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Effective **governance structures** for integrated carbon farming projects: evidence from Kenya

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Overview



1. Introduction



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3. Research design and methods



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Background

1.



Smallholder farmers face significant challenges, incl. soil degradation and the multifaceted impacts of **climate change**.

2.



To counteract **ongoing soil degradation**: sustainable agricultural practices, training, and supporting policy measures.

(Lal, 2004)

3.



Markets fail to internalize **environmental externalities**.

(Engel & Muller, 2016)

4.



To scale climate action and reduce barriers to adoption: **payments for carbon sequestration** and emission reductions.

(Jackson Hammond et al., 2021; Lal, 2013; Lal et al., 2018; von Braun et al., 2021)



Voluntary carbon markets



Limited public funding: carbon markets could be a tool to leverage private capital (Benessaiah, 2012; PwC, 2011).

VCM attracts private investment by providing a **platform for trading emission reductions**, so-called carbon credits.

Individual farmers do not interact directly with carbon markets: **need for intermediary institutions** (Lee et al., 2016; Tennigkeit et al., 2023; Wollenberg et al., 2021).

Carbon credits in the agricultural carbon market can be generated by **adopting sustainable agricultural practices** (Tennigkeit et al., 2023).



Contribution to literature

Existing research: simplistic structure where buyers and sellers of environmental services are connected through a **single intermediary** (e.g. Lee et al., 2016, Benessaiah, 2012, Cacho et al. , 2013).

Some acknowledge the importance of **multi-level institutions** (Dietz et al., 2003; Roncoli et al., 2007; Tschakert, 2007), but lack depth in explaining the characteristics and interlinkages of these institutions.

Broad consensus exists that for PES to be effective, an **enabling policy and institutional environment** is required (Börner et al., 2017; Lipper & Neves, 2011; Roncoli et al., 2007; Streck et al., 2012).

Limited research exists on the **type of actors involved and the institutional structures facilitating the interactions** needed to reap potential benefits of carbon farming projects (Roncoli et al., 2007).



Research objectives



1

Examine the governance structures, i.e., the **actors and their interlinkages**, of agricultural carbon projects.

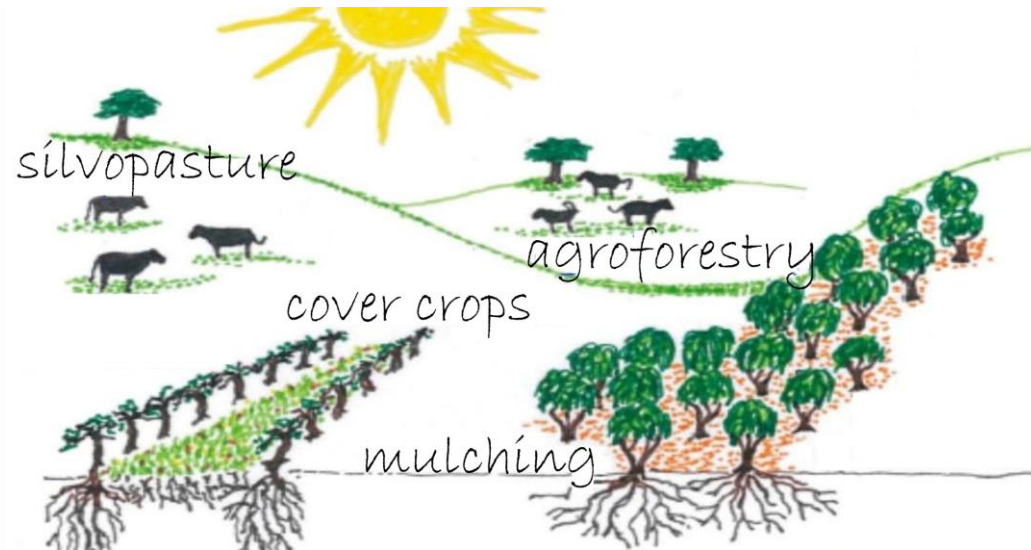


2

Assess how existing governance structures reduce transaction costs, thereby **enabling the participation of smallholder farmers**.



Carbon farming: definition



Examples of carbon farming practices



- 1. Sustainable agricultural practices** that increase the storage of carbon in biomass/ trees and soils while reducing greenhouse gas emissions.
- 2. Business model** that generates revenues from trading carbon credits.

(McDonald et al., 2021; Schilling et al., 2023)



Governance structures: theories

New institutional economics (Ostrom, Vatn)



Governance structures are “*the type of actors involved, characterized by their goals/motivations, capacities, rights and liabilities; [and (ii)] the institutional **structures** facilitating the interaction between the actors*”

(Vatn, 2015, p. 225).



In practice: **hybrid structures** that leverage both communities and hierarchies



Governance structures: the role of transaction costs



Transaction cost theory: organizational structures are influenced by the need to minimize transaction costs (Williamson, 1979).

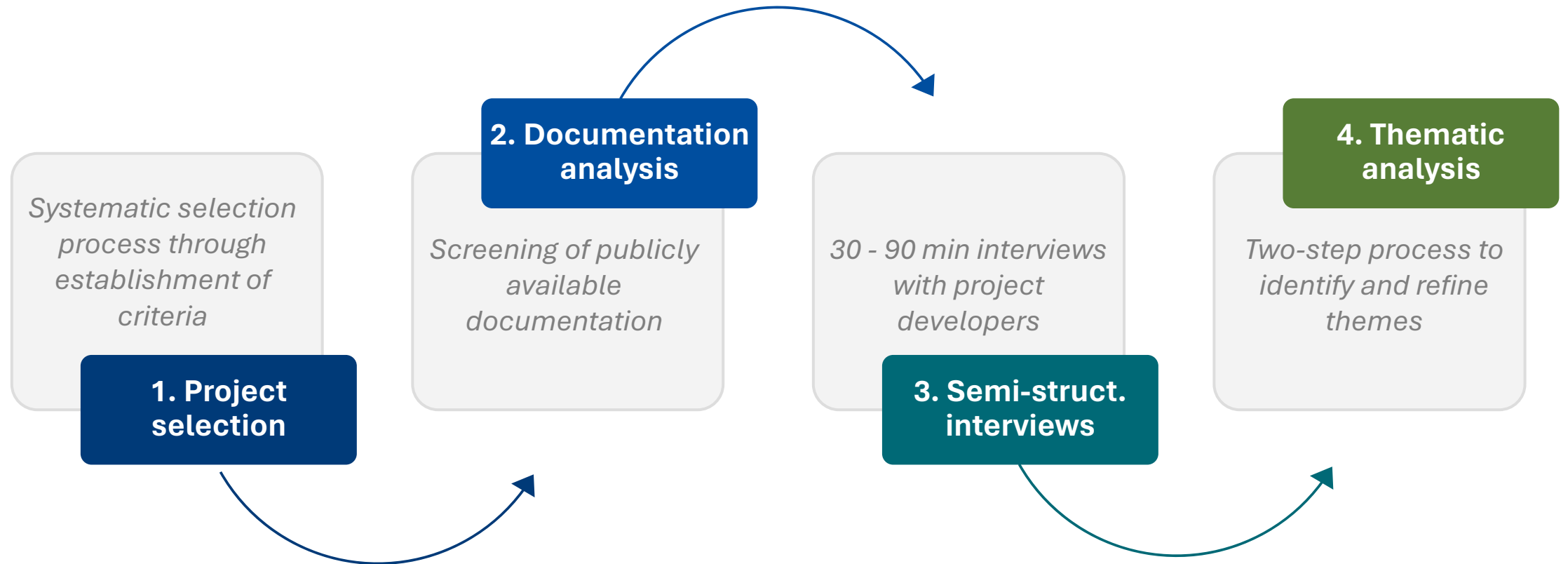


The costs for identifying, negotiating, contracting, and enforcing are high when dealing with **geographically scattered smallholder farmers** (Benessaiah, 2012; Cavatassi & Lipper, 2002; Lipper et al., 2010).

A thorough project design and effective governance structures that provide **effective coordination, monitoring, and enforcement** are required (Lipper et al., 2010; Tschakert, 2004).

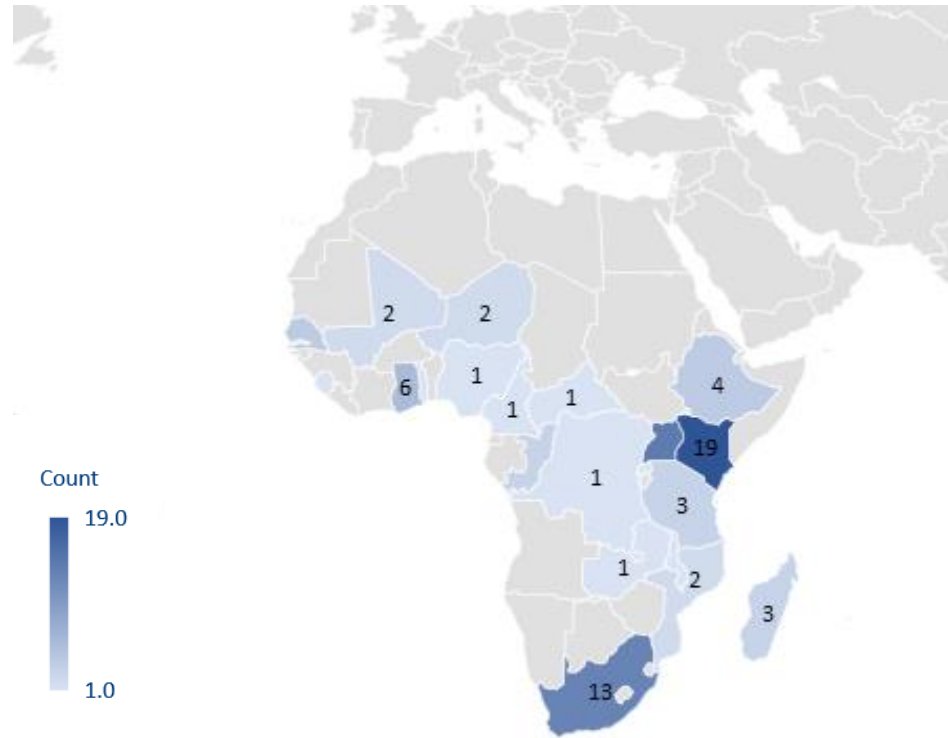


Qualitative research design: multiple-case study





Step 1: Overview of case study project selection (I)

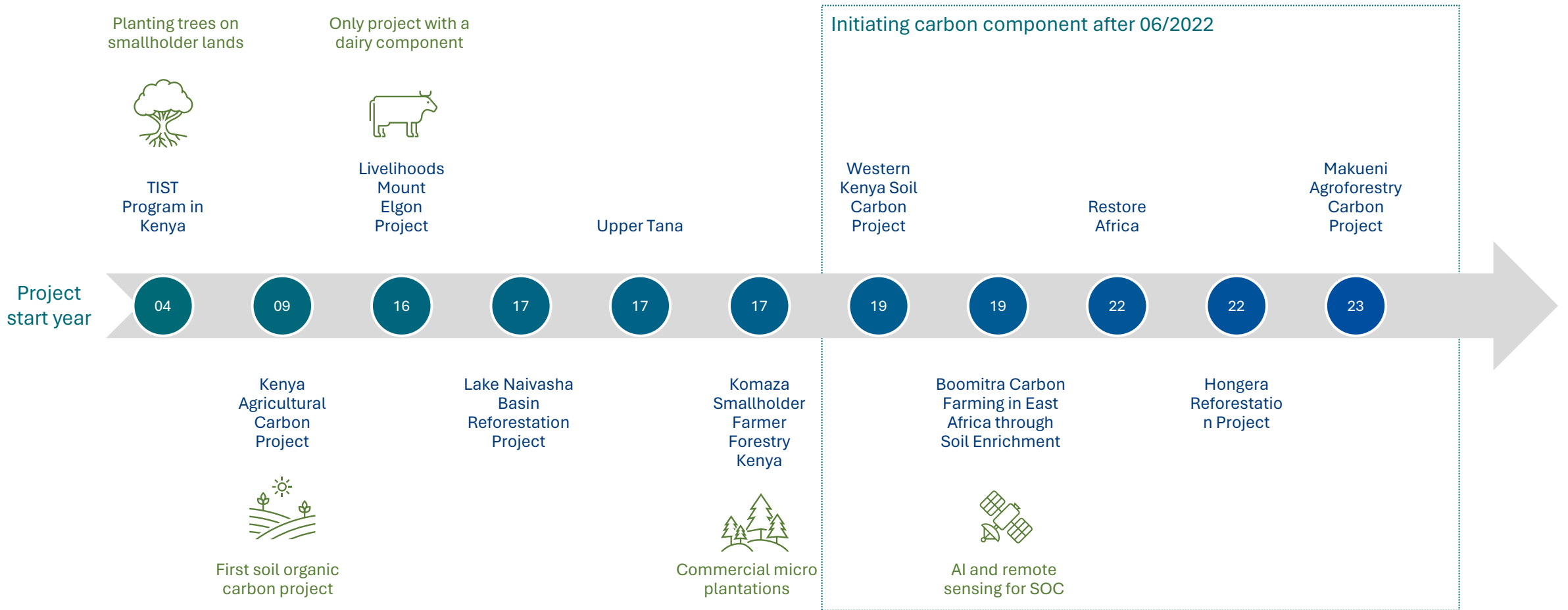


Number of AFOLU projects (excluding REDD+) in Sub-Saharan Africa in the voluntary carbon market (So et al., 2023)

- Screening of major voluntary carbon credit registries: Verra, Gold Standard, and Plan Vivo.
- Inclusion: Work with farmers on their own land and promote carbon farming practices that contribute to carbon sequestration in soils and/ or above- and below-ground biomass and/or emission reductions related to improved agricultural practices.
- Exclusion: REDD+ projects, projects on mangrove protection, and projects promoting improved grassland management on communal lands.
- Identification of **11 case study projects** in Kenya.



Step 1: Overview of case study project selection (II)



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Steps 2 -4: Data sources and analysis

Documentation analysis

- 11/11 projects
- Primary source: **project descriptions** from carbon credit registries



Semi-structured interviews

- 5/11 projects
- Interview duration of 30 minutes to 1.5 hours
- Main interviewees: **project developers**

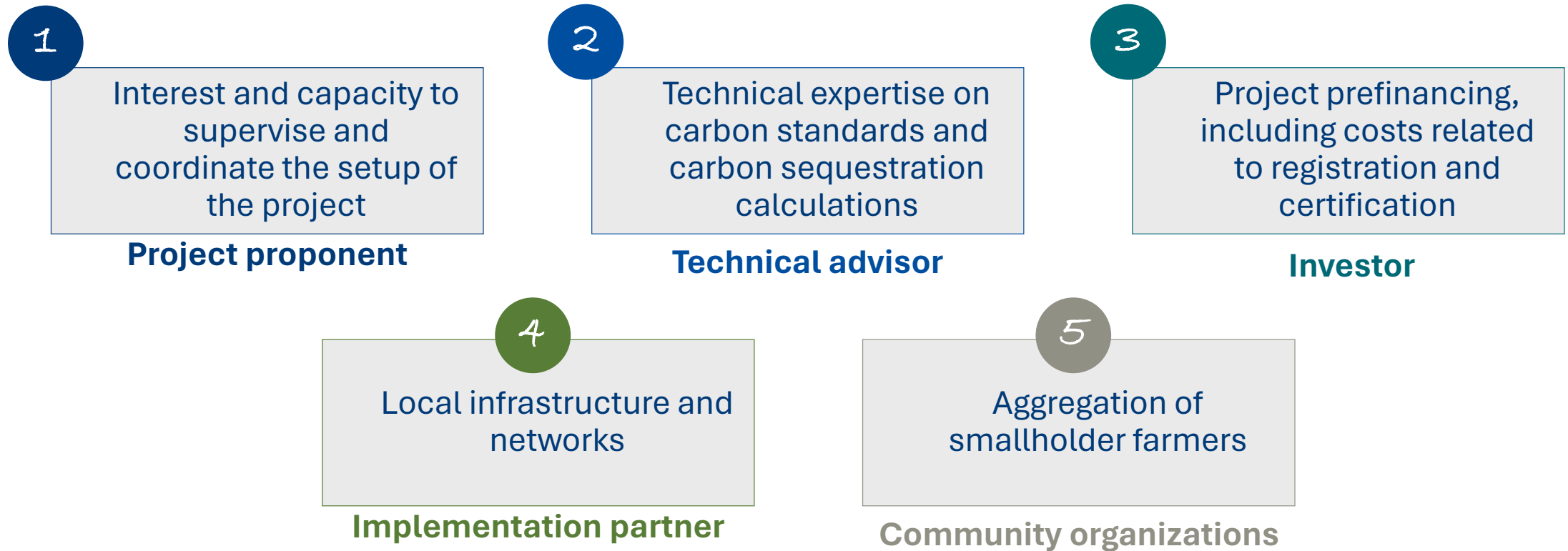


Synthesize data from documentation analysis and interviews through triangulation and identification of recurring patterns and themes.



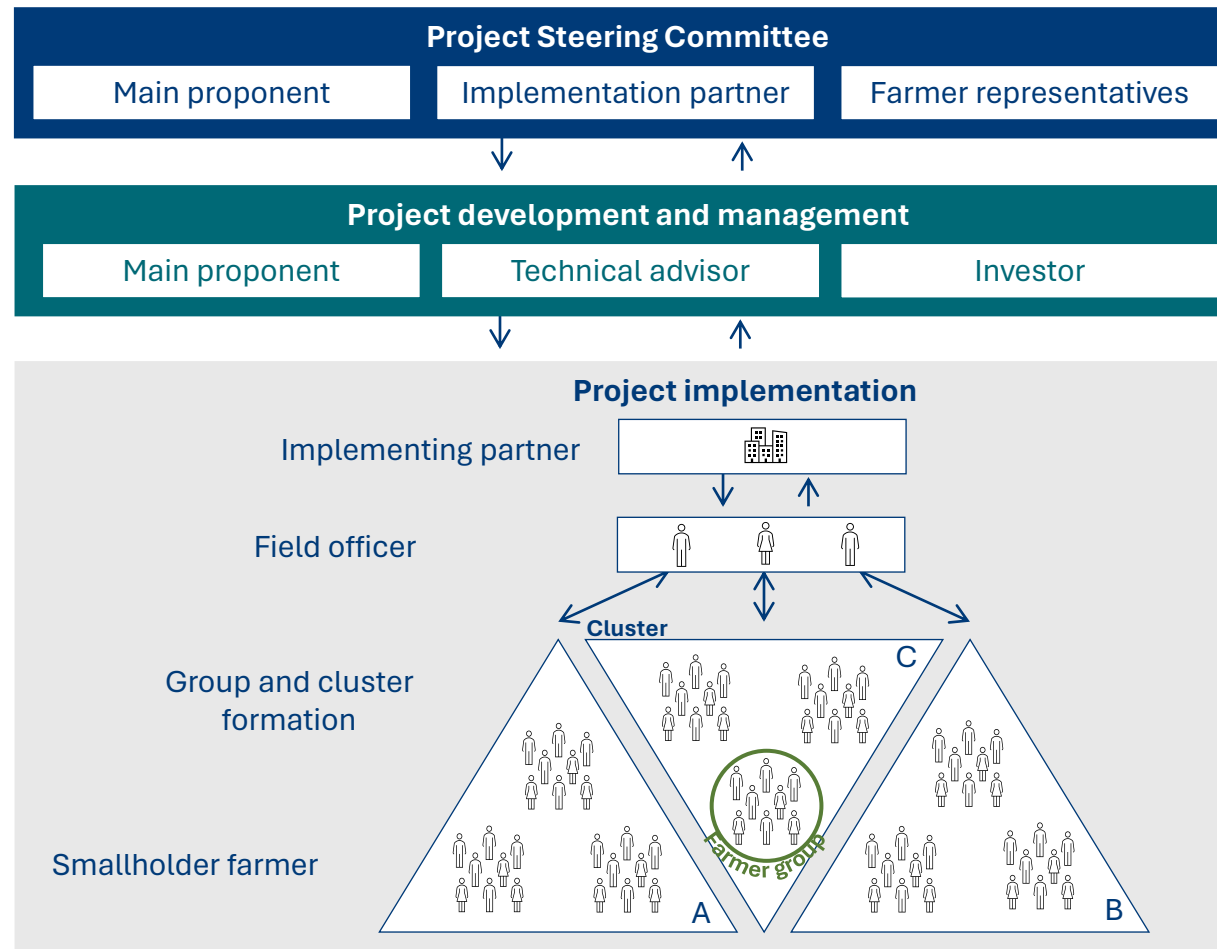
Project development and implementation: actors

The complexities of carbon credit projects lead to the formation of **multi-stakeholder partnerships**:





Project development and implementation: interlinkages



Source: own development



Project-level governance: farmer-based structures

- The operational **scale** of carbon farming projects (32k -45k hectares/ smallholders) requires the adoption of multi-layer pyramid structures for farmer engagement.
- **Three key factors** that may explain cross-project variations in the farmer-based structures:

1

Extent and frequency of agricultural extension service provision.

2

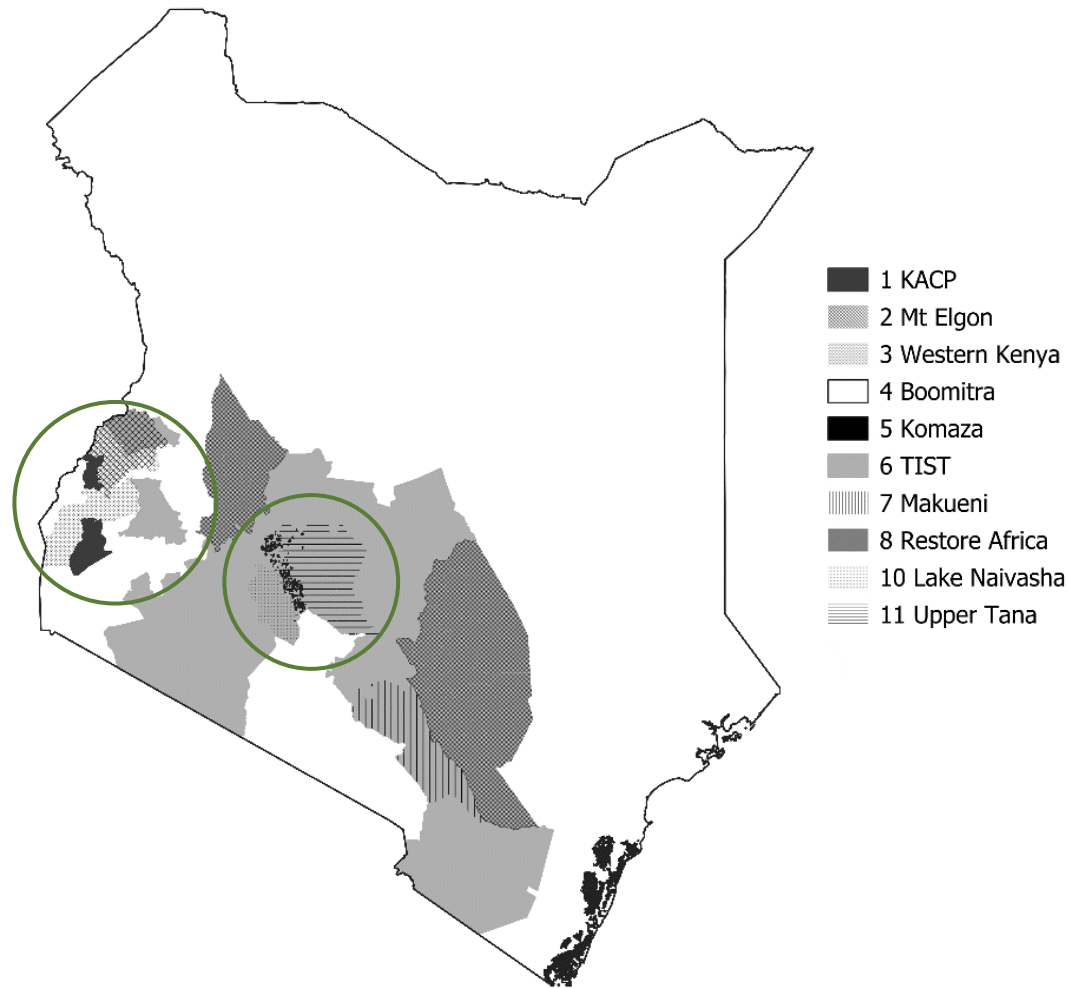
Devolution of responsibilities, often the monitoring of project activities, to the participating farmers.

3

Pre-existing structures of the implementation partners.



Cross-project governance and coordination (I)



Mapping of operational areas of carbon farming projects reveals significant overlaps → **risk of double enrolling farmers.**

Recent surge in carbon farming projects (5/11 projects initiating operations since June 2022) underscores need for coordination.



Cross-project governance and coordination (II)

The growing number of carbon farming projects calls for the development of robust governance structure for cross-project governance, which can be either:

1. Private-sector led

Projects taking autonomous initiative to harmonize operations and supported by carbon credit registries to compare geospatial overlaps at farm-level.

2. Government-led

Coordination through government intervention, notably through existing platforms like county agricultural sector steering committees (CASCOs).



Summary of findings

1. The establishment of carbon farming projects necessitates **multi-stakeholder partnerships**, driven by the need for **oversight, pre-financing, and technical expertise** essential for navigating carbon markets.

2. The choice of separate project **implementation partners** is influenced by existing relationships between project proponents and participating farmers.

3. The operational scale requires the **adoption of multi-layer pyramid structures for farmer engagement**. The number and formalization of these layers depend on various factors, e.g., devolution of responsibilities.

4. Significant **overlaps in operational areas** and a recent surge in new projects starting operations underscores need for **developing cross-project coordination structures**.



Conclusion



Market-based schemes involve a reconfiguration of institutional structures, **leveraging on communities and hierarchies**: optimal combination to be explored.



Our work demonstrates that for achieving effective participation of smallholder farmers in carbon farming projects, **multi-stakeholder partnerships** are needed, and projects need to build on multi-layer pyramid structures for farmer engagement.



The involvement of multiple partners might increase the **risk of elite capture** of carbon benefits.



Agricultural carbon markets are still in their infancy. To support their establishment and ensure the active participation and benefits for smallholder farmers, **further research with a focus on implementation strategies** will be needed.



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