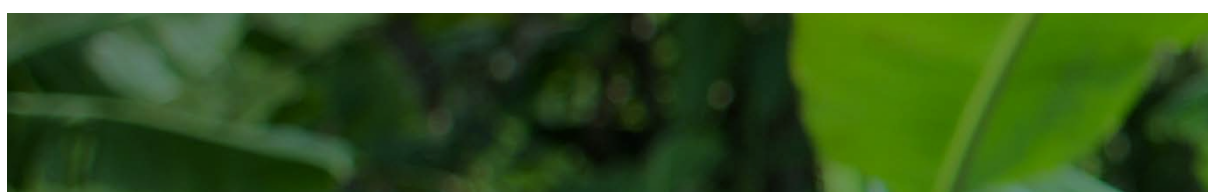




# CAUSALITY ASSESSMENT FOR LANDSCAPE INTERVENTIONS



## Causality Assessment for Landscape Interventions (CALI) – Methodology Guidebook

November 2022

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“You’re not likely to adapt your *strategy* if you never seriously question whether the *boundaries* you establish are reasonable, whether the *norms* and *values* you espouse are sound, and whether the *pathways* you propose are actually credible.

The whole point of any exercise you choose should be asking yourself difficult questions.”

**Thomas Aston, evaluation researcher<sup>1</sup>**

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<sup>1</sup> Aston, T. [How to Make Theories of Change More Useful?](#) Published on Medium on 27 January 2021.

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The first version of CALI was then piloted with the GGP “Reducing Deforestation from Commodities Production” project in five landscapes across Indonesia (the Pelalawan, Sintang and South Tapanuli districts), Liberia (the GGP landscape in North-Western Liberia) and Paraguay (the Paraguayan Chaco). The CALI project teams played a pivotal role in documenting and sharing learnings from the pilots, which were instrumental for the authors to develop this upgraded version. Hence, special thanks are due to Rangga Aditya Elias, Moch Faisal Karim, Ella Prihatini, Anselma Welcker and Afroh Manshur (Indonesia CALI project team), Marvelous Queejay-Weah, Dorsla Farcarthy, James Yougie and George Ilebo (Liberia CALI project team), and Fabricio Vázquez, Cynthia Villalba and Oscar Gadea (Paraguay CALI project team).

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Last but not least, this work would have not been possible without the time and dedication of Gian Weick, who provided critical inputs on integrating systems thinking in the first version of the tool, and whose continuous collaboration in the CALI journey is highly appreciated.

# ABOUT CALI

“ Delivering global environmental benefits, including through reduced deforestation, requires transformative investments that properly take into account the complexity of landscape dynamics. To date, the GEF has invested \$3.7 billion in forest initiatives, and any effort to leverage this investment is very important. Protecting primary forests is the cheapest and best solution to the twin crises of biodiversity loss and climate change and with the new GEF-8 funding cycle committing up to \$1.5 billion to this we must do everything we can to maximise impact. The Causality Assessment for Landscape Interventions (CALI), supported by the GEF, helps project teams to ensure that these complexities are reflected in their theory of change, and that their evolution informs adaptations to the project implementation strategy. This is all driven by a participatory process that boosts system connectivity and learning, increasing the likelihood of success of any project addressing deforestation at landscape or jurisdictional level. CALI is therefore an important step toward advancing systems thinking and integrated approach programming to tackle drivers of global environmental degradation.

- **Mohamed Bakarr, Lead Environmental Specialist, the Global Environment Facility (GEF)**

“ The latest strategic plan of UNDP recognises the importance of developing new tools that are better suited to support continuous learning and adaptation for interventions in complex systems. This is especially true for landscape and jurisdictional approaches, which target deforestation in highly volatile and dynamic settings. The Causality Assessment for Landscape Interventions is an excellent example of the innovative tools we need. With its holistic and highly participatory approach, it contributes to breaking silos among stakeholders, through engaging them in a honest reflection of what is and isn't working with a proposed suite of interventions. This is done borrowing from systems science and the latest thinking in evaluation. The result is a process that goes beyond a mere evaluative assessment and contributes to system-level learning, building capacity of implementing teams and increasing the chances of success and delivering an invaluable experience for all parties engaged.

- **Alan Fox, Director of the Independent Evaluation Office (IEO) of UNDP**

“ In Peru we experienced CALI as a wonderful investment in learning, which will take you a long way to maximise your project impact. It is a practical methodology that guided us through an exciting journey to update our project's theory of change, results framework and deliverables, following substantial changes in the drivers of deforestation in our landscape in the Peruvian Amazon. This encompassed a thorough engagement and dialogue with all key project stakeholders, including representatives of the local and national government, indigenous communities, private sector actors, and other civil society organisations. Beyond adaptation, the assessment has also allowed the whole project team to strengthen their relationships and exchange with these actors, who play a critical role for the success of our interventions. It has also contributed to strengthen relationships among the actors themselves, allowing them to “see the system” and better understand each other's perspectives. We highly recommend CALI to all other projects and initiatives addressing deforestation at landscape level.

- **Diana Rivera, Sustainable Productive Landscapes in the Peruvian Amazon Project Manager, UNDP**

“ The success of initiatives that operate and seek to effect change in complex systems hinges on an ability to continuously learn and adapt. Working in this way requires a new generation of new M&E tools and practices. CALI provides an important contribution to this, offering a solid and practical methodology for guiding project teams to engage with their stakeholders in a process of continuous reflection on the validity of their theory of change – situating it within the complex system in which they operate.

- **Søren Vester Haldrup, Innovation Facility Fund Manager & M&E Sandbox Lead, UNDP**

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# HOW TO USE THIS GUIDEBOOK

How do we learn and adapt when implementing landscape or jurisdictional interventions?

The Causality Assessment for Landscape Interventions (CALI) methodology supports adaptive management through promoting continuous, participatory reflection on the effectiveness of Project interventions in reducing deforestation at landscape or jurisdictional level.

The methodology proposed in the guidebook provides an integrated, systems-informed approach for project managers and their teams to continuously reflect on the validity of their Theory of Change, with a strong emphasis on unpacking causality between results at different levels.

The cornerstone of the assessment is the engagement of key landscape stakeholders as partners, which is aimed to uncover insights on relevant system dynamics, while discussing their role in the Theory of Change of the Project. The findings of the assessment will allow project managers and their teams to adopt corrective and/or catalysing actions to increase the chances of success of the Project.

An [introductory chapter](#) illustrates the rationale that brought to the development of CALI, presents the specific objectives of the assessment, and provides an overview of the methodology and its limitations.

The following chapter on [Prerequisites](#) details the minimum requirements for a project team to decide to engage in the assessment.

The rest of the guidebook illustrates a detailed process for conducting the assessment at different stages of the project lifecycle: [at project start](#) and [during implementation](#).

The authors highly recommend to project teams to engage in CALI at least twice throughout the Project lifecycle: at project start and half-way through implementation. Nevertheless, a Project may also decide to engage in CALI directly throughout implementation; in this case, they should be following the steps in this order: Preparation, 1.1, 1.2, 2.3, 2.4.

# LIST OF ACRONYMS

CALI	Causality Assessment for Landscape Interventions
FAO	Food and Agriculture Organisation of the United Nations
GGP	Good Growth Partnership
GEF	Global Environment Facility
GHG	Greenhouse Gas
MEL	Monitoring, Evaluation and Learning
NFMS	National Forest Monitoring System
PAMs	Policies and Measures
PES	Payment for Ecosystem Services
RBM	Results-Based Management
REDD+	Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
RF	Results Framework
ToC	Theory of Change
UNFCCC	United Nations Framework Convention on Climate Change
UNDP	United Nations Development Programme
UNDP GCP	UNDP Green Commodities Programme
UN-REDD	United Nations Collaborative Programme on Reducing Emissions from Deforestation and forest Degradation (REDD+) in developing countries

At each stage, the steps to be followed have similar purposes and will deliver similar products to inform adaptive management; however, this will happen through a tailored process acknowledging the level of progress reached, relationships with landscape stakeholders and dynamics, and opportunities to adapt the course of action.

Several [appendices](#) and [annexed templates](#) accompany implementation at the different stages, and examples are provided from pilot applications in selected landscapes. Throughout the guidebook, the reader will also encounter several “Insight” boxes, which define key concepts that are paramount for the application of CALI, and notes on “Experiential Learning”, which outline the intrinsic learning benefits for project teams and key landscape stakeholders engaging in the assessment.



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# KEY DEFINITIONS

**Afforestation:** Increase in forest area due to the planting of trees on land that was not previously forested.<sup>2</sup>

**Causal mechanism:** A complex system, which produces an outcome by the interaction of a number of parts (Glennan, 1996).<sup>3</sup> In process tracing (on which the contribution tracing approach outlined in this guidebook is based), a *causal mechanism* is a causally linked sequence of events produced by actors (Bennett and Checkel, 2014).<sup>4</sup> This is based on Jon Elster's definition of a *mechanism* in the social sciences, as a frequently occurring and easily recognisable causal pattern (1998, p. 45),<sup>5</sup> which may be seen as consisting of entities (actors, organisations) – or the forces engaged in activities, and activities – the producers of change, which transmit causal forces (Beach and Pedersen, 2019, p. 29).<sup>6</sup>

**Contributing factors:** The indirect forces, policies, behaviours, financing, and/or activities – generally internal to the landscape, but occasionally external – that enable the occurrence of direct drivers and/or serve as barriers to successfully decreasing deforestation. *For example, lack of employment opportunities or lack of alternative building materials or existence of perverse incentive program or population growth or lack of access to credit.*

**Contribution analysis:** A theory-based, methodologically neutral (i.e., not providing clear guidance on how to collect data and assess its strength towards or against a contribution claim) approach to evaluation, aiming to assess the role played by an intervention, or specific aspects of it, in the achievement of one or more outcomes. It requires the creation of a causal chain where each link represents an intermediate outcome, associated with risks that might prevent it from taking place and assumptions that need to hold if the intermediate outcome is to materialise (Befani and Stedman-Bryce, 2017).<sup>7</sup>

**Contribution tracing:** A methodological approach developed by Befani and Stedman-Bryce (2017)<sup>8</sup> building on principles of Contribution Analysis and Process Tracing. It aims to fill the methodological guidance gap in Contribution Analysis, through making Process Tracing a principle and set of tests “ready for application in real-life evaluations” (p. 44).

**Deforestation:** The conversion of forest to other land use, such as agriculture and infrastructure.<sup>9</sup>

**Direct drivers:** *Direct drivers* are the processes or human activities that directly cause deforestation or influence reforestation/afforestation in the landscape. *For example, urban development or expansion of the agricultural frontier or illegal logging or unsustainable harvest of non-timber forest products.*

**Enabling Conditions:** Contextual circumstances that support the successful implementation of an intervention but are not necessarily intentionally designed or meant to influence forests. *For example, political stability or an increase in crop prices or adequate precipitation during a specific year or the implementation of a national policy not directly focusing on forests (but having unintended impact).*

**Experiential Learning:** The process of *learning* through *experience*; also more narrowly defined as “learning through reflection on doing”.<sup>10</sup>

**Forest:** Loosely defined as a large area covered chiefly with trees and undergrowth.<sup>11</sup> According to the FAO (2020), land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.<sup>12</sup> For UNFCCC (2005), an area of land of at least 0.05–1 hectare, of which more than 10–30% is covered by tree canopy. Trees must have a potential to reach a minimum of 2–5 meters at maturity in situ. Parties to the Convention can then choose to define a forest from within those ranges, and, as a result, and in acknowledgement of wide differences in bio geophysical conditions, social structure and economics, many definitions of the term forest are in use throughout the world.<sup>13</sup>

**Impact Pathway:** The (more or less) complex causal mechanisms linking project interventions to the desired outcomes and ultimate impact of reducing deforestation in a certain landscape or jurisdiction.

**Intervention:** A cohesive set of activities implemented with the intention of contributing to decreasing deforestation in a certain landscape or jurisdiction. *For example: establishment and implementation of a multi-stakeholder platform or promotion of improved practices or capacity-building for fire management.*

**Jurisdictional Approach:** A type of landscape approach (see def. below) that uses government administrative boundaries, primarily subnational, to define the scope of action and involvement of stakeholders rather than social (e.g. indigenous community) or environmental (e.g. ecosystems, watershed) boundaries.<sup>14</sup>

2 FAO, 2020. Global Forest Resources Assessment (FRA).

3 Glennan, Stuart S. 1996. Mechanisms and the Nature of Causation. *Erkenntnis* 44 (1): 49– 71.

4 Bennett, A., and Checkel, J. (Eds.), 2014. *Process Tracing: From Metaphor to Analytic Tool (Strategies for Social Inquiry)*. Cambridge: Cambridge University Press. doi:10.1017/CBO9781139858472.

5 Elster, Jon. 1998. A plea for mechanisms. In *Social mechanisms: An analytical approach to social theory*, ed. by Peter Hedström and Richard Swedberg, 45–73. New York: Cambridge University Press.

6 Beach, D. and Pedersen, R.B., 2019. *Process-tracing methods: Foundations and guidelines*. University of Michigan Press.

7 Befani, B. and Stedman-Bryce, G., 2017. Process tracing and Bayesian updating for impact evaluation. *Evaluation*, 23(1), pp.42–60.

8 Ibid.

9 FAO (2020). Global Forest Resources Assessment (FRA).

10 Felicia, P. (2011). *Handbook of Research on Improving Learning and Motivation*. p. 1003. ISBN 978-1609604967.

11 Oxford Languages. Accessed through Google browser in November 2020.

12 FAO (2020). Global Forest Resources Assessment (FRA).

13 UN-REDD (2016). REDD+ Key Terms Glossary. Accessible at: <https://www.unredd.net/documents/redd-papers-and-publications-90/un-redd-publications-1191/technical-resources-series/15902-towards-a-common-understanding-of-redd-under-the-unfccc-glossary.html>.

14 Conservation International (2019). Exploring the Reality of the Jurisdictional Approach as a tool to achieve sustainability commitments in palm oil and soy supply chains.

**Landscape:** A geographical space that results from the interaction between social, ecological, economic, and governability processes,<sup>15</sup> and is most commonly delineated around a specific ecosystem (or ecosystems) and/or delineated along jurisdictional boundaries.

**Landscape Approach:** A set of concepts, tools, methods and approaches deployed in landscapes in a bid to achieve multiple economic, social, environmental objectives (multifunctionality) through processes that recognise, reconcile and synergise interests, attitudes and actions of multiple actors.<sup>16</sup>

**Landscape system map:** A visual map of the system (and subsystems) driving deforestation in a certain landscape or jurisdiction.

**CALI Project team:** The team applying the CALI for the Project. Consists of a lead assessor and facilitator, hereafter referred to as “the facilitator” (ideally with previous experience in process or contribution tracing), and key Project staff, including an individual with experience in organising, processing, and visualising tabular and geospatial data, and ideally with in-depth knowledge of the local information landscape.

**Project:**<sup>17</sup> The project undergoing CALI.

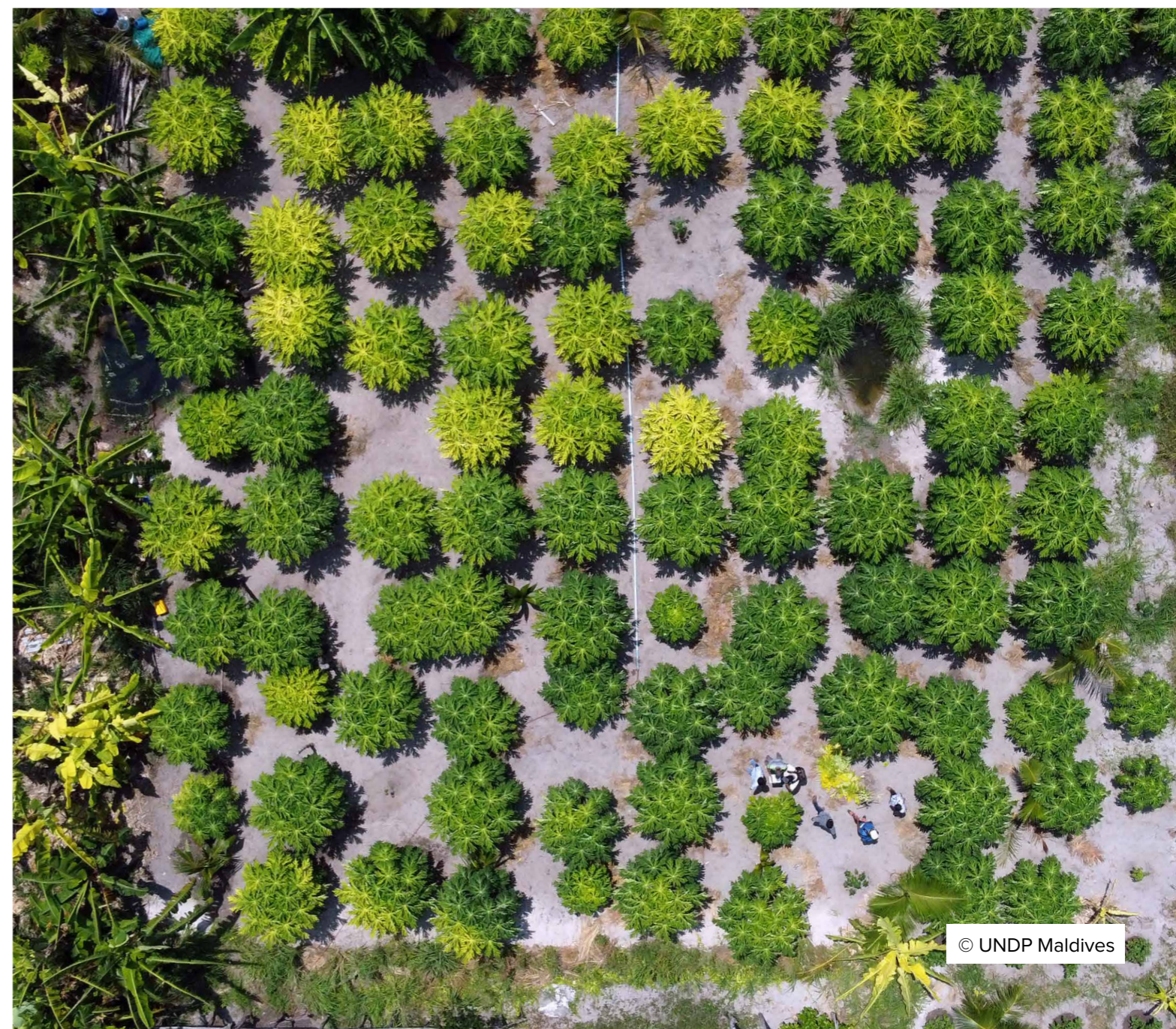
**Reforestation:** Increase in forest area due to the replanting of trees on land that was previously forested, or due to natural expansion, i.e., when trees grow back on abandoned agricultural or other land.<sup>18</sup>

**Results Framework:** A results framework is an explicit articulation (graphic display, matrix, or summary) of the different levels, or chains, of results expected from a particular set of interventions making up a project, program, or development strategy.<sup>19</sup>

**Sensemaking:** The process by which people give *meaning* to their collective experiences. In organisation science, it has been defined as “the ongoing retrospective development of plausible images that rationalise what people are doing.”<sup>20</sup>

**System:** A set of interconnected elements, which together lead to a certain behaviour. The landscape and its appropriation by humans is a good example of a complex system: various elements like food demand, deforestation, public policies, business interest work together and influence each other leading to the developments we are observing in the landscape (increasing food consumption, increasing food production, decreasing forest cover). Socio-environmental systems comprise elements which are physical (e.g., land, resources, workforce) as well as so-called soft factors which represent emotions and attitudes of actors in the system (e.g., aspirations, perceived threats, fear, trust).

**Theory of Change:** A hypothesis of how and why change happens. Often presented as a mixture of diagrams and narrative summary, according to Vogel (2012)<sup>21</sup> a Theory of Change can be seen as “an ongoing process of discussion-based analysis and learning that produces powerful insights to support program design, strategy, implementation, evaluation and impact assessment, communicated through diagrams and narratives which are updated at regular intervals.” Its common elements include an articulation of how change happens in a particular context, clarification of the role of an organisation in contributing to change, and the definition and testing of critical assumptions (INTRAC, 2017).<sup>22</sup>



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15 Minang, P.A., van Noordwijk, M., Freeman, O.E., Duguma, L.A., Mbow, C., de Leeuw, J., and Catacutan, D.E. (2015). Introduction & Basic Propositions. In P.A. Minang, et al. (Eds.), *Climate-Smart Landscapes: Multifunctionality in Practice* (p. 3-17). Nairobi, Kenya: World Agroforestry Centre.

16 Ibid. (p. 8).

17 With capital P.

18 FAO (2020). *Global Forest Resources Assessment (FRA)*.

19 Adjusted from IEG, World Bank (2012). *Designing a Results Framework for Achieving Results: A How-to Guide*.

20 Weick, K., Sutcliffe, K. M., & Obstfeld, D. (2005). *Organising and the process of sensemaking*. *Organisation Science*, 16(4): 409–421.

21 Vogel, I (2012). *Review of the use of Theory of Change in International Development: Review report*. DFID, April 2012.

22 INTRAC (2017). *Theory of Change*. Retrievable as part of [the M&E Universe](#).

04 Objective of CALI

06 Overview of the CALI methodology

11 Limitations and notes on application



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# INTRODUCTION

Forests harbour most of the biodiversity of the Earth, support the livelihoods of hundreds of millions of people (including many of the world's poorest), and provide a multitude of ecosystem services, including carbon storage and climate regulation, soil protection and flood control, pollution abatement, and fresh water supply.<sup>23</sup>

Nonetheless, forests and the services they provide continue to be under severe pressure: it is estimated that 420 million hectares of forest have been lost since 1990 through conversion to other land uses, with agricultural expansion accounting for the most of this.<sup>24</sup>

Landscape and jurisdictional approaches which attempt to address agricultural expansion and the other drivers of deforestation are complex interventions, attempting to change the interplay of political, economic, and social forces at play, in conjunction with other efforts. Their Theories of Change tend to include multiple assumptions and risks and rely on many factors working alongside project intervention efforts. As these landscape and jurisdictional approaches are designed and implemented in dynamic environments, and trying to pull selected levers for change, implementation teams must be comfortable in dealing with uncertainty, with adaptation becoming a key factor for success.

## INSIGHT 1: A Systemic Approach to Landscape-level assessments

CALI approaches landscape-level analysis through **systems practice**, i.e., the approach of making reliable conclusions about the behaviour of a system by developing a deep understanding of its underlying structure. Viewing problems from a system perspective helps practitioners to develop a holistic understanding of the trajectory of current developments of deforestation and its underlying complex causes, uncovering the often hidden connections and dependencies between actors and sectors, and as such, building bridges between the functional silos.

In daily life, our attention is often directed towards single events. Most of the information we consume through the news focuses on such single events (e.g., new public policy introduced, illegal deforestation discovered, aggression between actors). However, in most cases, these events are only snapshots in time emerging from underlying long-term **patterns** in a system's behaviour. In other words, such events *only* represent the tip of the iceberg that is most visible to us (Figure 1), while their underlying **patterns** tell us how the situation affecting a specific landscape or jurisdiction developed and emerged over time (e.g., increasing pressure on government, increasing deforestation, rising tensions between actors).

These patterns of behaviour, in turn, are driven by the **structure** of the system driving deforestation, or in other words how various parts of the system are linked and interact with each other. The structure illustrates the important drivers behind the developments and might unveil the interconnection between different events and patterns. Our decisions to affect the

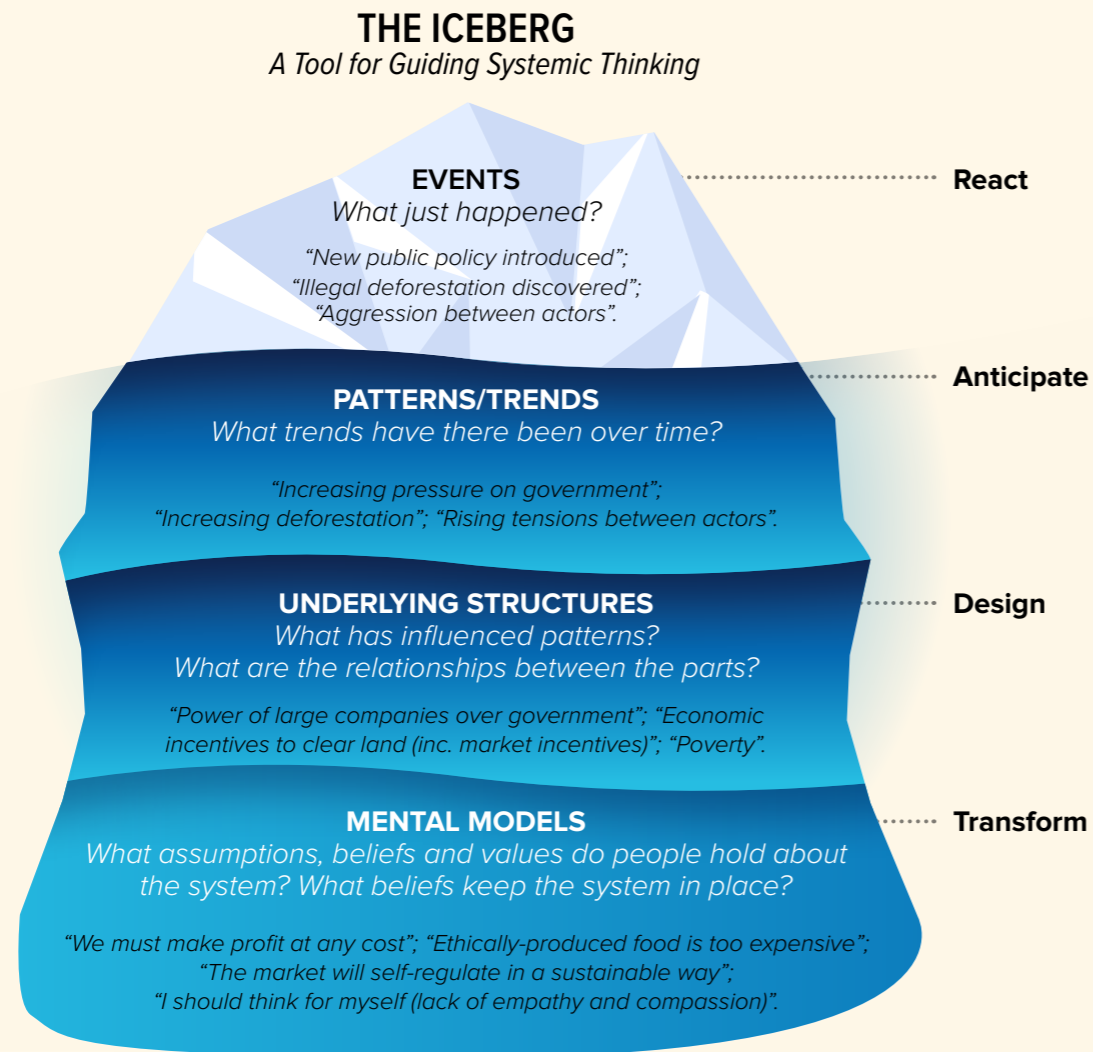
<sup>23</sup> Ghazoul, J. (2015). *Forests*. Oxford University Press.

<sup>24</sup> FAO and UNEP (2020). *The State of the World's Forests 2020. Forests, biodiversity and people*. Rome. <https://doi.org/10.4060/ca8642en>.

**INSIGHT 1: Continued**

system or some of its parts are based on our understanding of these relationships, i.e. our *'mental models'* of reality.

Systems practice aims to make these behaviour patterns, the system structure, and the mental models which are often implicit and hidden more transparent.



**Figure 1: Adapted from "A Systems Thinking Model: The Iceberg, Ecochallenge.org".**

When assessing the effectiveness of development interventions aimed at reducing deforestation at landscape or jurisdictional level, systems practice allows practitioners to complement and situate the Theory of Change of their project to consider the full range of relevant outcomes that might have been influenced through their interventions, and how the latter, in turn, are influenced by the complex system dynamics at play in the landscapes. This allows the Project team members to develop a systems-informed understanding of the environment in which they operate, which in turn will help them to make more informed decisions and increase the likelihood of success of their interventions.

Therefore, the implementation of landscape and jurisdictional approaches need to become more reflective and agile, and capable of leveraging insights from implementation, so to adjust interventions in real time and increase their chances of success. This implies engaging in a continuous reflection on what is working and not, calling into question the validity of the Theory of Change – and its assumptions – and its interplay with the complex system dynamics driving deforestation in the landscape or jurisdiction.<sup>25</sup>

If done correctly, through encouraging ownership and learning by project teams and landscape stakeholders, rather than that of external consultants,<sup>26</sup> this would unlock tremendous opportunities to increase the effectiveness of landscape and jurisdictional approaches.

## Objective of CALI

In recognition of the complexity of the system dynamics driving deforestation at landscape or jurisdictional level, and the consequent imperative for project teams to continuously learn and adapt during implementation, the Causality Assessment for Landscape Interventions (CALI) was developed as an integrated tool for causality assessment and adaptive management, promoting a continuous, participatory, and system-informed reflection on the effectiveness of Project interventions in reducing deforestation at landscape or jurisdictional level.

**The CALI methodology** helps Project teams and their interventions link to the system (and sub-systems) driving deforestation or land-use change in the landscape, allowing for a holistic assessment of causality with due consideration of the system dynamics in which the Project operates.

These are not benefits offered by external evaluations and therefore CALI should be used as an important innovative complement to traditional project MEL systems.

**INSIGHT 2: Causality in landscape and jurisdictional approaches: defining impact pathways**

The concept of causality lies at the centre of any assessment examining the effectiveness of one or more project interventions in bringing about desired outcomes and impact: can we claim contribution to different sorts of observed outcomes? Or, would the changes we observe have happened anyway without our intervention/s?

But what do we mean by causality? According to professor Stuart Glennan, "a *causal mechanism* is in itself a complex system, which produces an outcome by the interaction of a number of parts" (*Mechanisms and the Nature of Causation*, 1996). CALI aims to put these causal mechanisms at the centre of system-informed analysis of landscape and jurisdictional approaches, through the concept of **impact pathways**, which can be defined as *the (more or less) complex causal mechanisms linking project interventions to the desired outcomes and ultimate impact of reducing deforestation in a certain landscape or jurisdiction.*

<sup>25</sup> Appendix A provides more details on how Theories of Change can be used as a systemic tool to guide interventions in complex systems.  
<sup>26</sup> At the time of writing, the evaluation policy of most development organisations mandates project teams to hire external evaluators who often lack the time and/or expertise to develop the systemic understanding of landscape dynamics needed to understand causality and the (actual or potential) contributions of project interventions to impact at landscape-level (thus ending up reducing evaluations to mere "box ticking" processes that do not add much value to project implementation).

## INSIGHT 2: Continued

Through engaging in the assessment, not only will project teams have a chance to investigate impact pathways to explore whether the expected causality is coming through (effectiveness), but they will do so through developing a strong understanding of how these causal mechanisms are affected by (and, in turn, affect) the complexity of the system (and sub-systems) driving deforestation in the landscape or jurisdiction where the project operates.

By engaging in the assessment at different key moments in the Project lifecycle, practitioners are guided in systematic reflection on the (expected and/or actual) causal pathways through which their interventions should be contributing to reducing deforestation at landscape or jurisdictional level;<sup>27</sup> findings of the assessment immediately inform adaptive management, through a refinement of the Theory of Change and implementation strategy of the Project.

During the assessment, the following key questions are explored through facilitated, highly participatory workshops engaging the Project team and key landscape stakeholders:

- *Are the planned interventions contributing to reducing deforestation or influencing its key drivers in the landscape/jurisdiction? Either directly or indirectly through influencing other activities in the landscape with aggregate impacts ensuing? Does the Theory of Change hold? Why/Why not?*
- *How are planned interventions being influenced, in turn, by the complex system dynamics at play in the landscape? What are the assumptions, and are they holding?*
- *What is needed to strengthen project effectiveness? Are there any gaps in the existing suite of interventions being implemented to achieve the intended impact? Which ones, and how should they be addressed?*
- *Can the results obtained be sustained over the long term? If not, what is needed for this to happen?*

Beyond supporting adaptive management, CALI also provides an invaluable experiential learning experience for the Project implementation team members and key landscape stakeholders, which are engaged in a deep reflection on the interplay between the interventions of the Project and the system dynamics leading to deforestation in the landscape, while also examining their respective, embedded role in the system and mental models. Through engaging in the assessment, the Project team members will gain a more thorough understanding of the Theory of Change of the Project and what they are really trying to achieve through the implementation of their workplans and deliverables.

<sup>27</sup> Although CALI is primarily aimed to support the adaptation of projects and programmes targeting deforestation through landscape or jurisdictional approaches, the methodology can also be leveraged to assess the effectiveness of a series of interventions targeting deforestation as part of a broader project or programme focused on biodiversity conservation, climate change mitigation, and/or the achievement of other objectives linked to reducing deforestation at landscape or jurisdictional level. Additionally, the methodology can be adapted to investigate the impact of a suite of interventions on other important landscape variables, e.g., freshwater or carbon stocks, or living income

By the end, each application of CALI will result in the delivery of the following products:

- **A new or updated landscape system map relevant to deforestation in the landscape or jurisdiction;**
- **Documentation of the assessment of (actual and/or expected) Project effectiveness, including records of discussions and sensemaking sessions between the Project team and stakeholders;**
- **A refined Theory of Change for the Project based on the above assessment and increased understanding of causality by the Project team members;**
- **A refined project implementation strategy and results framework for the Project based on the updated ToC;**
- **Increased capacity of the project team to reflect and adapt to optimise effectiveness of implementation.**

The CALI methodology, which will be further introduced in the following section, is fully integrated in the Project lifecycle, and can effectively complement and support more traditional tools and processes for intervention planning, monitoring and evaluation (including midterm and/or terminal evaluations),<sup>28</sup> adaptive management, and stakeholder engagement.

As the use of the methodology is applied more widely, it can support learning across sites as more examples come into the public domain.

## Overview of the CALI methodology

The CALI methodology is based on a mixed-methods approach including the analysis of secondary data (from the Project's monitoring system, national forest monitoring systems, academic research, and other studies on the landscape), and the collection and analysis of primary data through facilitated workshops with the Project implementation team and key landscape stakeholders.

The methodology was designed to be applied under the lead of one Project team, with the engagement of representatives of other organisations implementing interventions in the landscape. However, CALI can also be applied under joint leadership of multiple organisations active in a specific landscape, which could be sharing application costs. Such a modality is particularly suitable for landscapes, with a proliferation of actors and interventions with often limited coordination. In such contexts, CALI provides a valuable framework and systematic approach for bringing key landscape stakeholders and development practitioners together to engage in systemic reflection.

<sup>28</sup> Compared to a midterm evaluation, the CALI is fully led by the Project team, highly participatory and promoting experiential learning, and results in actual adjustments to the ToC and project implementation strategy on which the Project team has full ownership (vis-à-vis recommendations from evaluators, who are often only limitedly acquainted with the context). CALI can either provide inputs, substitute, or follow and validate/complement the recommendations of a midterm evaluation.

CALI should be integrated as much as possible within a Project schedule for monitoring, evaluation, and adaptive management. A first assessment is recommended at project start, while a second assessment is recommended half-way through Project implementation. Additional assessments are recommended for Projects lasting more than 5 years, as, in general, Project teams should aim to conduct the assessment roughly every 2 years. However, the frequency of reapplication is ultimately at the discretion of the team applying CALI and the donor funding its application, given they will have the best knowledge of how quickly changes are occurring in their landscape, the programme and project cycle (including progress in implementation to date), and will need to allocate resources for application.

Although each application of CALI will ultimately deliver the same tangible products (a new or updated landscape system map, documentation of the causality assessment, and a refined Theory of Change and implementation strategy for the Project), the methodology varies substantially between the first application (at project start) and second and further applications (during implementation), as the Project will find itself in considerably different positions at these stages, in terms of implementation progress, relationships with landscape stakeholders and dynamics, and opportunities to adapt the course of action.

Following this logic, the guidebook is structured around three main chapters:

- [Prerequisites](#);
- [First application of CALI – at Project start](#);
- [Second and further applications of CALI – during Project implementation](#).

The prerequisites chapter outlines the cornerstone requirements necessary to conduct the assessment, and as such it should be reviewed thoroughly by any Project team considering engaging in CALI.

With the anticipated variations depending on the stage of implementation reached, each assessment will consist of a preparatory stage – *to ensure that all prerequisites are met (or can be met), the CALI project team is in place, and a thorough plan for application is developed* – and the following 4 key steps:

- **Development or update of the landscape system map** – to deepen (or update) the understanding of the Project team of the complex system dynamics driving deforestation in the target landscape;
- **Review of Project impact areas in the landscape system map** – to connect (or update the connection of) the Theory of Change and planned interventions of the Project to the structure of the system driving deforestation in the landscape, so as to refine the Project team’s understanding of the objectives of the Project, and identify any critical gaps or areas of improvement.
- **Review or assessment of the Project impact pathways** – to investigate (actual and/or expected) effectiveness and causality and refine the Project impact pathways and/or implementation strategy, through considering the interaction between Project interventions and the complex system dynamics driving deforestation in the target landscape, and leveraging existing evidence of progress, learnings from implementation, and the situated knowledge of key stakeholders.

- **Adjustments to the Project ToC, strategy and results framework** – to propose concrete adjustments to the Theory of Change, implementation strategy and results framework of the Project, leveraging the information gathered through the previous step.

Application may not always be entirely linear: there is a good amount of iteration between some of the steps and sub-steps as information is gathered and more stakeholders are consulted. Project teams and facilitator/s should not restrain from going back to previous steps and adjust things as needed at any time during the assessment.

**Important note:** the CALI methodology is mainly principle and results based and defines a list of products to be developed and used in a certain way to inform adaptive management, through refining critical Project planning documents. These come with a series of proposed steps and sub-steps which can always be adjusted depending on the scope and nature of the Project, and context of application, including relationships among stakeholders and the latter and the Project team. Facilitators and project teams are actively encouraged to bring in innovation elements and adjust/improve the proposed methods as they see fit.

At each application stage, the CALI guidebook clearly details for each step:

- **Purpose;**
- **Method;**
- **Inputs**
- **Resulting Product/s;**
- **Suggested Length for in-person workshop.**

All steps and sub-steps in the Guidebook were developed with reference to an in-person application, which is the recommended format to maximise the quality of engagement of participants, and, by consequence the validity of results (and ownership of the team of the process!). Nevertheless, virtual and hybrid applications may also be considered, with the due adjustments.

The CALI guidebook comes with a series of [appendices](#) and [annexed templates](#), which support application.

Throughout the guidebook, a number of *examples* illustrate prerequisites, processes, and the resulting products expected from each step and/or sub-step. The examples are taken from pilot applications in selected landscapes in Indonesia, Liberia, Paraguay and Peru, and are just for reference; it is worth noting again that the CALI methodology must always be tailored to account for different structural and contextual factors, which are specific to each project and landscape.

In the guidebook, the reader will also encounter several “Insight” boxes, which define key concepts that are paramount for the application of CALI, and notes on “Experiential Learning”, which outline the intrinsic learning benefits for Project teams and key landscape stakeholders engaging in the assessment.

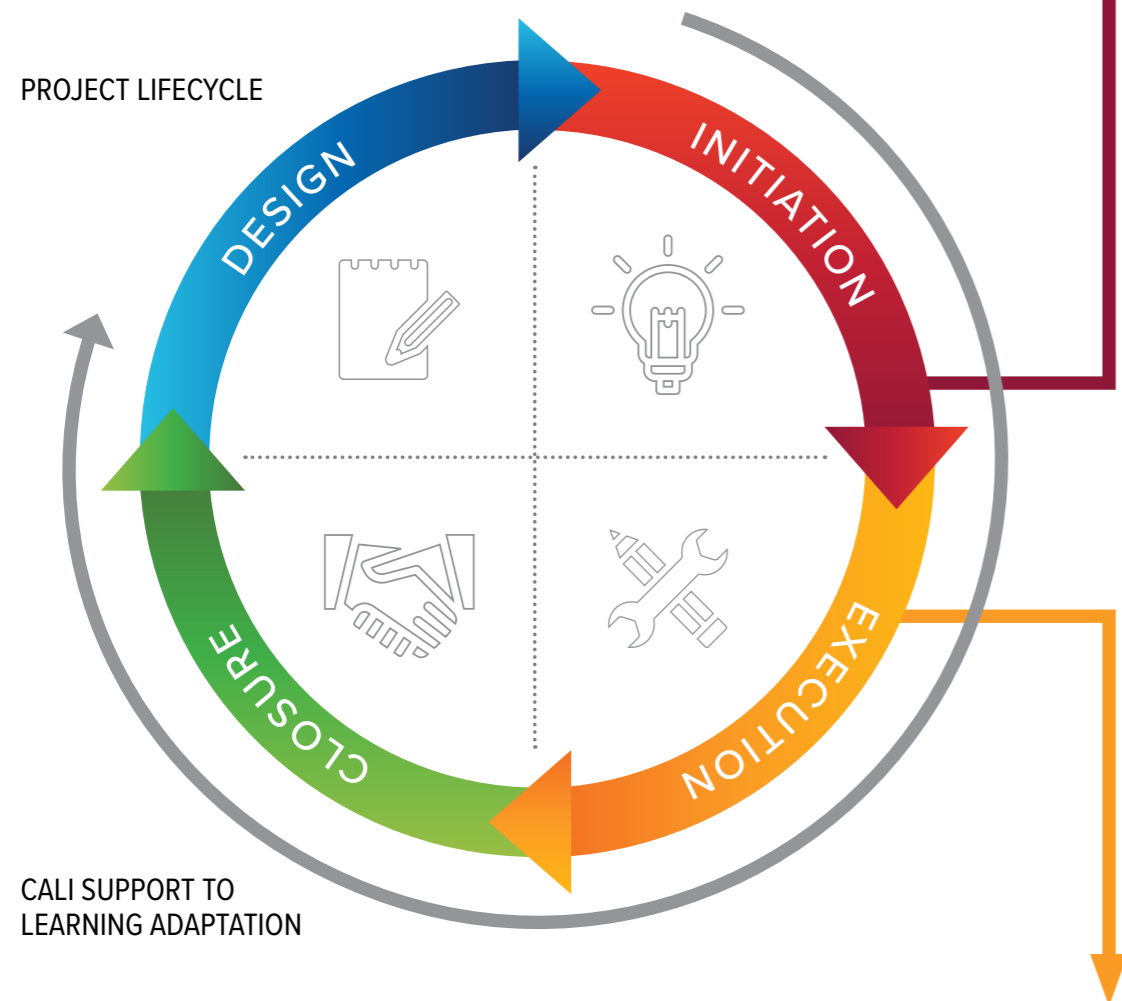
*Figure 2* (next page) shows the recommended timing and resulting products from each application of CALI, with relation to the project lifecycle.

Figure 2: Suggested timing of CALI applications during the typical development Project lifecycle, and outline of resulting products.

**FIRST APPLICATION OF CALI\***

- 1.1. New/updated landscape system map (deforestation)
- 1.2. Landscape system map with Project impact areas and gaps
- 1.3. Adjusted impact pathway/s and implementation strategy for each Project intervention
- 1.4. Proposal for a refined Theory of Change, Project implementation strategy and results framework

\* within the first year of Project implementation.



**SECOND AND FURTHER APPLICATIONS OF CALI\***

- 2.1. Updated landscape system map (deforestation)
- 2.2. Landscape system map with Project impact areas and gaps
- 2.3. Adjusted impact pathway/s and implementation strategy for each Project intervention
- 2.4. Proposal for a refined Theory of Change, Project implementation strategy and results framework

\* half-way through Project implementation (every 2 years for Projects > 5 years)

## Limitations and notes on application

A quality application of CALI requires skilled facilitators, with experience with systems practice and action-oriented evaluation of development projects. The collection, interpretation, and processing of findings for the development of final products require critical thinking and strong analytical and writing skills. The selected facilitator/s should also be able to play this role.

The validity of the assessment relies intensely on the perception and collective sensemaking of the Project team and key landscape stakeholders. Although this is based on the fundamental assumption that these actors have the best insights about the practical working of the system leading to deforestation in the landscape, whenever possible, it is always recommended to triangulate the information collected through this exercise with secondary sources and/or additional primary data collection (e.g., through individual interviews, and/or surveys).

As in all research, the findings and conclusions generated through the assessment must always be interpreted and discussed in light of the process through which they were generated, and in full acknowledgement of its limitations.



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- 13 A clearly defined landscape boundary
- 14 A thorough stakeholder analysis
- 20 A holistic view of landscape interventions and their interdependencies
- 21 An adequate Project monitoring framework and system
- 21 Adequate resources for application
- 22 Other desirable inputs



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# PREREQUISITES

This section outlines the minimum conditions that must be met for a Project to successfully apply the Causality Assessment for Landscape Interventions (CALI). These are summed up in 1 below.

*Table 1: Minimum conditions for a successful application of CALI.*

Prerequisite	Purpose
<a href="#"><u>A clearly defined landscape boundary (p. 13)</u></a>	To focus the assessment on a commonly understood and recognised geography, where the Project is aiming to contribute to reducing deforestation.
<a href="#"><u>A thorough stakeholder analysis (p. 14)</u></a>	To identify the key actors who influence and/or are affected by deforestation in the landscape, so to define the most important stakeholders to engage in the CALI assessment (and how).
<a href="#"><u>A holistic view of landscape interventions and their interdependencies (p. 20)</u></a>	<p>(i) To identify what interventions were and are currently being implemented in the landscape by the Project to analyse and adjust their impact pathways and implementation strategies.</p> <p>(ii) To identify what interventions were and are currently being implemented in the landscape by other actors and understand their connections with Project interventions to identify synergies and co-dependencies.</p>
<a href="#"><u>An adequate Project monitoring framework and system (p. 21)</u></a>	For the Project to be able to keep track of the outputs achieved, and the extent to which the expected outcomes are materialising. If well developed, this also allows to test the critical assumptions underpinning the Theory of Change of the Project. This information will be critical to support the Review of the Project impact pathways and subsequent adjustments to the Project ToC and implementation strategy.
<a href="#"><u>Adequate resources for application (p. 21)</u></a>	To ensure that the Project has the necessary monetary, staffing and time resources for an adequate implementation of CALI.



The Project team should ensure that all the prerequisites are met before engaging with the application of CALI. The following pages are meant to guide the Project team on how this should be done.

Concluding remarks on [other desirable inputs](#) (p. 22) outline conditions which, although not strictly necessary for a Project to engage with CALI, would provide notable advantages for carrying out the assessment.

## A clearly defined landscape boundary

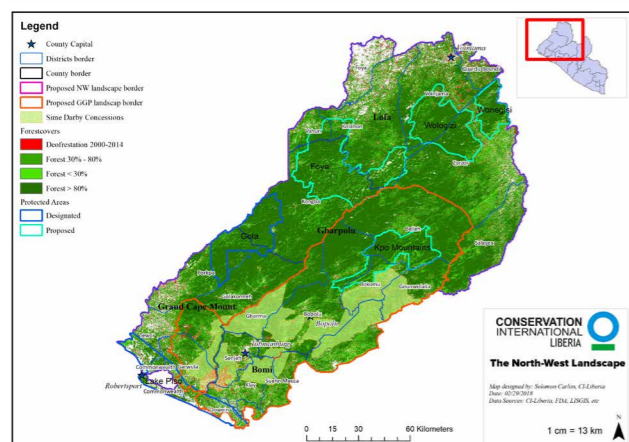
**Purpose:** To focus the assessment on a commonly understood and recognised geography, where the Project is aiming to contribute to reducing deforestation.

The Project team must be able to describe the geographic limits of the landscape, which may or may not coincide with jurisdictional or ecological boundaries, as shown in *Figure 3*. If relevant, the Project team should also be able to identify where within the landscape the Project is active (if not in the entire landscape). If a geographic boundary is not yet delimited, it should be identified now as a necessary prerequisite for the application of CALI. It is recommended that this information is visualised in a simple map such as the ones shown in *Figure 3*.

### Example



The landscape comprises the administrative boundaries of Pelalawan district, that is located in the Riau province in Indonesia.



The landscape comprises the administrative boundaries of Bomi county, upper Bokomu, Bade, Bondi Mandingo, Gbarma, Gongbayah, Gou, Koning, Lobarsu, Lower Bokomu, Nwalaila, and Yangaya clans of Gbarpolu county, Doblí, Lora, Yarbayan, Zulo, Zaweakomu clans of Bong county, Darblo, Kaidii, Kiazolu, Manobalah, and Zodua clans of Grand Cape Mount county that are located in the Northwest part of Liberia.

**Figure 3: Landscape boundaries of the jurisdictional district of Pelalawan in Indonesia (Riau province), and the ecological landscape of Northwestern Liberia.**

## A thorough stakeholder analysis

**Purpose:** To identify the key actors who influence and/or are affected by deforestation in the landscape, so to define the most important stakeholders to engage in the CALI assessment.

Ensuring the participation of key landscape stakeholders (at all applicable scales) is critical for any successful application of CALI: their situated knowledge is the cornerstone of the assessment, and the validity of the findings relies fundamentally on the ability of the Project team to engage the most relevant stakeholders: the ones holding the deepest embedded knowledge of the system dynamics driving deforestation in the landscape. A thorough understanding of these dynamics and landscape-specific norms and institutional practices is key to understand causality between interventions, their expected outcomes, and the desired impact of reducing deforestation – allowing development actors to craft more accurate Theories of Change and project implementation strategies.

Hence, engaging representatives from the full spectrum of key stakeholders is necessary for the Project team to obtain a comprehensive understanding of system dynamics and their interplay with the Project impact pathways. For the purpose of the assessment, landscape stakeholders are defined as those who influence deforestation in the landscape and/or those who are affected by it<sup>29</sup> (*Figure 4*). If such categorisation does not already exist or should be updated,<sup>30</sup> the following process provides practical guidance for the Project team to identify the key landscape stakeholders to be engaged in the assessment.<sup>31</sup> A template to collect and organise this information is attached to the guidebook as [Annex 1](#).

1. **Identify the landscape stakeholders** – key actors (groups and/or individuals, if relevant) in the landscape and key actors physically outside of the landscape who either influence deforestation in the landscape and/or are affected by it. This will likely include actors from government, non-governmental organisations, producers/farmers (individually or organised as a group), businesses (both those operating in the landscape and those purchasing from the landscape), indigenous groups, local communities and towns, academia, international organisations, and others. Naturally, this also includes other actors who are implementing interventions in the landscape aimed at decreasing deforestation.
2. **Categorise landscape stakeholders across two characteristics:**
  - A. The level to which that stakeholder *influences* (i.e., changes or impacts) forests in the landscape:
    - High (H) – the actor significantly contributes to, motivates, and/or enables reforestation, forest preservation, and/or deforestation

<sup>29</sup> For further guidance on stakeholder identification and analysis (e.g. to respond to questions such as what to do with stakeholders who have high power but low interest?), the Project team may want to consult Bryson, J.M., 2004. What to do when stakeholders matter: stakeholder identification and analysis techniques. *Public management review*, 6(1), pp.21-53.

<sup>30</sup> For each application of CALI, the stakeholder analysis should be reviewed and updated, as opposed to reproduced, and any changes in information or observed trends between applications should be documented.

<sup>31</sup> Individuals with broad and deep practical knowledge of the landscape and the Project are needed to produce an accurate stakeholder analysis.

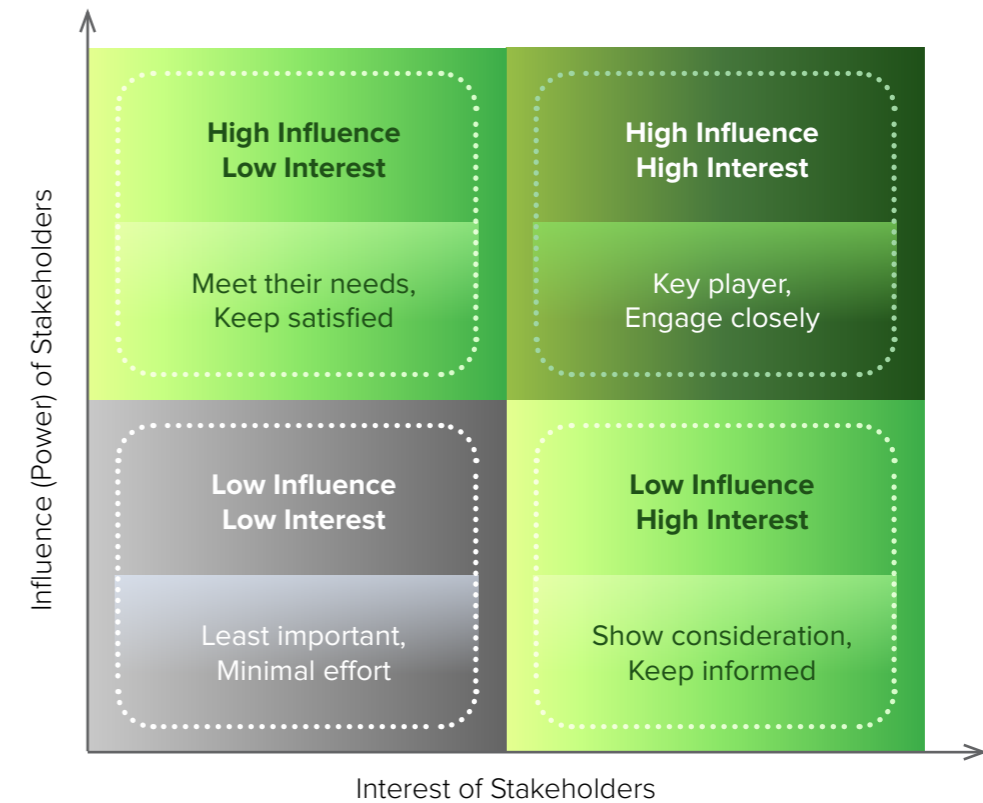
- Low (L) – the actor only somewhat contributes to, motivates, and/or enables reforestation, forest preservation, and/or deforestation
- B The level to which that stakeholder is *affected* (or *is interested*) by deforestation in the landscape:
- High (H) – the actor is significantly affected by deforestation in the landscape
  - Low (L) – the actor is only somewhat affected by deforestation in the landscape

### Example

Stakeholder	Type of stakeholder	Involved in Project activities? (YES/NO)	The level at which the actor influences landscape deforestation (either positively or negatively)	The extent to which landscape deforestation impacts the actor (affects or benefits him)	Priority to collect opinion? (quality of information)
Mano Oil Palm Industries	Productive Sector	Yes	High	High	Yes
Madina Rock Crusher	Productive Sector	No	Low	Low	No
MING Mining	Productive Sector	No	High	Low	Yes
Bea Mining	Productive Sector	No	High	Low	Yes
Aureus Mining	Productive Sector	No	High	Low	Yes
Charcoal Union	Productive Sector	Yes	High	Low	Yes
Liberia Chain Saw Association	Productive Sector	Yes	High	High	Yes
Liberia Timber Association	Productive Sector	Yes	High	High	Yes
Conservation International	International NGO	Yes	High	Low	Yes
IDH	International NGO	No	High	Low	Yes
Solidaridad	International NGO	No	High	Low	Yes
Royal Society for the Protection of Birds	International NGO	No	High	Low	Yes
Society for the Conservation of Nature in Liberia	International NGO	No	High	Low	Yes
Wild Chimpanzee Foundation	International NGO	No	High	Low	Yes
Fauna and Flora International	International NGO	No	High	Low	Yes
World Resources Institute	International NGO	No	High	Low	Yes
Green Advocates	CSO	No	High	High	Yes
Sustainable Development Institute	CSO	No	High	High	Yes
Skills and Agriculture Development Services	CSO	No	High	High	Yes
Citizens Against Hunger	CSO	Yes	High	High	Yes
North West Oil Palm Landscape Forum	CSO	Yes	High	High	Yes
Project Affected Communities (17)	Local Communities	Yes	High	High	Yes
Senjeh Land Committee	Local Communities	Yes	High	High	Yes
Zodua Land Management Committee	Local Communities	Yes	High	High	Yes
University of Liberia Agriculture Dept.	Academia	Yes	Low	Low	No
UNDP-GGP	Executing Agency	Yes	High	High	Yes
World Bank	Int. Dev. Donor	No	High	Low	Yes
EU	Int. Dev. Donor	No	High	Low	Yes
USAID	Int. Dev. Donor	No	High	Low	Yes
Forestry Development Agency	Government	Yes	High	High	Yes
Environmental Protection Agency	Government	Yes	High	High	Yes
Ministry of Agriculture	Government	Yes	High	High	Yes
Ministry of Mines and Energy	Government	Yes	High	High	Yes

**Table 2: List and basic analysis of landscape stakeholders for interventions in the Northwestern Liberia landscape.**

3. **Identify key landscape stakeholders to be engaged in CALI** – the influence-interest matrix shown in Figure 4 can help the Project team to decide the most adequate engagement strategy to be adopted with each actor, and also to identify the key stakeholders to be engaged in CALI. It is recommended that representatives of stakeholders pertaining to the three outer categories of the matrix (high influence/low interest; high influence/high interest; low influence/high interest) should be engaged in CALI.



**Figure 4: Influence/interest matrix for stakeholder analysis.**

If not already covered by the above analysis, it is also recommended to engage representatives of all the actors with whom the Project engages more closely in implementation (including direct “beneficiaries” and implementing partners). Participants should always be representative of geographic differences (e.g., if the landscape covers three departments, participants should not all be from the same department) and include representation of women and young people (and any marginalised or vulnerable groups, depending on the context).

4. **(Optional) While developing or updating the stakeholder analysis, the Project team may also find it useful to map the key behavioural drivers of different groups of stakeholders (or, for a finer analysis, of each individual stakeholder), including their:**

- Ambitions;
- Needs;
- Constraints;
- Resources;
- (Inter-)dependencies.

Beyond helping with the categorisation of the landscape stakeholders in terms of their influence and interest vis-à-vis deforestation in the landscape, the above exercise may provide important insights in preparation of the CALI workshops, as it allows the Project

team to identify potential areas of tensions among stakeholders and to discuss how to mitigate the risk of conflict surfacing (and/or degenerating) throughout the workshops<sup>32</sup> (see also Insight 3 below on power).

### INSIGHT 3: Dealing with Power in CALI assessments

During the assessment, power imbalances are very likely to surface and generate tensions as, in most cases, landscape stakeholders are likely to exhibit substantial differences in terms of control over resources and dialogue, due to gender, age, language, ethnic group, etc. These imbalances should be acknowledged by the Project team before and during the workshops so that they can be managed to reduce biases and promote an equitable discussion. Some of the measures that can be taken to actively manage power imbalances include:

- Ensuring equal representation across key landscape stakeholder groups;
- Intentionally designing the agenda with time dedicated to all groups;
- Intentionally dividing the groups in advance of the workshop, as opposed to letting individuals choose themselves;
- Having a plan in place to intervene if an actor is overstepping;
- Identifying supporters in the group to help the facilitator encourage quieter voices are heard;
- Distributing information in advance of the meetings to allow all participants to enter with the same background;
- Carefully considering how the date, time, and location of the workshop will affect attendance.

**Important note:** despite the efforts of the Project team, it may not always be possible to gather representatives of all key Project stakeholders in the same space, due to conflicting agendas and/or sensitivities between actors.<sup>33</sup> Therefore, the Project team may need to engage in separate consultations with representatives of certain stakeholder groups<sup>34</sup> (via focus group discussions, interviews and/or surveys) to complement the information collected through the main workshops. This may also be relevant in case of unbalanced participation among workshop participants, a situation which will require individualised follow-up with less vocal actors. Consultation of representatives of all key stakeholder groups is required to ensure a truly participatory assessment, in compliance with [UNDP Social and Environmental Standards](#).

<sup>32</sup> If well managed, conflict can be an extremely powerful way to advance dialogue and collaboration among stakeholders for desirable outcomes. Nevertheless, surfacing conflict can also disrupt relationships among stakeholders in a negative manner. The UNDP Green Commodities Programme's [Guide to Effective Collaboration](#) provides valuable tools and recommendation on how to productively and safely "work through conflict" in dialogue settings.

<sup>33</sup> Engaging illegal actors in particular is a very delicate and sensitive theme that must be addressed on a case-by-case basis. In some contexts, key project partners (incl. national authorities) may be more open for project staff to engage in dialogue with illegal actors, in other contexts it may not be possible. If so, the CALI assessment will need to rely on secondary data to gauge their behaviour, interests and perspectives. The same is valid if, despite the Project team efforts, the target actor/s do not wish to engage in the assessment.

<sup>34</sup> For example, if indigenous communities are assessed as key stakeholders and un- or underrepresented in the CALI workshops due to access or other barriers (e.g., language), it is the responsibility of the Project team to ensure that their perspectives are captured through other means.

## A holistic view of landscape interventions and their interdependencies

**Purpose:** (i) To identify what interventions were and are currently being implemented in the landscape by the Project to analyse and adjust their impact pathways and implementation strategies; (ii) To identify what interventions were and are currently being implemented in the landscape by other actors and understand their connections with Project interventions to identify synergies and co-dependencies.

The Project team should have a comprehensive overview of Project and other actors' interventions implemented in the landscape with the aim of reducing deforestation. A simple template to collect and organise this information is attached to this guidebook as [Annex 2](#); the results will inform the analysis of the system map and the review of the Project impact pathways and adjustments to the ToC and Project implementation strategy.

### INSIGHT 4: What is an intervention?

For the purpose of this guidebook, we define an intervention as "a cohesive set of activities implemented with the intention of contributing to decreasing deforestation in a certain landscape or jurisdiction". Although the distinction between an intervention and an activity can at times be ambiguous, the Project team should strive to maintain consistent interpretation across the list of interventions for a specific landscape.

Examples of interventions are:

- Establishment of a multi-stakeholder platform (with activities such as: catalogue current actors, identify roles, develop rules, design a communication strategy, and/or others);
- Capacity-building for Good Agricultural Practices (with activities such as: identify communities, develop training curriculum, hire facilitator/s, organise trainings, etc.);
- Promotion of adequate spatial planning at the relevant jurisdictional level (with activities such as: develop preparatory study, support regulation development, maintain relationship with relevant authority/ies and stakeholders, etc.);
- Development or support to the enforcement of a particular policy or regulation (with activities such as: hiring of patrols, capacity building, monitoring and oversight, etc.);
- Promotion of incentives for forest conservation such as REDD payments, PES, certifications (with activities such as: conduct awareness-raising session/s, development of incentive scheme, maintain relationship with relevant authority/ies and stakeholders, etc.).

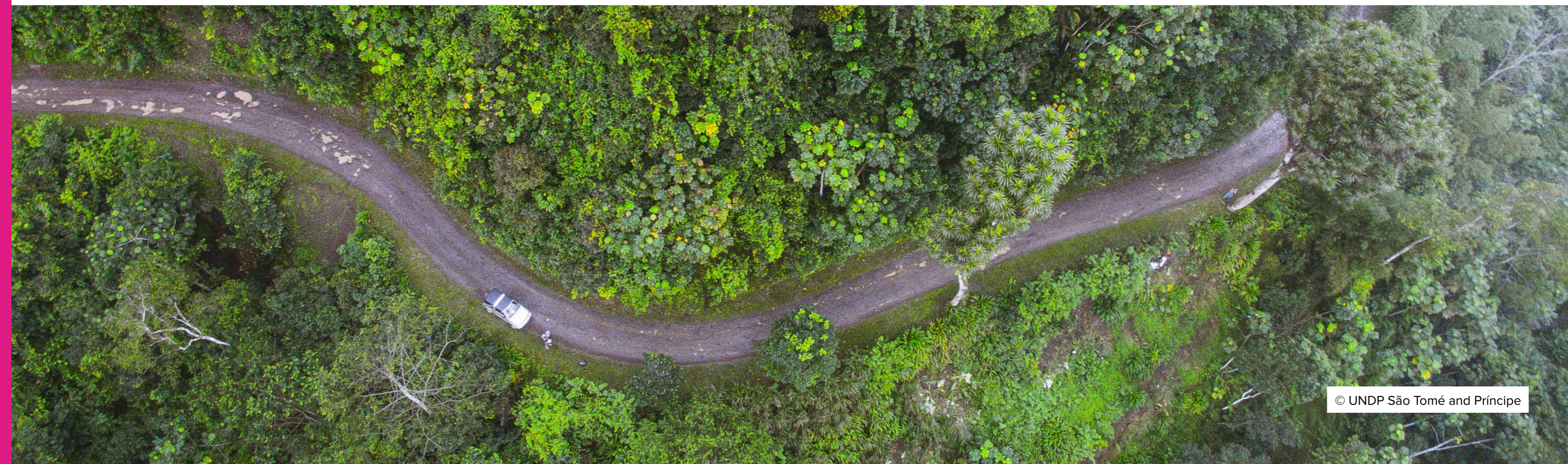
The following process provides detailed guidelines for the Project team to properly log this information in support of the implementation of CALI.

1. **Identify interventions.** Considering the Project document and/or the workplan of the Project, and looking at other projects aimed at reducing deforestation in the target landscape, list all relevant interventions in the template provided ([Annex 2](#)).
2. **Understand the interventions.** Do some research and log relevant information for each intervention in the template including:
  - A The project/organisation leading implementation of activities. Also note whether the intervention is within the Project (if the Project is implementing an intervention in partnership with another organisation, it should still be considered a Project intervention) or not.
  - B A brief description of the intervention.
  - C The status of implementation for each intervention.
    - 1 = Framework or plan exists, but activities are not actively being implemented
    - 2 = Activities are partially/insufficiently being implemented
    - 3 = Activities are actively mostly/fully being implemented
3. **Reflect on interdependencies between interventions.** After having listed all relevant Project and non-Project interventions, the Project team should reflect on how implementation of Project and non-Project interventions may influence each other. Engaging in this exercise in preparation of CALI may be helpful for the Project team to do a preliminary scoping of potential additional opportunities for collaboration within the landscape. The exercise outlined in [Appendix B](#) proposes a visual exercise to support this reflection.

### Example

**Table 3: Example of intervention list, adapted from pilot application in Paraguay (Chaco).**

Intervention	Implementing Organisation (s) – indicate if one is a clear “lead”	Project intervention or non-Project intervention	Brief Description	Status of implementation
A. Implementation of the commodity platforms (soy + beef, Alto Paraná + Itapúa)	Implementation of the commodity platforms (soy + beef, Alto Paraná + Itapúa)	Project	Convening of multi-stakeholder dialogues around sustainable commodities in the departments of Alto Paraná and Itapúa.	2
B. Harmonisation of environmental and forestry laws into one common legal framework	Harmonisation of environmental and forestry laws into one common legal framework	Project	Facilitating the harmonisation of conflicting bodies of law, to resolve ambiguities and incentivise forest conservation.	1
C. Agricultural good practices (including conservation of forest)	Agricultural good practices (including conservation of forest)	Non-Project	Promoting the adoption of more sustainable production practices in the sectors of beef and soy.	3



# An adequate Project monitoring framework and system

**Purpose:** For the Project to be able to keep track of the outputs achieved, and the extent to which the expected outcomes are materialising. If well developed, this also allows to test the critical assumptions underpinning the Theory of Change of the Project. This information will be critical to support the Review of the Project impact pathways and subsequent adjustments to the Project ToC and implementation strategy.

CALI assessments require the Project to have adequate information on its progress-to-date in achieving the expected outputs, and some indication on whether the expected outcomes are materialising. The focus and added value of each CALI application is on investigating effectiveness through unpacking causality, rather than tracking the materialisation of outputs and outcomes.

An adequate monitoring framework and system for a project or programme aiming to reduce deforestation in a target landscape should include a plan with quantitative indicators to monitor progress towards the expected outputs, and quantitative and qualitative indicators to monitor the realisation of the expected outcomes (aligned with the Theory of Change) and ultimate impact – meaning changes in forest cover and deforestation rates in the landscape (see [Appendix C](#) and [D](#)). The information and evidence collected through the Project monitoring system will be critical to support the assessment, and especially the validation and revision of the Project impact pathways.

A good monitoring system would also allow for continuous monitoring of assumptions, and potentially include [outcome harvesting exercises](#) to identify emerging (or unexpected) outcomes, which would otherwise often fall through the cracks, especially in the case of interventions in complex systems.

We expect the Project framework and system to evolve as a result of each application of CALI, in alignment with adjustments to the ToC and Project implementation strategy.

# Adequate resources for application

**Purpose:** To ensure that the Project has the necessary monetary, staffing and time resources for an adequate implementation of CALI.

In terms of financial resources, it is not easy to state exactly how much CALI will cost due to the substantially varying size of projects aimed at reducing deforestation in target landscapes – as a wider or narrower scope of the Project may also affect the scope of the assessment –

and the varying cost of facilitators and workshop venues and materials in different locations. Nevertheless, based on previous experiences, the Project should expect to invest about USD 10-20,000 for each application of CALI (at project start and during implementation).

In terms of staffing, the Project team should ensure that all roles and responsibilities are covered as per [Appendix E](#) (including external support to be contracted) and otherwise plan to hire additional external support.

In terms of time, the Project team needs to ensure that staff engaged in the implementation of CALI can allocate the necessary time to this exercise, including for planning, developing supporting products, and participating in the different workshops and activities. Beyond the CALI Project team, it is also important to ensure that landscape stakeholders can participate in the exercises needed for a successful implementation of CALI. This includes participation in 2-4 days workshops for each application of CALI (at project start and during implementation).

# Other desirable inputs

The following two conditions may further facilitate a smooth application of CALI; however, they should not be intended as strict prerequisites, but rather as additional desirable inputs:

- **An existing dialogue between the representatives of key landscape stakeholders, through which (at least some of the) parties are already connected and information is shared** – we expect more advanced and insightful discussions between stakeholder representatives who are already connected with each other and potentially know that they can trust each other.
- **Reliable studies on the landscape and its dynamics leading to deforestation are available, to guide analysis and preparations for CALI** – especially for the system mapping phase. This information would allow the system map to be grounded in research, which can be used to triangulate the experiences shared by the representatives of key landscape stakeholders (providing an additional guarantee for validity).



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Preparation

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1.1. Develop a landscape system map

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1.2. Review Project impact areas with system map

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1.3. Review Project impact pathways

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1.4. Adjust the Project ToC, strategy and results framework



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## FIRST APPLICATION OF CALI – AT PROJECT START

**Overall purpose:** to refine the Project team’s understanding of the system driving deforestation in the target landscape, and, in this light, encourage a review and first refinement of the Theory of Change (if needed), and an adjustment of the strategy and results framework of the Project.

**Method:** facilitated workshop/s engaging the Project team and representatives of key Project stakeholders.

**Resulting products:** a new or updated map of the system driving deforestation in the target landscape; documentation of the assessment of (actual and/or expected) Project effectiveness; proposal for a new or refined Theory of Change and/or results framework for the Project (if needed).

**Suggested length for in-person workshop:** 2.5 full days.

The first application of CALI is recommended at Project start – or in any case within the first year of implementation – once at least the critical members of the Project implementation team are hired.

Through this first application, CALI will support the Project implementation team to refine their understanding of the system in which they are intervening (i.e., the system driving deforestation in the target landscape), while deepening their relationships with – and understanding of – key Project stakeholders (and, in the process, of the key behavioural drivers of the system).

This will allow the Project implementation team to develop a more systemic, complexity-aware understanding of the Theory of Change of the Project and its interventions aimed at addressing the drivers of deforestation, while providing a very first occasion for the Project implementation team to validate and refine the expected impact pathways (made up, as seen, of causal mechanisms) connecting the delivery of Project interventions to the realisation of the desired outcomes and impact. As a result of this first assessment, the ToC and its assumptions will be refined together with the Project interventions and results framework.



### EXPERIENTIAL LEARNING

Together with its key purpose of investigating causality to refine the ToC and implementation strategy of the Project, the first application of CALI provides a good learning opportunity for the Project implementation team and representatives of key stakeholders, who are given a chance to deepen their understanding of:

- The system driving deforestation in the Project landscape and the relative (and inter-dependent) role of each stakeholder (or stakeholder group);
- The Theory of Change of the Project and its implementation strategy, and the critical assumptions (which may or may not be validated) on which rely its chances of success.



Photos from application of CALI in support of the Sustainable Productive Landscapes project in Peru. © UNDP

Figure 5



# Preparation

**Ensure all prerequisites are met** – The Project team should ensure that all prerequisites are met (or can easily be met) before considering the application of CALI at any stage of project implementation. If, at project start, the monitoring framework and system are not yet in place, the first application of CALI and its resulting adjustments to the Project’s ToC and results framework provide for an optimal time for the Project to build its monitoring framework and system.

**Nominate a “CALI project team”** – [Appendix E](#) details the critical roles and responsibilities to be covered in the CALI project team. Most responsibilities are expected to be absorbed by the Project team members (and some of them can cover for different roles), although external facilitation support is essential for a smooth and unbiased implementation of CALI.<sup>35</sup>

**Develop a CALI implementation workplan** – the CALI project manager (CALI PM) should develop a CALI implementation workplan following the steps explained in the guidebook. A reference template is provided as *Annex 6*.

## 1.1. Develop a landscape system map

**Purpose:** To deepen the understanding of the Project team of the complex system dynamics leading to deforestation in the target landscape.

**Method:** Facilitated workshop engaging the Project team and key Project stakeholders.

**Inputs:** Project document/s and any other relevant studies or analyses (including any existing map of the system driving deforestation in the landscape).

**Resulting Product:** A new or updated map of the system driving deforestation in the target landscape.

**Suggested Length for in-person workshop:** 1 full day.

Many threats facing the world’s forests are influenced by a complex system of dynamics and considering just one part of this system does not support effectively and efficiently changing the paradigm. The System Mapping exercise allows the Project team to situate and expand their Theory of Change developed during the project design phase, through capturing other important factors influencing forest cover and defining some of the contributing factors causing or enabling the drivers to occur. In this exercise, it is very important that the group of participants strive to consider elements from all three sustainability axes: socio-political, economic, environmental – building on the landscape assessments prepared during project design and any project baseline studies as well as national- or local-level studies of relevance. This exercise is to build on the project design work, not reinvent it.



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<sup>35</sup> To this end, it is critical to plan in time for the contracting of external support, especially in large and bureaucratic organisations where contracting processes are often lengthy.



## INSIGHT 5: System Map

A System Map is one of the most important and powerful tools of System Practice. A System Map (also known as Causal Loop Diagram) structures and visualises the elements of a system to capture causal connections and reveal **feedback loops**. Feedback loops are closed chains of causal influence and are the structural explanation for emerging development. The dynamics of these loops can be **reinforcing** (virtuous loops and vicious cycles) or **balancing** (stabilising and stagnating loops). These feedback loops are often part of our thinking, but we barely make them explicit and consider the interactions between different loops. **The interplay of feedback loops is what drives a system and determines its long-term developments.**

The System Map therefore helps us to conceptualise how **system structure** leads to **system behaviour**. A System Map makes our implicit perspectives and assumptions more explicit, visualises the interdependencies between all factors and supports the development of a shared understanding among stakeholders. *Figure 6* shows an exemplary System Map for a fictional landscape where soy production and bushfires are driving deforestation. The map shows the different factors, their causal connections and feedback loops.

As the System Map provides a narrative of how the interplay of elements leads to system behaviour, it supports identifying areas for improvement (*“leverage points”*, see insight 7) and hypothesising the impact of interventions on the overall system (see step 1.2). The System Map does not aim to be a perfect representation of the actual processes and is – just as any other model – a simplification of our complex reality. The map should be seen as a knowledge repository that helps us to capture our current understanding and that evolves together with our learning as new information may reveal itself.

If a map of the system leading to deforestation in the target landscape is already existing, the CALI project team should reflect on how it was developed: were representatives of key stakeholders engaged? To what extent, or was anyone missing? Depending on the answers to these questions, the rest of this exercise could be limited to a validation and update of the existing system map.

Otherwise, to adequately understand and assess the system dynamics leading to deforestation in the project landscape, the CALI Project team should utilise all existing information (project document, studies and analyses, local knowledge from the key stakeholders) to develop a landscape system map showcasing the drivers and contributing factors of deforestation in the Project target landscape. The detailed steps to develop a system map focused on deforestation in a certain landscape or jurisdiction are presented in [Appendix F](#). Alternative approaches to developing a landscape system map can also be followed, as long as they satisfy the basic principles outlined in this section.

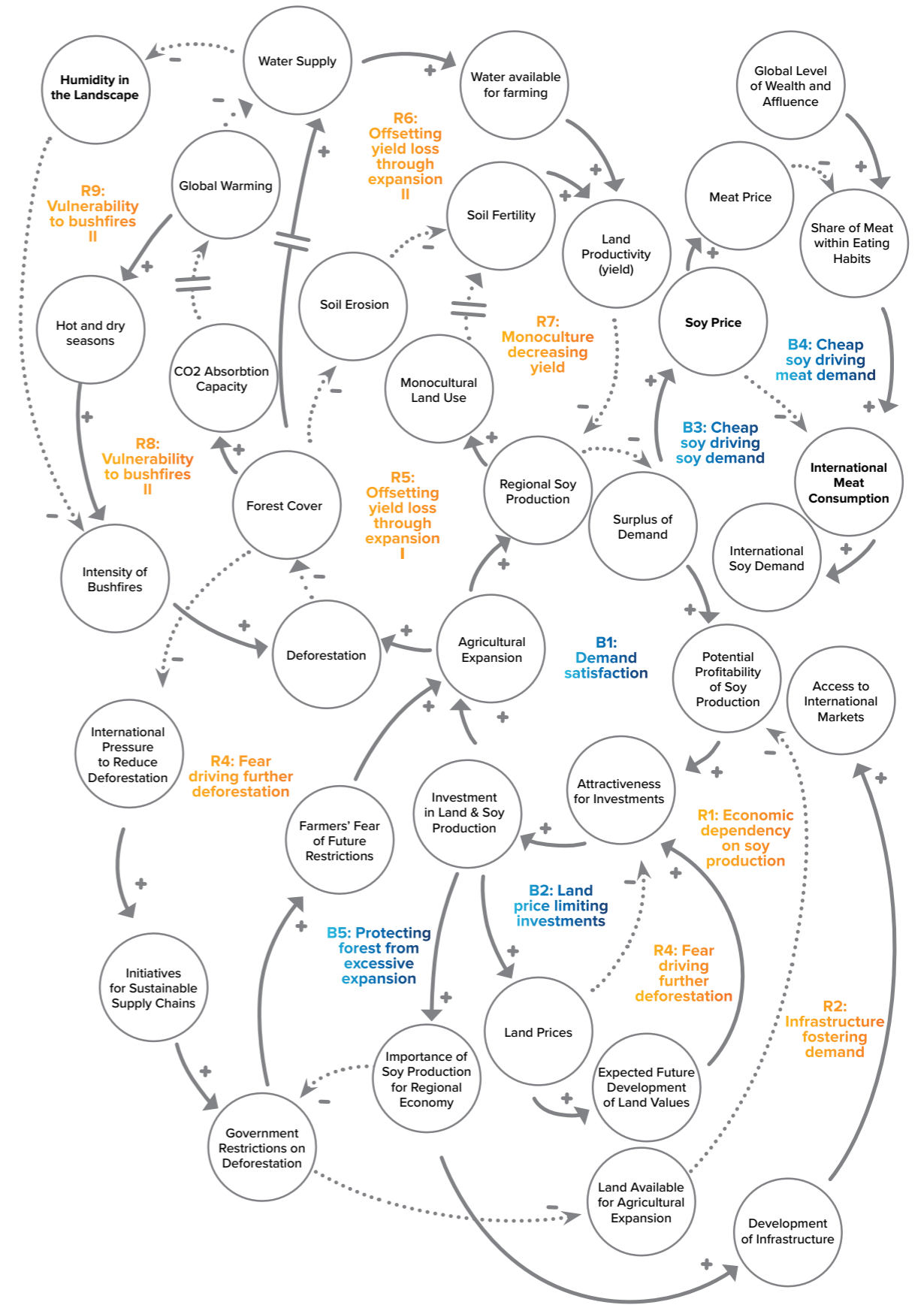


Figure 6: Exemplary system map – deforestation driven by soy production and bushfire.

## INSIGHT 6: Direct and Indirect Drivers of Deforestation

It is important to distinguish between direct and indirect drivers of deforestation. **Direct drivers** are the (legal or illegal) processes or human activities that directly cause deforestation in the landscape. **Indirect drivers** are the complex interactions of social, economic, political, cultural and technological processes that bring about direct drivers. Table 3 below shows examples of direct and indirect drivers of deforestation.<sup>36</sup>

**Table 3: Non-exhaustive examples of direct and indirect drivers of deforestation.**

Direct Drivers	Indirect Drivers (examples) <sup>37</sup>
<ul style="list-style-type: none"> <li>• Commercial agriculture</li> <li>• Subsistence agriculture</li> <li>• Surface mining</li> <li>• Infrastructure development</li> <li>• Urban expansion</li> </ul>	<p><b>At the international level:</b></p> <ul style="list-style-type: none"> <li>• Market behaviour (supply and demand)</li> <li>• Fluctuation in commodity prices</li> <li>• Fluctuation in currency exchange rates</li> <li>• Financial flows (investments that do or do not take into account deforestation as a financial risk)</li> </ul> <p><b>At the national level:</b></p> <ul style="list-style-type: none"> <li>• Population growth</li> <li>• Behaviour of domestic markets (particularly for agricultural goods)</li> <li>• National policies that favour non-forest land uses</li> <li>• Poor governance</li> <li>• Loose legal frameworks and/or lack of enforcement of national laws at local level</li> <li>• Fiscal incentives and subsidies (e.g., government subsidies for production of certain agricultural crops)</li> <li>• Land market</li> </ul> <p><b>At the local level:</b></p> <ul style="list-style-type: none"> <li>• Poverty</li> <li>• Food insecurity</li> <li>• Changes in household behaviour</li> </ul>

Representatives of key Project stakeholders (those with at least high interest or high influence as per the stakeholder analysis)<sup>38</sup> – should be invited to participate in this exercise so they can contribute with their situated knowledge of system dynamics. Adopting a participatory approach also ensures that representatives of key landscape stakeholders develop a common understanding of the drivers and dynamics in the system leading to deforestation in the Project landscape.

Nevertheless, this step can also be performed solely by the CALI Project team, who should at least consider validating the resulting product through engaging key stakeholders individually or in groups.

### EXPERIENTIAL LEARNING

Beyond allowing the Project team to gain a deeper understanding of the system dynamics driving deforestation in the target landscape, this exercise allows the representatives of key landscape stakeholders to develop a clearer and, in some cases, common understanding of the system in which they are all embedded, thus promoting the breaking of silos, and engagement in a dialogue and joint sensemaking process around the structural and behavioural drivers of negative environmental outcomes.



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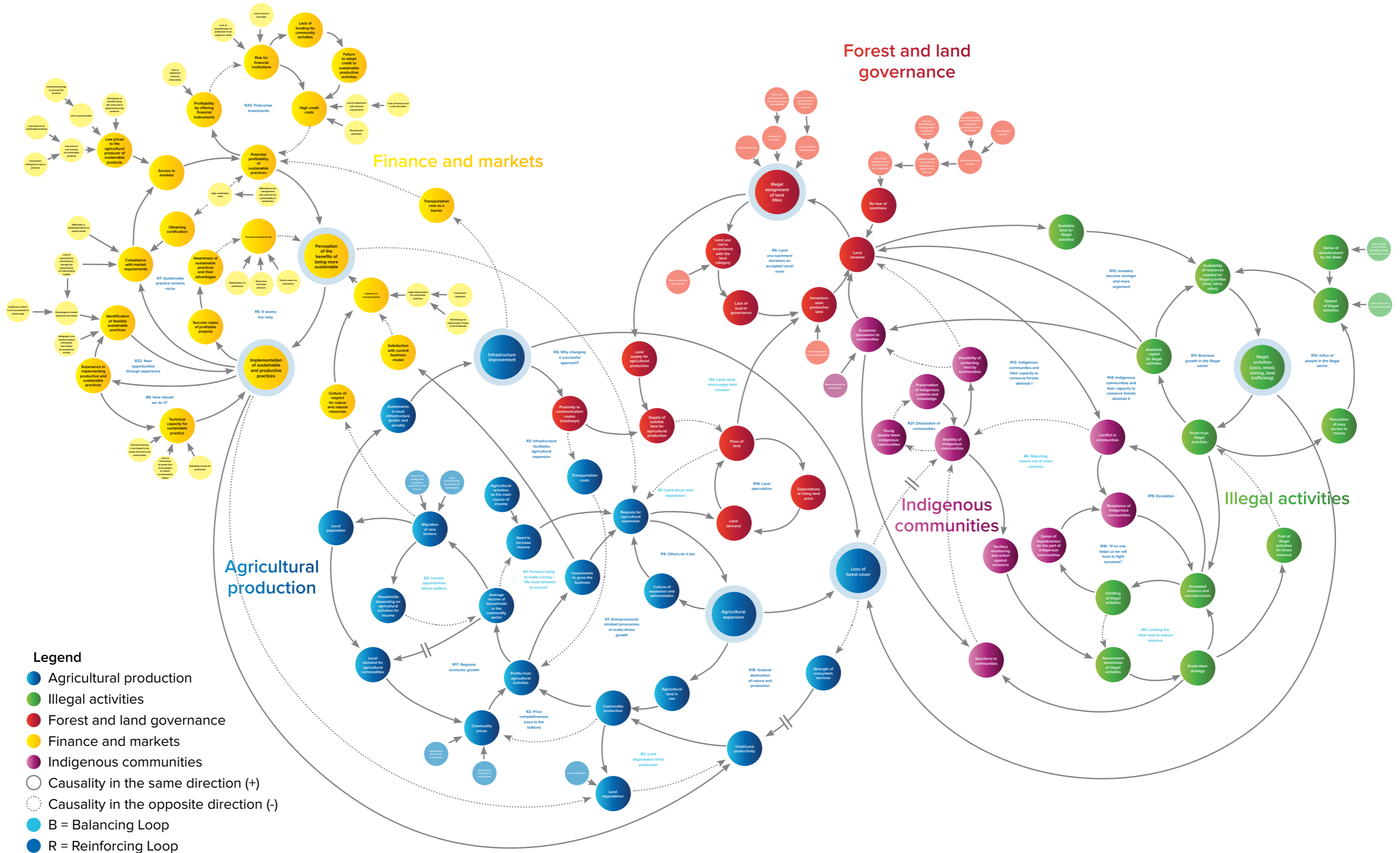
<sup>36</sup> UNEP, 2018. REDD+ Academy Learning Journal: Drivers of deforestation and forest degradation.

<sup>37</sup> Many REDD+ readiness plans identify weak governance and institutions, poor cross-sectoral coordination, weak law enforcement and poverty as critical indirect drivers.

<sup>38</sup> The Stakeholder Engagement learning journal developed within the framework of the REDD+ Academy may provide useful insights to project teams in preparation for this and subsequent exercises. It can be accessed through this [link](#).

Example

Figure 7: Landscape system map developed in Peru. A narrative description of the map can be accessed [at this link](#).



## 1.2. Review Project impact areas with system map

**Purpose:** To connect the planned interventions of the Project to the system driving deforestation in the landscape, so to refine the Project team’s understanding of the objectives of the Project and identify any critical gaps or areas of improvement.

**Method:** Facilitated workshop engaging the Project team and key Project stakeholders.

**Inputs:** System map developed or updated under step 1.1.; Project ToC, results framework and intervention strategy (workplan); description of interventions and objectives of non-Project interventions (incl. relevant PAMs).

**Resulting Product:** Landscape system map with visual identification of Project impact areas, interventions, potential gaps and initial observations/questions on the chances of effectiveness of the Project implementation strategy.

**Suggested Length for in-person workshop:** Half a day.

Too often Project teams are focused on their workplan and deliverables without putting them all in the landscape context and clarifying the planned causality of their actions. This step sets the foundation for this understanding and the basis on which to assess whether their activities are more or less likely to contribute to delivering the intended results. This builds on the Theory of Change prepared during the design phase which the Project team now needs to review and update, based on current realities and driving forces in the landscape.

### 1. Connect Project (and optionally non-Project) interventions to the landscape system map

Starting from the landscape system map, the Project team and representatives of key stakeholders should identify, without looking at the Theory of Change of the Project, the expected impact areas in the system driving deforestation in the landscape. This gives a chance to the Project team to present the Theory of Change and implementation strategy of the Project further to the key stakeholders engaged in the workshop. Drawing on a copy of the system map, the Project team should mark the broad system areas impacted by each of the Project interventions<sup>39</sup> (for a definition of “intervention”, please refer to [Insight 4](#) on p. 18); an example is shown in the next page ([Figure 8](#)). At this stage, the Theory of Change of the Project can be consulted to refine the analysis.

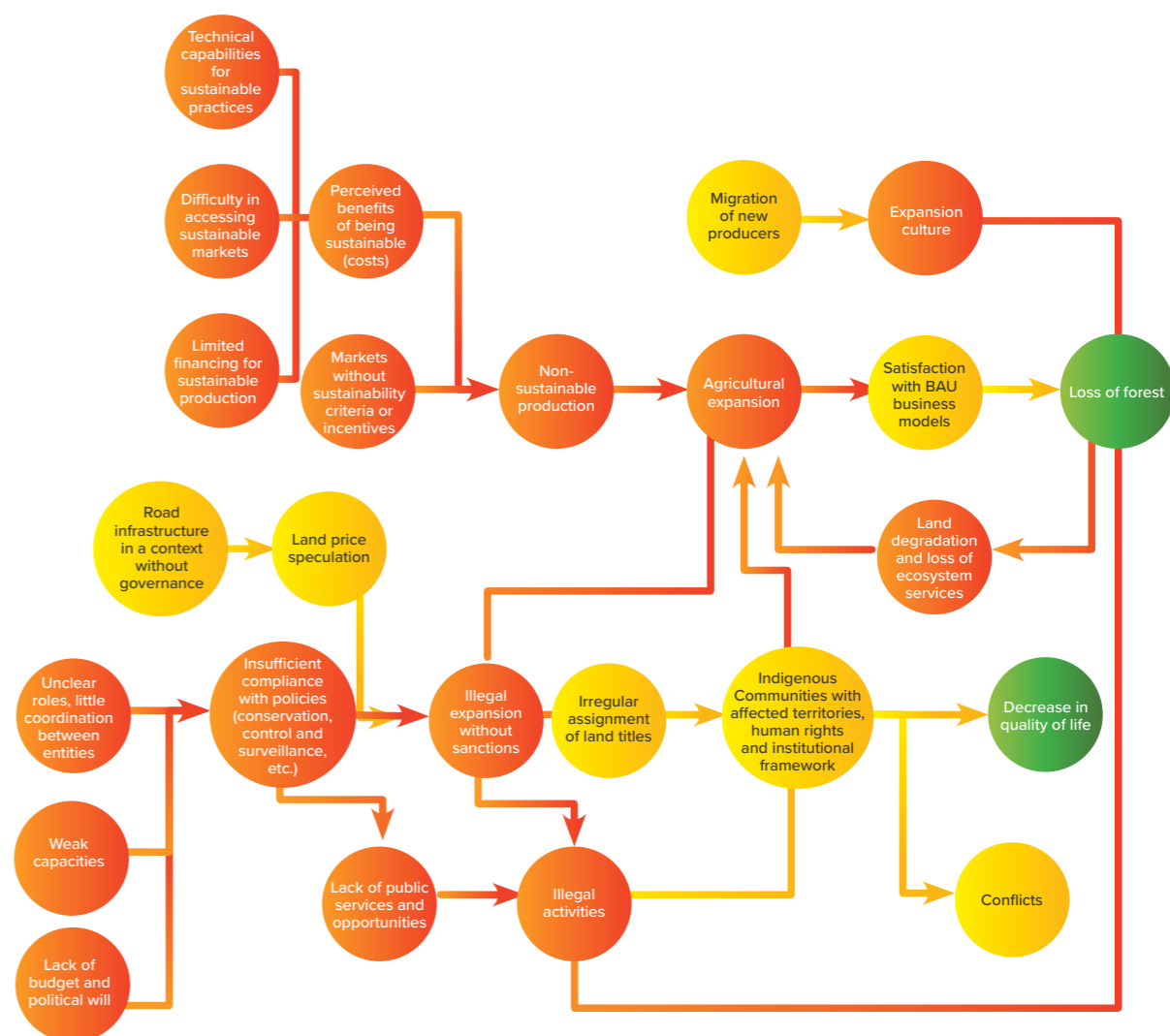
It is important to note that an intervention may be linked to multiple factors in the system map. For each Project intervention, the CALI project team, in consultation with the relevant implementing partner/actor as needed, should also identify all intermediate outcomes and assumptions connecting the delivery of outputs to these factors, and, while going through this process, consider further refining the landscape system map, if needed.

For a holistic assessment, the same can also be done for non-Project interventions (including

policies), and the CALI Project team should use the [list of landscape interventions](#) to log the direct and indirect driver(s) of deforestation that each intervention is designed to address; this will help to identify any gaps in the broader set of interventions implemented in the landscape. At this stage, the CALI Project team may also want to review the interdependencies between Project and non-Project interventions, in light of the above analysis ([Appendix B](#)).

While going through this exercise, the Project team should maintain engagement with the representatives of key landscape stakeholders, through working in smaller groups and/or “opening the floor” at any time for questions or comments. These should all be logged, together with comments from the Project team members themselves, for example using sticky notes, which can be juxtaposed to the relevant Project impact area (or gap area).

**Figure 8: Example adapted from piloting in Peru – Landscape system map with Project impact areas identified in orange.**



<sup>39</sup> When the map is very dense, the Project team may consider assigning different colours or numbers to different Project and non-Project interventions, and using them to mark each intervention’s impact area in the system map.

## 2. Initiate the analysis of interrelationships between Project (and optionally non-Project) interventions and the system driving deforestation in the landscape

Looking at the resulting product, the facilitator should engage the Project team members and representatives of key stakeholders in an open conversation addressing the following questions (and more can be added if needed):

- **Are Project (and/or non-Project) interventions addressing the key leverage points in the system? How?**

### INSIGHT 7: Leverage Points

In systems practice, a leverage point is a place in a system where a small change could have a large, beneficial impact on the overall system. Leverage points can be found on various levels within a system. In the map, good leverage points are where you are able to influence a part (feasibility) and this could have a large impact on the whole (impact). [Appendix G](#) provides additional guidance on analysing leverage points.

- Are there any other critical gap areas which may compromise the ability of the Project to achieve its goal of reducing deforestation in the target landscape?
- If so, can leverage points and/or other gap areas be addressed by the Project, given its resources and scope? Which other organisation or institution should/could be addressing these critical gap areas? Here the Project team and stakeholders should review the list of landscape interventions (and policies), and eventually try to connect these as well to the landscape system map (if not yet done).
- Could working in *partnership* with other organisations or institutions targeting the same or complementary system areas provide an added value for the ability of the Project to achieve its goal of reducing deforestation?
- Looking at the resulting product, are there any broad comments or questions from the audience (on interventions, impact areas, gaps)? Here the facilitator should open the floor and moderate a discussion, while logging inputs with sticky notes to be applied on the map.

The input gathered during this exercise will prepare and feed a deeper conversation on causality to be held in the next exercise.

### EXPERIENTIAL LEARNING

Through this exercise, the Project team and key landscape stakeholders are expected to gain a holistic view of how Project and other landscape interventions (including policies) are expected to affect the complex system dynamics driving deforestation in the target landscape.

It will also provide insights to the participants less familiar with the *modus operandi* of development organisations, including on *Theories of Change* and development interventions.

## 1.3. Review Project impact pathways

**Purpose:** To investigate (actual and/or expected) effectiveness and causality and refine the Project impact pathways and/or implementation strategy, through considering the interaction between the Project interventions and the complex system dynamics driving deforestation in the target landscape, and leveraging the situated knowledge of key stakeholders.

**Method:** Facilitated workshop engaging the Project team and key Project stakeholders.

**Inputs:** System map with identification of Project (and non-Project interventions) impact areas (from step 1.2.); log of comments and questions raised during step 1.2.; Project ToC, results framework and implementation strategy (workplan).

**Resulting Product:** New or adjusted impact pathways and implementation strategy for each Project intervention.

**Suggested Length for in-person workshop:** half a day.

Starting from the landscape system map with identification of impact areas of Project (and optionally non-Project) interventions, and the broader comments and questions of participants, the facilitator should now divide participants into smaller working groups: one for each Project intervention, and eventually an additional group exploring gap areas (focusing on key leverage points, in the case these can be addressed by the Project itself). Each intervention-based working group should be led by the most relevant Project team member, possibly the focal point for implementation of the intervention, and alternatively another team member highly involved.

Key stakeholder representatives should be asked to join the working group to which they relate the most – looking at the target impact areas in the map for each intervention. If a participant feels drawn by multiple working groups (as interventions will likely have touching points of impact in the system map), s/he should join the one where s/he thinks to be able to contribute the most (depending on the broad nature of the intervention).

In each working group, the intervention's **impact pathway** (see [Insight 8](#)) should be first presented by the Project team member, and then discussed with the working group, drawing on the following questions (more can be added, as needed):

- What are the first reactions from the working group after being presented with the expected impact pathway of the intervention?
- Looking at the system map, which contributing factors/enabling conditions (see [Appendix H](#)) may affect the realisation of the intermediate outcomes (with a supporting, hindering, or amplifying role)? Here the group should also consider what are possible effects of feedback loops on the intervention's impact pathway. The identified contributing factors should be added alongside the intervention's impact pathway (aim is to move from a linear to a complex impact pathway).
- What are the key assumptions underpinning the realisation of the impact pathway, and what

does the working group think about them? Are they reasonable assumptions or should they be refined? Here the list of assumptions (if already existing) should be updated, or developed based on the working group's discussion.

- Looking at the broader system map, are there any other wider system effect that might be caused by the Project intervention? If so, add them to the impact pathway.

The working group focusing on Project gaps should reflect on whether additional interventions are needed to bring about the desired impact, focusing firstly on developing their impact pathway and then crafting a proposed implementation strategy (see process below). The latter can then either be covered by the Project or proposed for additional funding. The exercise can also take the form of considering adjustments to existing interventions to ensure that any additional outcomes (from the gap area/s) can be achieved.

**Important note:** If an impact pathway does not exist (for example in the case of a Project where a Theory of Change was not elaborated, or not thoroughly), the working group should focus on developing (rather than questioning and adjusting) the impact pathway. The above list of questions can then help guide the discussion for final validation.

**INSIGHT 8: Impact pathways**

As defined in Insight 2 in the introductory section of this guidebook, an **impact pathway** is composed of the (more or less) complex causal mechanisms linking project interventions to the desired outcomes and ultimate impact of reducing deforestation in a certain landscape or jurisdiction. Logically, an impact pathway can connect one or more project intervention/s to one or more driver/s of deforestation through either a *linear* (Figure 9) or *complex* (Figure 10) causal pathway, including the contributing factors that the Project aims to affect as intermediate outcomes.

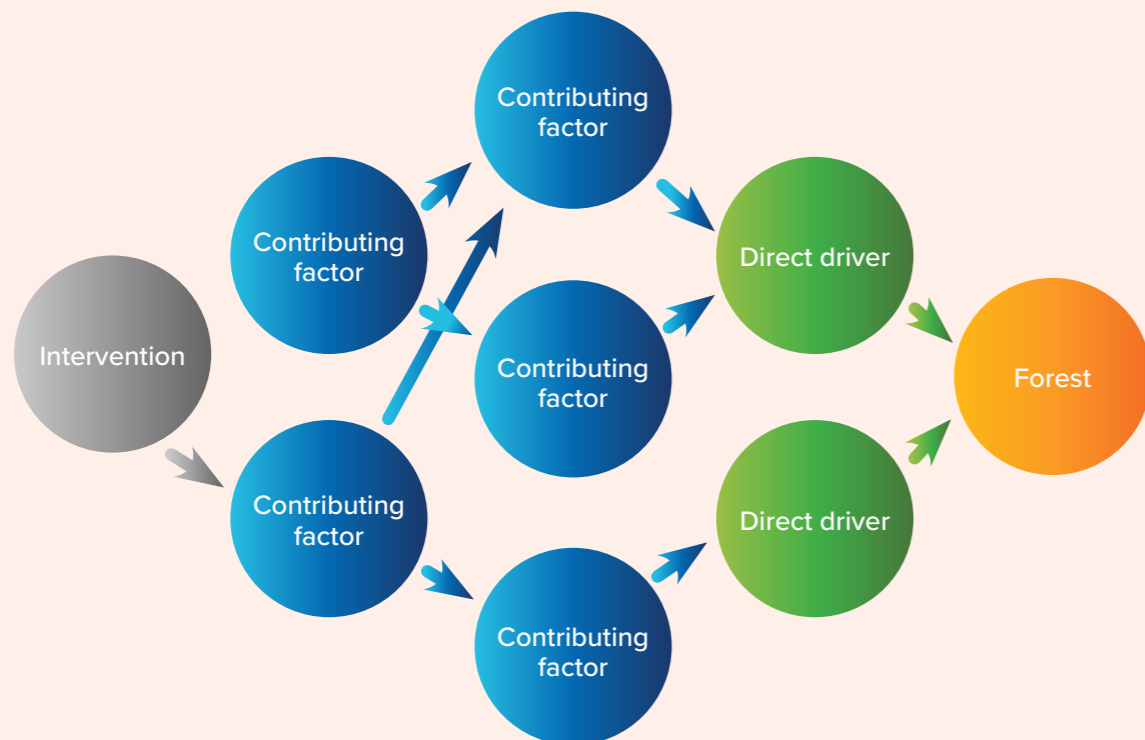


Figure 9: Visualisation of a linear impact pathway.

**INSIGHT 8: Impact pathways (continued)**

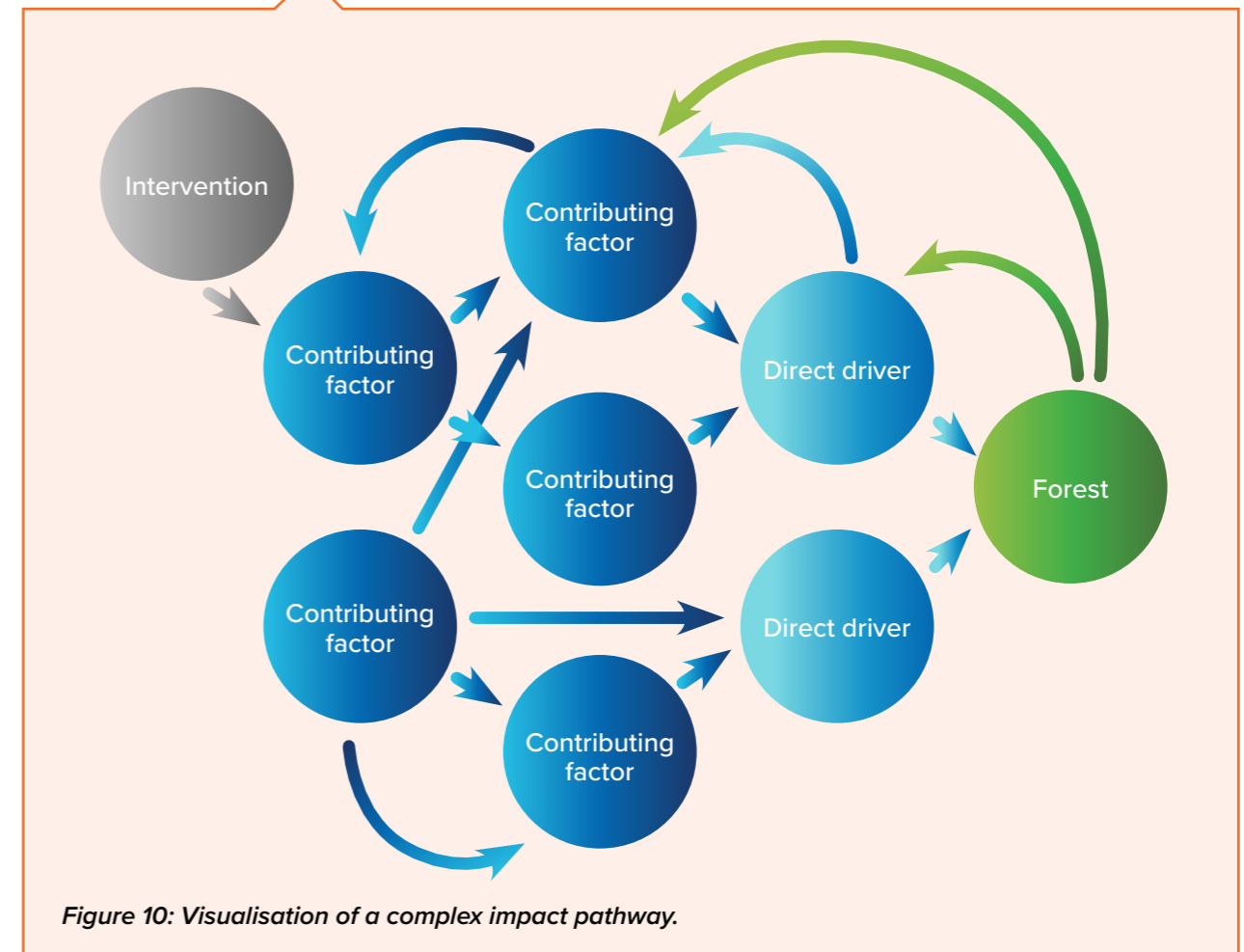
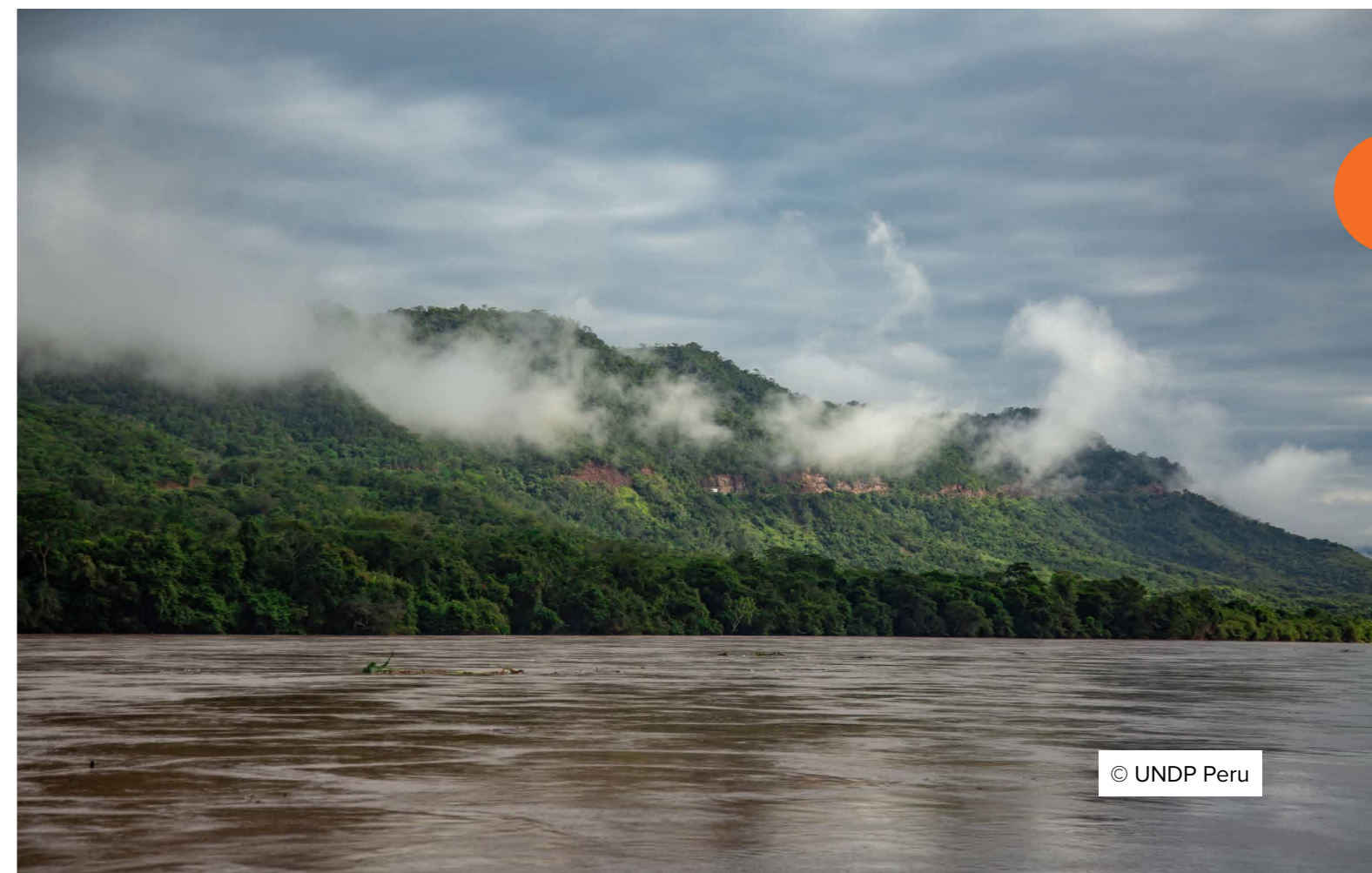


Figure 10: Visualisation of a complex impact pathway.



After having discussed and adjusted the intervention's impact pathway/s, the working group should move to the intervention **implementation strategy** (see *Insight 9* below), which should be first presented by the Project team member, and then discussed with the working group, drawing on the following questions (more can be added, as needed):

- Looking at the intervention's impact pathway/s, is the existing implementation strategy likely to bring about the expected intermediate outcomes, and thus affect the system impact area as expected? If not, what other outcomes or contributing factor/s of the impact pathway/s should be addressed? And how?
- Are feedback loops adequately considered in the Project implementation strategy? If not, how should they be addressed?
- Based on the previous discussions, should any elements of the assumptions be targeted through (additional) specific actions as part of the Project (or non-Project) intervention/s? Which and how? Will the other assumptions be adequately monitored?
- Looking inward, what are critical outputs to be delivered to achieve the intermediate outcomes?<sup>40</sup> What are critical inputs and enabling conditions (see [Appendix H](#)), including implementation of other interventions (including policies, see [Appendix B](#))? What partnerships should be sought?<sup>41</sup>

The above questions should help the working group to propose adjustments to the current implementation strategy. These should be logged by the Project team member leading the discussion, and will be used in the following step.

#### INSIGHT 9: Implementation strategy

The **implementation strategy** of an intervention consists of the concrete suite of outputs and activities, which are expected to ignite changes along the relevant impact pathway/s.

**Important note:** If an implementation strategy does not exist yet, the working group should focus on developing (rather than questioning and adjusting) the intervention's implementation strategy. The above list of questions can then help guide the discussion for final validation.

#### EXPERIENTIAL LEARNING

Through this exercise, the Project team and key landscape stakeholders will gain a deeper understanding of the Theory of Change of the Project, and its implementation strategy, situating them in their complex landscape context.

More in general, the Project team and key stakeholders will also gain a deeper understanding of Theories of Change and the concept of causality, and their relevance for designing effective interventions.

<sup>40</sup> Note that these could also include, among the other, a proper development of social and environmental safeguards, stakeholder engagement, and resource mobilisation efforts.

<sup>41</sup> This should be based on an analysis of what other actors can do to contribute to the realisation of one or multiple outcomes. How can the Project contribute, in turn, to incentivise these actions/behaviours?

## 1.4. Adjust the Project ToC, strategy and results framework

**Purpose:** To develop a concrete proposal for refining the Theory of Change, and the overall implementation strategy and results framework of the Project (to be validated/endorsed, as needed), leveraging the information gathered through the previous step.

**Method:** Facilitated workshop engaging the Project team and, optionally, key Project stakeholders.

**Inputs:** New or refined impact pathways and assumptions for each of the Project interventions (from step 1.3.); new or refined implementation strategy (workplan) for each of the Project interventions (from step 1.3.); original Project ToC; results framework and intervention strategy (workplan).

**Resulting Product:** Proposal for a refined Theory of Change<sup>42</sup>, Project implementation strategy and results framework.

**Suggested Length for in-person workshop:** half a day.

At this stage, the CALI Project team could decide to continue with or without the representatives of key project stakeholders. If the latter, it is recommended that a briefing note is developed and shared with them to inform them on how the inputs collected during the previous steps informed an adjustment of the Theory of Change of the Project, and/or its strategy and results framework.

The following exercises are expected to be conducted iteratively, and were designed for in-person workshops to be delivered with the support of prints, drawing boards, sticky notes and other relevant tools at the discretion of the workshop organisers and facilitator. It is recommended to explicitly mention in the ToR of the CALI PM, external facilitator or other relevant CALI Project team member, that all three resulting products should then be converted to a digital version.

### 1.4.1. Refining the Theory of Change of the Project

Looking at the revised impact pathways and assumptions resulting from the working group assessment in the previous step, the CALI project team (with or without the representatives of key stakeholders) should now engage in a final review, sensemaking and refinement (as/if needed) of the overall Theory of Change of the Project.

The Project impact pathways revised in the separate working groups would in most cases have numerous touch points, and without engaging in this final step, the CALI project team would likely be missing the opportunity to look at synergies and streamline the ToC, which will subsequently inform the revision and validation of an implementation strategy for the Project.

<sup>42</sup> Acknowledging the complexity of system dynamics driving deforestation in the target landscape or jurisdiction.

First, the CALI PM (or other designated member of the CALI project team) should develop a draft of a refined ToC through merging the different impact pathways resulting from 1.3, and ensuring that their underlying assumptions are made explicit. Any questions or comments emerging through this process should be logged to inform the discussion with all participants. Then, the CALI PM (or other designated member of the CALI Project team) should lead a discussion with the workshop participants, aimed at further refining and validating the draft ToC. The following questions should help facilitating the discussion:

- Are there any immediate questions emerging through looking at the draft ToC?
- Looking again at the landscape system map, does the team feel confident that the upgraded ToC adequately describes the complex dynamics driving the expected change? Any additional assumptions that should be logged?
- Are feedback loops adequately accounted for in the upgraded ToC?

As anticipated, the discussion should result in final adjustments to the refined ToC, which we then recommend running through another, final validation round.

## 1.4.2. Adjusting the Project implementation strategy

After having refined the ToC as needed, the Project team should engage in a Project-level discussion about the proposed adjustments to the overall suite of Project interventions and their implementation strategy. First of all, the team members leading the working group discussions under 1.3. should present the proposed adjustments to the implementation strategy of the intervention and any new proposed interventions, and why these would increase the likelihood of delivering an effective Project. Then, they should take questions and feedback from the Project manager and other colleagues; this process is expected to inform final adjustments to the overall suite of Project interventions and their implementation strategy.

The following questions should help guiding the discussion:

- Considering available resources and budget constraints, and the results of the assessments conducted under 1.3., should any additional interventions be added? Should any interventions be discontinued?
- Adopting both an intervention and Project perspective, and considering inputs from the assessments conducted under 1.3., which outputs and/or activities (or suites of activities) should be modified or extended? Which outputs and/or activities (if any) should be added? Which outputs and/or activities (if any) should be discontinued?
- Are any partnerships with other actors or Project stakeholders critical for the Project to be successful in its endeavour of reducing deforestation?
- How can the project leverage additional funds to cover critical activities/interventions that need to be added? Or work in partnership with other organisations?

The facilitated discussion is expected to result in final refinements of the Project interventions and expected Results.



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### 1.4.3. Adjusting the Results framework of the Project

While refining the ToC of the Project, and its overall suite of interventions and the implementation strategy for each, the Project team should consider any relevant adjustments to be made to the Results Framework (e.g., in case of additional or different outcomes and/or outputs being targeted, based on the refinement of the ToC and/or overall Project implementation strategy). Workshop participants should identify and phrase together any additional or modified Results to be achieved by the Project (in case these are to be updated) and otherwise validate that the original expected Results are still valid.



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From here, the Project team should move on to adjust the key outcome, output and process indicators to be monitored during implementation. These can (and in most cases should) obviously consist of both quantitative and qualitative indicators, and the process should follow general guidance on developing quality (SMART) indicators. If budget allows, it is always recommended that additional methods such as outcome harvesting are adequately planned for to allow for capturing emerging (unplanned) outcomes, to inform further reflections on the validity of the Project's ToC.



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#### EXPERIENTIAL LEARNING

This exercise will provide the Project team with a *thorough, common* understanding and ownership of the Project objectives, implementation strategy and expected results. The Project team will also strengthen their understanding of how a Theory of Change and implementation strategy relate to each other, and to the overall context in which the Project is operating.



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Preparation

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# SECOND AND FURTHER APPLICATIONS OF CALI – DURING IMPLEMENTATION

**Overall purpose:** To reflect learnings from implementation into a refinement of the Theory of Change (if needed), and an adjustment of the strategy and results framework of the Project.

**Method:** Facilitated workshop/s engaging the Project team and representatives of key Project stakeholders.

**Resulting products:** An updated map of the system leading to deforestation in the target landscape; documentation of the assessment of (actual and/or expected) Project effectiveness; proposal for a refined Theory of Change and/or results framework for the Project (if needed).

**Suggested Length for in-person workshop:** 2 full days.

Compared to the first application of CALI at Project start, at this stage, more emphasis will be given on investigating whether and how Project interventions have already contributed – or not – to reducing deforestation and its key drivers in a specific landscape or jurisdiction, alongside other factors and interventions. Enabling and hindering factors will be explored with the key system actors, the Project stakeholders, who will be engaged in reflection with the Project team to increase the potential for success of the Project. Their embedded knowledge of system dynamics, together with the learnings of the Project team after some time of implementation, will provide critical elements for a refinement of the Theory of Change of the Project, and its implementation strategy and results framework.

The CALI project team will review the landscape system map (complementing it as needed) and

*“When operating in conditions characterised by radical uncertainty, there is between Problem and Solution a space, an in-between of generative enquiries, of discovery and intelligence, from which robust arguments can emerge for new intents and renewed commitments of resources. This is a space of hypotheses, of mental metamodels that give us access to a system so as to discover from within it how to engage with it and how to “make happen” to it” – CHÓRA Foundation*

Project impact areas, and engage in a causality assessment to refine the Theory of Change, implementation strategy and results framework of the Project.

Depending on the status of implementation of the different Project interventions, and the availability of information on the achievement of intermediate outcomes, the CALI Project team may decide to focus the assessment on Project contributions or expected contributions.

Depending on the duration of the Project, complexity of the context and related levels of uncertainty, CALI can be applied a varying number of times during Project implementation. In general, for projects lasting less than 5 years, we recommend to schedule the 2nd application of CALI around mid-term (as an input, complement, or substitute to a midterm evaluation); for projects lasting more than 5 years, further applications are recommended to continue to inform adaptive management; in this case, the results developed in the second application should obviously constitute the starting point for the assessment.

### EXPERIENTIAL LEARNING

Through the second (and further) application(s) of CALI during Project implementation, the Project implementation team and key landscape stakeholders will have a chance to engage in a deep reflection on the interrelationship between the implementation of Project interventions and the system dynamics driving deforestation in the landscape. At this stage, the Project implementation team will have developed a thorough understanding of the context, with its challenges and opportunities, and thus be able to connect more deeply with landscape stakeholders (compared to Project start). Through discussion, the Project implementation team and key landscape stakeholders will have a chance to further deepen their understanding of the system in which they are embedded, while examining the Theory of Change of the Project and its chances of success.

Figure 11



# Preparation

**Ensure all prerequisites are met** – As previously mentioned, the Project team should ensure that all prerequisites are met (or can easily be met) before considering the application of CALI at any stage of project implementation. At this stage, the monitoring framework and system should be well in place and generating evidence of progress against the expected results (at all levels, i.e., outputs, outcomes, and impact).

**Nominate a “CALI project team”** – To the extent possible, this should be the same team who drove the first (or previous) application of CALI. It is recommended that roles are assigned to a different team member only in the case of staff turnover. Again, the critical roles and responsibilities to be covered in the CALI project team are outlined in [Appendix E](#). As for the first application of CALI, most responsibilities are expected to be absorbed by the Project team members (and some of them can cover for different roles), although external facilitation support is essential for a smooth and unbiased implementation.<sup>43</sup>

**Develop a CALI implementation workplan** – the CALI project manager (CALI PM) should develop a CALI implementation workplan following the steps explained in the guidebook. A reference template is provided as Annex 6.

## 2.1. Review the landscape system map

**Purpose:** *To update the landscape system map to reflect any changes in the complex system dynamics leading to deforestation in the target landscape.*

**Method:** *Facilitated workshop engaging the Project team and key Project stakeholders.*

**Inputs:** *System map developed under step 1.1. and any new relevant studies or analyses.*

**Resulting Product:** *An updated map of the system driving deforestation in the target landscape.*

**Suggested Length for in-person workshop:** *Half a day (including 1-2 hours for 2.2.).*

As a first step of the 2nd application of CALI throughout Project implementation, the CALI project team should convene the Project team and key Project stakeholders in a workshop setting, to review and update the landscape system map developed at Project start.

This exercise should possibly be facilitated by the same professional who facilitated the first development of the system map. Should that not be possible, the CALI project team should identify the most suitable team member – or external consultant – to cover for this role. The resulting product could then be shared with the original facilitator for feedback and validation.

Starting from the original system map, the group should identify any changes in drivers and contributing factors leading to deforestation in the landscape, and reflect them accordingly in the system map, with the due consideration to their role in feedback loops. If any new relevant studies have been conducted and published during the timeframe separating the first and second application of CALI, for example, as part of national REDD+ processes, these should be reviewed to adjust and/or complement the information reflected in the system map as appropriate.

This step may result in some critical changes to the system map, as the Project team and key stakeholders might have also deepened their understanding of the system after few years of engaging (and experimenting) with it from within.

The updated system map will then constitute the starting point for the following exercises.

### EXPERIENTIAL LEARNING

Through this exercise, the Project team and key Project stakeholders will continue deepening their analytical understanding of the system leading to deforestation in the target landscape, while building a shared understanding of the underlying problems and the main obstacles and opportunities for transformation.

<sup>43</sup> To this end, it is critical to plan in time for the contracting of external support, especially in large and bureaucratic organisations where contracting processes are often lengthy.

## 2.2. Review Project impact areas with system map

**Purpose:** To (re-)connect the Theory of Change and planned interventions of the Project with the updated map of the system driving deforestation in the landscape, so to identify any critical gaps or areas of improvement.

**Method:** Facilitated workshop engaging the Project team and key Project stakeholders.

**Inputs:** System map updated in step 2.1.; Project ToC, results framework and intervention strategy (workplan); description of interventions and objectives of non-Project interventions (incl. relevant PAMs).

**Resulting Product:** An updated version of the landscape system map with visual identification of Project impact areas, potential gaps, and initial observations/questions on the chances of effectiveness of the Project implementation strategy.

**Suggested Length for in-person workshop:** 1-2 hours during update of the landscape system map.

After having updated the landscape system map, the Project team and key Project stakeholders should invest some time in re-contextualising the Project interventions, starting from the work done at Project start. This is expected to result in further insights about the way/s through which the Project interventions interact with complex system dynamics and generate intelligence which will inform the subsequent steps.

As per in exercise 1.2., the Project team members should be drawing on a copy of the system map the broad areas of the system impacted by each of the Project interventions (for a definition of “intervention”, please refer to [Insight 4](#) on p. 18; for an example of the resulting product please refer to [Figure 7](#) on page 36).<sup>44</sup> The same can also be done for non-Project interventions (including policies), and the CALI Project team should use the [list of landscape interventions](#) to log the direct and indirect driver(s) of deforestation that each intervention is designed to address; this will help to identify any gaps in the broader set of interventions implemented in the landscape. At this stage, the CALI Project team may also want to review the interdependencies between Project and non-Project interventions, in light of the above analysis ([Appendix B](#)).

Then, a discussion with stakeholders should follow, and any relevant comments, questions or criticism on the Project interventions should be logged and used as relevant inputs for the following exercise. This can be done, for example, through sticky notes, which can be applied to the relevant Project impact area.

The following questions can help guiding the conversation:

- Are Project (and/or non-Project) interventions addressing the key leverage points in the

system? How? (Please refer to the process proposed in [Appendix G](#) to guide a review of the identified leverage points)

- Are there any other critical gap areas which may compromise the ability of the Project to achieve its goal of reducing deforestation in the target landscape?
- If so, can leverage points and/or other gap areas be addressed by the Project, given its resources and scope? Which other organisation or institution should/could be addressing these critical gap areas?
- Here the Project team and stakeholders should review the list of landscape interventions (and policies), and eventually try to connect these as well to the landscape system map (if not yet done).
- Could working in partnership with other organisations or institutions targeting the same or complementary system areas provide an added value for the ability of the Project to achieve its goal of reducing deforestation?
- Looking at the resulting product, are there any broad comments or questions from the audience (on interventions, impact areas, gaps)? Here the facilitator should open the floor and moderate a discussion, while logging inputs with sticky notes to be applied on the map.

The input gathered during this exercise will prepare and feed a deeper conversation on causality to be held in the next exercise.

### EXPERIENTIAL LEARNING

Through this exercise, the Project team and key landscape stakeholders will continue reflecting about the way/s through which Project interventions interact with the system driving deforestation in the target landscape, while building a shared understanding of the key leverage points for change.

<sup>44</sup> When the map is very dense, the Project team may consider assigning different colours or numbers to different Project and non-Project interventions, and using them to mark each intervention's impact area in the system map.

## 2.3. Assess Project impact pathways

**Purpose:** To investigate (actual and/or expected) effectiveness and causality and refine the Project impact pathways and/or implementation strategy, considering the interaction between the Project interventions and the complex system dynamics driving deforestation in the target landscape, and leveraging existing evidence of progress, learnings from implementation, and the situated knowledge of key stakeholders.

**Method:** Facilitated workshop engaging the Project team and key Project stakeholders.

**Inputs:** System map with identification of Project (and non-Project interventions) impact areas (from step 2.2.);<sup>45</sup> log of comments and questions raised during step 2.2.;<sup>46</sup> Project ToC, results framework and implementation strategy (workplan); evidence of progress against expected outcomes and latest information on forest cover and deforestation trends in the landscape (w. comparison to baseline data).

**Resulting Product:** Adjusted impact pathway/s and implementation strategy for each Project intervention.

**Suggested Length for in-person workshop:** 1 full day.

This exercise is an extension of exercise 1.3. proposed at Project start. At this stage the Project is expected to have progressed – at least to some extent – towards the achievement of its outcomes, while at the same time gaining further insights about the context and system in which it is operating. Therefore, this exercise will extend the review of potential/expected impact to incorporate a sensemaking process focused on the existing evidence of progress to-date.

Through the exercise, the following key questions are investigated:

- Have the Project interventions contributed to reducing deforestation in the target landscape?
- If not, are they (still) expected to contribute to reducing deforestation in the target landscape?
- If not, what should be adjusted in the Project ToC and implementation strategy?

Within each of these answers it is key to uncover and explain why implementation may not be as effective as expected – from team performance, to assumptions, to new factors and variables, to limited understanding and ToC of the drivers.

The findings are then used to support adaptive management.

The exercise should start with an opening presentation of the latest information on deforestation (flow) and forest cover (stock) trends (what has changed since Project start?), and of the existing evidence of changes in the key drivers addressed by the Project (from outcome monitoring).

<sup>45</sup> Or 1.2. if CALI is being applied for the first time after some years of project implementation (see section [How to Use this Guidebook](#)).

<sup>46</sup> Ibid.

Then, as per exercise 1.3, the broader group of participants should be divided into smaller intervention-focused working groups, each led by the team member most familiar with the particular intervention, and engaging the most relevant stakeholders. One group should be dedicated to exploring how to address any gaps (including any additional leverage points identified) emerging from the review of Project impact areas.

### 2.3.1. Assessing effectiveness and refining the impact pathway/s of each Project intervention

Looking at the Project **impact pathways** developed or upgraded at Project start (please refer to [Insight 8](#) on p. 39 for an introduction to the concept of impact pathways), each group should be guided by the Project team member in a preliminary reflection shaped around the following questions:

- What evidence exists that the Project expected outcomes (related to the intervention) are materialising? Were any emerging outcomes (including intermediate ones) identified,<sup>47</sup> which could be linked to the implementation of the Project interventions?
- What other evidence is confirming the validity of impact pathways (i.e., that the implementation of Project interventions is contributing to the assessed outcomes? And outcomes to impact?) What further evidence is needed (and should be gathered) to support this level of assessment? [Appendix I](#) can help the facilitator to structure a robust causality assessment acknowledging the status of implementation of the intervention.

#### INSIGHT 10: Contribution v. Attribution in landscape approaches

When investigating causality as part of an impact assessment of landscape interventions, we recommend looking for *contribution/s* rather than *attribution*, i.e., that Project interventions should be considered as one of many factors (which should be detailed in the Project assumptions) contributing to a change rather than the sole reason of change, as in attribution approaches. That is because, as mentioned several times throughout this guidebook, interventions aiming to reduce deforestation usually operate in complex systems where changes in dynamics and patterns driving deforestation result from the interaction of multiple factors, including the transformations of structures (such as norms and institutions) and mindsets which are often not tracked nor easily documentable. In such complex systems, it is unlikely that any change in the dynamics driving deforestation in a certain landscape or jurisdiction can be clearly attributable to one intervention only. [Appendix I](#) proposes a *contribution tracing* approach to causality assessment, which should be adapted to the nature of the interventions and Project being assessed.

<sup>47</sup> As previously mentioned in this guidebook, Project teams running interventions in complex systems are strongly encouraged to dedicate resources to outcome harvesting exercises, that would allow them to capture emerging outcomes in conditions of uncertainty.

Answering the above questions should lead each intervention-focused group to one of the following 4 scenarios:

**Scenario A.** Outcomes achieved, with evidence of Project contributions

**Scenario B.** Outcomes achieved, with uncertain or no Project contributions

**Scenario C.** Outcomes not achieved (or only partially achieved)

**Scenario D.** Uncertain whether outcomes will be achieved due to delays

Outcomes achieved

Uncertain whether outcomes can be achieved

For each scenario, *Table 3* recommends a slightly different process for groups to reflect on the validity of their impact pathway/s and propose any relevant adjustments. This is a critical step that should be followed by each group, before they can move on to consider adjustments to the implementation strategy.

For all scenarios (substantially for scenario C,<sup>48</sup> and as/if needed, for scenarios A, B, and D) the exercise is expected to result in concrete proposals to adjust the intervention's impact pathway/s and assumptions as needed. The process is expected to be iterative, and the team member facilitating the group discussion should not hesitate to get back to previous questions at any time. The refined impact pathway/s will then be used to propose adjustments to the interventions' implementation strategy.

The working group focusing on Project gaps should reflect on whether additional interventions are needed to bring about the desired impact, focusing firstly on the relevant impact pathway/s and then developing a proposed implementation strategy (following the process suggested for scenarios C and D below for validation and strengthening). The latter can then either be covered by the Project or proposed for additional funding. The exercise can also take the form of considering adjustments to existing interventions to ensure that any additional outcomes (from the gap area/s) can be achieved.

**Table 3: CALI scenarios for assessing each intervention's impact pathway/s, and implications for groupwork.**

**Scenario A – Outcomes achieved, with evidence of Project contributions**

Description: Targeted **outcomes are materialising** and evidence suggests that the **Project intervention has been effective**; i.e., that it has contributed to realising intermediate outcomes along the relevant impact pathway/s.

**Recommended assessment process**

The group should **review the system map and reflect on the chances that the realisation of outcomes will contribute to the desired impact of reducing deforestation** in the target landscape or jurisdiction – pondering over the guiding questions (more can be added as needed). During the discussion, the intervention's impact pathways/s should be refined as needed, with the aim of providing the most accurate account of how the achieved outcomes may contribute to reducing deforestation in the target landscape.

Note: If evidence suggests that the realised outcomes have already contributed to reducing deforestation in the target landscape or jurisdiction, the group may still want to go through the proposed questions with an eye on sustainability and/or catalysing impact. This exercise should also result in proposed adjustments to the intervention's impact pathway/s, before the group moves on to review the implementation strategy.

**Guiding questions**

- Looking at the updated system map, has anything changed since Project start in the dynamics driving deforestation in the Project landscape (e.g., new actors or activities driving deforestation)? What are the implications for the intervention's impact pathway/s?
- What are they key assumptions, and are any of them unrealistic?
- Which contributing factors/enabling conditions (see [Appendix H](#)) may affect (with a supporting, hindering, or amplifying role) the chances of the achieved outcomes to contribute to the desired impact of reducing deforestation in the target landscape or jurisdiction?
- Based on the answers to the above three questions, should any additional outcome/s be targeted by the Project to ensure success in reducing deforestation? How? The group here should also review the possible effects of feedback loops on the intervention's impact pathway/s. Any identified additional outcome/s to be targeted by the Project should be added to the intervention's impact pathway/s (possibly designed as a complex impact pathway, as shown in [Insight 8](#)).
- Looking at the broader system map, are there any other (positive or negative) wider system effects that might be caused by the Project intervention? If so, they should also be added to the impact pathway/s.

<sup>48</sup> Unless failure to contribute to the expected outcomes is assessed to be solely due to major shortcomings in implementation resulting in the inability to deliver the planned outputs of the intervention.

### Scenario B – Outcomes achieved, with uncertain or no Project contributions

B1 – Targeted **outcomes are materialising**, but it is **not possible to determine the contribution/s of the Project intervention** being assessed. This can be either due to lack of adequate evidence, limited access to key informants, or other contextual factors beyond the control of the Project team.

B2 – Targeted **outcomes are materialising**, but evidence suggests that the **Project intervention was not effective**; i.e. that the outputs delivered have not contributed to the realisation of the outcomes.

#### Recommended assessment process

B1 – **Same logic as per Scenario A.** A special effort should be made to gather any missing evidence, in case the Project team wants or needs to prove the validity of a contribution claim (again, we refer to [Appendix I](#) for a definition of contribution claims).

B2 – **Same logic as per Scenarios A and B1.** Nevertheless, before moving on to reviewing the implementation strategy, we recommend that the group also dedicates some time to discuss the questions proposed under Scenario C, so to unpack the reasons behind ineffectiveness. The same is valid if the Project intervention contributed effectively to bring about certain outcomes but not others, with a focus on the latter.

#### Guiding questions

- Looking at the updated system map, has anything changed since Project start in the dynamics driving deforestation in the Project landscape (e.g., new actors or activities driving deforestation)? What are the implications for the intervention's impact pathway/s?
- What are they key assumptions, and are any of them unrealistic?
- Which contributing factors/enabling conditions (see [Appendix H](#)) may affect (with a supporting, hindering, or amplifying role) the chances of the achieved outcomes to contribute to the desired impact of reducing deforestation in the target landscape or jurisdiction?
- Based on the answers to the above three questions, should any additional outcome/s be targeted by the Project to ensure success in reducing deforestation? How? The group here should also review the possible effects of feedback loops on the intervention's impact pathway/s. Any identified additional outcome/s to be targeted by the Project should be added to the intervention's impact pathway/s (possibly designed as a complex impact pathway, as shown in [Insight 8](#)).
- Looking at the broader system map, are there any other (positive or negative) wider system effects that might be caused by the Project intervention? If so, they should also be added to the impact pathway/s.

### Scenario C – Outcomes not achieved (or only partially achieved)

Targeted **outcomes are not materialising** (or only partially so), and evidence suggests that the **Project intervention has not been effective**; i.e., that the outputs delivered have not contributed to the realisation of the expected outcomes along the relevant impact pathway/s.

#### Recommended assessment process

Looking at the system map, the group should **examine the causes behind ineffectiveness**, through pondering over the proposed questions (more can be added as needed). Unless ineffectiveness seems to be due to the quality of the outputs delivered, **this exercise is expected to result in a proposal for substantial adjustments to the intervention's impact pathway/s.**

#### Guiding questions

- Which were the assumptions made during Project design, and were any of them unrealistic? How should they be adjusted?
- Looking at the updated system map, has anything changed in the dynamics driving deforestation in the Project landscape (e.g., new actors or activities driving deforestation)? What are the implications for the intervention's impact pathway/s?
- Have there been major shortcomings in implementation? How can they be solved at this stage?
- Or were the expected impact pathway/s of the interventions not taking into account all relevant outcomes and/or the complexity of the system and subsystems driving deforestation in the target landscape (see feedback loops in system map)? How should the pathway/s be adjusted? The group here should review the possible effects of feedback loops on the intervention's impact pathway. The identified contributing factors should be added alongside the intervention's impact pathway (aim is to move from a linear to a complex impact pathway, see [Insight 8](#)).



### Scenario D – Uncertain whether outcomes will be achieved due to delays

Uncertainty around the effectiveness of the Project intervention due to delays in the realisation of outcomes.

**Note:** uncertainty should not be due to the lack of adequate outcome monitoring (see *Prerequisites*).

#### Recommended assessment process

The group should **review the system map and reflect on the chances that the outcomes will materialise and contribute to the desired impact of reducing deforestation** in the target landscape or jurisdiction – pondering over the guiding questions (more can be added as needed). During the discussion, the intervention's impact pathway/s should be refined as needed, with the aim of providing the most accurate account of how outcomes may be achieved and contribute to reducing deforestation in the target landscape.

#### Guiding questions

- Which contributing factors/enabling conditions (see [Appendix H](#)) may affect the realisation of the intermediate outcomes (with a supporting, hindering, or amplifying role)? The group here should also review the possible effects of feedback loops on the intervention's impact pathway/s. The identified contributing factors should be added alongside the intervention's impact pathway/s (aim is to move from a linear to a complex impact pathway, see [Insight 8](#)).
- Are the key assumptions (still) holding? Should anything be added and/or adjusted? Here the list of assumptions should be updated based on the working group's discussion.
- Looking at the broader system map, are there any other (positive or negative) wider system effects that might be caused by the Project intervention? If so, they should also be added to the impact pathway/s.

## 2.3.2. Reviewing the implementation strategy of each Project intervention

After having discussed and adjusted the intervention's impact pathway/s, the working groups should move to reviewing the **implementation strategy** of each intervention, which should be first presented by the Project team member, and then discussed within each of the working groups, drawing on the following questions (more can be added, as needed) linked to the above scenarios. The team member leading each intervention-focused group should pick the most suitable option, and facilitate a discussion around the proposed guiding questions. The discussion is expected to result in the development of a concrete proposal for making adjustments to the current implementation strategy, as needed.

**Table 4: Scenario-based guiding questions to review the implementation strategy of each Project intervention and propose concrete adjustments, as needed.**

### Scenarios A and B – Original intervention's expected outcomes already achieved or very likely to be achieved

- Drawing on the adjusted impact pathway/s, what additional outputs and/or activities (or extra interventions) could strengthen the likelihood that the outcomes will contribute to the expected impact of reducing deforestation in the landscape?
- Are feedback loops adequately considered in the Project implementation strategy? If not, how should they be addressed?
- Can the Project achievements be sustained over time? If not, what needs to be done to ensure sustainability?
- What are possible ways and opportunities for expanding, adapting, and sustaining results over time for greater development impact?

## Scenarios C and D – Uncertain whether the original intervention’s expected outcomes can be achieved

- Looking at the adjusted intervention’s impact pathway/s, is the existing implementation strategy likely to bring about the expected outcomes, and thus affect the relevant system impact area as expected? If not, what other intermediate outcomes should be addressed? And how? Appendix H can help framing this discussion.
- What is working well and should be maintained? ([check resource on Appreciative Inquiry](#)) What should be adjusted?
- Are feedback loops adequately considered in the Project implementation strategy? If not, how should they be addressed?
- Based on the previous discussions, should any elements of the assumptions be targeted through (additional) specific actions as part of the Project (or non-Project) intervention/s? Which and how? Will the other assumptions be adequately monitored?
- Looking inward, what are critical outputs to be delivered to achieve the intermediate outcomes?<sup>49</sup> What are critical inputs (see [Appendix H](#)), and enabling conditions, including implementation of other interventions (including policies, see [Appendix B](#))? What partnerships should be sought?

### EXPERIENTIAL LEARNING

Through this exercise, the Project team and key landscape stakeholders will further deepen their understanding of impact pathways and implementation strategies for the Project interventions, and how these interrelate with the complex system dynamics driving deforestation in the landscape.

More generally, the Project team and key stakeholders will also gain a deeper understanding of Theories of Change, the concept of causality, and the importance of evidence to monitor progress, and their relevance for designing effective interventions.

## 2.4. Adjust the Project ToC, strategy, and results framework

**Purpose:** To develop a concrete proposal for refining the Theory of Change, and the overall implementation strategy and results framework of the Project (to be validated/endorsed as needed), leveraging the information gathered through the previous step.

**Method:** Facilitated workshop engaging the Project team and, optionally, key Project stakeholders.

**Inputs:** New or refined impact pathways and assumptions for each of the Project interventions (from step 2.3.); new or refined implementation strategy (workplan) for each of the Project interventions (from step 2.3.); original Project ToC, results framework and intervention strategy (workplan).

**Resulting Product:** Proposal for a refined Theory of Change,<sup>50</sup> Project implementation strategy and results framework.

**Suggested Length for in-person workshop:** half a day.

At this stage, the CALI Project team could decide to continue with or without the representatives of key project stakeholders. If the latter, it is recommended that a briefing note is developed and shared with them to inform them on how the inputs collected during the previous steps informed an adjustment of the Theory of Change of the Project, and its strategy and results framework.

The following exercises are expected to be conducted iteratively, and were designed for in-person workshops to be delivered with the support of prints, drawing boards, sticky notes and other relevant tools at the discretion of the workshop organisers and facilitator. It is recommended to mention in the ToR of the CALI PM, external facilitator or other relevant CALI project team member, that all three resulting products should then be converted to a digital version.

### 2.4.1. Refining the Theory of Change of the Project

Looking at the revised impact pathways and assumptions resulting from the working group discussions in the previous step, the CALI project team (with or without the representatives of key stakeholders) should now engage in a final review, sensemaking and refinement (as/if needed) of the overall Theory of Change of the Project.

Indeed, the Project impact pathways revised in the separate working groups would in most cases have numerous touch points, and without engaging in this final step, the CALI project team would likely be missing the opportunity to look at synergies and streamline the ToC, which will subsequently inform the revision and validation of an improved implementation strategy for the Project.

<sup>49</sup> Beyond resources, these could obviously also include e.g. a proper development of social and environmental safeguards, stakeholder engagement, and resource mobilisation efforts.

<sup>50</sup> Acknowledging the complexity of system dynamics driving deforestation in the target landscape or jurisdiction.

First, the CALI PM (or other designated member of the CALI project team) should develop a draft of a refined ToC through merging the different impact pathways resulting from step 2.3, and ensuring that their underlying assumptions are made explicit; any questions or comments emerging through this process should be logged to inform the discussion with all participants. Then, the CALI PM (or other designated member of the CALI Project team) should lead a discussion with the workshop participants, aimed at further refining and validating the draft ToC. The following questions should help facilitating the discussion:

- Are there any immediate questions emerging through looking at the draft ToC?
- Looking again at the landscape system map, does the team feel confident that the upgraded ToC adequately describes the complex dynamics driving the expected change? Are there any key factors missing? Any additional assumptions that should be logged?
- Are feedback loops adequately accounted for in the upgraded ToC?

As anticipated, the discussion should result in final adjustments to the refined ToC, which we then recommend running through another, final validation round.

## 2.4.2. Adjusting the Project implementation strategy

After having refined the ToC as needed (and if needed), the Project team should engage in a Project-level discussion about the proposed adjustments to the overall suite of Project interventions and their implementation strategy. First thing first, the team members leading the working group discussions under 2.3. should be presenting the proposed adjustments to the implementation strategy of their intervention and any new proposed interventions, and why these would increase the likelihood of delivering an effective Project. Then, they should be taking questions and feedback from the Project manager and other colleagues; this process is expected to inform final adjustments to the overall suite of Project interventions and their implementation strategy.

The following questions should help guide the discussion:

- Considering available resources and budget constraints, and the results of the causality assessments conducted under 2.3., should any additional interventions be added? Should any interventions be discontinued?
- Adopting both an intervention and Project perspective, and considering inputs from the assessments conducted under 2.3., which outputs and/or activities (or suites of activities) should be modified or extended? Which outputs and/or activities (if any) should be added? Which outputs and/or activities (if any) should be discontinued?
- Are any partnerships with other actors or Project stakeholders critical for the Project to be successful in its endeavor of reducing deforestation?
- How can the project leverage additional funds to cover critical activities/interventions that need to be added? Or work in partnership with other organisations?

The facilitated discussion is expected to result in final refinements of the Project interventions and expected Results.

## 2.4.3. Adjusting the Results framework of the Project

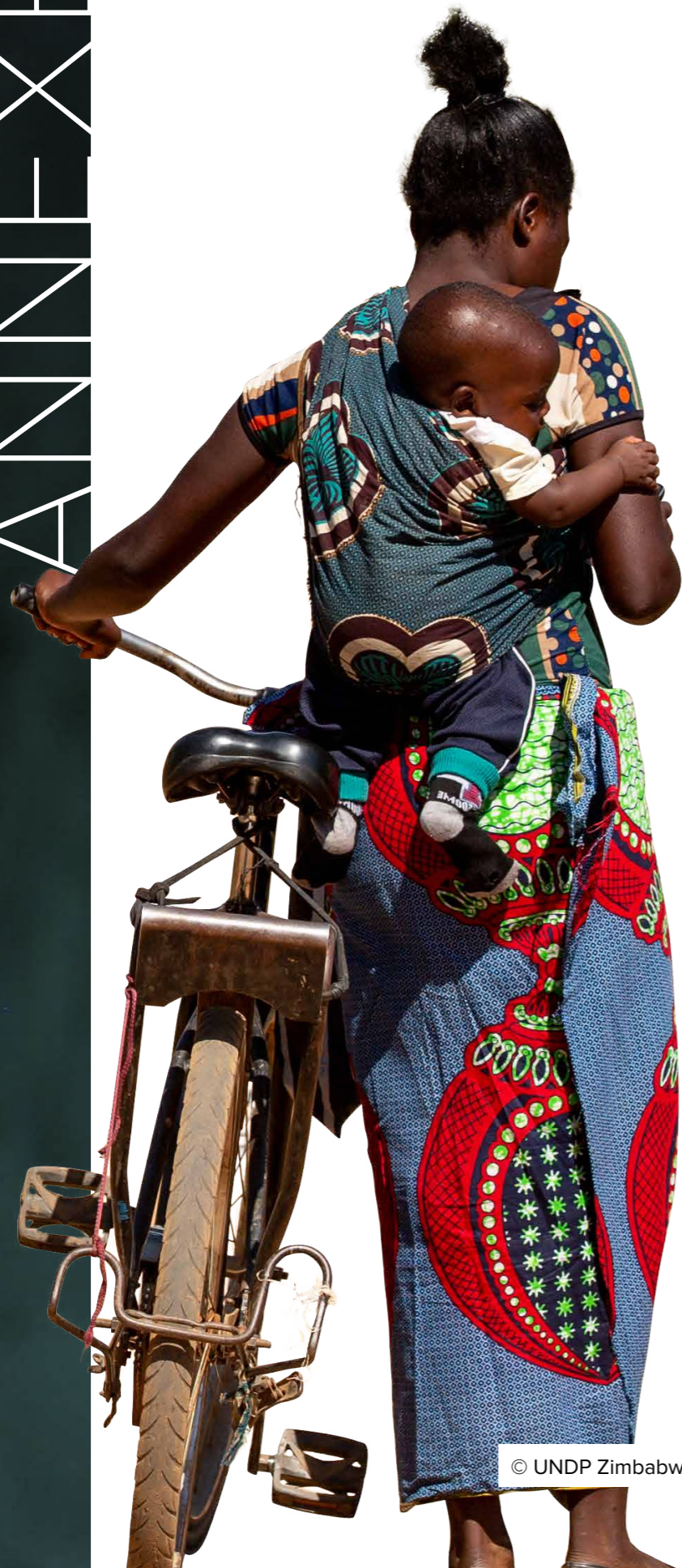
While refining the ToC of the Project, and its overall suite of interventions and the implementation strategy for each, the Project team should consider any relevant adjustments to be made to the Results Framework (e.g. in case of additional or different outcomes and/or outputs being targeted, based on the refinement of the ToC and/or overall Project implementation strategy). Workshop participants should identify and formulate together any additional or modified Results to be achieved by the Project (in case these are to be updated) and otherwise validate that the expected Results are still valid.

From here, the Project team should move on to adjust the key outcome, output and process indicators to be monitored during implementation. These can obviously consist of both quantitative and qualitative indicators, and the process should follow general guidance on developing quality (SMART) indicators. If budget allows, it is always recommended that additional methods such as [outcome harvesting](#) are adequately planned for to allow for capturing emerging (unplanned) outcomes, so to inform further reflections on validity of the Project's ToC.

### EXPERIENTIAL LEARNING

This exercise will provide the Project team with a thorough, common understanding of the Project objectives, implementation strategy and expected results. The Project team will also strengthen their understanding of how a Theory of Change and implementation strategy relate to each other, and the overall context in which the Project is operating.





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# APPENDICES AND ANNEXES

## Appendix A: Using the ToC as a systemic tool to guide interventions in complex systems

As presented in the [definitions section](#), a Theory of Change (ToC) is “a hypothesis of how and why change happens”. Over the years, most development organisations and practitioners have developed their own ways and methods for crafting and using ToCs as the key logic model underlying the conceptualisation of development interventions, including landscape and jurisdictional approaches.

ToCs have been observed to be by some too linear in their approach, which would constrain their effectiveness to tackle complex issues such as those affecting many forested landscapes. However, this happens when ToCs are not developed nor used appropriately, as, according to the think tank New Philanthropy Capital (NPC), organisations have fallen too often into the pitfalls presented in *Figure 12* below.<sup>51</sup> According to NPC, this can be avoided through adopting a series of rules of thumb that would help organisations develop more realistic and useful ToCs; these are also presented in *Figure 12*, next to their related pitfall.

PITFALL	RULE OF THUMB
NEGLECT CONTEXT	UNDERSTAND CONTEXT
CHANGE OTHERS ONLY	KNOW YOURSELF
THINK IN LINEAR TERMS	THINK SYSTEMICALLY
SEEK SAFETY IN CERTAINTY	LEARN AND ADAPT
CHANGE IS TECHNICAL	RECOGNISE CHANGE IS PERSONAL

Figure 12: Common pitfalls and rules of thumb for taking a systemic approach to ToC development (NPC, 2018).

<sup>51</sup> NPC, 2018. Thinking big: How to use theory of change for systems change.

For Anna Birney, director of the *School of System Change* of *Forum for the Future*, this means:

- Understanding the challenge and context you are operating into systemically so that you can create the whole picture of the project’s work [in] a coherent narrative;
- Ensuring that the pattern of the different impacts and outcomes is nested together and seeks connections between the interventions so that additionality is achieved to scale our collective impacts;
- Naming assumptions and being open to change through learning.

She also reminds us that a key principle of systems practice is that “things are always constantly changing and in dynamic flux [, meaning that] you cannot truly know what might work in any context until you have prodded and poked the system to see how it might respond”, resulting in the implication that a ToC “needs to be a living conversation (...) testing our assumptions about how change happens and requir[ing] an adaptive learning approach as you gain feedback from the work that you are undertaking”. This means building in feedback loops at different stages, and allocating time to revisit and improve (from [this article](#) on Medium, from February 2018).

## Appendix B: Visualising interdependencies between interventions

To support the reflection on interdependencies among landscape interventions (see point 3 of the Prerequisite *A holistic view of landscape interventions and their interdependencies*), it is recommended to develop a diagram visualising the actual, expected and/or eventual links between relevant Project and non-Project interventions, such as the one shown in *Figure 13* below.

Example

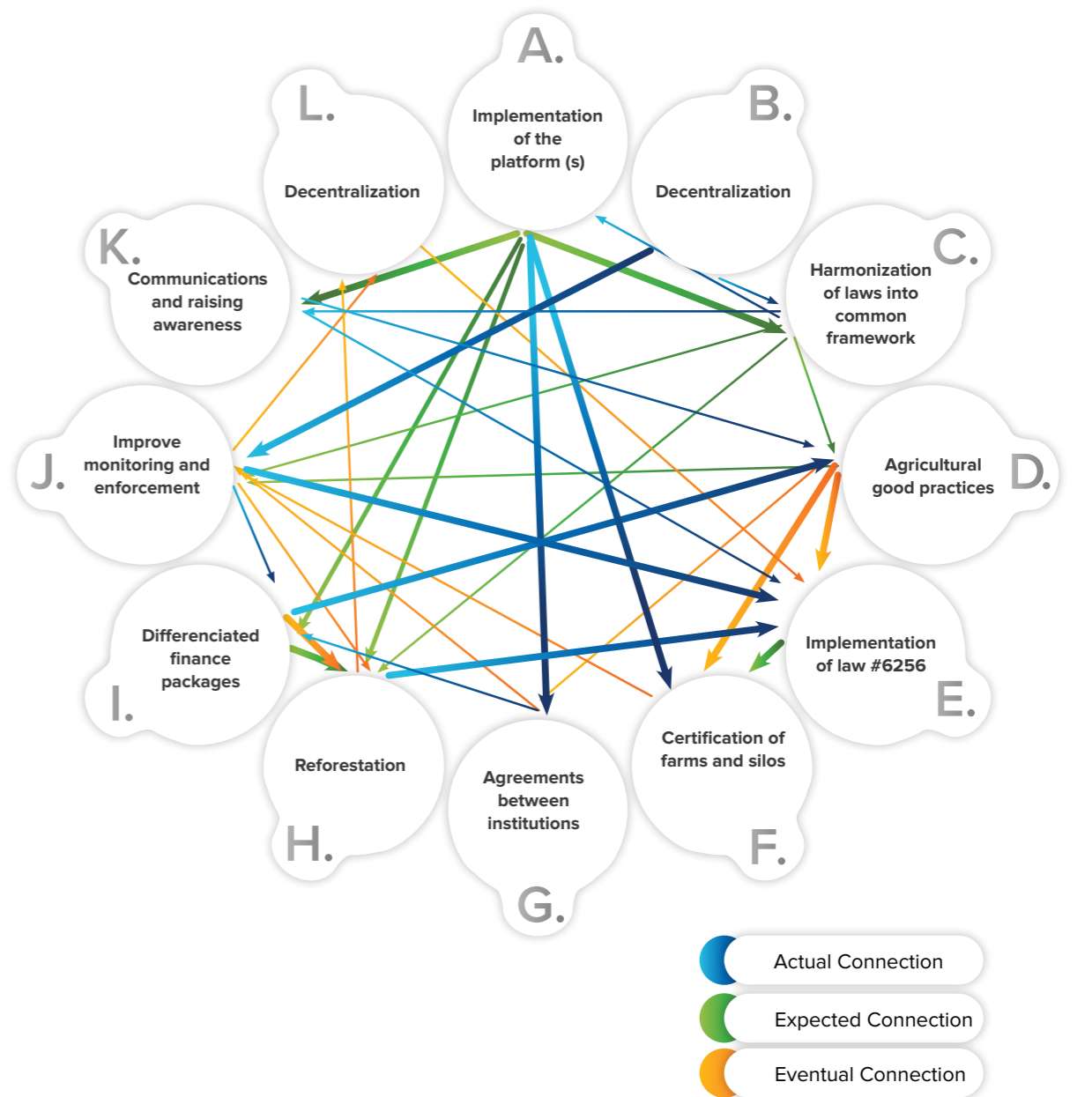


Figure 13: Co-dependent interventions diagram.



Detailed steps are presented below.

- 1. Create one bubble for each intervention implemented in the landscape and start connecting them with arrows indicating how they (should) relate to and enable (or hinder) each other;** the arrow should begin with the enabling (hindering) intervention, and end at the enabled (hindered) intervention. This can include feedback loops between two or more interventions (to show this, add additional arrows as needed). It is recommended to use different notations for enabling (+) and hindering (-) relations.
- 2. Identify, e.g., through the use of different colors (such as in the example), where the connection is actual (one intervention is actively enabling or hindering another one, and this can be demonstrated with evidence); expected (not yet materialised, but written in the project document, or partnership agreement) or eventual (there may be potential for co-dependency but it was not yet explored in detail).<sup>52</sup>** This exercise will be particularly useful to support the review of the Project impact pathways (at any stage of application of CALI) and should be updated by then.
- 3. Adjust the weight of the arrow<sup>53</sup> depending on the strength of the relationship between interventions:**
  - a) A thin arrow indicates there may be a relationship between the interventions, but it is unknown and/or not a strong relationship.
  - b) A medium weight arrow indicates there is an actual or expected relationship between the interventions – either one enables (or hinders) the other, or they enable (or hinder) each other in a complementary way.
  - c) A thick arrow indicates there is a very strong relationship between the interventions – one is necessary to enable the other (or strongly hinders it), or simultaneous co-implementation is required.

For each arrow, a brief causal explanation for the direction and weighting should be provided, ideally in a tabular format to complement the drawing.

<sup>52</sup> This diagram can include interventions with any implementation status, including those not yet being implemented, as it is useful to know if un-implemented interventions are needed to enable others currently attempting implementation.

<sup>53</sup> Alternatively, the CALI Project team may want to use symbols on the arrows to indicate the strength (++ , + , - , --). This would be more coherent with the notation of the System Map.

## Appendix C: Impact monitoring

At any stage of Project implementation, the Project team should be able to present and comment on the latest changes in the key impact variables in the landscape:<sup>54</sup> forest cover and deforestation. That requires the capacity to develop (or access), in writing and visually, an analysis of the current situation of forest cover and deforestation in the landscape and compare it with historical trends. This is critical information that will be used to inform application of CALI at any stage of Project implementation.

Unless reliable information can be accessed from third parties, the Project team must gather and analyse in-house the latest data on the evolution of forest cover (stock) and deforestation rate/s (flow) in the landscape, mapping it visually and comparing it with the latest trends (covering at least the previous 5 years). To this end, the Project team should prioritise the use of data generated through national forest monitoring systems (NFMS),<sup>55</sup> whenever these are sufficiently elaborated and capable of providing timely and good quality information.<sup>56</sup>

If only limited information is available through NFMS, other data sources can be considered, such as the global database put together by Hansen et al., which can be consulted through different web-based platforms including the Global Forest Watch, [Earth Map](#), and others. A possibly valid proxy variable here is tree cover, defined as *all vegetation greater than 5 meters in height, [which] may take the form of natural forests or plantations across a range of canopy densities* (Hansen et al., 2013).<sup>57</sup>

<sup>54</sup> It is critical that information is collected and presented at the landscape level. If any data gaps at this scale, these should be noted, and a plan should be developed on how to address them. Meanwhile, smartly crafted proxies can provide an approximate picture of the evolution of key variables in the landscape.

<sup>55</sup> The [National Forest Monitoring Systems learning journal](#) developed within the framework of the REDD+ Academy can be consulted as needed for insights into how NFMS are developed and implemented.

<sup>56</sup> Tropical forest countries engaged in REDD+ readiness and implementation efforts generally have the capacity to produce good quality (geo-spatial) data on forest cover (including its evolution over time), having invested in developing increasingly robust NFMS. National governments can be quite sensitive about their national data, and using any other data – see e.g. data from the global platform recommended in the following paragraph – can be a serious bone of contention. It will be also important for the Project team to ensure consistency with national GHG inventory data for the forest sector (connected with the NFMS) and REDD+ data as much as possible. More specific details on Forest Reference Emission Levels for REDD+ can be consulted via the homonymous learning journal, which can be accessed through [this link](#).

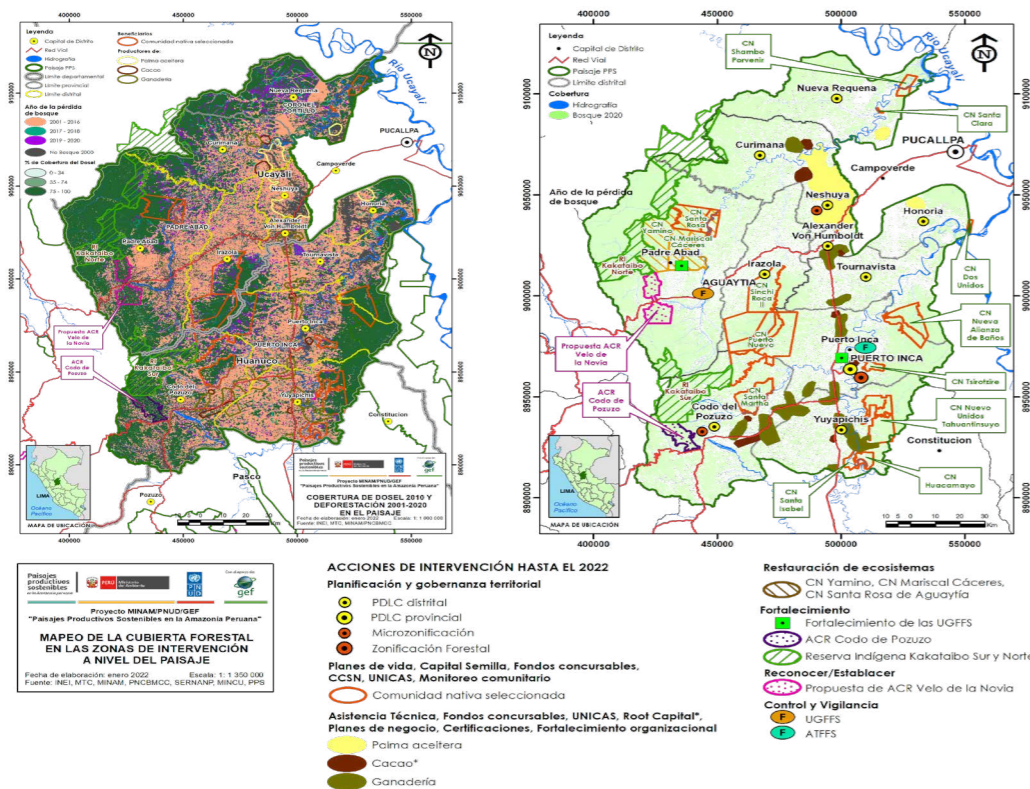
<sup>57</sup> See [Appendix D](#): Sample quantitative baseline indicators for additional guidance on data sources and proxies.

**Table 5: Key impact variables, with their description and recommended data sources.**

Impact variable	Description	Suggested Data Sources
Forest Cover	Area of landscape covered by forest with a set threshold canopy cover (ha).	Priority should be given to data from national forest monitoring systems (NFMS).
Rate of Deforestation	Gross and net annual deforestation rate in the landscape and inside key land zoning areas (e.g., protected area, indigenous land, concessions).	In the absence of the latter, the CALI Project team may want to refer to the global database compiled by Hansen et al., which can be accessed through platforms such as Global Forest Watch, Earth Map, and others.

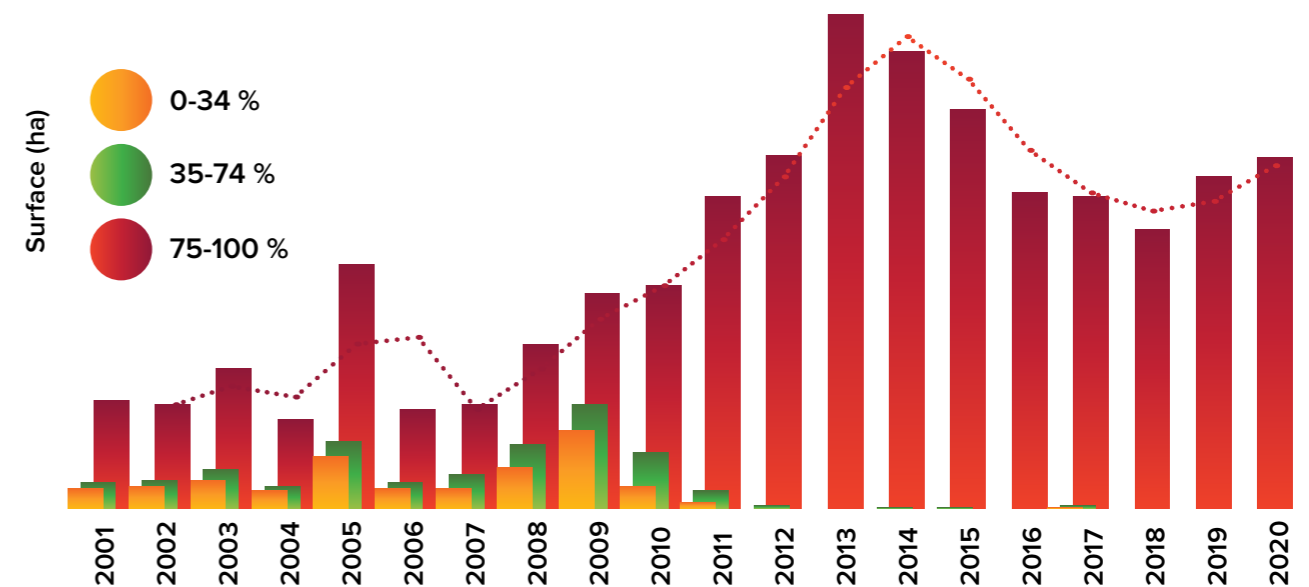
It is recommended that the following three products are generated (or updated), as a minimum, in preparation of application of CALI at any stage of Project implementation:

1. A Landscape Map demarcating clearly the landscape boundaries, and showcasing land cover types, and land-use changes over e.g., the last and previous 5 years (though the time period can be defined by the Project team as suitable), with a priority focus on those affecting forests. Key local areas suffering significant deforestation should be identified.



**Figure 14: Landscape Map for the target landscape of the Sustainable Productive Landscapes project in Peru.**

2. Graphs visualising the evolution of forest cover (stock), deforestation (flow), and any reforestation (flow)<sup>58</sup> over recent years within the landscape boundaries.<sup>59</sup>



**Figure 15: Annual forest loss by canopy cover classes in the target landscape of the Sustainable Productive Landscapes project in Peru.**

3. A short, written description (one paragraph) of the evolution of the above-mentioned stock and flows (e.g., commenting on peaks and trends, highlighting the dimension of yearly tree loss, etc.) to support communications with stakeholders and further analysis.

<sup>58</sup> And/or any other relevant metrics related to the impact of human activities on forest areas in the landscape.

<sup>59</sup> If interesting, this can be compared to the same metric beyond the landscape boundaries, at regional or national level.

# Appendix D: Additional Recommendations for Context and Outcome monitoring

In addition to the Project indicators defined in the Results/Logical Framework, the Project team may want to review periodically the evolution of selected contextual variables linked to deforestation, such as the ones presented in table 4 below. Data availability will obviously play a role in informing the selection,<sup>60</sup> though the Project may decide to engage in primary data collection for key variables (e.g., after having developed a first version of the landscape system map, with the goal of understanding identified trends more in depth).

**Table 6: Non-exhaustive list of contextual variables linked to deforestation (relative importance varies from context to context).**

Variable	Description	Suggested Data Sources
Forest Fragmentation	Categorisation and quantification of forest cover based on connectivity and fragmentation.	NFMS or Vogt, P. (2013). GUIDOS: tools for the assessment of pattern, connectivity, and fragmentation. 13526. Available online at: <a href="http://forest.jrc.ec.europa.eu/download/software/guidos/mspa/">http://forest.jrc.ec.europa.eu/download/software/guidos/mspa/</a> .
Rainfall and temperature	Average annual or monthly rainfall and temperature for an analysis of temperature and rainfall trends over a period and quantification of frequency of extreme events.	National data-sets or Funk, C., et al. "The climate hazards infrared precipitation with stations—a new environmental record for monitoring extremes". Scientific Data 2, 150066. doi:10.1038/sdata.2015.66 2015. Available online at: <a href="http://chg.geog.ucsb.edu/data/chirps/">http://chg.geog.ucsb.edu/data/chirps/</a> .

Variable	Description	Suggested Data Sources
Agricultural Productivity	The average annual yield of the major agricultural products per unit of area (e.g., kg/ha).	[Field survey and/or government census]
Agricultural Production	The average annual yield of the major agricultural products (e.g., kg).	[Field survey and/or government census]
Area under Cultivation	Average area of a farm under different agricultural cultivation.	[Field survey and/or government census]
Population and Population density	Number of people and people per sq. km, disaggregated by gender, age and/or rural and urban.	[Government census] or Dobson, J., et al. "LandScan: a global population database for estimating populations at risk." Remotely Sensed Cities Ed. V. Mesev, London: Taylor & Francis. 2003. 267-281. Available online at: <a href="http://web.ornl.gov/sci/landscan">http://web.ornl.gov/sci/landscan</a> .
Rate of Employment	Number of employed people vs number of people living in a community.	[Government census]
Income per Household	Amount of income generated per household.	[Government census]
Poverty or Human Development Index	Percentage of population in poverty.	[Government census] or Progress out of Poverty Index from <a href="http://www.progressoutofpoverty.org">www.progressoutofpoverty.org</a> ; USAID's Poverty Assessment Tools from <a href="http://www.povertytools.org/">http://www.povertytools.org/</a> ; UNDP's Human Development Index from <a href="http://hdr.undp.org/">http://hdr.undp.org/</a>

<sup>60</sup> For variables for which data is not available or the data is not at the proper scale, it is recommended to start by thinking of a proxy. For example, if average yearly income per household is not available, perhaps household access to amenities like clean water or electricity could serve as a proxy.



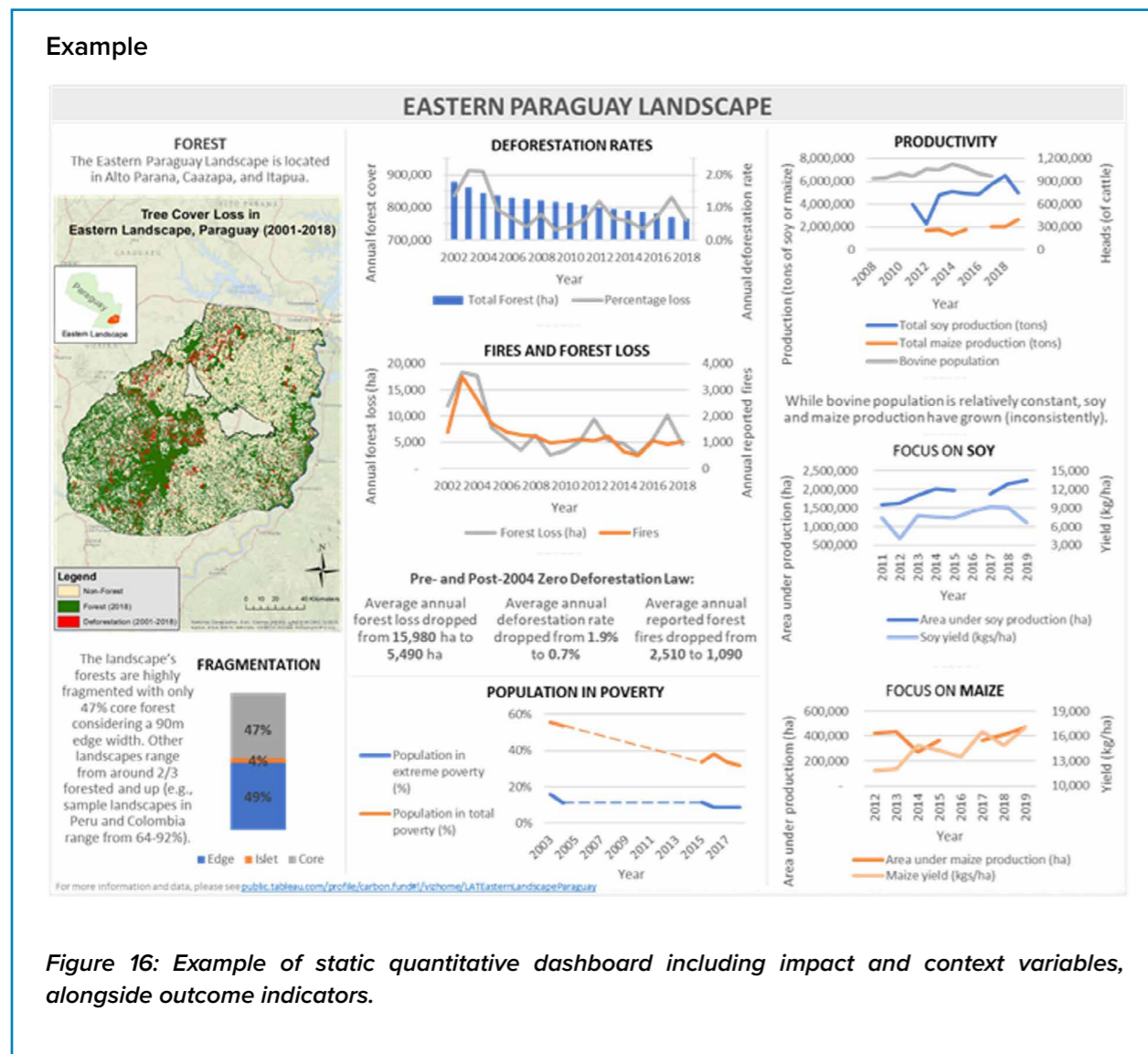
# Appendix E: Roles and responsibilities of the CALI project team

The CALI Project team should include:

- ➔ **A CALI project manager (CALI PM)** – the MEL Specialist of the Project or other Project member with a solid MEL background. The CALI PM is responsible for preparation and implementation of each step of the application of CALI.
- ➔ **A Project technical referent** – the Project manager or coordinator of the Project, or other key technical counterpart holding an overview of the Project ToC, objectives, and interventions.
- ➔ **A CALI lead facilitator (CALI LF)** – a skilled, external facilitator (ideally this figure should remain the same for all applications of CALI) with a strong background in evaluation, systems and critical thinking, and using participatory methods. The CALI LF is in charge of leading all the workshop portions, organising inputs, analysing findings and developing the expected products, including an upgraded Project ToC, implementation strategy and results framework. A sample ToR for the CALI LF is provided as [Annex 4](#).
- ➔ **A CALI data analyst (CALI DA)** – the Data Analyst of the Project, or other Project member skilled with manipulating quantitative and qualitative data, including geo-spatial data. The CALI DA is in charge with ensuring availability of data and analyses in support to the implementation of CALI.
- ➔ **A responsible for stakeholder engagement (CALI SE)** – the Stakeholder Engagement Officer of the Project, or other Project member/s managing stakeholder relations. The responsible for CALI SE needs to ensure participation of the representatives of key landscape stakeholders in the assessment.
- ➔ **A system mapping expert (CALI SM)** – this can either be a Project member or an external consultant, although we expect that most Projects will prefer to go with the latter. A sample ToR for a system mapping expert can be accessed through [Annex 5](#).

If needed, some of these roles can be covered by the same person, provided that the availability of the above-mentioned skills and requirements is ensured.

It is recommended that baseline information on impact and context variables, as well as on Project indicators, and their updates throughout implementation, are presented in a Project dashboard such as the one shown in *Figure 16*. [Annex 3](#) is a simple template aimed at supporting the Project team to generate a similar dashboard.<sup>61</sup> The selection of the information covered in the dashboard should be updated after each application of CALI, which culminates in adjustments to the Results Framework. An updated landscape system map and Project ToC may trigger substantial changes to the selection of information shown in the original dashboard.



**Figure 16: Example of static quantitative dashboard including impact and context variables, alongside outcome indicators.**

Displaying these key metrics in an accessible dashboard format provides additional guarantees that this critical information is used to support reflection throughout Project implementation, and as part of the application of CALI. A functional understanding of data visualisation, and (at least) basic capacity to manipulate geospatial datasets are required.

<sup>61</sup> More advanced dashboards can be made using interactive data visualisation software (e.g., Tableau, Power BI, Google Data Studio).

# Appendix F: Developing a landscape system map focused on deforestation

Important note: To support the creation of the landscape system map, the resulting products of the steps presented below are visualised through making reference to an exemplary map for a fictional landscape. The full example map is shown in [Figure 5](#) (p. 26).

Forest cover (stock) is the focus point of the analysis and therefore the central variable of the System Map. The forest cover in a landscape can change in two ways (flows): either (1) deforestation leads to a decrease in forest cover or (2) reforestation/afforestation leads to an increase in forest cover (see figure E1 below). The process of reforestation/afforestation, though, is delayed as it takes time before the activities actually restore the forest cover. In the system map, the “II” symbol represents a causal effect with significant delay. The ‘+’ and ‘-’ are the polarities and will be described within the exercise. If reforestation/afforestation is not part of the landscape development and therefore is not an important factor for the evolution of forest cover, the CALI project team might choose to exclude reforestation/afforestation from the workshop discussion and solely focus on the drivers of deforestation.



**Figure F1: Deforestation and Reforestation are the two flows affecting the stock of forest cover in each landscape.**

A Root Cause Analysis (RCA) or other similar exercise conducted during project design can provide valuable input for initiating the development of the system map. Similarly, findings, conclusions, and/or recommendations from any other relevant studies (possibly exploring causality between deforestation and its direct or indirect drivers, e.g., the expansion of agricultural production) conducted within or outside of the Project framework – for example, as part of national REDD+ processes and strategies<sup>62</sup> – should be considered, fed to participants and/or leveraged upon to complement the output of this exercise.<sup>63</sup>

To document the landscape system map and information collected in this step, a variety of software can be used, ranging from Microsoft Word, Excel, or PowerPoint to more specialised

software such as Miradi<sup>64</sup> or Kumu (which is recommended as it is specifically developed for creating system maps);<sup>65</sup> other proprietary tools such as Miro and Mural allow for remote workshops and live interactions with participants while providing the necessary functions to create system maps. The CALI Project team can either decide to follow the 3 steps below or recur to the [System Mapping toolkit](#) developed by the [Systemic Design Group](#).

## 1. Problem statement.

To start mapping the system leading to deforestation in the landscape, the Project team and stakeholder representatives should first be clear about what the problem is. A problem statement can provide this clarity. It allows the CALI Project team to communicate the purpose precisely and to streamline the discussions of the participants during the workshop.

Explain in one short paragraph what the problem is, why it is important and urgent, who is affected by it, and which other problems it perpetuates. This can be taken from the project document and updated as needed. The statement can include a question that helps to frame the issue in terms of an aspirational and actionable goal.

*Example of a problem statement:* “The forest cover in the landscape has decreased by 30% within the last 15 years. Most of the land is now used for agricultural production instead. The continuous deforestation contributes to the temperature rise and increases the water runoff and soil erosion. These effects have negative impacts on biodiversity and the fertility of the landscape which ultimately also weaken the agricultural productivity in the long-term. How might we provide sustainable agricultural practices to support socio-economic development while protecting the forested area/s in the landscape?”

## 2. Framing.

The facilitator should present to participants a landscape map with an associated analysis of the development of forest cover in the landscape (see Appendix C), together with the problem statement. At this stage, the workshop facilitator may want to ask participants whether the evidence shown is surprising, or anyways try to capture the level of awareness around the evolution of forest cover dynamics in the landscape. Taking into account the composition of the group and the sensitivity of the topic in the local context, participants should be encouraged to share comments, and a brief, moderated discussion could follow.

## 3. Identify direct drivers.

In this activity, we will start developing the System Map by identifying the most important direct drivers of deforestation as well as barriers to reforestation.<sup>66</sup> Direct drivers are the processes or human activities that directly cause deforestation or influence reforestation in the landscape.<sup>67</sup> [Insight 6](#) on p. 31 provides some examples.

<sup>64</sup> Miradi ([www.miradi.org](http://www.miradi.org)) is a software to document, visualise, and manage project design, implementation, and adaptive management.

<sup>65</sup> More standard resources can always be complemented with scanned images of hand-drawn diagrams or diagrams from free online systems mapping programs if needed.

<sup>66</sup> Note on terminology: the following pages will be referring to drivers of deforestation, however the CALI Project team and facilitator should be mindful that there may also be barriers to reforestation, the other key variable impacting the evolution of forest cover. These shall be identified and considered in a similar way to the drivers of deforestation (with a negative impact on the evolution of forest cover) throughout the whole process.

<sup>67</sup> The *Drivers of deforestation and forest degradation* learning journal developed within the framework of the REDD+ Academy may help the CALI Project team and facilitator to gain an overview of the general drivers of deforestation and barriers to positive developments. It can be accessed through [this link](#).

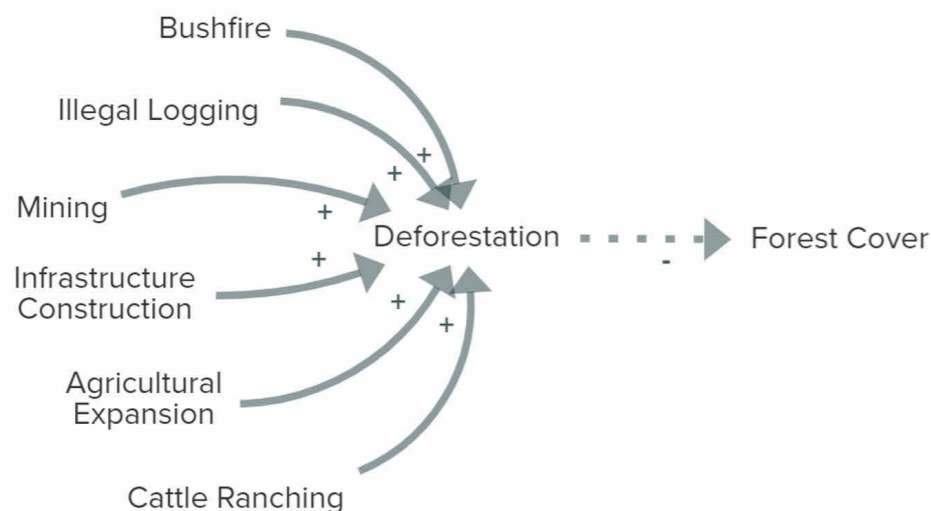
In a workshop setting, the CALI Project team may want to split the participants into mini-groups of 2-3 individuals and distribute some notecards per mini-group (*suggested notecard color: pink*). Each mini-group collectively decides and writes the four most important direct drivers influencing deforestation – one direct driver per notecard.

Each team should briefly present their note cards starting with the driver of highest importance. The facilitator collects the notecards and groups similar direct drivers together. After every group presented their drivers, identify the top four drivers for deforestation.

Present the top four direct drivers that will be used in the subsequent analysis to the participants. They should generally agree that these are the most important direct drivers. If the participants think a very important direct driver is missing, an additional driver can be added to the analysis.

Draw the connections from the direct drivers to deforestation. Add the polarity and – if necessary – a delay to the connection. The polarity indicates how one factor influences the other while the delay indicates a significant time lag between cause and effect:

- a) A *positive polarity* (+) means that cause and effect are moving into the same direction meaning if the causing factor increases then the influenced factor also increases. Alternatively, if the causing factor decreases the influencing factor also decreases.
- b) A *negative polarity* (-) indicates that the factors are moving into opposite directions meaning that an increase in the causing factor leads to a decrease of the influenced factor (and vice versa).
- c) If there is a significant *delay* between the cause and effect, then this should also be marked in the connection ('||').



**Figure F2: Example of direct drivers for deforestation. Limit your choice to four direct drivers to focus your analysis on the most important dynamics.**

### Facilitation tips

a)	To best avoid bias in responses and solicit the most honest inputs, do not frame the direct drivers and contributing factors as if any actor is in the wrong. In essentially every case, people are not cutting down trees because they enjoy cutting down trees, but rather as a way to provide for themselves and their families. Understanding what truly drives this behaviour is the only way to design and implement the most effective interventions to change these behaviours.
b)	Focus on the identification of direct drivers. Some of the drivers identified by the participants might influence deforestation or reforestation but rather indirectly through other drivers. Explain the difference to the participants and note that these indirect drivers will be reflected in the subsequent exercise identifying contributing factors.
c)	[Optional] <b>Development of direct drivers.</b> To better understand the influence of direct drivers and help the participants to think about dynamics over time you can develop behaviour-over-time graphs together with the participants. Split the participants into pairs and let them choose one direct driver they are knowledgeable about. The pair should sketch the development of the driver from the past to the present year. The starting year can be chosen by the participants but – in the best case – should correspond with the time period presented for the development of the forest cover in the previous activity. The participants can research data for this activity or – if data is not available – sketch the development of the driver based on their personal perception. Each pair presents their behaviour-over-time graph followed by a short discussion.

#### 4. Map the contributing factors.

In this activity, you will dive into each direct driver and aim to understand causal influence of contributing factors. Contributing factors are those factors that enable the occurrence of direct drivers (also known as underlying causes).<sup>68</sup> [Appendix H](#) provides 5 general categories of enabling (or hindering) conditions and inputs which may help guiding the brainstorming process.

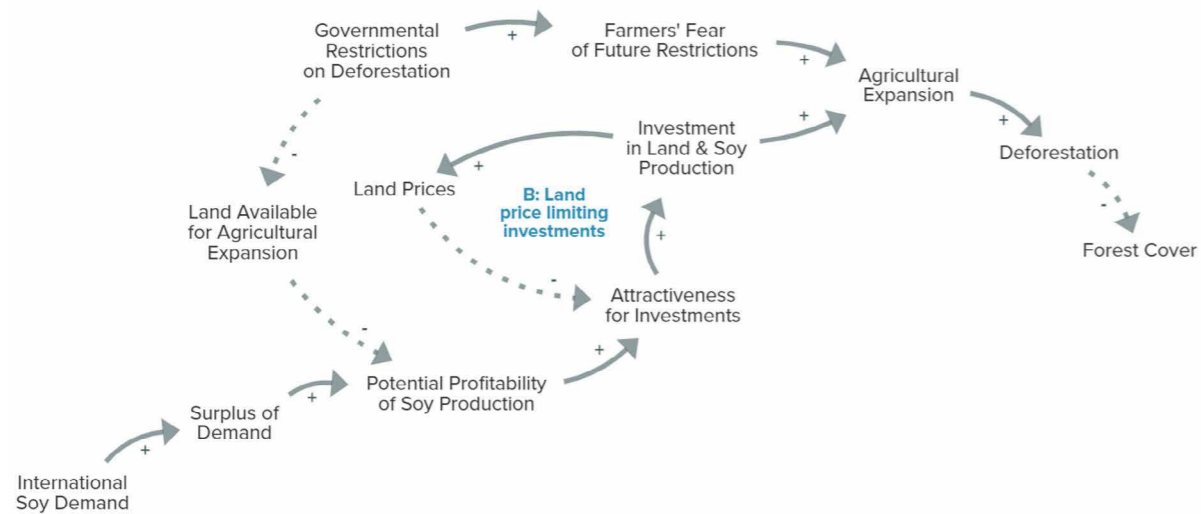
Starting with one of the direct drivers, ask the participants what factors directly influence the direct driver or enable the direct driver to occur. Participants can name factors and should briefly explain the influence.

These contributing factors should be linked with arrows to the direct driver(s) they influence and continue to be built out moving from right to left – one contributing factor per notecard (*suggested notecard color: orange*). The connection should also indicate the polarity and potential delays. Once one direct driver has been dissected, the team should move on to the next. If the facilitator or one of the participants identify feedback loops during the discussion,

<sup>68</sup> Among the others, these may include factors such as the role and maturity of international and national markets, legal frameworks, and/or the country policy vision.

these can be included in the map and briefly explained to the group. Subsequent *activity 6* will focus specifically on feedback loops.

After mapping the contributing factors of two direct drivers in the plenary and if the participants are comfortable with the process, you might choose to split the participants into groups each focusing on one direct driver. The facilitator should support the individual groups. At the end, each group briefly presents their results and gives other participants the chance for questions and feedback. Merge similar factors into one factor so that there are no duplicates among the contributing factors.



**Figure F3: Example of contributing factors of the direct driver agricultural expansion with a first balancing feedback loop.**

Facilitation tips	
a)	As a facilitator, consider renaming a factor if it eases communication or to add an intermediate factor if it helps to improve the clarity of the causal connection.
b)	Participants should be allowed to discuss the factors and causal connections in the group to reach a consensus and develop a shared understanding. However, long or sprawling discussions should be moved to a “parking lot” and postponed to a later stage. Most of the discussions might be cleared through the progression of the workshop before getting back to the points on the parking lot.
c)	During this exercise, it is good to refer to the stakeholder analysis, given it is impossible to include every stakeholder in a workshop setting. Have the needs and behaviours from all stakeholders – particularly those with “high” influence and/or interest – been identified and included?

Facilitation tips	
d)	The facilitator should continue probing for more contributing factors until the group has reached the point of identifying contributing factors far outside the control of the landscape and project (e.g., international demand, cultural preference). Probing questions include: Who is involved in these activities? What are they doing and why? What incentives and disincentives influence the direct drivers and underlying factors? What economic, political, institutional, social, or cultural factors contribute to this pressure?
e)	The facilitator should ensure that the factors discussed reflect the diversity of the elements within the system. Typical dimensions that are part of a complex systems are the <i>structures of the physical world</i> (e.g., forest area, population size, resources, infrastructure, workforce), the <i>transactions or processes</i> (e.g., production, taxes, migration, consumption, demand, laws) and the <i>emotions and attitudes</i> of the actors (e.g., life quality, security, need for housing, awareness, fear).
f)	Many contributing factors may be phrased as “lack of...” or “need for...” or “existence of...” but some factors may be uncomfortable to write up on a notecard in certain situations (e.g., corruption, culturally large family sizes), so the facilitator must maintain a sensitivity for the topics that may arise.

### 5. Identify direct effects and map consequences.

In this activity, you will focus on the effects of changes in forest cover and the wider consequences of decreasing forest area within the landscape. If time with stakeholders is limited, this activity may also be prepared by the CALI Project team ahead of the workshop and presented to the participants for shared learning and validation.

Follow the instructions of activity 3 to identify the four most important *direct effects* of forest cover. *Direct effects* are the processes that are directly caused by the change – particularly the decrease – in forest cover. Note if there are significant delays before an effect takes place. Optionally, develop *behaviour-over-time graphs* for the direct effects as described in activity 3.

*Consequences* are those factors that follow from the occurrence of direct effects. Identifying consequences might be done together in plenary or in smaller sub-groups which focus on the most important consequences of one direct effect.

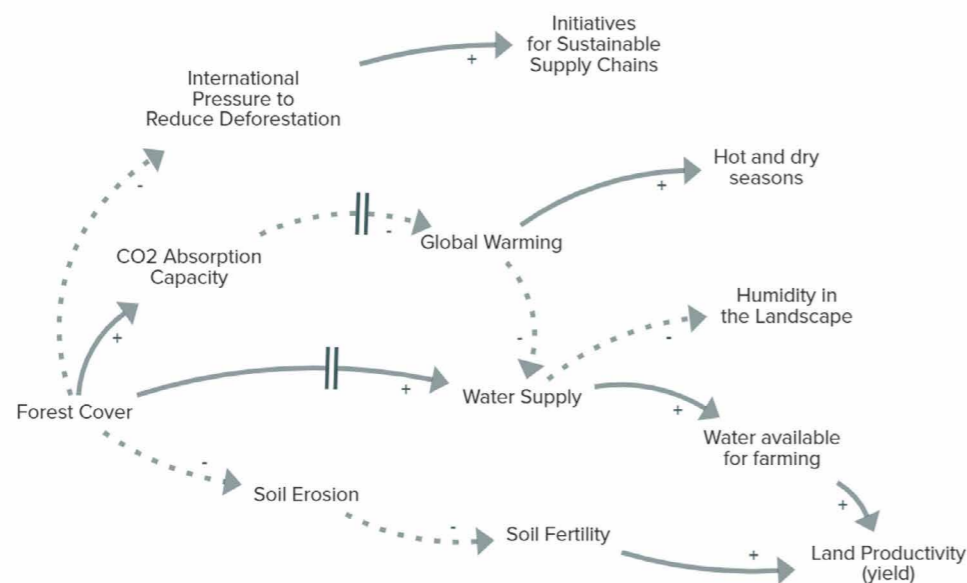


Figure F4: Example of direct effects and resulting consequences of forest cover change.

## 6. Close feedback loops.

In this activity, you will identify how certain “effects” within the system influence identified “causes” constituting the *feedback loops* of the system. A *feedback loop* is a sequence of factors and causal links that creates a closed ring of causal influences. A *feedback loop* is closed when the effect of a causal chain feeds back to influence the original cause of that effect.

Ask the participants to look at the identified contributing factors and direct drivers. Do they see additional causal influences between the variables – particularly, from affected factors on the right to the causes on the left? What factors drive the identified emotions and attitudes of the actors?

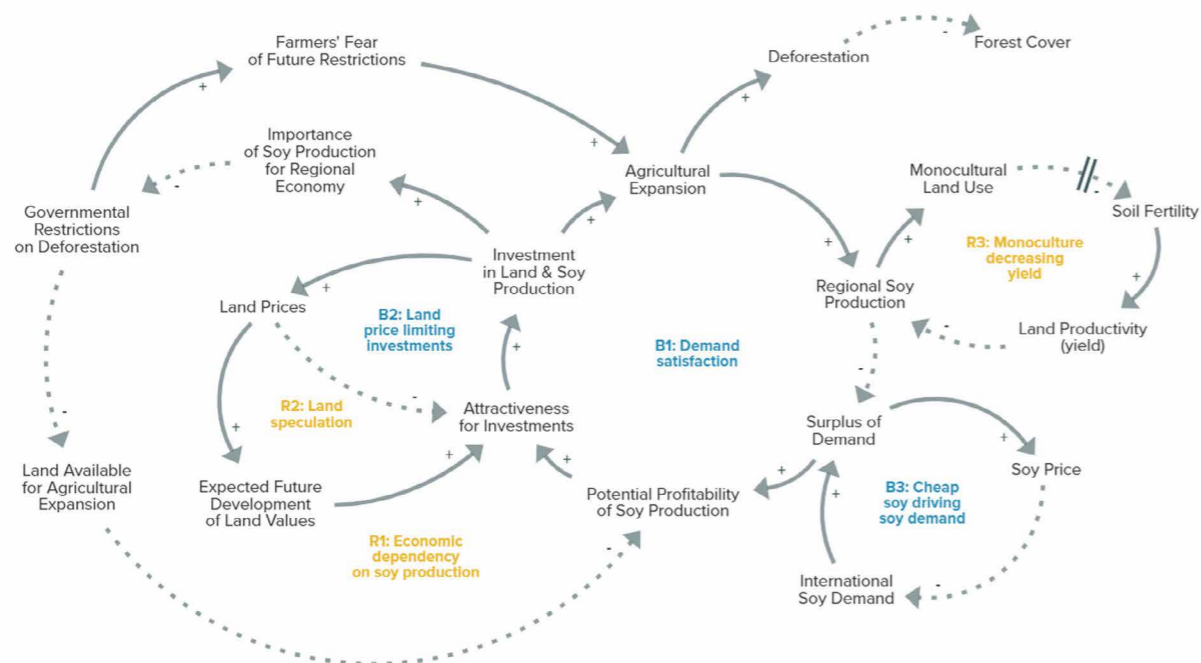


Figure F5: Example of additional factors and feedback loops driving the direct driver Agricultural Expansion. Balancing feedback loops are shown in blue while reinforcing loops are shown in orange.

Afterwards, ask the participants to also take the feedback loops of forest cover change into account. How do the consequences already influence the causes within the system? How do actors experience those consequences? How does the perceived development or assumption of consequences influence the decisions of the actors?

As you close a feedback loop, identify the type of feedback loop together with the participants. Start at one factor of the feedback loop, assume a change (e.g., an increase) and then follow the change through the whole feedback loop until you reach the factor you started with. If the factor would change further in the same direction (e.g., increase even further), then this is a *reinforcing loop*. Otherwise, if the factor would be pushed towards the other direction (e.g., decrease), then this is a *balancing loop*. Number the feedback loops for reference and give them a name that describes their dynamic impact.

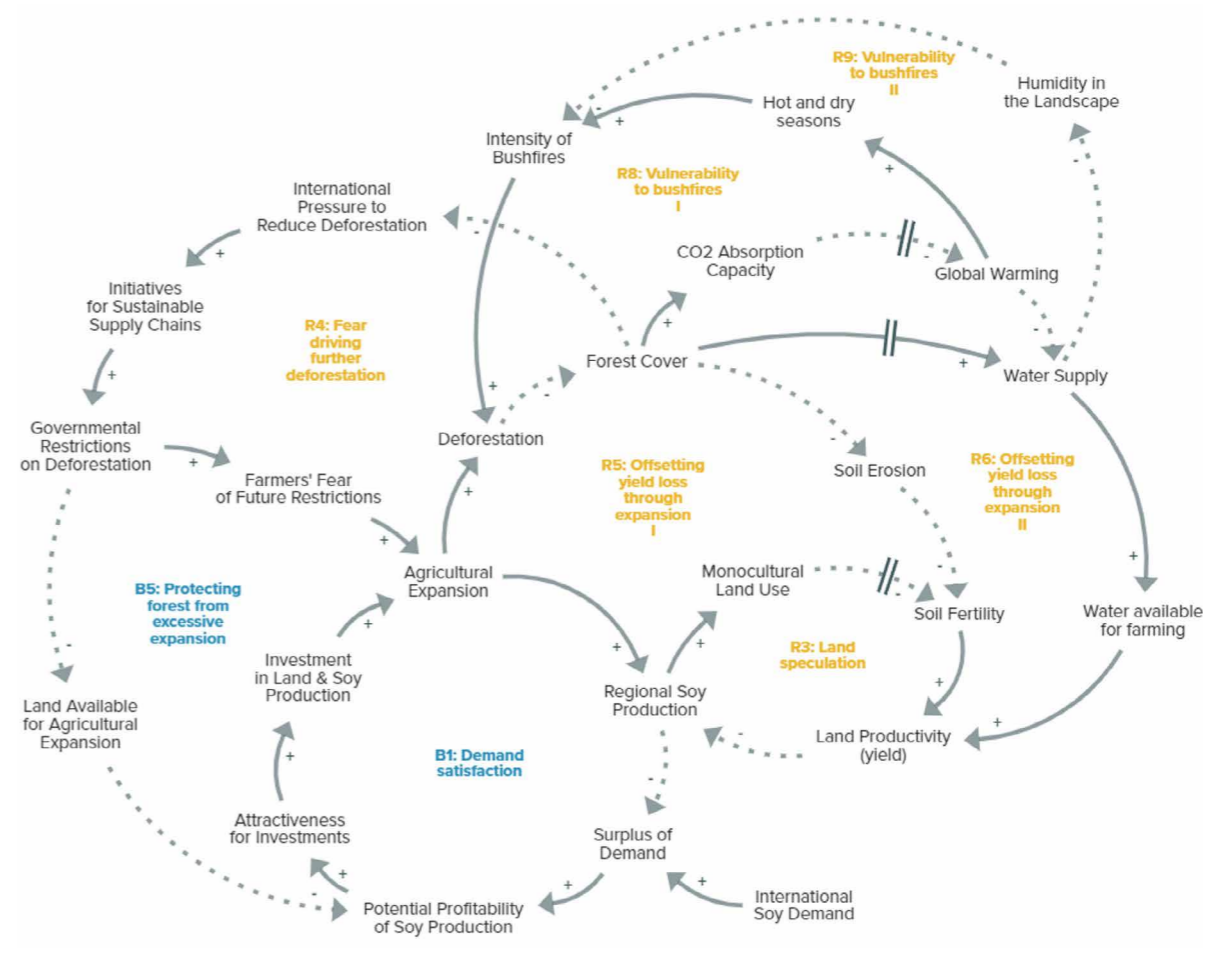


Figure F6: Additional feedback loops by connecting resulting consequences to the driving factors.

## 7. Reflect on the landscape system map.

Together with the participants, look at the map and discuss the following points:

- Identify factors in the system that have a lot of outgoing connections to other factors. These might be important factors to influence when trying to change the behaviour of the system. Then, look for factors with many incoming connections. These could be factors which are difficult to control and therefore must be observed closely.
- Look at your reinforcing feedback loops and identify if they currently have a beneficial

impact on the system ('virtuous loops') or if their dynamics are disadvantageous ('vicious cycle'). Virtuous loops should be supported and strengthened through interventions while vicious cycles need to be stopped and ideally, turned around into a virtuous loop.

- Now, look at your balancing feedback loops. Discuss if they have a healthy stabilising impact on the system ('stabilising loops') or if they keep the system from improving ('stagnating loops'). Stabilising loops are important to keep the balance within the system while stagnating loops can hamper or hinder change within the system.
- Finally, think about *leverage points* – important factors where a change could have a positive, wide-ranging impact on the future development of forest cover. Invite the CALI Project team to experiment with different factors and follow the effects along the causal relations on the map. In small groups of 3 or 4, the participants should discuss their reasoning and decide on three factors where they see most leverage to change the system. Let them present their conclusion to the rest of the group. Mark the factors and votes on the System Map.

## Appendix G: Analysing leverage points

Start by assessing the **impact** of a leverage point, through looking at the system map and imagining a change of the leverage point to occur. What would be the effects on the system? How would the main variable change? Would the change have a long-term, beneficial effect on the system and the main variable?

Then move to assess **feasibility**, i.e. the potential of the Project to actually influence the leverage point. Do you have the required resources? Which actors do you know that might have an influence?

Impact and feasibility of different leverage points in the map can be rated and visualised in a graph such as the one shown in Figure 17 below.

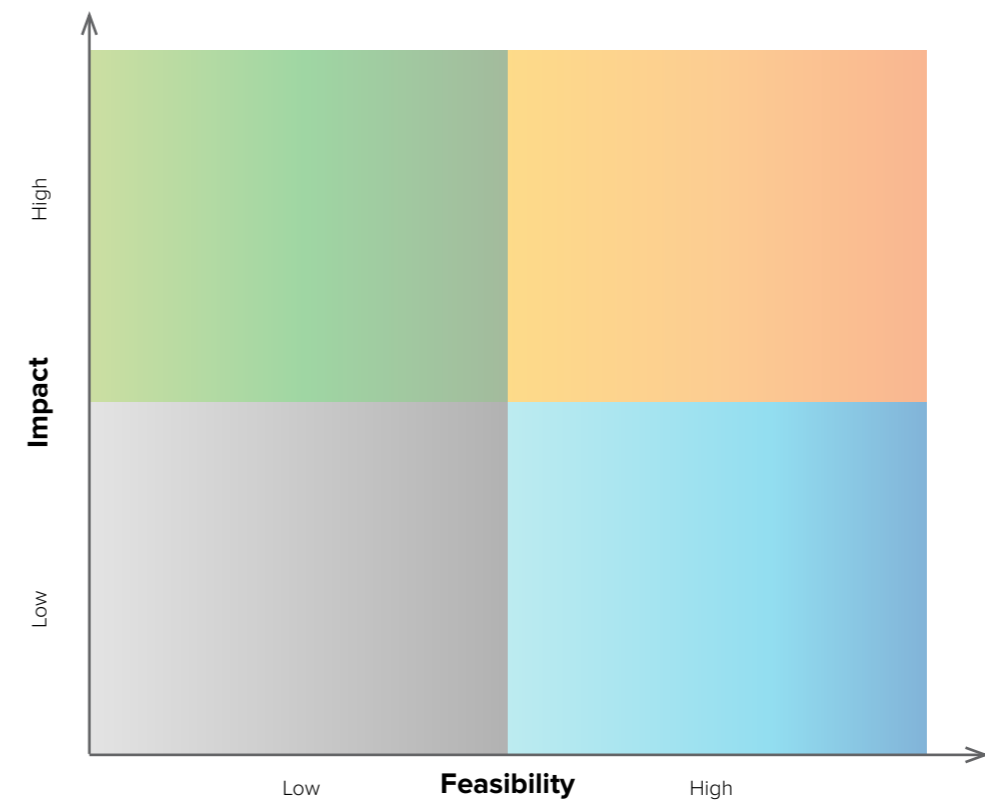
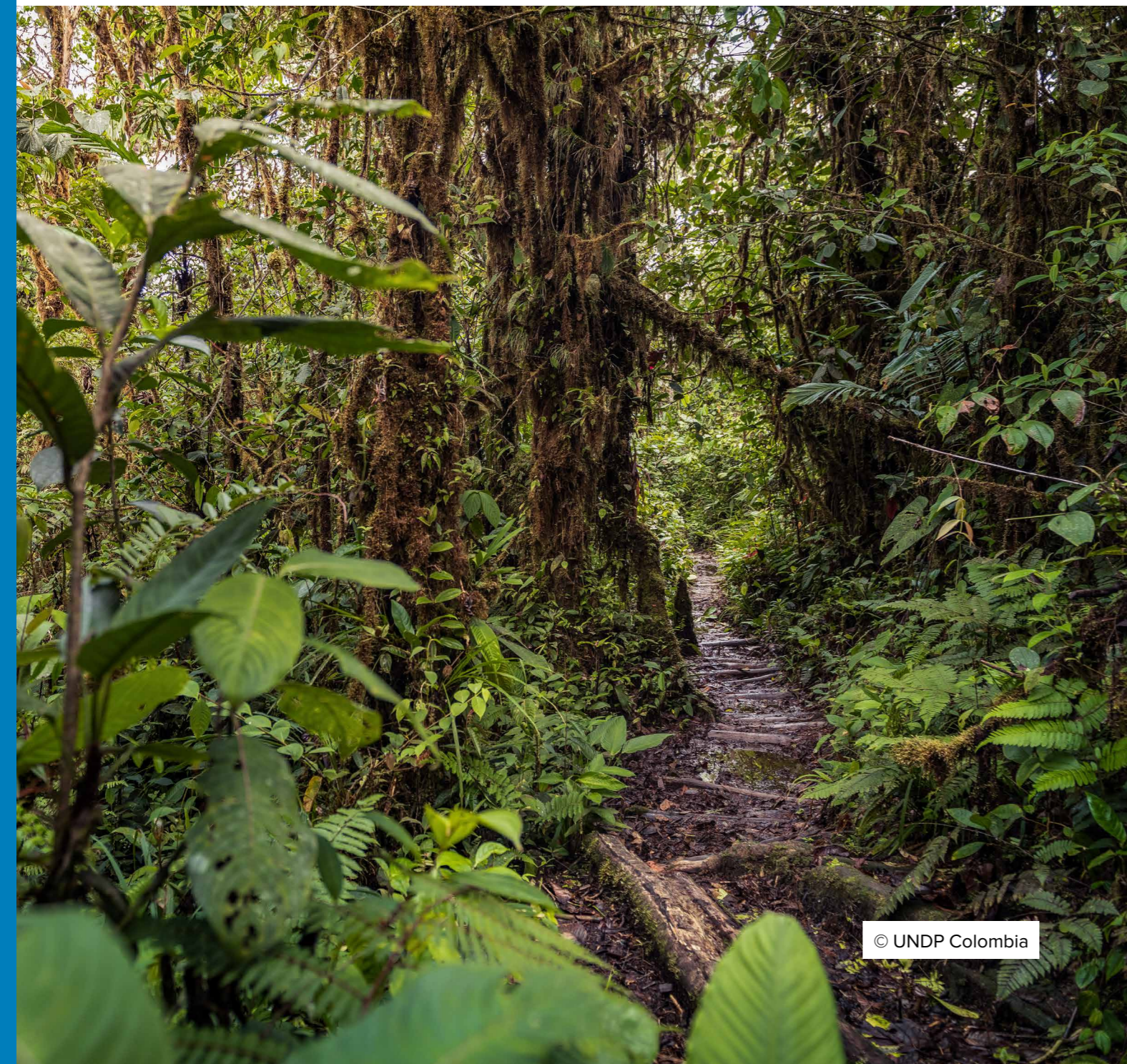


Figure 17: Assessing and visualising leverage – chart by the Systemic Design Group.

(Credits to the Systemic Design Group and their System Mapping Toolkit for the above reference and figure).



## Appendix H: Enabling (or Hindering) Conditions and Inputs

To inspire some of the discussions proposed in this guidebook (e.g., when identifying contributing factors for the landscape system map, reviewing the Project’s impact pathways and/or the interventions’ implementation strategy), participants may want to consider five general **categories of enabling (or hindering) conditions and inputs**, as follows:

- Institutional – Policies and Measures (PAMs), governance arrangements, social capital, shared values, political buy-in, public opinion towards a needed change, etc.
- Financial – monetary assets, fiscal conditions, accessibility to finance.
- Human capital – knowledge and productive capacities of the community, existence of “champions”.
- Natural resources – ecosystem health, environmental resources, ecological services.
- Other material factors – infrastructure, manufactured assets, etc..

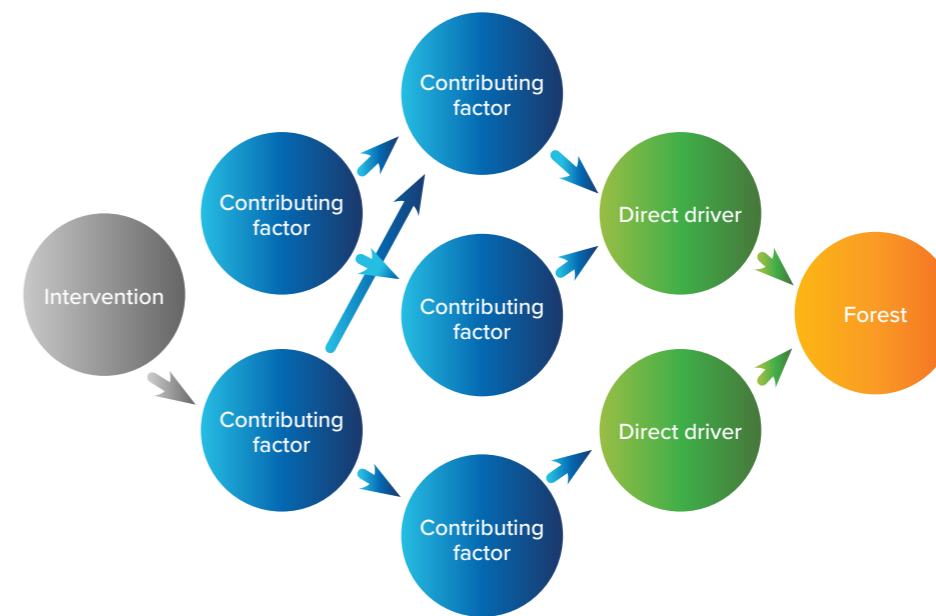
When considering institutions, the CALI Project team might be particularly interested in assessing the status and role of **Policies and Measures (PAMs)** in connection with project implementation to identify benefits and synergies (or hindrances):

- Are necessary PAMs in place in the country?
- What is the level of coherence between relevant policies at national and subnational level (vertical integration), and across same-level policies covering different, but interrelated sectors (horizontal integration)?
- Is the Project taking them into account and building on them?
- If absent, does/can the Project support their development?

**Co-dependencies** with other Project or non-Project interventions should also be considered here, as some interventions may act as catalysers for others. In some cases, one intervention may enable the success of another *in a sequence through time* – for example, an intervention to organise producers into a cooperative may enable an intervention around accessing finance or technical training on agroforestry. In other cases, two interventions may require *co-implementation* for success – for example, an intervention to improve agricultural practices and increase yields may require *co-implementation* of an intervention to implement a park guard monitoring program in the adjacent protected area to ensure that agricultural production does not expand into the protected area. Participants should review the list of landscape interventions and their co-dependencies and identify key contributions.

**Facilitation tip:** *Try to probe just a bit beyond the first answer in terms of enabling inputs and conditions. If someone suggests that funding is what enabled the success of an intervention, for example, was it an allocation from a public budget or a grant from an international foundation or something else? Where did it come from, and who made the decision to allocate it?*

## Appendix I: Assessing causality



**Figure 18:** Sample diagram showing a project’s impact pathway linearly and one with feedback loops (complex).

Following a classical results-based management (RBM) approach for development interventions, causality can be assessed at the following three levels:

- **From outputs to outcomes** – e.g., to assess our confidence in whether (and how) a lobbying effort has resulted in the adoption of a policy at the relevant jurisdictional level.
- **Between outcomes** – e.g., to assess our confidence in whether (and how) the legalisation of the new policy has resulted in enforcement efforts at the relevant jurisdictional level.
- **From outcomes to impact** – e.g., to assess our confidence in whether (and how) the policy and/or enforcement efforts have helped to reduce deforestation in the target landscape or jurisdiction.

If the intervention’s expected outcomes are already achieved (or very likely to be achieved – scenarios A and B), we recommend the focus group to concentrate their attention on actual or expected causality between outcomes, and/or between outcomes and impact.

With uncertainty on whether the expected outcomes will be achieved, or if unachieved (scenarios C and D), the intervention focus group may want to concentrate their analysis on the expected causality between outputs and outcomes, and eventually consider identifying additional intermediary outcomes (with their relevant indicator/s) along the impact pathway which could be monitored throughout implementation.

**Important note:** the CALI has not been designed to *measure* the degree to which a quantifiable decrease in deforestation and/or increase in forest cover in a landscape can be attributed to one or more specific interventions. Departing from an *attribution* logic, this assessment aims to provide decision-makers with insights into whether and how an intervention (or set of them) might (have) *contribute(d)* to generate such changes.

## Contribution Tracing

The suggested approach builds on the work of Befani and Stedman-Bryce (2017),<sup>69</sup> contextualising their methodology for the assessment of interventions addressing deforestation at landscape or jurisdictional level.

### INSIGHT 11: Contribution claims

Contribution claims transparently detail the hypothesised causal connection(s) between an intervention (or set of interventions) and one or more different levels of results (intermediary outcomes) along the complex impact pathway which is supposedly leading to contribute to reducing deforestation in a landscape or jurisdiction. For an accurate investigation of all causal links, impact pathways must be divided into all their necessary components or steps.

For example, a contribution claim may be phrased as: “the legalisation of policy X in jurisdiction Y was influenced by the Project intervention Z,” with policy X as a key project outcome and addressing an important driver of deforestation in jurisdiction Y, and intervention Z being a Project intervention, such as an advocacy campaign. This could be part of a more comprehensive contribution claim covering the whole result chain, from output to impact, such as “the reduced rate of deforestation observed in area J of landscape/jurisdiction Y was influenced by the change in its driver K due to the legalisation of policy X, which was in turn influenced by the Project intervention Z.” If changes are observed at all levels, the CALI Project team will need to proceed with the assessment for each sub-component of the overall contribution claim. Not always a reduction in deforestation rate or in one of its key drivers will be observed, so the CALI Project team will need to carefully identify the relevant outcomes and causal links on which to focus the causality assessment.

To assess causality at the different levels discussed above, the facilitator of each intervention-focused working group should engage the participants in formulating contribution claims (see *Insight 11*) following the intervention’s impact pathway. Then, to test the validity of the contribution claims, the group will need to identify observable evidence in support or against each contribution claim. This may result in iterations with the previous step, as the group may decide to re-focus the phrasing of their contribution claims as they discuss evidence. It is an important step, and discussions shall be carefully logged by the CALI facilitator: these preliminary conversations, indeed, allow to identify grey areas in the validity of impact pathways. These shall be logged carefully and will feed into step 2.4.

The role of the team member leading the working group is fundamental here: the assessment will only work if s/he knows what evidence to look for and understands its importance in relation to the claim under assessment. It is particularly important to distinguish between *absence of evidence* and *evidence of absence*. While the former can be overcome by further data collection, the latter means that the evidence that the CALI Project team would expect or love to see to prove causality is clearly not there. More detailed guidance on the kinds of evidence needed to validate or reject a contribution claim is available in *Insight 12* below.

### INSIGHT 12: Different types of Evidence

As anticipated, for each contribution claim identified in the previous step, the intervention-focused working groups should identify and categorise two types of evidence in support (or against) the contribution claim.

- **Expect-to-see evidence** – these are observations we expect to make under the assumption that the contribution claim holds true; our confidence in the claim changes significantly only if – after having looked carefully – we fail to observe it (evidence of absence). Observing ‘expect-to-see’ evidence is known as ‘passing the Hoop test’: the contribution claim needs to ‘jump through the hoop’ if it is to be retained as a possibility. As such, it can be said that it has disconfirmatory but not confirmatory power. In this sense ‘expect-to-see’ evidence is necessary, but not sufficient to prove the contribution claim. It can be identified by answering the following two questions:

1. What evidence do we expect to find if the contribution claim holds?
2. What would prove, beyond reasonable doubt that the contributions claim does *not* hold?

**Table 7: Description of evidence expected to be observed under the hypothesis that the contribution claim holds, in the case of an advocacy campaign for more sustainable land-use planning aimed to influence policymaking in a certain jurisdiction.**

#### Example: Expect-to-see evidence, in the case of an advocacy campaign for more sustainable land-use planning

<b>Expectation One</b>	At least partial congruence between the revised methodology for land-use allocation and the suggestions made by the campaign.
<b>Expectation Two</b>	The revision of the methodology to happen sometime AFTER the campaign published its report.
<b>Expectation Three</b>	The campaign and its report to have sufficient reach or to be targeted in a way that the District Government could have, at least potentially, access to the report.
<b>Expectation Four</b>	The majority of the stakeholders responsible for the campaign (who have an incentive to say it has been successful) believe in the contribution claim.

- **Love-to-see evidence** – the “dream” evidence; it is usually harder to find, but, if observed, has the power to confirm the contribution claim beyond reasonable doubt. Observing ‘love-to-see’ evidence is akin to ‘passing the Smoking Gun test;’ i.e., as if a murder suspect were to be caught with a smoking gun in their hand, in the vicinity of the victim. At the same time, failing to observe ‘love-to-see’ evidence does not weaken the contribution claim. In this sense ‘love-to-see’ evidence is sufficient, but not necessary, to prove the claim. This type of evidence can be identified by answering the following two inter-related questions:

<sup>69</sup> Befani, B. and Stedman-Bryce, G., 2017. Process tracing and Bayesian updating for impact evaluation. *Evaluation*, 23(1), pp.42-60.



## INSIGHT 12: Different types of Evidence (continued)

1. What evidence is *not* compatible with any other explanation or causal claim?
2. What would prove, beyond reasonable doubt that contribution claim holds?

Love-to-see evidence include observations that greatly increase our confidence that the contribution claim does hold, as they would be rare under alternative circumstances. For example, (i) the admission of influence on behalf of the District Government in a public statement; and (ii) the District Government using exactly the same formula suggested in the report to revise its methodology.

Because it makes the groups proactively look for alternative and/or additional explanations for an outcome, contribution tracing has a high value to the understanding of the team around what they are undertaking.

Important note: It is critical to stress that even if the above approach helps to prove a specific contribution claim, it is very rare for outcomes to have one single cause. If the CALI Project team wants to account for other factors beyond the Project intervention, more complex contribution claims can be developed and tested using the same method described above, through gradually incorporating and consolidating evidence found for each factor. Using the example of the comprehensive contribution claim mentioned in *Insight 11* above, it could be extended to say “the reduced rate of deforestation observed in area J of landscape/jurisdiction Y was influenced by the change in its driver K due to the legalisation of policy X, which was in turn influenced by the Project intervention Z *and by the non-Project intervention W.*” The validity of a contribution from non-Project intervention W should be then assessed as done for Project intervention Z. This can be done repeatedly and at all levels of outcomes, trickling down if needed.

All in all, as the quality of theory depends on the quality of evidence underpinning that theory, and the reasonableness of the hypotheses that we make where we lack evidence (assumptions), the causality assessment should help strengthening both, thus offering an opportunity for the Project team to increase the quality of their ToC. Newly gathered and assessed evidence about the validity of causal claims will help identify the stronger points in the ToC, while process notes from the causality assessment should help to identify grey areas, where further data collection is needed; what additional evidence/research would allow us to validate these untested assumptions in the ToC? Finally, the causality assessment should have also helped to identify what does not appear to be working, and why, offering an opportunity for the Project team to revise or upgrade their ToC accordingly.

- Annex 1** Stakeholder catalogue (template)
- Annex 2** Interventions table (template)
- Annex 3** Project dashboard (template)
- Annex 4** Sample ToR for CALI lead facilitator (CALI LF)
- Annex 5** Sample ToR for system mapping expert (CALI SM)
- Annex 6** CALI implementation workplan (template)



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