIFT tool: helps jurisdictions build sustainable landscape project pipelines and mobilise sources of finance.
- NDC Quick-start guide to NDC implementation: identifies steps that countries can follow to identify NDC financing needs and financing options. It may provide a useful check list for policy makers.
- LEDS GP Resource guide for NDC finance compendium of country reports and case studies, guides and toolkits: some of the resources included here may be useful for policy makers.
- UNDP's Investment and Financial Flow Analysis (I&FF) supports countries to cost the investment and financial flows needed to mitigate/adapt to climate change.

⁸ (GCF, 2017 p. 15)

⁹ (GCF, 2017 p. 7)

¹⁰ (GCF, 2017 p. 7)

¹¹ (GCF, 2017 p. 17)

¹² (GCF, 2017) 'Providing information on finance, including information on support received directly related to results, and providing more detailed information on sources of finance, as required in a country's biennial update report (BUR) to the UNFCCC, would facilitate the understanding of how ex-ante and ex-post financing is used in a complementary manner and would improve transparency and reduce the risk of double financing.' UNDP's Investment and Financial Flow Analysis (I&FF) supports countries to cost the investment and financial flows needed to mitigate/adapt to climate change.

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Annex I - Potential sources of data on national expenditure

National communications and biennial update reports to the UNFCCC

UNFCCC requirements on developing countries to report on climate finance (and thus land-use finance) are limited. In their national communications and biennial update reports (BURs) countries must report bilateral and multilateral financial flows that they have received. There is no requirement to report on domestic public or private climate finance – countries are encouraged to do so, but this is optional.

In their biennial update reports, countries are requested to report on ‘Constraints and gaps, and related financial, technical and capacity needs, including a description of support needed and received from the Global Environment Facility, Parties included in Annex II to the Convention and other developed country Parties, the Green Climate Fund and multilateral institutions for activities relating to climate change.’¹³ Some countries, such as Ghana, include climate finance mapping in addition to reporting monies received from donors in their UNFCCC national communications.¹⁴ Ghana summarises financial flows received by: instrument (loans vs grants vs national budgets vs result-based payments); sector; mitigation vs adaptation; and channel of financial flow.¹⁵ This contrasts with a country such as Nigeria, which provides a list of all individual financial flows by project or programme.¹⁶

Informal guidelines for NDCs encourage inclusion of information on ‘Resource Mobilization Strategies,’ including ‘An estimation of financing needs at different levels; domestic budgetary expenditures for BAU projects and programmes in key sectors and estimated investments for mitigation options; current and planned investments by private sector in key sectors; data on bilateral and multilateral financial support provided to the country’.¹⁷ Formal guidance is currently being negotiated.¹⁸

UNDP: Climate Public Expenditure Reviews (CPEIR)

A CPEIR is a diagnostic tool to assess opportunities and constraints for integrating climate change concerns within the national and sub-national budget allocation and expenditure process.

The CPEIR analytical framework has three key pillars: policy analysis, institutional analysis and climate public expenditure analysis.¹⁹

Policy analysis looks at national climate change policies and other relevant policies, such as national development plans, to assess the overall policy environment for effective climate change expenditure. This pillar analyses policies that are both supportive and potentially non-supportive of climate objectives.²⁰ For example, the Bangladesh CPEIR notes that the Government sees coal as a way to reduce dependency on natural gas.²¹ The policy analysis pillar also analyses fiscal instruments that are relevant to climate change. For example, the Thailand CPEIR assesses Government subsidies for clean energy provision, with a quantitative assessment of the subsidies provided.²²

Institutional analysis assesses how climate policies translate into budget allocations and expenditure: it considers the decision-making process and the institutions that participate in this process.

CPEIRs are led by UNDP and conducted by relevant government officials, with support from local and international consultants. They are conducted at the national (for example Cambodia) or sub-national level (for example Hebei province China). They focus on domestic and international public expenditure for climate related areas. Countries where CPEIRs have been conducted include Bangladesh, Cambodia, China (Hebei Province), Ecuador, Fiji, Indonesia, Nepal, the Philippines, Samoa, Thailand, Tonga, Vanuatu and Vietnam.²³

¹³ (UNFCCC, 2012 pp. 39-41)

¹⁴ (Republic of Ghana, 2015 pp. 176-178)

¹⁵ (Republic of Ghana, 2015)

¹⁶ (Federal Republic of Nigeria, 2018)

¹⁷ (WRI, 2015)

¹⁸ (UNFCCC)

¹⁹ (UNDP, 2012)

²⁰ (UNDP, 2012)

²¹ (Government of Bangladesh, 2012)

²² (Government of Thailand, 2015)

²³ (UNDP)

For the Climate Public Expenditure Analysis pillar of the CPEIR, development budget (the budget for development programmes) and current budgets (budgets for ministerial spending) are assessed, line by line. The climate-relevant proportion of each budget line is evaluated. This is then used to evaluate ministry spending by sector. There is inevitably a degree of subjectivity in judging how relevant different types of expenditure are to climate change based on the objectives of the expenditure.²⁴ This, as well as other methodological differences, renders cross-country comparisons challenging between different country CPEIRs.²⁵

Some CPEIRs, such as the Bangladesh CPEIR, also include a thematic analysis, which assesses programmatic spend by theme.²⁶ In the case of Bangladesh, the themes were: food security, social protection and health; comprehensive disaster management; infrastructure; research and knowledge management; mitigation and low-carbon development; and capacity building and institutional strengthening.

UNDP: Private Climate Expenditure and Investment Review

The methodology provides guidance to countries to capture a full picture of private financial flows for climate change mitigation and to support decision making on the use of public funds to incentivize private sector investment in major sectors, including agriculture and forestry.

At this stage, the methodology has been implemented in four countries (Vietnam, Thailand, Ecuador and Chile), but with a sole focus on the energy sector.

World Bank: Public Expenditure Reviews

The World Bank's PER is a diagnostic instrument used to evaluate the effectiveness of public finance. PERs are conducted by World Bank staff, working with the ministry of finance and relevant sectoral ministries in the recipient country.²⁷ To date, hundreds of PERs have been conducted, across multiple countries. Sector foci have included health care, education, and infrastructure.

PERs tend to be whole economy or sector wide. They may touch on climate change-related sectors and expenditure, but they do not focus on climate change. They are conducted at both national and subnational level. They consider all public expenditure from domestic and international sources, as well as fiscal instruments and policy measures that apply to the sector under analysis. For example, the Moldovan PER quantifies the value of subsidies to and the value of donor financed projects in the agricultural sector; Vietnam's PER analyses the composition of Government tax revenue.^{28, 29}

PERs examine how public expenditure was allocated and managed. They support governments and donors to assess the impact of investment and the effectiveness of budget planning and execution.³⁰ They also analyse the role of the government against the private sector in the choice of programmes for public financing and provision.³¹ For example, the PER of the education sector in the Democratic Republic of the Congo examines the split of education spending between private households, government and development partners.³²

PERs also assess the aggregate level of public spending and deficit, considering whether it is consistent with the country's medium-term macroeconomic framework.³³ This can be very detailed: the Vietnam PER analyses the Government's bond maturity profile.³⁴

The PERs, while not directly relevant to climate finance tracking, have been very influential on the structure of climate finance effectiveness analyses. For instance, an interview with ODI showed that their Climate Finance Analyses took the PERs as a starting point.

²⁴ (UNDP, 2012 p. 3)

²⁵ (UNDP, 2012 p. 7)

²⁶ (Government of Bangladesh, 2012)

²⁷ (World Bank, 2017 p. 7)

²⁸ (World Bank, 2015)

²⁹ (World Bank, 2017)

³⁰ (World Bank)

³¹ (World Bank, 1996 pp. 1-2)

³² (World Bank, 2015)

³³ (World Bank, 1996 pp. 1-2)

³⁴ (World Bank, 2017)

UNDP Climate Change Financing Framework

The CCFF is developed by Action on Climate Today (ACT), a programme supported by UNDP and the Governments of the UK and Sweden. It includes a set of policies and processes that enable a response to climate change by linking policy frameworks with budgeting and ensuring transparent allocations and effective use of public resources.³⁵

CCFFs have an adaptation focus and are forward-looking: future expenditure is tracked.

The CCFF process is considerably broader than pure tracking of public expenditure, as shown by the procedural steps outlined:³⁶

1. Understand the problem (estimate losses and damages from climate change)
2. Understand ongoing and planned adaptation efforts (track domestic and international public climate change projects and expenditure)
3. Identify, prioritise and cost actions that respond to climate change
4. Identify likely sources of finance for these actions
5. Establish robust monitoring systems

CCFF work has been completed at the national and sub-national level. CCFF work is underway in Afghanistan, Bangladesh, Cambodia, Indonesia, Nepal, Pakistan and in several Indian states. Other countries have undertaken some of the elements of a CCFF, such as Bhutan, the Philippines, Thailand, Vietnam and several Pacific Island States.³⁷

³⁵ (Government of Pakistan, 2017 p. 19)

³⁶ (Action Today, 2017)

³⁷ (UNDP, 2016)